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AGENCY-WIDE

PURPOSE STATEMENT

The Secretary of Agriculture established the Animal and Plant Health Inspection Service (APHIS) on April 2, 1972, under the authority of Reorganization Plan No. 2 of 1953 and other authorities. The mission of the Agency is to safeguard the health, welfare, and value of American agriculture and natural resources.

APHIS, together with its stakeholders, promotes the health of animal and plant resources to facilitate their movement in the global marketplace and to ensure abundant agricultural products and services for U.S. customers. APHIS also ensures that biotechnology-derived agricultural products are safe for release in the environment. APHIS strives to assure its stakeholders that it is on guard against the introduction or re-emergence of animal and plant pests and diseases that could limit agricultural production and damage export markets. At the same time, APHIS also monitors and responds to potential acts of agricultural bioterrorism, invasive species, diseases of wildlife and livestock, and conflicts between humans and wildlife. The Agency also helps to resolve sanitary (animal) and phytosanitary (plant) trade barriers and addresses certain issues relating to the humane treatment of animals.

APHIS' mission is carried out using three major areas of activity, as follows:

Safeguarding and Emergency Preparedness/Response

APHIS monitors animal and plant health domestically. APHIS also monitors disease situations throughout the world and uses this information to set effective agricultural import policies to prevent the introduction of foreign animal and plant pests and diseases. APHIS and the U.S. Department of Homeland Security cooperate to ensure that these policies are enforced at U.S. ports of entry. These policies prevent the entry of many invasive pests and diseases, including those that impact crops, pollinators, woodlands, and livestock. APHIS also develops and conducts pre-clearance programs to ensure that foreign agricultural products destined for the United States do not present a risk to U.S. agriculture. The Agency engages in cooperative programs to control pests of imminent concern to the United States. APHIS certifies animals and animal products, and plants and plant products, for export to other countries and regulates imports of designated endangered plant species.

Should a pest or disease enter the United States, APHIS works cooperatively with other Federal, State, and industry partners to conduct animal and plant health monitoring programs to rapidly determine if there is a need to establish new pest or disease management programs. APHIS, in conjunction with States, industry, and other stakeholders, protects American agriculture by eradicating harmful pests and diseases or, where eradication is not feasible, by minimizing their economic impact. The Agency monitors endemic pests and diseases through surveys to detect their location and through inspection to prevent their spread into non-infested parts of the country.

The Agency maintains a cadre of trained professionals prepared to respond immediately to potential animal and plant health emergencies. Program personnel investigate reports of suspected exotic pests and diseases and take emergency action if necessary. To facilitate these efforts, APHIS develops pathway studies and thoroughly investigates outbreaks to determine the origin of animal and plant pests and diseases and the most appropriate response actions to take including the development of tools and technologies to help manage these pests. APHIS also actively engages State, Tribal, and local governments, and industries to advance their emergency preparedness and response capabilities.

APHIS develops methods to control animals and pests that are detrimental to agriculture, wildlife, and public safety through its Wildlife Services program. The Agency's regulatory structure brings the benefits of genetic research to the marketplace, while ensuring they do not pose a plant pest risk. APHIS also conducts diagnostic laboratory activities that support the Agency's veterinary disease prevention, detection, control, eradication, and response programs.

Safe Trade and International Technical Assistance

Sanitary (animal) and phytosanitary (plant) (SPS) measures implemented by U.S. trading partners can have a significant impact on market access for the United States as an exporter of agricultural products. APHIS plays a central role in resolving technical trade issues to ensure the smooth and safe movement of agricultural commodities into and out of the United States. APHIS' role is to negotiate animal and plant health certification requirements, assist U.S. exporters in meeting foreign regulatory requirements, ensure requirements are proportional to risk without being excessively restrictive, and provide any necessary technical information to support the safety of U.S. agricultural products destined for foreign markets.

APHIS helps to protect the United States from emerging animal and plant pests and diseases while meeting obligations under the World Trade Organization's SPS agreement by assisting developing countries in improving

their safeguarding systems. APHIS collaborates with other Federal agencies including the Foreign Agricultural Service, the U.S. Agency for International Development, the State Department, and the Office of the U.S. Trade Representative to implement technical and regulatory capacity building projects with shared resources. APHIS develops and implements programs designed to identify and reduce agricultural pest and disease threats while still outside of U.S. borders, to enhance safe agricultural trade, and to strengthen emergency response preparedness.

Animal Welfare

The Agency conducts regulatory activities to ensure the humane care and treatment of certain animals and horses as required by the Animal Welfare Act of 1966 as amended (7 U.S.C. 2131-2159), and the Horse Protection Act of 1970 as amended (15 U.S.C. 1821-1831). These activities include inspection of certain establishments that handle animals intended for research, exhibition, and sale as pets, and monitoring of certain horse shows.

Statutory Authorities

APHIS operates under the following authorities:

General:

7 U.S.C. 1633	Talmadge-Aiken Act (cooperation with States)
7 U.S.C. 7759	User Fees (for export certification of plants)
21 U.S.C. 136-136a	User Fees
31 U.S.C. 9701	User Fees (offsetting collections and miscellaneous receipts)
7 U.S.C. 3291(a)	Authority to provide technical assistance and training
7 U.S.C. 5680	Farm Security and Rural Investment Act of 2002 (reporting on SPS issues and trade barriers)
7 U.S.C. 5925	Food, Agriculture, Conservation, and Trade Act of 1990 (authorizes funding for national honeybee pest survey)
7 U.S.C. 2279g	Marketing Services; cooperative agreements

Animal Health:

7 U.S.C. 8301-8317	Animal Health Protection Act
7 U.S.C. 7501 note	American Rescue Plan Act (COVID surveillance)
49 U.S.C. 80502	28-Hour Law (feed, water, and rest for animals)
19 U.S.C. 1202, Part I, Item 100.01	Purebred animal duty-free entry
7 U.S.C. 1622	Section 203 of the Agricultural Marketing Act of 1946
7 U.S.C. 1624	Section 205 of the Agricultural Marketing Act of 1946
7 U.S.C. 398	Section 101(d) of the Organic Act of l944
7 U.S.C. 3801-3813	Swine Health Protection Act
7 U.S.C. 851-855	Anti-hog cholera serum and hog cholera virus
7 U.S.C. 2274	Firearms (tick inspectors)
7 U.S.C. 1901 note	Transportation of Equines to Slaughter
21 U.S.C. 151-159	Virus-Serum-Toxin Act
21 U.S.C. 113a	Authority to establish research facilities for Foot-and-Mouth and other diseases
21 U.S.C. 618	Section 18 of the Federal Meat Inspection Act, as amended, as it pertains to the issuance of certificates of condition of live animals for export
7 U.S.C. 8401 and 8411	Title II, Subtitles B and C of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002
7 U.S.C. 8318	Section 10504 of the Farm Security and Rural Investment Act of 2002 (training of accredited veterinarians)

Plant Health:

7 U.S.C. 7701-7772; and 7781-7786	Plant Protection Act
7 U.S.C. 1581-1610	Title III, Federal Seed Act
7 U.S.C. 2801 note; 2814	Federal Noxious Weed Act
7 U.S.C. 281-286	Honeybee Act

7 U.S.C. 7760	Terminal Inspection Act
7 U.S.C. 2279e and 2279f	Title V of the Agricultural Risk Protection Act of 2000 (penalties for interfering with inspection animals)
16 U.S.C. 1531-1544	Endangered Species Act (plants)
16 U.S.C. 3371-3378	Lacey Act (importation or shipment of injurious mammals, birds, fish)
7 U.S.C. 8401	Title II, Subtitle B of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002
39 U.S.C. 3015	Alien Species Prevention and Enforcement Act of 1992

Wildlife Services:

7 U.S.C. 8351-8354	Control of predatory and other wild animals

Animal Welfare:

7 U.S.C. 2131-2159	Animal Welfare Act
15 U.S.C. 1821-1831	Horse Protection Act

Staffing and Offices

There were 5,651 permanent full-time employees as of September 30, 2021. Of the total, 1,207 full-time employees were located at headquarters. APHIS manages programs on a national basis through Hubs, regional offices and field offices, area offices, telework and home workstations, technical centers, and animal import centers. APHIS conducts much of its work in cooperation with State and local agencies, private groups, and foreign governments. APHIS performs work in the 50 States, Washington, D.C., Guam, Puerto Rico, Virgin Islands, Mexico, Central America, South America, the Caribbean, Western Europe, Asia, and Africa.

Each year, the Office of Inspector General (OIG) and the Government Accountability Office (GAO) audits selected programs to examine the efficiency of the programs and operations including program results, compliance with applicable laws and regulations, and fair presentation of financial reports. Audits in which APHIS has been involved during FYs 2021 – 2022 include those listed below.

OIG AND GAO REPORTS

Table APHIS-1. Closed OIG Reports (Audit report has been issued and recommendation(s) have been implemented.)

ID	Date	Title	Result
33601-01-41	12/2014	APHIS Oversight of Research Facilities	OIG report was issued with 15 recommendations. APHIS implemented all recommendations. The audit has been closed.
50601-08-TE	12/2005	Controls Over APHIS Issuance of Genetically Engineered Organisms	OIG report was issued with 28 recommendations. APHIS implemented all recommendations. The audit has been closed.

Table APHIS-2. Completed OIG Reports

ID	Date	Title	Result
33701-01-21	08/2018	National Veterinary Stockpile Oversight	OIG report was issued with eight recommendations. Of the recommendations, APHIS has closed seven of the eight recommendations. APHIS is working to close recommendation #7 related to a Veterinary Services training program which has been delayed due to the pandemic conditions and needed time to implement.

ID	Date	Title	Result
50601-01-32	11/2013	Controls Over APHIS' Introduction of Genetically Engineered Organisms	OIG report was issued with 13 recommendations. Of the recommendations, 12 have been closed. APHIS is working on recommendation #8 pending implementation of the e-File system which experienced contractor, pandemic-related delays.
50701-01-21	09/2018	Release Permits USDA Activities for Agro-terrorism Prevention, Detection and Response	OIG report was issued with five recommendations for APHIS. Audit included ARS and FSIS. Of the recommendations, two have been closed. APHIS is working on recommendations #1, #4, and #5 that require additional support and reconciliation to complete.

Table APHIS-3. In-Progress/On-going Reports

ID	Title
33601-01-21	Plant Pest and Disease Management and Disaster Prevention Program - Audit started November 2019. Audit work continues. OIG informed APHIS that due to operational delays from the pandemic, the discussion draft would not be available until the Fall of 2021. OIG will provide the discussion draft by the end of December 2021.
33601-02-31	Animal Care Program Oversight of Dog Breeders - Audit started September 2019. APHIS received the final report on July 1, 2021, and the Management Decision Memo on July 22, 2021, with OIG accepting plans to implement recommendations #1-3. APHIS will begin implementation of the recommendations.
33601-03-23	Follow-up on APHIS Controls Over Licensing of Animal Exhibitors - Audit began in December 2019. OIG issued the final audit report on March 12, 2021. On March 15, 2021, OIG provided APHIS with the official Management Decision memo accepting the Agency's response to implement the four recommendations. APHIS implemented recommendations #3 and #4. Recommendations #1 and #2 remain outstanding pending pandemic conditions lessening and adequate time to implement.
33601-03-41	Cattle Health Program Disease Incident Response – Audit began in October 2020. OIG briefed APHIS on the status of their work on March 29, 2021. OIG conducted a closeout meeting on August 18, 2021. OIG discussed four preliminary findings and recommendations. On September 9, 2021, a meeting occurred between APHIS and OIG officials. The discussion draft is expected from OIG by the end of November 2021.
33601-04-23	Follow-Up on Smuggling, Interdiction and Trade Compliance - Audit started November 2019. OIG issued the final report on September 30, 2021. OIG and APHIS reached management decision on all 13 recommendations. The Achievement of Management Decision Form was received on October 6, 2021. APHIS will work to implement and close the recommendations.
33701-02-21	Controls Over Select Agents - Audit started October 2019. OIG held its audit close-out meeting in October 2020. OIG issued the final report on July 28, 2021, accepting 3 of the 11 Agency responses. Recommendations #2, #5, and #9 were accepted. The second response on the remaining eight open recommendations was sent to OIG on September 30, 2021. On October 20, 2021, OIG accepted management decision for recommendations #3, #4, #8, and #11, leaving 4 open recommendations subject to management decision. Recommendations #1, #6, #7, and #10. APHIS and OIG met on November 8, 2021, to discuss the path forward in building a consensus for the remaining recommendations.
50501-17-12	Security Over Select USDA Agencies' Networks and Systems – Audit started January 2018. There were no recommendations for APHIS.

ID	Title
50501-21-12	Data Encryption Controls Over Personally Identifiable Information on USDA Information Technology Systems - Audit started May 2018. There were no recommendations for APHIS.
50503-03-12	Fiscal Year 2020 Federal Information Security Modernization Act Audit - OIG and RMA Associates (a consulting group) held the exit conference in October 2020. During the audit, APHIS was not one of the four USDA agencies selected for review. Audit is officially closed for APHIS.

Table APHIS-4. Closed GAO Reports (Audit report has been issued and recommendation(s) have been implemented.)

ID	Date	Title	Result
101016	10/2017	Comparative Oversight of High-Containment Laboratories	Audit includes APHIS and other USDA and Federal agencies. GAO issued the report on October 19, 2017, with six recommendations for APHIS. All recommendations have been implemented and closed. Completed in FY 2022.

Table APHIS-5. Completed GAO Reports

ID	Date	Title	Result
100267	03/2017	Federal Actions to Monitor and Control Antibiotic Resistance in Food and Animals	Audit includes APHIS, other USDA, and Federal agencies. GAO issued the final report in March 2017 with one recommendation which has three parts for APHIS. APHIS provided documentation for closure on two parts of the recommendation and GAO approved closure for recommendations #4 and #5. Recommendation #3 - APHIS is developing a framework for deciding when on-farm investigations are warranted during outbreaks. APHIS is actively keeping OIG informed of the progress.
101985	05/2018	Multilateral Organizations Animal Use in Federal Research: Agencies Share Information, but Reporting and Data Quality Could Be Strengthened	GAO issued the final report on May 18, 2018, with four recommendations for APHIS. APHIS implemented one recommendation and is in the process of implementing recommendations #1, #2, and #3. Recommendation #1 – involves rulemaking; Recommendation #2 -Involves Administrative Closure; Recommendation #3 – In progress and Recommendation #4 – closed on 11/03/2021. This audit also included ARS and the Office of the Chief Scientist.
102051	05/2019	USDA's Preparedness for Foot-and-Mouth Disease	Audit included other USDA agencies. GAO issued the report on March 12, 2019, with two recommendations for APHIS. APHIS is in the process of implementing the recommendations. The Audit included ARS, ERS, NIFA, OCS, and the Office of the Economist. APHIS is the lead agency for this audit.

ID	Date	Title	Result
104338	03/2021	Inspection of Imported Agriculture	GAO provided written questions in lieu of holding an entrance teleconference. APHIS provided GAO written responses in August 2020. APHIS held a meeting to discuss GAO's Statement of Facts on March 31, 2021. GAO issued the final report on June 1, 2021. Five recommendations remain outstanding and are in the reconciliation phase.
291264	03/2016	High-Containment Laboratories: Comprehensive and Up-to-Date Policies and Stronger Oversight Mechanisms Needed to Improve Safety	GAO issued the report with five recommendations for APHIS on March 12, 2016. APHIS has implemented all recommendations and is awaiting final closure approval from GAO. Audit included APHIS and other USDA and Federal agencies. APHIS, ARS, and FSIS provided GAO with additional information for the closure of the recommendations process.
361589	04/2016	Genetically Engineered Crops	The audit includes APHIS and USDA's National Agricultural Statistics Service. GAO issued the report March 5, 2016. Recommendations #2 and #3 are open and being investigated. Recommendation #1 was closed 10/27/2021.

Table APHIS-6. In-Progress/On-going GAO Reports

ID	Title
105238	Federal Efforts to Address Zoonotic Diseases, Audit Notification Date: 06/24/2021. GAO announced this audit on June 28, 2021, and held the entrance conference on July 12, 2021. GAO indicated the scope is to be determined. GAO has reached out to some key contacts to start preliminary discussions. APHIS will keep all programs informed as the audit moves forward. GAO is interested in APHIS's Center for Epidemiology and Animal Health internal ongoing risk assessment and identification processes.
103549	Federal Government's Use of Internet of Things Technologies - Audit started December 2019. GAO issued its survey, and Federal agencies provided their completed surveys in January 2020. APHIS has completed the survey and awaits any further GAO requests for information.
103992	Animals for Testing, Research and Trauma Training - GAO requested follow-up information concerning information facilities place on the APHIS Form 7023d. GAO and APHIS' Animal Care held a teleconference in April 2020. A follow-up meeting was held in October 2020, for APHIS to provide a demonstration of how information/data is collected electronically in the Agency's e-File system. This audit is being performed by GAO's Defense Capabilities and Management Team. GAO requested follow-up information concerning the information Facilities place on the APHIS Form 7023d. Statement of Facts received August 20, 2021.
104292	Biodefense Preparedness and Response - GAO provided follow-up responses and has asked for APHIS' written responses by December 2020. APHIS provided written responses in November 2020.
104351	Monitoring and Oversight of Response to the Coronavirus 2019 Pandemic - GAO started the audit for its November 2020 report to Congress. GAO provided APHIS with written questions and has requested that APHIS provided written responses by October 2020. Food and Nutrition Service is the lead agency.

ID	Title
104489	Welfare of Federal Working Dog - APHIS provided written responses to GAO questions in October 2020 and continues to provide written responses, as the lead agency. GAO expects to send APHIS the Statement of Facts by the end of May 2021. Audit is ongoing. Forest Service is included in the audit. This audit about detector dogs began in September 2020. GAO plans to submit a statement of facts soon. It also involves USDA Forest Service (FS). FS sent APHIS documents in June 2021, APHIS forwarded them to GAO. On October 18, 2021, GAO requested further information. Response and information were provided October 29, 2021, and November 16, 2021.

AVAILABLE FUNDS AND FTES

Table APHIS-7. Available Funds and FTEs (thousands of dollars, FTEs)

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE
Salaries and Expenses:								
Discretionary Appropriations	$1,042,711	4,969	$1,064,179	4,855	$1,064,179	4,855	$1,149,286	4,937
Citrus Greening General Provision 744	8,500	-	-	-	-	-	-	-
Citrus Greening General Provision 739	-	-	8,500	-	8,500	-	-	-
Cogongrass General Provision 797	-	-	5,312	-	3,000	-	-	-
Mandatory Appropriations								
Farm Bill - Section 7721	70,575	26	70,725	26	70,725	26	70,725	26
Farm Bill - Section 12101	-	-	-	-	-	-	28,290	2
AQI Total Collections	602,569	855	337,810	1,325	448,707	1,325	588,000	1,325
AQI User Fees General Provision 799D	-	-	635,000	200	-	-	-	-
American Rescue Plan Act	-	-	300,000	335	-	-	-	-
Supplemental Appropriations								
CARES Act	55,000	470	-	-	-	-	-	-
USMCA Lacey Act	4,000	-	-	-	-	-	-	-
Buildings and Facilities:								
Discretionary Appropriations	3,175	-	3,175	-	3,175	-	3,175	-
Trust Funds:								
Mandatory Appropriations								
Mandatory Appropriations	8,021	50	8,063	50	9,000	50	9,000	50
Foreign Serv Natl Separation Liab Trust	-	-	-	-	400	-	650	-
Total Discretionary Appropriations	1,054,386	4,969	1,081,166	4,855	1,078,854	4,855	1,152,461	4,937
Total Mandatory Appropriations	681,165	931	1,351,598	1,936	528,832	1,401	696,665	1,403
Total Supplemental Appropriations	59,000	470	-	-	-	-	-	-
Rescission	-	-	-2,312	-	-	-	-	-
Transfers In	90	-	500,000	300	-	-	-	-
Transfers Out	-369,883	-	-533,104	-	-188,728	-	-417,035	-
Total Adjusted Appropriation	1,424,759	6,370	2,397,349	7,091	1,418,958	6,256	1,432,091	6,340
Balance Available, SOY	599,199	996	401,571	745	1,400,691	1,825	1,447,864	1,615
Recoveries, Other	21,415	-	37,803	-	-	-	-	-
Total Available	2,045,373	7,366	2,836,723	7,836	2,819,649	8,081	2,879,955	7,955
Lapsing Balances	-715	-1,016	-833	-325	-	-	-	-
Transferred Balances	-163,221	-	-	-	-	-	-	-
Balance Available, EOY	-401,571	-745	-1,400,691	-1,646	-1,447,864	-1,615	-1,249,331	-1,409
Subtotal Obligations, APHIS	1,479,866	5,605	1,435,199	5,865	1,536,085	6,466	1,630,624	6,546
Obligations Under Other USDA Appropriations:								
Agricultural Marketing Service	26,870	51	27,523	29	27,545	30	27,820	30
Agricultural Research Service	37,301	39	31,550	67	31,575	69	31,891	69
Economic Research Service	27	-	-	-	-	-	-	-
Food Safety and Inspection Service	22	-	16	-	16	-	16	-
Foreign Agricultural Service	5,146	10	4,218	15	4,221	15	4,264	15
Forest Service	773	5	770	4	771	4	778	4
National Appeals Division	8	-	4	-	4	-	4	-
National Institute of Food and Agriculture	4,255	1	-	-	-	-	-	-
Natural Resources Conservation Service	28	-	39	-	39	-	39	-
Office of Chief Economist	-	-	83	-	83	-	84	-
Office of the Chief Information Officer	47	-	166	1	166	1	168	1
Office of Civil Rights	46	-	-	-	-	-	-	-
Office of the Secretary	201	-	119	-	119	-	120	-
Total, Other USDA	74,725	106	64,488	116	64,539	119	65,184	119
Total, Agriculture Appropriations	1,554,591	5,711	1,499,687	5,981	1,600,624	6,585	1,695,808	6,665

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE
Other Federal Funds:								
DOD, U.S. Air Force	$12,921	110	$13,175	129	$13,186	132	$13,317	132
DOD, Air National Guard	5,456	48	4,608	45	4,612	46	4,658	46
DOD, U.S. Navy	6,383	56	7,293	71	7,299	73	7,372	73
DOD, U.S. Marine Corps	1,286	10	1,394	14	1,395	14	1,409	14
DOD, U.S. Army	2,171	17	2,663	25	2,665	26	2,692	26
DOD, U.S. Army Corp of Engineers	2,115	17	1,963	19	1,965	19	1,984	19
DOD, Defense Threat Reduction Agency	34	-	98	-	98	-	99	-
Department of Energy	353	3	312	3	312	3	315	3
Department of Health and Human Services	19	-	18	-	18	-	18	-
DHS: Coast Guard & other services & support	564	3	548	4	548	4	554	4
Federal Emergency Management Agency	242	-	7,794	27	7,800	28	7,878	28
National Aeronautics and Space Administration	351	3	378	4	378	4	382	4
USDOI, Geological Survey, National Park Serv, Office of Insular Affairs	2,264	18	2,035	20	2,037	21	2,057	21
USDOI, Bureau of Land Mgmt & Reclamation: for administrative and technical support	923	5	1,046	7	1,047	7	1,057	7
USDOI, Fish and Wildlife Services: for natural resources and endangered species	2,672	20	2,784	27	2,786	28	2,814	28
USDOT: Federal Aviation Administration	1,602	13	1,265	12	1,266	12	1,279	12
Department of Veterans Affairs	42	-	32	-	32	-	32	-
for miscellaneous services	1,607	12	-	-	-	-	-	-
Environmental Protection Agency	-	-	1,449	14	1,450	14	1,465	14
GSA: for miscellaneous services	4	-	15	-	15	-	15	-
Other Federal Funds	613	4	744	6	745	6	752	6
Total, Other Federal	41,623	338	49,614	427	49,654	438	50,149	438
Non-Federal Funds:								
Funds from organizations, states, and local entities for wildlife, plant, and animal services support	66,253	663	68,354	659	68,408	676	69,094	676
Import-Export User Fees	41,235	286	39,212	287	39,243	295	39,635	295
Phytosanitary Certificate User Fees	21,229	138	21,981	147	21,998	151	22,218	151
Reimbursable Overtime	8,448	58	9,207	76	9,215	77	9,307	77
Veterinary Diagnostics User Fees	5,109	46	5,542	28	5,546	29	5,602	29
Other User Fees	2	-	98	-	98	-	99	-
Total, Non-Federal	142,277	1,191	144,393	1,197	144,508	1,228	145,955	1,228
Total, APHIS	1,738,490	7,240	1,693,694	7,605	1,794,786	8,251	1,891,912	8,331

PERMANENT POSITIONS BY GRADE AND FTES

Table APHIS-8. Permanent Positions by Grade and FTEs

Item	D.C.	Field	2020 Actual Total	D.C.	Field	2021 Actual Total	D.C.	Field	2022 Estimated Total	D.C.	Field	2023 Estimated Total
SES	30	8	38	32	8	40	32	8	40	31	13	44
SL	-	-	-	-	-	-	-	-	-	-	-	-
GS-15	85	58	143	86	63	149	86	63	149	80	61	141
GS-14	364	310	674	360	331	691	360	331	691	334	323	657
GS-13	312	573	885	310	607	917	310	607	917	295	527	822
GS-12	182	924	1,106	153	895	1,048	153	895	1,048	280	980	1,260
GS-11	96	747	843	102	751	853	102	751	853	98	765	862
GS-10	1	8	9	1	10	11	1	10	11	1	12	13
GS-9	82	475	557	79	486	565	79	486	565	75	469	543
GS-8	5	245	250	6	244	250	6	244	250	10	274	284
GS-7	55	624	679	45	611	656	45	611	656	61	601	662
GS-6	9	174	183	7	195	202	7	195	202	8	161	169
GS-5	10	147	157	6	87	93	6	87	93	8	105	113
GS-4	4	22	26	4	21	25	4	21	25	15	18	32
GS-3	-	8	8	-	4	4	-	4	4	3	14	17
GS-2	-	-	-	-	-	-	-	-	-	-	-	-
GS-1	-	-	-	-		-	-		-	-	1	1
Other Graded	19	102	121	16	131	147	16	131	147	15	112	127
Ungraded	-	-	-			-			-	-	-	-
Total Permanent	1,254	4,425	5,679	1,207	4,444	5,651	1,207	4,444	5,651	1,313	4,434	5,747
Unfilled, EOY	-	-	-			-			-			-
Total Perm. FT EOY	1,254	4,425	5,679	1,207	4,444	5,651	1,207	4,444	5,651	1,313	4,434	5,747
FTE	1,409	5,831	7,240	1,480	6,125	7,605	1,606	6,645	8,251	1,621	6,710	8,331

VEHICLE FLEET

Motor Vehicle Fleet

APHIS uses vehicles to deliver mission critical services. The Agency's veterinarians, animal health technicians, inspectors, plant protection and quarantine officers, wildlife biologists, and other technical personnel use motor vehicles in their daily responsibilities. This entails travel between inspection sites, farms, ranches, ports, nurseries, and other commercial firms. In some cases, APHIS' cooperators use Agency vehicles as authorized in program cooperative agreements.

Operators are required to keep historical maintenance records and submit the vehicles' operational and cost data for review, and report on the vehicle's condition and usage statistics at least once a year to maximize the life span of vehicles. Periodic maintenance surveys and reviews of consolidated vehicle fleet data ensure optimal use of each vehicle in the fleet.

In FY 2021, the Marketing and Regulatory Programs mission area enrolled in the General Services Administration (GSA) offer to receive telematics devices and installation free of charge to retrofit 66 percent of APHIS leased vehicles. Once the devices are installed and activated, the mileage for telematics enabled vehicles will automatically be updated every month. The GSA service will capture odometer readings and vehicle maintenance requirements.

Replacement Criteria

APHIS replaces vehicles in accordance with Title 41, CFR § 102–34.270. Agency programs replace and retire vehicles using data on utilization, age, condition, and funding availability. Vehicles not meeting the USDA utilization criteria are required to be justified by the programs for review and approval of the Associate Deputy Administrator for Marketing and Regulatory Programs Business Services before they can be replaced. The average age of APHIS' vehicle fleet is six years. APHIS has implemented efforts to both increase the number of alternative fuel vehicles, reduce petroleum use, and extend the life cycle of each vehicle.

APHIS uses the USDA Lifecycle Model to perform an owning versus leasing analysis to determine which option would be the most cost effective. The Lifecycle Model complies with the Federal Management Regulation, Bulletin B-43, Vehicle Allocation Methodology. Vehicles cannot be acquired without the documented analysis of the Lifecycle Model.

Reductions to Fleet

APHIS ended FY 2021, with 4,213 vehicles (leased and owned), which is a reduction of 60 vehicles from the previous year. Of the 60 vehicles, 50 of them were disposed without replacements to comply with the USDA Strategic Reviews released to agencies in April 2018. In addition, 77 percent of APHIS' vehicles acquired in FY 2021, still have not been received due to microchip and material shortages, with estimated delivery dates for some toward the end of FY 2022. APHIS' fleet will increase slightly once the vehicles acquired in FY 2021 are received but will still stay within the vehicle inventory target approved by the USDA.

Table APHIS-9. Size, Composition, and Annual Costs of Motor Vehicle Fleet

Note: Number of vehicles by type include vehicles owned by the agency and leased from commercial sources or GSA.

Annual Operating Costs excludes acquisition costs and gains from sale of vehicles as shown in FAST.

	Sedans and Station Wagons	Vans	SUVs	Light Trucks 4X2	Light Trucks 4X4	Medium Duty Vehicles	Buses	Heavy Duty Vehicles	Total Vehicles	Annual Operating Costs
2018 End of Year Operating Inventory.....	**246**	**118**	**955**	**272**	**2,092**	**896**	**-**	**16**	**4,595**	**$19,456,575**
2020 End of Year Operating Inventory.....	**193**	**95**	**881**	**224**	**1,966**	**901**	**-**	**13**	**4,273**	**18,177,213**
2021 Planned Acquisitions.....	1	-	101	33	250	170	-	3	558	
2021 Planned Disposals.....	9	3	107	36	182	82	-	2	421	
2021 End of Year Operating Inventory a/.....	**167**	**88**	**870**	**218**	**1,954**	**903**	**-**	**13**	**4,213**	**19,535,169**
2022 Planned Acquisitions.....	6	-	90	14	498	126	-	2	736	
2022 Planned Disposals.....	8	-	71	6	371	81	-	2	539	
2022 End of Year Operating Inventory.....	**165**	**88**	**889**	**226**	**2,081**	**948**	**-**	**13**	**4,410**	**19,925,872**
2023 Planned Acquisitions.....	2	-	53	-	368	77	-	-	500	
2023 Planned Disposals.....	4	-	53	-	369	78	-	-	504	
2023 End of Year Operating Inventory.....	**163**	**88**	**889**	**226**	**2,080**	**947**	**-**	**13**	**4,406**	**19,726,613**

[a/] Actual End of Year Inventory numbers, as reported in FAST (previous rows are the planned, not the actual, acquisitions and disposals)

Statement of Proposed Purchase of Passenger Motor Vehicles

Fiscal Year	Net Active Fleet, SOY	Disposals	Replacements	Additions	Total Acquisitions	Net Active Fleet, EOY
2020	220	27	-	-	-	193
2021	193	26	6	-	6	167
2022	167	8	6	-	6	165
2023	165	4	2	-	2	163

Aircraft

APHIS uses aircraft to conduct mission critical activities such as aerial resource and surveillance surveys, aerial application tests, equipment demonstration and testing, implementation of methods for the control and/or eradication of destructive plant pests or wildlife to reduce damage to agricultural crops, among others.

The annual appropriations act provides APHIS with authority to purchase, replace, operate, and maintain aircraft. The Agency replaces aircraft when necessary to maintain fleet safety and efficient operating conditions.

The APHIS aircraft fleet consists of 78 aircraft. Eight aircraft are used for domestic plant pest and disease management programs. All eight are owned, but one is non-operational and has been kept for parts as our fleet is aging. Of the remaining 70 aircraft used for the wildlife damage management programs, 63 are owned, 5 are borrowed from State cooperators, and 2 are rented. Of the 63 owned aircraft, 8 are non-operational. APHIS uses the non-operational aircraft for parts.

SHARED FUNDING PROJECTS

Table APHIS-10. Shared Funding Projects (dollars in thousands)

Item	2020 Actual	2021 Actual	2022 Estimated	2023 Estimated
Working Capital Fund:				
Administrative Services:				
Material Management Service	$981	$1,107	$1,268	$1,279
Mail and Reproduction Services	173	151	334	339
Integrated Procurement Systems	1,602	1,631	1,471	1,462
Procurement Operations Services	51	85	60	59
Human Resources Enterprise Management Systems	106	153	145	149
Subtotal	2,913	3,127	3,278	3,288
Communications:				
Creative Media & Broadcast Center	48	848	218	251
Finance and Management:				
National Finance Center	2,216	2,247	2,152	2,154
Internal Control Support Services	118	116	119	93
Financial Shared Services	9,803	10,513	10,139	10,078
Subtotal	12,137	12,876	12,410	12,325
Information Technology:				
Client Experience Center	5,328	36,724	38,987	41,861
Digital Infrastructure Services Center	10,693	14,150	12,315	12,831
Enterprise Network Services	5,408	9,147	7,656	6,586
Subtotal	21,429	60,021	58,958	61,278
Correspondence Management Services:				
Office of the Executive Secretariat	1,371	991	1,252	1,252
Total, Working Capital Fund	37,898	77,863	76,116	78,394
Department-Wide Shared Cost Programs:				
Advisory Committee Liaison Services	5	5	7	7
Agency Partnership Outreach	598	547	580	580
Honor Awards	1	1	1	1
Human Resources Self-Service Dashboard	47	-	-	-
Medical Services	4	40	38	38
National Capital Region Interpreting Services	-	101	125	157
Office of Customer Experience	447	766	687	687
Personnel and Document Security Program	189	223	224	224
Physical Security	456	340	333	339
Security Detail	361	366	356	359
Security Operations Program	455	514	482	483
TARGET Center	88	94	104	105
USDA Enterprise Data Analytics Services	632	431	350	350
Total, Department-Wide Reimbursable Programs	3,283	3,428	3,287	3,330
E-Gov:				
Budget Formulation and Execution Line of Business	6	8	8	8
Enterprise Human Resources Integration	142	-	-	-
E-Rulemaking	57	44	42	44
Financial Management Line of Business	10	12	13	13
Geospatial Line of Business	13	13	13	13
Grants.gov	1	-	3	3
Hiring Assessment Tool	-	-	18	18
Human Resources Line of Business	22	24	22	22
Integrated Acquisition Environment	149	110	37	37
Total, E-Gov	400	211	156	158
Agency Total	41,581	81,502	79,559	81,882

ACCOUNT 1: SALARIES AND EXPENSES

APPROPRIATIONS LANGUAGE

The appropriations language follows (new language underscored; deleted matter enclosed in brackets):

For necessary expenses of the Animal and Plant Health Inspection Service, including up to $30,000 for representation allowances and for expenses pursuant to the Foreign Service Act of 1980 (22 U.S.C. 4085), [$1,102,222,000]$1,149,286,000, of which [$491,000]$514,000, to remain available until expended, shall be available for the control of outbreaks of insects, plant diseases, animal diseases and for control of pest animals and birds ("contingency fund") to the extent necessary to meet emergency conditions; of which [$13,725,000]$13,980,000, to remain available until expended, shall be used for the cotton pests program, including cost share purposes or for debt retirement for active eradication zones; of which [$38,486,000]$39,268,000, to remain available until expended, shall be for Animal Health Technical Services; of which [$2,040,000]$2,100,000, shall be for activities under the authority of the Horse Protection Act of 1970, as amended (15 U.S.C. 1831); of which [$63,833,000]$65,071,000, to remain available until expended, shall be used to support avian health; of which [$4,251,000]$7,451,000, to remain available until expended, shall be for information technology infrastructure; of which [$209,342,000]$219,533,000, to remain available until expended, shall be for specialty crop pests; of which, [$14,137,000]$14,672,000, to remain available until expended, shall be for field crop and rangeland ecosystem pests; of which [$19,782,000]$24,111,000, to remain available until expended, shall be for zoonotic disease management; of which [$38,380,000]$44,242,000, to remain available until expended, shall be for emergency preparedness and response; of which [$61,217,000]$62,854,000, to remain available until expended, shall be for tree and wood pests; of which [$5,751,000]$5,791,000, to remain available until expended, shall be for the National Veterinary Stockpile; of which [$10,000,000]$6,038,000, to remain available until expended, shall be for invasive species control in coordination with other Federal agencies and the Civilian Climate Corps; of which up to $1,500,000, to remain available until expended, shall be for the scrapie program for indemnities; of which $2,500,000, to remain available until expended, shall be for the wildlife damage management program for aviation safety: *Provided*, That of amounts available under this heading for wildlife services methods development, $1,000,000 shall remain available until expended: *Provided further*, That of amounts available under this heading for the screwworm program, $4,990,000 shall remain available until expended; of which [$24,307,000]$24,619,000, to remain available until expended, shall be used to carry out the science program and transition activities for the National Bio and Agro-Defense Facility located in Manhattan, Kansas: *Provided further*, That no funds shall be used to formulate or administer a brucellosis eradication program for the current fiscal year that does not require minimum matching by the States of at least 40 percent: *Provided further,* That this appropriation shall be available for the purchase, replacement, operation, and maintenance of aircraft: *Provided further*, That in addition, in emergencies which threaten any segment of the agricultural production industry of the United States, the Secretary may transfer from other appropriations or funds available to the agencies or corporations of the Department such sums as may be deemed necessary, to be available only in such emergencies for the arrest and eradication of contagious or infectious disease or pests of animals, poultry, or plants, and for expenses in accordance with sections 10411 and 10417 of the Animal Health Protection Act (7 U.S.C. 8310 and 8316) and sections 431 and 442 of the Plant Protection Act (7 U.S.C. 7751 and 7772), and any unexpended balances of funds transferred for such emergency purposes in the preceding fiscal year shall be merged with such transferred amounts: *Provided further*, That appropriations hereunder shall be available pursuant to law (7 U.S.C. 2250) for the repair and alteration of leased buildings and improvements, but unless otherwise provided the cost of altering any one building during the fiscal year shall not exceed 10 percent of the current replacement value of the building.

In fiscal year [2022]2023, the agency is authorized to collect fees to cover the total costs of providing technical assistance, goods, or services requested by States, other political subdivisions, domestic and international organizations, foreign governments, or individuals, provided that such fees are structured such that any entity's liability for such fees is reasonably based on the technical assistance, goods, or services provided to the entity by the agency, and such fees shall be reimbursed to this account, to remain available until expended, without further appropriation, for providing such assistance, goods, or services.

LEAD-OFF TABULAR STATEMENT

Table APHIS-11. Lead-Off Tabular Statement (In dollars)

Item	Amount
Estimate, 2022	$1,064,179,000
Change in Appropriation	+ 85,107,000
Budget Estimate, 2023	1,149,286,000

PROJECT STATEMENT

Table APHIS-12. Project Statement - Appropriation (thousands of dollars, FTE)

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.	Chg Key
Discretionary Appropriations:											
Safeguarding and Emergency Preparedness/Response											
Animal Health Technical Services	$37,857	156	$38,093	151	$38,093	151	$39,268	151	+$1,175	-	(1)
Aquatic Animal Health	2,253	13	2,272	13	2,272	13	2,370	13	+98	-	(2)
Avian Health	62,840	247	63,213	238	63,213	238	65,071	238	+1,858	-	(3)
Cattle Health	104,500	508	105,216	493	105,216	493	109,005	493	+3,789	-	(4)
Equine, Cervid & Small Ruminant Health	26,500	120	28,982	116	28,982	116	31,888	116	+2,906	-	(5)
National Veterinary Stockpile	5,725	7	5,736	6	5,736	6	5,791	6	+55	-	(6)
Swine Health	24,800	146	25,020	142	25,020	142	26,100	142	+1,080	-	(7)
Veterinary Biologics	17,417	108	20,570	126	20,570	126	21,539	126	+969	-	(8)
Veterinary Diagnostics	57,340	172	56,979	167	56,979	167	58,417	196	+1,438	+29	(9)
Zoonotic Disease Management	16,523	64	19,620	62	19,620	62	24,111	70	+4,491	+8	(10)
Subtotal, Animal Health	355,755	1,541	365,701	1,514	365,701	1,514	383,560	1,551	+17,859	+37	
Agricultural Quarantine Inspection (Appropriated)	32,330	372	32,893	367	32,893	367	36,725	367	+3,832	-	(11)
Cotton Pests	11,520	51	13,597	49	13,597	49	13,980	49	+383	-	(12)
Field Crop & Rangeland Ecosystems Pests	13,826	77	10,942	75	10,942	75	14,672	76	+3,730	+1	(13)
Pest Detection	27,446	190	27,733	186	27,733	186	29,137	186	+1,404	-	(14)
Plant Protection Methods Development	20,686	131	20,884	128	20,884	128	21,854	128	+970	-	(15)
Specialty Crop Pests	192,013	793	196,553	768	196,553	768	219,533	801	+22,980	+33	(16)
Tree & Wood Pests	60,000	301	60,456	292	60,456	292	62,854	292	+2,398	-	(17)
Subtotal, Plant Health	357,821	1,915	363,058	1,865	363,058	1,865	398,755	1,899	+35,697	+34	
Wildlife Damage Management	109,756	589	111,647	574	111,647	574	116,139	574	+4,492	-	(18)
Wildlife Services Methods Development	18,856	125	21,046	122	21,046	122	24,998	128	+3,952	+6	(19)
Subtotal, Wildlife Services	128,612	714	132,693	696	132,693	696	141,137	702	+8,444	+6	
Animal & Plant Health Regulatory Enforcement	16,224	116	16,400	114	16,400	114	18,759	114	+2,359	-	(20)
Biotechnology Regulatory Services	18,875	96	19,020	93	19,020	93	19,733	93	+713	-	(21)
Subtotal, Regulatory Services	35,099	212	35,420	207	35,420	207	38,492	207	+3,072	-	
Civilian Climate Corps	-	-	-	-	-	-	6,038	5	+6,038	+5	(22)
Contingency Fund	470	5	478	5	478	5	514	5	+36	-	(23)
Emergency Preparedness & Response	40,966	199	41,268	193	41,268	193	44,242	193	+2,974	-	(24)
Subtotal, Emergency Management	41,436	204	41,746	198	41,746	198	50,794	203	+9,048	+5	
Subtotal Safeguarding and Emergency Preparedness/Response	918,723	4,586	938,618	4,480	938,618	4,480	1,012,738	4,562	+74,120	+82	
Safe Trade and International Technical Assistance											
Agriculture Import/Export	15,599	81	15,722	79	15,722	79	16,327	79	+605	-	(25)
Overseas Technical & Trade Operations	24,115	55	24,198	52	24,198	52	27,033	52	+2,835	-	(26)
Subtotal Safe Trade and International Technical Assistance	39,714	136	39,920	131	39,920	131	43,360	131	+3,440	-	

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.	Chg Key
Animal Welfare											
Animal Welfare	31,310	232	31,661	228	31,661	228	33,377	228	+1,716	-	(27)
Horse Protection	1,000	10	2,009	12	2,009	12	2,100	12	+91	-	(28)
Subtotal, Animal Welfare	32,310	242	33,670	240	33,670	240	35,477	240	+1,807	-	
Agency Wide Programs											
APHIS Information Technology Infrastructure	4,251	-	4,251	-	4,251	-	7,451	-	+3,200	-	(29)
Physical/Operational Security	5,146	5	5,153	4	5,153	4	5,193	4	+40	-	(30)
Rental and DHS Security Payments	42,567	-	42,567	-	42,567	-	45,067	-	+2,500	-	(31)
Subtotal, Agency Management	51,964	5	51,971	4	51,971	4	57,711	4	+5,740	-	
Subtotal, Appropriated	1,042,711	4,969	1,064,179	4,855	1,064,179	4,855	1,149,286	4,937	85,107	82	
General Provisions:											
General Provision 744 - Citrus Greening	8,500	-	-	-	-	-	-	-	-	-	
General Provision 739 - Citrus Greening	-	-	8,500	-	8,500	-	-	-	-8,500	-	
General Provision 797 - Cogongrass	-	-	5,312	-	3,000	-	-	-	-3,000	-	
Mandatory Appropriations:											
Farm Bill, Section 7721	75,000	26	75,000	26	75,000	26	75,000	26	-	-	
Farm Bill, Section 2408	-	-	-	-	-	-	-	-	-	-	
Farm Bill, Section 12101	-	-	-	-	-	-	30,000	2	+30,000	+2	
Sequester P.L. 113-6…Farm Bill	-4,425	-	-4,275	-	-4,275	-	-5,985	-	-1,710	-	
Agricultural Quarantine Inspection User Fees:											
Total Collections	586,479	855	319,998	1,325	459,512	1,325	595,767	1,325	+136,255	-	
Sequester P.L. 113-6 ...AQI	-33,200	-	-15,387	-	-26,192	-	-33,959	-	-7,767	-	
Sequester Restored…AQI User Fees	49,290	-	33,200	-	15,387	-	26,192	-	+10,805	-	
American Rescue Plan Act	-	-	300,000	335	-	-	-	-	-	-	
General Provision 799D - AQI User Fees	-	-	635,000	200	-	-	-	-	-	-	
Trust Funds	8,017	50	8,060	50	9,000	50	9,000	50	-	-	
Trust Funds Sequester Restored P.L. 113-6	82	-	78	-	75	-	75	-	-	-	
Foreign Service National Separation Liability Trust…	-	-	-	-	400	-	650	-	+250	-	
Subtotal	681,243	931	1,351,673	1,936	528,907	1,401	696,740	1,403	+167,834	+2	

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.	Chg Key
Supplemental Appropriations:											
CARES Act	55,000	470	-	-	-	-	-	-	-	-	
USMCA Lacey Act	4,000	-	-	-	-	-	-	-	-	-	
Another Supp	-	-	-	-	-	-	-	-	-	-	
Subtotal	59,000	470	-	-	-	-	-	-	-	-	
Offsetting Collections:											
Offsetting Collection	221,643	1,785	289,985	1,785	260,000	1,785	260,000	1,785	-	-	
Subtotal	221,643	1,785	289,985	1,785	260,000	1,785	260,000	1,785	-	-	
Total Adjusted Appropriations	2,013,097	8,155	2,719,649	8,576	1,864,586	8,041	2,106,026	8,125	241,441	84	
Rescission, Transfers In and Out	-369,793	-	-35,415	300	-188,728	-	-417,035	-	-228,307	-	
Sequestration	-78	-	-75	-	-75	-	-75	-	-	-	
Total Appropriation	1,643,227	8,155	2,684,159	8,876	1,675,783	8,041	1,688,916	8,125	13,133	84	
Transfers In:											
Cong. Relations	90	-	-	-	-	-	-	-	-	-	
Commodity Credit Corporation	-	-	500,000	300	-	-	-	-	-	-	
Total Transfers In	90	-	500,000	300	-	-	-	-	-	-	
Transfers Out:											
Transfer to DHS	-369,883	-	-533,104	-	-188,728	-	-417,035	-	-228,307	-	
Total Transfers Out	-369,883	-	-533,104	-	-188,728	-	-417,035	-	-228,307	-	
Rescission	-	-	-2,312	-	-	-	-	-	-	-	
Sequestration	-78	-	-75	-	-75	-	-75	-	-	-	
Recoveries, Other	25,672	-	35,358	-	-	-	-	-	-	-	
Bal. Available, SOY	731,925	1,105	496,867	924	1,520,397	1,825	1,404,494	1,615	-115,903	-210	
Total Available	2,400,824	9,260	3,216,383	9,800	3,196,180	9,866	3,093,410	9,740	-102,770	-126	
Lapsing Balances	-6,434	-1,096	-7,594	-370	-	-	-	-	-	-	
Transferred Balances	-163,221	-	-	-	-	-	-	-	-	-	
Bal. Available, EOY	-496,867	-924	-1,520,397	-1,825	-1,404,494	-1,615	-1,205,398	-1,409	+199,095	+206	
Total Obligations	1,734,302	7,240	1,688,392	7,605	1,791,686	8,251	1,888,012	8,331	+96,325	+80	

Table APHIS-13. Project Statement - Obligations (thousands of dollars, FTE)

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.
Discretionary Obligations:										
Safeguarding and Emergency Preparedness/Response										
Animal Health Technical Services	$46,372	120	$36,518	115	$38,263	151	$39,768	151	+$1,505	-
Aquatic Animal Health	2,253	13	2,272	13	2,272	13	2,370	13	+98	-
Avian Health	75,934	235	65,053	236	60,197	238	65,071	238	+4,874	-
Cattle Health	105,849	436	105,490	489	103,657	493	109,005	493	+5,348	-
Equine, Cervid & Small Ruminant Health	26,498	106	28,978	112	27,982	116	31,888	116	+3,906	-
National Veterinary Stockpile	5,270	7	9,120	6	5,327	6	5,791	6	+464	-
Swine Health	24,794	131	25,015	133	25,020	142	26,100	142	+1,080	-
Veterinary Biologics	17,415	97	20,566	104	20,570	126	21,539	126	+969	-
Veterinary Diagnostics	53,603	135	46,304	133	56,727	167	65,118	196	+8,391	29
Zoonotic Disease Management	17,914	64	17,754	59	20,967	62	25,111	70	+4,144	8
Subtotal, Animal Health	375,902	1,344	357,070	1,401	360,982	1,514	391,761	1,551	+30,779	37
Agricultural Quarantine Inspection (Appropriated)	32,321	344	32,886	357	32,893	367	36,725	367	+3,832	-
Cotton Pests	12,469	28	13,455	36	13,205	49	13,980	49	+775	-
Field Crop & Rangeland Ecosystems Pests	12,963	53	10,015	67	11,079	75	14,672	76	+3,593	1
Pest Detection	27,436	129	27,726	158	27,733	186	29,137	186	+1,404	-
Plant Protection Methods Development	20,679	110	20,880	122	20,884	128	21,854	128	+970	-
Specialty Crop Pests	221,296	645	195,019	752	195,983	768	212,533	801	+16,550	33
Tree & Wood Pests	63,183	235	64,281	259	59,997	292	62,854	292	+2,857	-
Subtotal, Plant Health	390,347	1,544	364,261	1,751	361,775	1,865	391,755	1,899	+29,980	34
Wildlife Damage Management	111,054	546	111,096	556	112,512	574	116,139	574	+3,627	-
Wildlife Services Methods Development	19,082	98	21,101	108	20,340	122	24,998	128	+4,658	6
Subtotal, Wildlife Services	130,136	644	132,196	664	132,852	696	141,137	702	+8,285	6
Animal & Plant Health Regulatory Enforcement	16,202	95	16,397	100	16,400	114	18,759	114	+2,359	-
Biotechnology Regulatory Services	18,870	90	19,014	90	19,020	93	19,733	93	+713	-
Subtotal, Regulatory Services	35,072	185	35,411	190	35,420	207	38,492	207	+3,072	-
Civilian Climate Corps	-	-	-	-	-	-	4,038	3	+4,038	3
Contingency Fund	442	-	-	-	-	-	-	-	-	-
Emergency Preparedness & Response	47,796	199	38,804	191	41,272	193	44,242	193	+2,970	-
Subtotal, Emergency Management	48,238	199	38,804	191	41,272	193	48,280	196	+7,008	3
Subtotal Safeguarding and Emergency Preparedness/Response	979,695	3,916	927,742	4,197	932,300	4,475	1,011,425	4,555	+79,125	80
Safe Trade and International Technical Assistance										
Agriculture Import/Export	15,588	74	15,719	77	15,722	79	16,327	79	+605	-
Overseas Technical & Trade Operations	24,108	51	24,193	50	24,198	52	27,033	52	+2,835	-
Subtotal Safe Trade and International Technical Assistance	39,696	125	39,912	127	39,920	131	43,360	131	+3,440	-

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.
Animal Welfare										
Animal Welfare	31,302	201	31,655	211	31,661	228	33,377	228	+1,716	-
Horse Protection	998	6	2,009	9	2,009	12	2,100	12	+91	-
Subtotal, Animal Welfare	32,300	207	33,663	220	33,670	240	35,477	240	+1,807	-
Agency Wide Programs										
APHIS Information Technology Infrastructure	4,743	-	4,224	-	4,260	-	7,451	-	+3,191	-
Physical/Operational Security	5,143	3	5,152	3	5,153	4	5,193	4	+40	-
Rental and DHS Security Payments	42,559	-	42,400	-	42,567	-	45,067	-	+2,500	-
Subtotal, Agency Management	52,445	3	51,775	3	51,980	4	57,711	4	+5,731	-
Subtotal, Discretionary Obligations	1,104,136	4,251	1,053,092	4,547	1,057,870	4,850	1,147,973	4,930	+90,103	80
General Provisions:										
General Provision 797 - Cogongrass	-	-	3,603	-	4,708	-	-	-	-4,708	-
General Provision 739 - Citrus Greening	-	-	8,229	-	8,771	-	-	-	-8,771	-
General Provision 744 - Citrus Greening	8,500	-	-	-	-	-	-	-	-	-
General Provision 757 - Citrus Greening	685	-	-	-	-	-	-	-	-	-
Mandatory Obligations:										
Farm Bill, Section 7721	70,037	21	70,227	21	70,745	26	70,725	26	-20	-
Farm Bill, Section 2408	6,627	33	7,231	58	7,000	52	5,000	52	-2,000	-
Farm Bill, Section 12101	37,646	4	39,014	6	35,000	5	35,000	5	-	-
Agricultural Quarantine Inspection User Fees	171,849	794	234,240	1,198	234,240	1,325	234,240	1,325	-	-
American Rescue Plan Act	-	-	-	-	62,500	89	69,300	89	+6,800	-
Trust Funds	7,320	34	8,031	34	8,500	50	9,000	50	+500	-
Foreign Service National Separation Liability Trust	-	-	-	-	400	-	650	-	+250	-
Subtotal, Mandatory Obligations	293,479	886	358,744	1,316	418,386	1,547	423,915	1,547	+5,529	-
Supplemental Obligations:										
CARES Act	55,000	429	-	-	-	-	-	-	-	-
USMCA Lacey Act	2,000	-	203	-	1,797	-	-	-	-1,797	-
Subtotal, Supplemental Obligations	57,000	429	203	-	1,797	-	-	-	-1,797	-
Other Obligations:										
CCC	7,896	39	2,436	2	41,289	69	55,236	69	+13,947	-
Offsetting Collections	258,624	1,635	258,494	1,740	258,701	1,785	261,288	1,785	+2,587	-
Homeland Security, HUB Relo & Department	90	-	-	-	6	-	-	-	-6	-
H1N1	1,114	-	1,192	-	158	-	-	-	-158	-
Refunds for equipment sold	2,778	-	2,398	-	-	-	-	-	-	-

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.
Total Obligations	1,734,302	7,240	1,688,392	7,605	1,791,686	8,251	1,888,012	8,331	+96,325	80
Lapsing Balances	6,434	1,096	7,594	370	-	-	-	-	-	-
Transferred Balances	163,221	-	-	-	-	-	-	-	-	-
Balances Available, EOY:										
Discretionary										
Animal Health Technical Services	6,914	46	8,674	46	8,500	46	8,000	46	-500	-
Avian Health	8,061	30	7,091	30	10,000	30	10,000	30	-	-
Cattle Health	1,726	-	1,441	-	3,000	-	3,000	-	-	-
Equine Cervid & Small Ruminant Health	501	-	500	-	1,500	-	1,500	-	-	-
National Veterinary Stockpile	4,917	3	1,591	3	2,000	3	2,000	3	-	-
Veterinary Diagnostics	15,837	-	26,449	-	26,701	-	20,000	-	-6,701	-
Zoonotic Disease Management	4,383	-	6,347	-	5,000	-	4,000	-	-1,000	-
Emergency Preparedness & Response	13,006	15	16,004	15	16,000	15	16,000	15	-	-
Cotton Pests	435	11	608	11	1,000	11	1,000	11	-	-
Field Crop & Rangeland Ecosystems Pests	4,342	34	3,138	34	3,000	34	3,000	34	-	-
Specialty Crop Pests	4,413	58	24,436	58	25,000	58	32,000	58	+7,000	-
Tree & Wood Pests	6,921	82	3,541	82	4,000	82	4,000	82	-	-
Civilian Climate Corps	-	-	-	-	-	-	2,000	2	+2,000	+2
Wildlife Damage Management	3,160	-	3,865	-	3,000	-	3,000	-	-	-
Wildlife Services Methods Development	825	-	794	-	1,500	-	1,500	-	-	-
Contingency Funds	2,377	15	2,893	20	3,371	25	3,885	30	+514	+5
APHIS Information Technology Infrastructure	124	-	209	-	200	-	200	-	-	-
HUB Relocation	6	-	6	-	-	-	-	-	-	-
Commodity Credit Corporation (CCC)	86,426	168	586,286	466	545,115	397	489,879	328	-55,236	69
General Provision 739 - Citrus Greening	-	-	271	-	-	-	-	-	-	-
General Provision 744 - Citrus Greening	1	-	-	-	-	-	-	-	-	-
General Provision 797 - Cogongrass	-	-	1,708	-	-	-	-	-	-	-
CARES Act Supplemental	-	-	-	-	-	-	-	-	-	-
USMCA Lacey Act	2,000	-	1,797	-	-	-	-	-	-	-
H1N1 Supplemental	1,245	-	158	-	-	-	-	-	-	-
Offsetting Collections	139,233	179	163,401	179	164,699	179	163,411	179	-1,288	-
Mandatory										
Agricultural Quarantine Insp User Fees (AQI) Operating/Reserved	70,314	75	176,910	202	304,545	402	241,271	402	-63,275	-
General Provision 799D - AQI User Fees	-	-	101,896	200	-	-	-	-	-	-

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.
American Rescue Plan Act	-	-	300,000	335	237,500	246	168,200	157	-69,300	-89
Farm Bill Section 10202	16	-	20	-	-	-	-	-	-	-
Farm Bill Section 12101	82,354	26	49,787	20	14,787	15	8,077	10	-6,710	5
Farm Bill Section 2408	27,881	167	21,013	109	14,013	57	9,013	7	-5,000	-50
Trust Funds	9,449	15	9,564	15	10,063	15	10,464	15	+400	-
Total Bal. Available, EOY	496,867	924	1,520,397	1,825	1,404,494	1,615	1,205,398	1,409	-199,095	-206
Total Available	2,400,824	9,260	3,216,383	9,800	3,196,180	9,866	3,093,410	9,740	-102,770	-126
Rescission	-	-	2,312	-	-	-	-	-	-	-
Total Transfers In	-90	-	-500,000	-300	-	-	-	-	-	-
Total Transfers Out	369,883	-	533,104	-	188,728	-	392,291	-	+203,563	-
Sequestration	78	-	75	-	75	-	75	-	-	-
Recoveries, Other	-25,672	-	-35,358	-	-	-	-	-	-	-
Bal. Available, SOY	-731,925	-1,105	-496,867	-924	-1,520,397	-1,825	-1,404,494	-1,615	+115,903	210
Total Appropriation	2,013,097	8,155	2,719,649	8,576	1,864,586	8,041	2,106,026	8,125	+241,441	84

JUSTIFICATIONS

A large portion of APHIS' budget is in support of personnel compensation and other inflationary costs. The request includes a total of $12,645,000 to cover increases in pay for associated employees in FY 2022, including $8,608,000 to cover the pay increase, and $4,037,000 for additional benefit compensation. In addition, the request includes a total of $26,951,000 to cover increased pay costs and other inflationary costs for FY 2023. This increase will support the annualization of the 2.7 percent Cost of Living pay increase in 2022, the 4.6 percent Cost of Living pay increase in 2023, as well as other inflationary costs including the APHIS contributions to the Working Capital Fund and implementation of E.O. 14003 which increased the minimum wage for Federal employees.

An increase for pay costs in FY 2022 and FY 2023, will allow APHIS to continue to meet its mission to safeguard the health, welfare, and value of American agriculture and natural resources. This critical increase is needed to support and maintain current staffing levels to meet the demands and statutory requirements imposed on APHIS, including the Agency's emergency response capabilities for pest and disease outbreaks. Without the pay cost increase APHIS would need to reduce a number of program activities, including reductions in Federal contributions to support States and other cooperators in combatting animal and plant pests and diseases. An increase for the Department's increased contribution to the Federal Employees Retirement System (FERS) in FY 2022, will cover the expenses for the mandated increase of USDA's contribution to FERS. These increases will impact approximately 4,800 employees' retirement packages.

An increase of $74,120,000 and 82 staff years for Safeguarding and Emergency Preparedness/Response

An increase of $17,859,000 and 37 for Safeguarding and Emergency Preparedness/Response – Animal Health

(1) Animal Health Technical Services: An increase of $1,175,000 and 0 staff years ($38,093,000 and 151 staff years available in the FY 2022 Annualized Continuing Resolution).

APHIS' Animal Health Technical Services (AHTS) program develops and enhances tools for acquiring and managing information vital for improving global market access for U.S. livestock and animal products. Incorporating national surveillance standards into data management applications allows the program to compile animal health information nationally, thus leveraging the work of animal health professionals nationwide to meet local, State, and national veterinary health objectives. The National Veterinary Accreditation Program (NVAP) trains private veterinarians to help producers meet export requirements and disease program standards, allowing U.S. animals and animal products to compete in the global economy.

The national animal disease traceability (ADT) framework allows Federal, State, local, Tribal, and private animal health professionals to work together to identify diseased animals, quickly trace their movements, and control disease spread to protect the livestock industry, whose production value was approximately $104 billion in FY 2020 (USDA National Agricultural Statistics Services). The framework enables animal health officials to trace an animal from the location of official identification to their last location, which is often the termination point or slaughter plant. Knowledge of the location of diseased and at-risk animals helps preserve animal health; enables a rapid response in case of an animal disease event; reduces animal illnesses and deaths during outbreaks; and decreases costs for producers, consumers, and the government. This system also assures our trading partners that States and USDA can rapidly contain an animal disease event. Each year, APHIS provides cooperative agreement funds to States to help them establish and maintain support for State ADT activities. Currently all States receiving program funds have approved ADT strategic plans in place with APHIS. The ADT program continues to progress in maximizing flexibility while maintaining effectiveness and increasing the timeliness of retrieving traceability data.

In FY 2021, APHIS purchased official RFID tags to be provided to States as an optional alternative for the currently available metal tags. The tags are provided at no cost, and each State veterinarian distributes the tags in a way that best serves their industry. The tags are available as orange RFID official vaccination tags for use in heifers vaccinated for brucellosis, or white RFID tags for non-vaccinated heifers. Since RFID tag distribution began in FY 2020, approximately 10.8 million tags have been distributed as free tag alternatives to visual metal ID tags. This accounts for about 68 percent of all USDA approved official identification tags distributed by USDA for cattle in that time.

The AHTS program evaluates data systems and applications to determine if they should enhance them or develop new systems and applications. APHIS makes these systems available to States and Tribal Nations to

support their traceability plans and other animal health activities. In FY 2021, APHIS continued modernization efforts for the Animal Disease Traceability Information System (ADTIS). The ADTIS is an information management system that APHIS utilizes to maintain records of official identification devices and other information associated with official identification numbers of animals. The system contains several modules that maintain information to support APHIS' ability to respond to animal health events. The modernization efforts focused on maintaining the components, features, and services of ADTIS into a central location without the need to use separate applications. Users of ADTIS were granted access to the modernized system at the beginning of FY 2022.

To further strengthen traceability capabilities, APHIS continues to improve the Animal Health Services (AHS) system, formally referred to as the Mobile Information Management system. The AHS system allows for State and Federal animal health officials and accredited veterinarians to gather data electronically instead of manually keying data or scanning paper records into electronic databases for animal tracing purposes. The improvements made in FY 2021, allow producers and accredited veterinarians to use a free, web-based interface and piloted mobile applications to complete electronic Certificates of Veterinary Inspection and program disease testing for Tuberculosis, Brucellosis, and Scrapie without a live internet connection. APHIS will continue to make performance improvement and include new features to the AHS system in FY 2022.

More than 70,000 highly trained, accredited veterinarians act as the first-line-of-defense for reportable domestic and foreign animal diseases. The voluntary NVAP authorizes private veterinary practitioners to work cooperatively with Federal veterinarians and State animal health officials to report when they suspect these diseases to be present. This provides the first step in rapid diagnosis, quarantine, and other control measures to safeguard our nation’s animal and human health. Accredited veterinarians also provide official animal, flock, and herd health certifications, disease testing, and traceability practices for billions of animals each year. Mandatory training and accreditation renewal provides increased knowledge of animal disease surveillance, prevention, zoonoses, judicious antimicrobial use, animal welfare, and disaster preparedness. APHIS currently hosts 33 web-based supplemental training modules for accredited veterinarians. Since FY 2011, accredited veterinarians have completed more than 900,000 web modules, and more than 40,000 modules completed at veterinary conferences nationwide.

Overall, base funding for the AHTS program currently supports salaries and benefits of personnel, contracts and agreements, and other normal operating costs such as travel, supplies, rent, and utilities necessary to conduct program activities.

An increase of $393,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA’s contribution to FERS.

An increase of $782,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(2) Aquatic Animal Health: An increase of $98,000 and 0 staff years ($2,272,000 and 13 staff years available in the FY 2022 Annualized Continuing Resolution).

The Aquatic Animal Health program protects the health and value of U.S. farm-raised aquatic animals and natural resources. The program supports commercial producers in domestic and international trade markets, valued at $1.5 billion in 2018 (National Agricultural Statistics Service, 2018 Census of Aquaculture). The new 2021-2023 National Aquaculture Health Plan & Standards (NAHPS) which was published in July 2021, replaces the National Aquatic Animal Health Plan. It provides a framework for Federal policies and programs to address aquatic animal diseases for the benefit of aquaculture and aquatic animal resources. The NAHPS affirms USDA as the lead Federal authority for U.S. aquaculture health, which is consistent with other livestock health programs. As such, the Department will oversee the health and promotion of aquatic livestock. The NAHPS outlines the infrastructure measures needed to protect the health of farmed aquatic animals, which include disease reporting, as well as standardized laboratory quality assurance and testing of high-consequence aquatic animal diseases, surveillance, data management, and health certification programs. These elements are fundamental for a robust, comprehensive system.

The Aquatic Animal Health program is pursuing objectives consistent with the NAHPS, which includes a more comprehensive approach to aquatic livestock health management, monitoring, and certification to meet

the growth and demand of the domestic aquaculture industry. The program is focused on farm-raised aquatic animal health and promotes industry growth by improving marketability through consumer confidence, as well as facilitating the interstate and international trade and movement of live animals and animal products.

APHIS and the National Aquaculture Association are working to develop the Commercial Aquaculture Health Program Standards (CAHPS), a voluntary national and uniform approach to aquaculture health standards. The goal of CAHPS is to support improved health management, protect and expand aquaculture business opportunities, promote and facilitate trade, and improve resource protection. CAHPS establishes site-specific plans for biosecurity, surveillance, and response related to animal health events. Well-managed surveillance planning is the foundation for animal health activities that include disease control and eradication programs, support of emergency preparedness and response, and international trade.

Overall, base funding for the Aquatic Animal Health program currently supports salaries and benefits, and other program operating costs such as travel, supplies, rent, and utilities necessary to conduct program activities.

An increase of $34,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $64,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(3) Avian Health program: An increase of $1,858,000 and 0 staff years ($63,213,000 and 238 staff years available in the FY 2022 Annualized Continuing Resolution).

The Avian Health program protects the U.S. poultry industry, whose production value was $35.5 billion in 2020 (USDA, National Agricultural Statistics Service), while facilitating agricultural trade in poultry and poultry products. This program consists of the surveillance, prevention, and control of avian diseases; disease threat planning and response; and international avian health activities. APHIS' surveillance programs detect foreign, zoonotic, and domestic diseases that could substantially impact domestic production and the economy. Surveillance information facilitates trade and protects public health by demonstrating that certain diseases do not exist in poultry populations. Prevention and control programs minimize disease threats and protect the value of poultry markets. The Agency also maintains regulations and national program standards and guidelines that direct avian health activities at the Federal, State, and Tribal levels. Maintaining these standards supports interstate and international commerce by providing assurances about the health of avian species and products that are moved or traded. In addition, APHIS uses epidemiological and economic modeling to better understand historical events and inform policy decisions.

APHIS works to quickly detect and address endemic, emerging, and foreign disease threats to ensure that the U.S. poultry industry maintains worldwide competitiveness. To detect these threats, the Agency conducts surveillance in domestic poultry, the live bird marketing systems (LBMS), and wild birds. The National Poultry Improvement Plan (NPIP) is a cooperative Federal-State-industry program that helps participants guard against disease incursion and enhance the marketability of poultry and poultry products. The program includes the testing of *Salmonella Pullorum, Salmonella Enteritidis, Salmonella Gallinarum, Mycoplasma gallisepticum, Mycoplasma synoviae, Mycoplasma meleagridis,* and H5/H7 strains of avian influenza (AI). Currently, the NPIP H5/H7 prevention and control program involves all 50 States and Puerto Rico; more than 95 percent of commercial broiler, turkey, and egg industries; and the entire primary poultry breeding industry. Approximately 100 authorized and approved laboratories in 42 States provide diagnostic testing for the program. Surveillance, diagnostic, and biosecurity activities are funded through cooperative agreements with requesting States.

APHIS manages the NPIP U.S. Poultry Primary Breeder AI Compartmentalization program, which audits and certifies pedigree poultry stock breeding companies that practice high-level biosecurity measures to keep their flocks AI-free. Compartmentalization defines the health status of a subpopulation of animals by common biosecurity and management principles rather than a shared geographic boundary. The voluntary program supports the trade of poultry and poultry products if the United States encounters an AI outbreak. Participating breeders must meet extensive biosecurity, personnel training, disease monitoring, and laboratory infrastructure requirements. APHIS administers the program and serves as the regulatory authority that international trading partners can trust to verify that a participant meets the requirements.

APHIS conducts AI surveillance in commercial poultry under the National H5/H7 AI Prevention and Control program. Although most of the testing is performed locally, APHIS' National Veterinary Services Laboratories provides reagents for testing, and performs confirmation and identification testing of presumptive positive specimens. Each year, APHIS performs approximately 1 million AI surveillance tests through NPIP AI cooperative agreements. No H5/H7 AI virus was found in U.S. commercial poultry flocks as a result of these tests.

The LBMS is a voluntary network of U.S. live poultry markets and their production and distribution systems, which provides fresh poultry meat to consumers. Approximately 33 States and the U.S. Virgin Islands have live bird markets that participate in the APHIS' avian influenza (AI) prevention and control program. State cooperators help conduct surveillance and diagnostic activities for the LBMS. When these tests yield presumptive positive results, APHIS confirms the presence and strain of AI. LBMS testing prevents and controls the disease in markets and among producers and distributors that supply those markets. In FY 2021, there was one H5N3 LPAI detection in the LBMS from approximately 100,000 AI surveillance tests.

AI circulates in waterfowl and shorebirds causing little to no disease, which allows the viruses to move efficiently along migratory flyways in these birds. Occasionally, these viruses will spill over into domestic land-based poultry. When poultry are infected with H5 or H7 strains of AI virus, the virus can evolve into the more serious disease-causing form, highly pathogenic AI (HPAI). HPAI usually causes significant disease and mortality in domestic poultry and sometimes in wild birds. APHIS conducts wild bird surveillance to gain insight into AI viruses in wild populations, and how and when they impact poultry. In FY 2021, the Agency coordinated the collection and laboratory analysis of approximately 8,400 wild bird samples from wild waterfowl across the United States. No HPAI was detected, but low pathogenic strains were found in approximately 13 percent of the sampled wild birds.

Internationally, APHIS facilitates agricultural trade, works with agricultural officials, monitors agricultural health, and supports sanitary and phytosanitary standard-setting efforts. The Agency works with animal health counterparts to reduce the impact of AI in trade by promoting transparent communications; clarifying animal disease status; and when markets close, providing relevant data to reopen them and minimizing trade disruption of these products. In addition, APHIS works with the USDA Foreign Agricultural Service and the Office of the U.S. Trade Representative to maintain a coordinated, strategic approach to resolving avian health issues that affect U.S. exports. Further, APHIS coordinates with the World Organisation for Animal Health and other international organizations to assist with disease prevention, management, and eradication activities in highly pathogenic avian influenza -affected regions. In addition, APHIS sponsors and staffs the Emergency Management Center at the Food and Agriculture Organization of the United Nations in Rome, Italy. This Center provides assessments, guidance, and resources to enable rapid response to animal disease outbreaks in countries where the United States would have difficulties placing personnel or responding bilaterally. This approach reduces the threat of disease outbreaks becoming widespread and evolving into pandemics. The Agency works closely with counterparts in Canada and Mexico to address avian disease threats affecting North America. APHIS also delivers capacity-building activities focused on biosecurity, poultry disease diagnostics, quality assurance in the laboratory, and poultry and wildlife surveillance.

Overall, base funding currently for the Avian Health program supports salaries and benefits, cooperative agreements and programmatic contracts, and other normal operating costs such as travel, supplies, rent, and utilities to conduct program activities.

An increase of $620,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $1,238,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(4) Cattle Health program: An increase of $3,789,000 and 0 staff years ($105,216,000 and 493 staff years available in the FY 2022 Annualized Continuing Resolution).

The Cattle Health program protects and improves the quality, productivity, and economic viability of the U.S. cattle and dairy industries, valued at $87 billion (National Agricultural Statistics Service, 2020). The Cattle

Health program has two major goals: to rapidly detect and respond to diseases that could significantly affect the U.S. cattle and bison population and prevent the spread of any newly detected disease in the United States as well as endemic domestic cattle and bison diseases of concern. The Cattle Health program conducts activities related to surveillance and monitoring, disease prevention, disease investigation, and outbreak response actions. In addition, the program maintains regulations, national program standards, and guidelines that direct cattle health activities at Federal, State, Tribal, and local levels. Establishing and maintaining these standards is critical to supporting interstate and international commerce by providing assurances about the health of cattle or bison being moved or traded.

In FY 2021, APHIS continued to conduct surveillance for foreign, emerging, and endemic diseases, including bovine tuberculosis (TB), brucellosis, and bovine spongiform encephalopathy (BSE) as well as disease vectors, such as the cattle fever tick (CFT), and new world screwworm (NWS). The Agency conducts surveillance through cattle testing at slaughter facilities, livestock markets, shows, sales, buying stations (first-point testing), on-farm, and rendering facilities (operations that collect dead, dying, disabled, and diseased animals). APHIS also works with Canada and Mexico to exclude foot-and-mouth disease, new world screwworm, and other cattle diseases.

APHIS surveillance activities for Bovine TB includes testing live cattle and using slaughter surveillance data from the USDA's Food Safety and Inspection Service. Since the bovine TB program began in 1917, it has significantly decreased the prevalence of the disease in U.S. livestock. Today, the prevalence rate in cattle herds is less than .001 percent. APHIS addresses affected herds with a mix of depopulation and test-and-removal strategies that consider herd size, potential indemnity costs, State and owner preferences, genetics, and the probability of removing infection. In FY 2021, approximately 148 Federally inspected slaughter establishments submitted 5,760 samples to APHIS for TB testing.

Bovine brucellosis is an infectious disease that can negatively impact the livelihood of cattle producers and the supply of meat and dairy products. Federal and State eradication efforts have resulted in all 50 States, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands being Class-Free since July 2009. APHIS works with States to implement brucellosis management plans to mitigate the risks imposed by brucellosis found in wildlife populations. Although the United States is Class-Free of brucellosis, the disease remains in free-ranging bison and wild elk in the Greater Yellowstone Area. To help manage brucellosis in this area, APHIS provides expertise to land and wildlife management agencies in Idaho, Montana, and Wyoming. Under the market cattle identification national slaughter surveillance program, APHIS partners with States to tests cattle and domestic bison on farms and ranches before movement, sale, and herd certification issuance for show and exhibition purposes.

BSE is a progressive, fatal neurologic cattle disease which is primarily spread through contaminated feed. The World Organisation for Animal Health evaluates countries that submit disease freedom requests and established official recognition of sanitary risk status through a transparent, science-based and impartial procedure. This system uses points to ensure the BSE surveillance programs obtain quality samples from targeted populations rather than the entire adult cattle population. The system also incorporates a country's BSE history, cattle feed regulations, and surveillance practices. APHIS samples approximately 25,000 animals each year and targets cattle populations where the disease is most likely to be found. The targeted population for ongoing surveillance focuses on cattle exhibiting signs of central nervous disorders or any other signs that may be associated with BSE, including cattle that cannot walk, are low weight, injured, or dead. No cases of BSE were detected in FY 2021.

APHIS partners with the Texas Animal Health Commission (TAHC) to carry out the Federal-State CFT Eradication Program. CFT spreads the disease babesiosis, also known as cattle fever. The Agency controls the spread of tick species that transmit the infectious agent by inspecting livestock before they leave quarantined areas, conducting surveillance at local markets, inspecting hunter-killed white-tailed deer and other exotic ungulates, and conducting horseback river trail patrols to capture stray and smuggled Mexican livestock who may carry ticks into the United States. APHIS, with cooperation from the TAHC, maintains a permanent quarantine zone between Texas and Mexico to prevent CFT from spreading into the United States. Bordering Mexican states harbor tick species, which carry the disease, and tick-infested wildlife or livestock near the border can bring the ticks into the United States. Tick eradication activities consist of identifying and quarantining infested premises and treating livestock and wildlife. Approved treatment methods include dipping or spraying cattle with coumaphos, feeding ivermectin-treated corn to deer found in wildlife; and injecting cattle with Doramectin. To release a quarantine area, every infested premise must have all cattle treated for nine months, including inspections and treatments every two weeks.

APHIS began efforts along the border to control Carrizo Cane in FY 2020. Carrizo Cane is an invasive species grass that grows along the Rio Grande River in Texas. The cane makes for a particularly favorable habitat for CFT which reside in the vegetation waiting for animals to brush by so they can attach. In FY 2021, APHIS worked with contractors to aid in the eradication of the invasive cane and increase river visibility by successfully topping approximately 115 miles of land area, primarily alongside river trails used by CFT inspectors.

APHIS and cooperators have eradicated screwworm from the United States, Mexico, Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and down to the southern-most portion of Panama. APHIS prevents the reestablishment of screwworm in the United States by collaborating with Panama and Colombia to maintain a biological barrier zone in the Darien Gap, along the Colombia/Panama border. The program relies on a sterile insect technique, a process where APHIS and cooperators produce and sterilize insects at a jointly managed facility in Panama and release them in the barrier zone to mate with wild insects, thereby preventing reproduction. The United States also has access to the sterile flies in the event of an outbreak in U.S. territory. APHIS produces approximately 20 million sterile flies per week at its Panama rearing facility.

Overall, base funding for the Cattle Health Program currently supports salaries and benefits, cooperative and programmatic contracts, and other normal operating costs such as travel, supplies, rent, and utilities to conduct program activities.

An increase of $1,284,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $2,505,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(5) Equine, Cervid and Small Ruminant Health program: An increase of $2,906,000 and 0 staff years ($28,982,000 and 116 staff years available in the FY 2022 Annualized Continuing Resolution).

The Equine, Cervid, and Small Ruminant Health (ECSRH) program protects the health and improves the quality, productivity, and economic viability of the equine, cervid, sheep, and goat industries. APHIS activities include monitoring, surveillance, investigation, response, and disease prevention and preparedness to address animal health issues. The Agency's monitoring and surveillance activities detect foreign, emerging, zoonotic, and domestic diseases that could substantially impact the economy. APHIS also works with domestic and international trading partners to facilitate safe trade in equine, cervids, and small ruminants and their products, and ensure that diseases of trade concern are reported to the World Organisation for Animal Health when detected. This program conducts disease surveillance and monitoring activities for the following diseases: bovine tuberculosis (TB), chronic wasting disease (CWD), vesicular stomatitis virus, contagious equine metritis, equine infectious anemia, equine piroplasmosis, Eastern equine encephalitis, West Nile virus, and scrapie.

The National Scrapie Eradication Program focuses on improving the health of domestic sheep and goats, reducing scrapie-associated economic losses and increasing international marketing opportunities. Scrapie is a fatal, degenerative disease that affects the central nervous system of sheep and goats. Regulatory scrapie slaughter surveillance efforts, which began in FY 2003, were designed to identify scrapie-infected flocks and herds by sampling animals at slaughter. Since the surveillance program began, the program has collected 697,000 samples at slaughter. The rate of culled sheep sampled at slaughter that tested positive for classical scrapie has decreased significantly from 0.2 percent (1 in 500) in FY 2002, to 0.0023 percent (less than 1 in 40,000) in FY 2021.

APHIS' voluntary national CWD Herd Certification Plan (HCP) helps States, Tribes, and the cervid industry control CWD in farmed cervids by allowing the interstate movement only from certified herds. Currently, 28 States participate in the national CWD HCP. APHIS determines the use of Federal indemnity payments within the CWD program on a case-by-case basis. APHIS also coordinates a voluntary cervid TB herd accreditation program.

In 2021, APHIS made cooperative agreement funding available to further develop and implement CWD surveillance, testing, management, and response activities, including the further development and evaluation of

techniques and strategies to prevent or control CWD in farmed and wild cervid populations. APHIS funded awards to 39 entities: 20 to State Departments of Wildlife, 11 to State Departments of Agriculture, and 8 to Tribal Organizations.

APHIS collaborates with Federal, State, and industry partners to protect the equine industry from disease, improve the health of our domestic herd, and protect human health. These activities improve trade and facilitate equine movement, which are vital to maintaining the industry's economic value. APHIS also provides veterinary support and consultation to the U.S. Department of the Interior's Bureau of Land Management Wild Horse and Burro Program through an interagency cooperative agreement. APHIS coordinates with States and industry to develop national disease control strategies, and provide oversight, coordination, and implementation of appropriate policies to mitigate the risks posed by equine diseases of concern. APHIS provides expertise and helps develop the equine industry's National Equine Health Plan. This plan functions as a roadmap for owners, veterinarians, and industry organizations to coordinate with State and Federal animal health officials to recognize, prevent, control, and respond to equine diseases.

Overall, base funding for the ECSRH program currently supports salaries and benefits, contracts and agreements, equipment, and other normal operating costs such as supplies, rent, and travel to conduct program activities.

An increase of $2,000,000 and 0 staff years for chronic wasting disease
In FY 2021, APHIS and the Department of Interior brought together representatives from State agriculture and wildlife agencies, Tribal Nations, conservation and hunting groups, and the cervid industry to identify and discuss stakeholder CWD management needs and information gaps that need to be addressed to effectively control CWD. APHIS subsequently offered cooperative agreement opportunities for proposals in support of the priorities established largely based on these discussions; the Agency would like to continue to build upon these efforts. APHIS is requesting a $2 million increase, for a total of $9 million in FY 2023, to allocate directly to State Departments of Wildlife and State Departments of Agriculture to further develop and implement chronic wasting disease surveillance, testing, management, and response activities. These activities are particularly important in the face of a changing climate which could enable the spread of diseases, such as CWD.

An increase of 302,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $604,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(6) National Veterinary Stockpile: An increase of $55,000 and 0 staff years ($5,736,000 and 6 staff years available in the FY 2022 Annualized Continuing Resolution).

The National Veterinary Stockpile (NVS), overseen by APHIS' Field Operations Logistics Center, serves as the primary source of materials, supplies, and equipment for the response to, control of, and containment of significant animal disease outbreaks. The NVS has two primary objectives: to deploy countermeasures, within 24 hours of approval, against the most damaging animal diseases including highly pathogenic avian influenza, foot-and-mouth disease (FMD), virulent Newcastle disease, African swine fever, and classical swine fever; and, to assist States, Tribes, and Territories with planning, training, and exercises for the rapid request, receipt, processing, and distribution of NVS countermeasures during an event.

NVS continuously evaluates its inventory of supplies and replaces expired inventory. To maximize cost-efficiency and response capabilities, NVS personnel work with industry modelers and academic institutions to develop a scientifically estimated quantity of supplies to stockpile for each disease on APHIS' high-consequence diseases list. These personnel gather input from Federal agencies on strategies such as commercially available countermeasures including vaccines, criteria for deploying countermeasures, and ways to leverage stockpiles. The program continues to maintain its capabilities to address high consequence animal diseases, manage inventories, and develop ways to best address the Agency's response capabilities by quickly deploying animal health response resources. The NVS also acquires equipment to assist in animal disposal and makes necessary upgrades to existing equipment for animal depopulation efforts during an event.

APHIS uses a portion of the NVS funding to maintain the North American FMD Vaccine Bank (NAFMDVB)

as part of the animal health readiness initiative. The NAFMDVB is a vaccine stockpile that APHIS and Canada support cooperatively. Each country contributes funding to acquire vaccine and maintain a vaccine concentrate stockpile, from which FMD vaccine is derived. The United States and Canada will continue to ensure that the Bank maintains adequate stocks of vaccine concentrate and conducts necessary quality assurance testing. Without NVS' efforts, disease outbreak response efforts would quickly deplete State resources and overwhelm industry, leading to larger and more serious animal disease outbreaks.

Overall, base funding for the NVS program currently supports salaries and benefits, supplies, and contracts and agreements, as well as other normal operating costs like rent, travel, and equipment to conduct program activities.

An increase of $15,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $40,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(7) Swine Health program: An increase of $1,080,000 and 0 staff years ($25,020,000 and 142 staff years available in the FY 2022 Annualized Continuing Resolution).

APHIS' Swine Health program protects the health and improves the quality, productivity, and economic viability of the swine industry. The 2020 production value of the swine industry was approximately $18 billion (National Agricultural Statistics Service). In addition, the program facilitates trade in swine and pork products, and addresses swine health issues at the human-swine interface and between wildlife and domestic swine. APHIS activities include comprehensive and integrated swine surveillance, emergency preparedness and response planning, disease investigation and control activities, zoonotic disease prevention and response, swine health studies and special projects, collaborations on emerging issues, and communication with stakeholders. In addition, the Agency maintains regulatory and programmatic guidelines that direct activities at the Federal, State, and Tribal levels. Establishing and maintaining national standards support interstate and international commerce by ensuring the health of animals and products being moved or traded.

APHIS collects swine samples from various surveillance streams as part of a comprehensive integrated surveillance approach to detect swine diseases that could substantially affect domestic producers and the national economy. Comprehensive integrated surveillance includes field work and epidemiological investigations, designated surveillance streams, a veterinary diagnostic laboratory infrastructure, data management systems, and methodologies for data analysis and reporting. APHIS collects samples and data from diagnostic laboratories, slaughter plants, high-risk producer premises, livestock markets, and feral swine during population elimination projects. Surveillance testing supports the swine industry by assuring trading partners and other stakeholders of the status of swine diseases. Comprehensive surveillance enables APHIS to maintain effective surveillance using a risk-based approach that targets high-risk samples and reduces costs.

For several years, APHIS has closely followed African swine fever (ASF), a highly contagious and deadly viral disease of domestic and wild pigs, as it spread across Asia and Europe. Currently, the only way to stop it is to depopulate all affected or exposed swine herds. Early detection is the key to controlling, containing, and eliminating ASF. While ASF has never been found in the United States and does not threaten public health, an introduction would devastate U.S. pork producers, their communities, and the economy. A 2019 Iowa State University study estimated that a U.S. outbreak could cost the U.S. swine industry $14 billion over 2 years and $50 billion over 10 years. APHIS has instituted a series of interlocking safeguards to prevent ASF from entering the United States and is working with States and industry to develop and refine plans in case of an outbreak. In recent years, the Agency has increased its testing capacity, increased inspections of products from ASF-affected areas, implemented a nationwide surveillance plan, and is coordinating planning efforts with States, industry, Canada, and Mexico to prevent ASF from entering the United States. The Agency's ASF outbreak preparations efforts with States and industry partners include providing guidance on a potential national movement standstill for live swine and swine germplasm; improving depopulation and disposal methods; and developing a flat payment rate for virus elimination of infected premises.

The Agency tests for pseudorabies virus (PRV) and swine brucellosis (SBR). Testing continues to confirm that all commercial swine herds were free from PRV and SBR, although these diseases continue to be found in non-

commercial herds after exposure to feral swine. In all test-positive cases, APHIS and States investigate and quarantine infected herds, conduct outbreak testing to determine herd disease levels, and depopulate or remove infected animals through a test-and-removal strategy to eliminate disease risk from these herds. These efforts protect commercial herds that may be exposed to infected backyard herds.

APHIS also performs foreign animal disease (FAD) investigations in swine. Most of these investigations in recent years have been for vesicular diseases, such as foot-and-mouth disease (FMD). The Agency also conducts an ASF/CSF combined hemorrhagic fever surveillance program. CSF remains eradicated from the United States.

Swine can harbor several zoonotic disease agents, such as swine influenza (IAV-S), and swine brucellosis. In such cases, State public health and animal health officials conduct investigations and request support from APHIS and the Centers for Disease Control and Prevention (CDC) when warranted. Joint animal health and public health investigations support the One Health concept and strengthen APHIS' ability to respond when both animal and human health might be compromised.

APHIS has the responsibility under the Swine Health Protection Act (SHPA) to license and inspect swine production facilities that feed cooked garbage to swine, and to conduct searches for unlicensed facilities that may illegally feed raw garbage to swine. In addition, the SHPA authorizes States to have primary enforcement responsibility to regulate the feeding of garbage to swine. APHIS may assume the responsibility if a given State fails to meet the SHPA enforcement requirements. Feeding untreated or improperly treated garbage could transmit infectious diseases such as ASF, FMD, or CSF to swine. By ensuring that food waste fed to swine does not threaten domestic swine, APHIS protects the commerce, health, and welfare of U.S. citizens

The program has the expertise and infrastructure to work with the swine industry, universities, and Federal and State partners to collect, analyze, and disseminate vital swine health information to those who might take action. The program continues to develop and maintain swine surveillance protocols to assure the availability of safe and plentiful swine and swine products.

Overall, base funding for the Swine Health program currently supports salaries and benefits, contracts, and agreements, as well as other normal operating costs such as travel, supplies, and rent, and utilities.

An increase of $370,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $710,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(8) Veterinary Biologics program: An increase of $969,000 and 0 staff years ($20,570,000 and 126 staff years available in the FY 2022 Annualized Continuing Resolution).

APHIS' Center for Veterinary Biologics (CVB) regulates veterinary biological products under the Virus-Serum-Toxin Act to ensure that they are pure, safe, potent, and effective. Organizations develop these products, which include vaccines, bacterins, antisera, diagnostic test kits, and analogous products to prevent, diagnose, and treat animal diseases in a wide variety of animal species. The CVB develops regulations concerning the production and licensing of veterinary biologics, evaluates pre-licensing dossiers and issuance of licenses and permits, tests products submitted for licensure, inspects facilities and products, approves product certifications, investigates non-compliance, and conducts post-marketing surveillance to ensure that manufacturers comply with regulations and policies. This comprehensive regulatory approach is the most effective way to ensure that only quality, federally licensed, veterinary biological products are available to U.S. consumers, available for U.S. export markets, and plays an essential role in protecting animal health and agriculture.

APHIS licenses and inspects facilities to ensure that all veterinary biological products produced and distributed within, imported into, or exported from, the United States are of the highest quality, and are not worthless, contaminated, dangerous, or harmful. Before the Agency began regulating these products, farmers and animal health officials found products to be ineffective or contaminated with harmful diseases, including foreign animal diseases. While most of the time required in the licensing process is in the control of the potential

licensee in developing manufacturing processes and conducting required studies, the CVB analyzes data and conducts confirmatory testing before issuing licenses. To reduce the burden on the regulated industry, CVB has expedited turnaround times, streamlined required information collection under specific circumstances, and implemented electronic submissions for most required regulatory submissions.

The United States and foreign countries require import and export certificates to certify that products are prepared in accordance with the Virus-Serum-Toxin Act. In FY 2021, the Agency processed all export certificates within 4 days (the FY 2021 average was 1.4 days), and all certificates of licensing and inspection within 28 days (the FY 2021 average was 12 days). Timely processing helps ensure that markets are accessible for manufacturers who export their product. APHIS also helped to ensure there were no foreign animal disease events related to the importation of more than 441 million doses of biologic products, a 29 percent increase in the number of doses imported in FY 2020.

APHIS' National Centers for Animal Health Portal allows real-time communication and data exchange between APHIS and biologics manufacturers, reducing the time and costs for application review. By the end of FY 2021, 94 percent of licensed firms and permittees were using the Portal. This resulted in CVB receiving 99 percent of marketing documents, 96 percent of biographical summaries, 87 percent of licensing correspondence, and 67 percent of inspection and compliance correspondence via the Portal. In FY 2021, the Portal received 86 percent of export certificates and 94 percent of facility documents. Import permits submitted electronically represented 99 percent of Research and Evaluation Permits, 100 percent of Transit Permits, and 64 percent of Sales and Distribution Permits. Overall, 92 percent of FY 2021 CVB submissions were received through the Portal.

Each year, APHIS inspects an average of 50 biologics sites to assure regulatory compliance. To counter COVID-19 travel restrictions, the Agency found innovative ways to conduct inspections virtually to allow for timely approval of biologics manufacturing facilities. For example, CVB required licensed manufacturers to provide blueprints and legends of new or remodeled areas for review and approval. After CVB review, the manufacturers submitted videos detailing the construction, process, and personnel flow through these facilities.

APHIS promotes U.S. policy for the oversight of biologics as a regulatory model for established and developing markets, and it improves the worldwide marketability of USDA-licensed biologics. The Agency participated in harmonization efforts with major trading partners including Japan and the European Union through the International Cooperation on Harmonization of Technical Requirements for Registration of Veterinary Medicinal Products. Additionally, CVB participates in the Veterinary International Conference on Harmonization's (VICH) Outreach Forum. This forum promotes the use of VICH harmonized guidelines in countries with developing regulatory systems for veterinary medicinal products. To further improve the marketability of USDA-licensed biologics in overseas markets, CVB worked with the industry to create and issue an Inspection Certificate program which provides Good Manufacturing Practices certificates that align with regulatory authorities and facilitate the marketing of U.S. prepared products in the international arena.

APHIS continues implementing the single-tier labeling rule, which changes the efficacy descriptions for veterinary biologics to a single, uniform label claim. This simpler format better communicates product performance, saves time and money for the manufacturer, and aligns U.S. labeling with international markets. In addition, APHIS clearly defined policy to allow the use of platform and prescription vaccines. These policies allow stakeholders the flexibility to quickly change vaccines to match emerging and changing pathogen threats with very limited risk to people, animals, or the environment.

Overall, base funding for the Veterinary Biologics program currently supports salaries and benefits of personnel, and contracts and agreements, as well as normal operating costs such as supplies, travel, rent, and utilities to conduct program activities.

<u>An increase of $328,000 for FY 2022 Pay and FERS costs</u>
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

<u>An increase of $627,000 for FY 2023 Pay and other inflationary costs</u>
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

<u>An increase of $14,000 for implementation of E.O. 14003</u>

This increase will support implementation of E.O. 14003 and corresponding Office of Personnel Management guidance which increased the minimum wage for Federal employees.

(9) Veterinary Diagnostics: A net increase of $1,438,000 and 29 staff years ($56,979,000 and 167 staff years available in the FY 2022 Annualized Continuing Resolution).

Laboratory and diagnostic services are essential components of the U.S. animal health infrastructure. The Veterinary Diagnostics line item provides partial funding for the National Veterinary Services Laboratories (NVSL), which consists of laboratories in Ames, Iowa, and Plum Island, New York. The NVSL is recognized by the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization as an international reference laboratory for significant animal diseases such as highly pathogenic avian influenza, foot-and-mouth disease (FMD), and rinderpest. It provides diagnostic test services ranging from a single laboratory test to comprehensive laboratory services covering many pathogens for suspected domestic and foreign animal diseases (FADs). The line item also supports the National Animal Health Laboratory Network (NAHLN), an animal disease surveillance and monitoring system that interconnects Federal and State laboratory resources to improve the security of the nation's livestock by providing disease diagnostics daily and at increased levels during outbreaks. This line item also supports efforts to stand up the National Bio and Agro-Defense Facility (NBAF) in Manhattan, Kansas which will help protect the nation's agriculture, farmers, and citizens against the threat and potential impact of serious FADs. NBAF will replace the Plum Island Animal Disease Center (PIADC) in New York.

Diagnostic testing and confirmation of surveillance samples improves the security of the nation's livestock. NVSL is often on the forefront of emerging and re-emerging diseases of concern including African swine fever (ASF), virulent Newcastle disease virus, tilapia lake virus, infectious hypodermal and hematopoietic necrosis virus, Senecavirus A (SVA), bluetongue, vesicular stomatitis virus, and rabbit hemorrhagic virus. NVSL maintains a web-based portal for entering sample information to minimize the manual re-entry of this information. The laboratories produced and filled more than 100,000 reagent order items in FY 2021, representing approximately 552 types of products. Many of these products are only available to stakeholders through APHIS.

NVSL led the USDA animal diagnostic response to SARS-CoV-2 with testing capabilities, receiving animal samples for SARS-CoV-2 confirmatory testing. NVSL conducts real-time PCR testing, virus isolation, sequencing, and virus neutralization for antibody detection. In addition, it has conducted animal testing when State animal and public health officials have approved the submissions. In FY 2021, NVSL tested more than 1,000 animals for SARS-CoV-2 and confirmed SARS-CoV-2 in 235 animals representing 13 species.

APHIS conducts proficiency testing of Federal, State, and university-sponsored laboratories when these laboratories perform authorized diagnostic testing as part of APHIS-approved surveillance and/or response programs. This is done to ensure that they use standardized, rapid diagnostic techniques and to maintain the credibility of U.S. diagnostic test results in the international marketplace. In FY 2021, APHIS made 32 types of proficiency panels available to international, Federal, State, and private laboratories within and outside the NAHLN network. APHIS made the necessary controls and reference strains available for approximately 200 diseases to help other laboratories develop and validate diagnostic tests. User fees cover the cost of some reagents and proficiency panels.

The Veterinary Diagnostics program also provides support for the National Animal Health Laboratory Network, which serves as a vital early warning system for foreign and emerging animal diseases. The NAHLN consists of approximately 60 Federal, State, and university veterinary diagnostic laboratories in 42 States. This support includes: limited infrastructure in NAHLN laboratories; NAHLN program staff; the APHIS Laboratory Portal, which provides a secure means of communication for the laboratories and proficiency test management for NAHLN and non-NAHLN APHIS-approved laboratories; information management personnel to support electronic messaging; and quality management training used by NAHLN laboratories to maintain qualifications for participating in the network.

NVSL trains NAHLN laboratory personnel to ensure proficiency and standardization for performing diagnostic tests. These laboratories work with NVSL reference laboratories to test for 14 economically devastating and/or FADs and potentially zoonotic diseases such as FMD, influenza in avian and swine species, bovine spongiform encephalopathy, and classical swine fever. Each year, network laboratories perform approximately 200,000 diagnostic tests to support APHIS' animal health surveillance and response programs, including NAHLN ASF/CSF active surveillance. NAHLN program staff conduct exercises to prepare participating laboratories for

animal disease outbreak scenarios and enable them to remain proficient in animal disease testing. It also enables them to generate a rapid, local preliminary diagnostic result while NVSL performs confirmatory testing.

APHIS continues to expand its ASF rapid detection capability to maintain a timely, effective response and build surge capacity in case of an outbreak. In addition, the Agency works with States, State veterinarians, and industry partners to prepare for a possible ASF incursion into the United States. APHIS also engages in collaborative efforts at FADDL and NAHLN to strengthen ASF diagnostic preparedness. To enhance capacity in NAHLN, APHIS provided proficiency testing to NAHLN laboratories, expanding its ASF testing capacity in FY 2021, from 47 to 48 approved laboratories. APHIS now has more than 200 analysts approved to administer ASF tests in NAHLN laboratories. The Agency continues to develop strategies to use oral fluids to achieve early and rapid detection of positive cases.

APHIS continues to work with the U.S. Department of Homeland Security (DHS) and USDA's Agricultural Research Service (ARS) to plan for the move from the PIADC to the NBAF. In addition, USDA and DHS continue planning to transfer NBAF management and oversight from DHS to USDA. The PIADC, home to APHIS' Foreign Animal Disease Diagnostic Laboratory (FADDL), is the only U.S. laboratory permitted to work with virulent FMD virus and hold rinderpest virus. In addition, FADDL is the custodian of the North American FMD Vaccine Bank and also manages the U.S. National Animal Vaccine and Veterinary Countermeasures Bank. NBAF will be a key national asset to protect the U.S. animal agriculture industry and will be the first and only U.S. facility with large animal Biosafety Level-4 (BSL-4) containment capability. The NBAF steady-state operations are assumed to begin in FY 2025, once the BSL-4 laboratories are fully operational. After the transfer, ARS will own the buildings, and ARS and APHIS will have leadership responsibilities on operational aspects of the facility and for their own science programs.

APHIS and ARS continue to develop a workforce of subject matter experts in foreign, emerging, and zoonotic diseases to conduct diagnostics in preparation for the NBAF transition. Workforce development is critical, given the significant loss of expertise expected during the transition and the need to transfer the FAD diagnostic institutional knowledge to NBAF. While USDA can train diagnosticians to perform specific tests, interpreting unclear results and troubleshooting diagnostic assays when they do not perform properly requires a high level of experience. Additionally, APHIS anticipates a potentially significant expertise gap, particularly during the first 5 to 10 years of operations at NBAF, based on the time required to develop expertise in this area. To address this possible workforce gap, APHIS operates the NBAF Scientist Training Program (NSTP) to meet the needs for subject matter experts in foreign animal and zoonotic diseases. This workforce development program is critical because expertise and international recognition in FAD diagnostics take years to develop, yet APHIS does not expect the entire FADDL workforce with that expertise to relocate to NBAF. This program will help preserve and transfer the U.S. FAD diagnostic institutional knowledge to NBAF. APHIS also supported the NBAF Laboratorian Training Program to train future laboratory technicians. APHIS prioritized certain science positions for hiring before FY 2022. Most of these positions are training on FADDL-specific assay protocols and instrumentation systems at PIADC, before transitioning to NBAF. APHIS is placing the remaining positions at NBAF to develop standard operating procedures, order equipment and supplies, develop International Organization for Standardization (ISO) accreditation paperwork, and help with the select agent registration process. The overarching responsibilities of priority hires include the validation of the space for workflows and laboratory practices for select agent registration and ISO 17025 accreditation, as well as proficiency in the required equipment care, use, and calibration to meet ISO accreditation and biosafety standards.

The diagnostics testing conducted under this line item can rapidly confirm the presence or absence of a particular animal disease and can promptly provide decision makers with vital information that could have significant trade impacts and prevent or mitigate the spread of significant animal diseases.

<u>An increase of $4,000,000 and 29 staff years for the transition to NBAF</u>
APHIS requests $4,000,000 and 29 staff years to support the continued transition from PIADC to NBAF. There will be increased travel and training costs in FY 2023, associated with training new employees that will help operate the Agency's diagnostic work at NBAF. This includes new hires in Manhattan, Kansas traveling to PIADC for training in the current BSL-3 laboratory space as well as current employees at PIADC traveling to Manhattan, Kansas to support the scientific stand-up activities at NBAF. This increase in travel and training costs will be partially offset by decreases in relocation requests due to the anticipated delay in substantial completion and the associated delay in starting up of the science programs at NBAF, as well as a decreased level of support for the NSTP due to successful selection of qualified students in previous fiscal years. We anticipate NSTP to continue indefinitely at a reduced level to keep developing the pipeline of highly trained and

qualified scientists joining the NBAF workforce. The timing of the movement of staff from PIADC to NBAF is dependent on the schedule for the biorepository transport, the final substantial completion date, and the number of FADDL employees who decide to move to NBAF.

A decrease of $4,000,000 and 0 staff years for the NAHLN
At the proposed funding level, APHIS would continue working with the NAHLN-participating laboratories on the highest-priority animal health issues but would reduce the funding the Agency provides to support their infrastructure needs through this line item, primarily related to quality management systems and their ability to electronically message test results. Congress provided additional funds to support the NAHLN in recent years such as through the 2018 Farm Bill. The Agency will leverage remaining funding from all sources in the most effective manner.

An increase of $435,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $989,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $14,000 for implementation of E.O. 14003
This increase will support implementation of E.O. 14003 and corresponding Office of Personnel Management guidance which increased the minimum wage for Federal employees.

(10) Zoonotic Disease Management program: An increase of $4,491,000 and 8 staff years ($19,620,000 and 62 staff years available in the FY 2022 Annualized Continuing Resolution).

The Zoonotic Disease Management (ZDM) Program enhances State, national, and international collaborative efforts to promote healthy animals, people, and ecosystems by addressing zoonotic diseases and relevant One Health issues, including antimicrobial resistance (AMR). "One Health" is a collaborative, multisectoral, and trans-disciplinary approach with the goal to achieve optimal health outcomes while recognizing the interconnection between people, animals, plants, and their shared environment. According to the U.S. Centers for Disease Control and Prevention (CDC) and the World Organisation for Animal Health, 60 percent of human pathogens are zoonotic, and 75 percent of emerging diseases are zoonotic (including Ebola, Zika, MERS, and SARS). Most of these zoonotic diseases originate from animal reservoirs. The Agency collaborates with industry and State partners to develop strategies, policies, and trainings to help stakeholders effectively engage with public health counterparts, provide guidance, facilitate information exchange, and enhance responses to One Health issues. By enhancing APHIS' efforts to address the animal health component of One Health, the ZDM program protects public health and improves animal health and marketability.

AMR is the ability of a microbe to resist the effects of medication previously used to treat them. The Agency works with State, Federal, and industry partners, to promote the judicious use of antimicrobials, which supports a strong, healthy, and thriving U.S. animal agriculture system, as well as public health. In addition, APHIS works with other USDA agencies to develop practical mitigation strategies to reduce AMR prevalence in human and animal health. These strategies cover various efforts including AMR monitoring at the farm level, collection of antimicrobial drug use data, and efforts to promote stewardship of antimicrobial drugs by animal owners and veterinarians. Additionally, APHIS works with State Departments of Agriculture, diagnostic laboratories, and public health officials to address AMR infections in humans found to have an animal component.

The Global Health Security Agenda (GHSA) is a partnership of over 50 nations, international organizations, and non-governmental stakeholders to minimize the global threat of infectious diseases. APHIS coordinates and reports USDA's international efforts related to implementation of GHSA processes, including AMR, zoonotic disease, biosafety and biosecurity, national laboratory systems, and real time disease surveillance, ensuring interagency collaboration and communication in addition to interfacing with other relevant agencies and stakeholders.

Overall, base funding for the ZDM program currently supports salaries and benefits, as well as other normal operating expenses such as travel, supplies, equipment, and rent, and utilities to conduct program activities.

An increase of $4,000,000 and 8 Staff Years for Antimicrobial Resistance
The National Animal Health Monitoring System (NAHMS) Program conducts national studies on the health and health management of United States domestic livestock and poultry populations. Current funding levels for APHIS' work around antimicrobial resistance has limited the number of species, and number of animals, APHIS is able to survey as part of NAHMS. AMR is a threat to both agricultural productivity and human health, and additional funds are needed for APHIS to support this work at the level needed to protect both. APHIS will expand data collection efforts on antibiotic use in swine and cattle operations, two commodities of high concern for AMR prevalence, as well as other livestock species of interest. This work will be done in partnership with producer groups, academia, Federal partners, and other stakeholders. APHIS will expand efforts around data analysis to better inform on-farm antibiotic use decision-making, and expand our education and outreach efforts around antibiotic stewardship with our livestock stakeholders, other Federal agencies, and traditional and non-traditional stakeholders.

An increase of $162,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $329,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $35,697,000 and 34 staff years for Safeguarding and Emergency Preparedness/Response – Plant Health.

(11) Agricultural Quarantine Inspection: An increase of $3,832,000 and 0 staff years ($32,893,000 and 367 staff years available in the FY 2022 Annualized Continuing Resolution).

APHIS conducts predeparture agricultural quarantine inspections of passengers and cargo traveling from Hawaii and Puerto Rico to the continental United States to prevent the introduction of non-native agricultural pests and diseases into the mainland. Hawaii and Puerto Rico have pests and diseases harmful to agriculture that are not established in the continental United States. For example, a variety of economically devastating fruit flies – particularly the Mediterranean fruit fly (Medfly) and Oriental fruit fly – and scale pests are present in Hawaii. In FY 2015, Puerto Rico experienced its first Medfly outbreak, along with an outbreak of the old-world bollworm. Plant and plant products, such as fruits and other commodities, easily carry pests that would cause significant economic damage to the mainland United States. In addition to the citrus industry that may be at risk (with a production value of more than $3 billion, according to USDA's National Agricultural Statistics Service), cut flower and nursery stock production is also at risk from the pests and diseases present in Hawaii and Puerto Rico. Additionally, the presence of African swine fever (ASF) in the Dominican Republic and Haiti poses a risk to Puerto Rico and to the U.S. mainland because of proximity and trade and travel patterns. Using emergency funding from the Commodity Credit Corporation, APHIS has enhanced pre-departure inspection operations for passenger baggage from Puerto Rico as an emergency preparedness measure. Two significant cotton pests, pink bollworm and the cottonseed bug, are present in Puerto Rico and could be brought into the United States on cargo shipments without an effective inspection program. The pre-departure inspection program facilitates tourism and agricultural trade between Hawaii and Puerto Rico and the mainland United States, while protecting farmers and producers in the continental United States from the entry of various plant pests and diseases.

Because of the significant risks associated with numerous fruits, vegetables, and other plant products from Hawaii and Puerto Rico, APHIS inspects all baggage of passengers leaving these islands. COVID-19 pandemic continued to impact travel in FY 2021. In FY 2021, APHIS inspected the baggage of 9 million passengers, compared to more than 13 million in FY 2019. APHIS conducts these activities as the national plant health regulatory authority in the United States charged with protecting the health and value of agricultural resources. For commercial cargo, the program oversees treatments and conducts inspections in Puerto Rico for mangoes, cotton, tomatoes, cut flowers, and a variety of other commodities to allow them to be transported and sold in the continental United States. In Hawaii, the program oversees treatments for and inspects a variety of commodities destined for the continental United States, including papayas, bananas, sweet potatoes, herbs such as basil, cut flowers, and ginger root. APHIS inspectors continued critical work facilitating the movement of cargo, conducting treatments, and inspecting containment facilities and first-class mail. In FY 2021, the program

conducted 51,619 inspections of regulated agricultural commodities shipped from Hawaii and Puerto Rico. In addition, the program oversaw or conducted 4,319 cargo treatments in Hawaii and Puerto Rico. Treatments allow farmers in Hawaii and Puerto Rico to expand the types of high-value, perishable products that they can ship to the continental United States, including sweet potatoes and tropical fruits such as litchi and longan.

The Agricultural Quarantine Inspection (AQI) program keeps interstate trade flowing smoothly and safely and allows for efficient processing of tourists, protecting both the economies of Hawaii and Puerto Rico and the agricultural health of the continental United States. The Hawaii Department of Transportation is modernizing its airport infrastructure and adding a new concourse, which will affect two locations, the Ellison Onizuka Kona International Airport located on the island of Hawaii and the Daniel K. Inouye International Airport located in Honolulu on the island of Oahu. APHIS will adjust operations to cover additional terminals when the construction is completed (currently expected in FY 2022), including the purchase of additional x-ray machines to inspect passenger baggage and adjustments to staffing levels and locations. The program's inspections reduce the impact of agricultural pests and diseases on farmers in the continental United States, minimizing production losses and pest control costs and preserving export markets for U.S. agricultural products. Without this program, the risk of pest or disease introduction from Hawaii and Puerto Rico to the mainland United States would greatly increase. Additionally, many commodities would not be allowed entry to the continental United States without the inspections and treatments provided by the program, impacting Hawaiian and Puerto Rican producers. Maintaining the safeguards this program provides is essential, especially considering the increasing U.S. consumer demand for year-round fruits and vegetables.

Overall, base funding for the AQI program currently supports salaries and benefits of inspectors and other staff, as well as normal operating expenses such as rent, utilities, travel, and supplies to conduct program activities.

An increase of $956,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $1,767,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $1,109,000 for implementation of E.O. 14003
This increase will support implementation of E.O. 14003 and corresponding Office of Personnel Management guidance which increased the minimum wage for Federal employees.

(12) Cotton Pests program: An increase of $383,000 and 0 staff years ($13,597,000 and 49 staff years available in the FY 2022 Annualized Continuing Resolution)

The Cotton Pests program, in cooperation with States, the cotton industry, and Mexico, works to eradicate the boll weevil (BW) and pink bollworm (PBW) from all cotton-producing areas of the United States and northern Mexico. For decades, these pests have cost cotton growers' tens of millions of dollars each year in control costs and crop losses, according to the National Cotton Council. APHIS provides national coordination, operational oversight, technology development (such as sterile PBW moths), and a portion of funding through cost-share programs with States. APHIS' partners have provided more than two-thirds of the funding for the boll weevil eradication effort and most of the operational funds for PBW eradication. The program also maintains capabilities to address other cotton pests that could enter the United States.

APHIS provides technical advice on trapping and treatment protocols to our partners in Mexico to aid in their efforts to eradicate boll weevil and PBW. Without continued Federal funding, support, and technical expertise for the final phase of the program, eradication would not be possible and previously eradicated cotton acreage would be vulnerable to reinfestation. Additionally, U.S. cotton production is at risk of new pest introductions, as well as re-infestation of cotton-producing areas where boll weevil and PBW have already been eradicated.

APHIS and our State and cotton industry partners have eradicated BW from 99 percent of the 12.2 million acres of U.S. cotton production (National Agricultural Statistics Service, 2020). The Lower Rio Grande Valley (LRGV) in Texas is the last zone within the United States where active BW eradication efforts continue due to the neighboring Mexican cotton producing state of Tamaulipas. In FY 2023, APHIS will continue to reduce the BW population in the LRGV and partner with the U.S. cotton industry on boll weevil surveillance efforts for all

U.S. cotton production. In addition, APHIS will continue to partner with the Mexican BW eradication program to provide technical assistance and funding through the North American Plant Protection Organization agreement for their parallel program to the LRGV program.

APHIS' Cotton Pests program also partners with States and industry to address PBW. On October 19, 2018, USDA and industry partners officially announced the successful eradication of PBW from all commercial cotton-producing areas in the continental United States. In FY 2018, Florida added a PBW quarantine for an area in the Everglades where a wild PBW population has persisted for the last 80 years and appears to only be active in wild cotton. As a result, APHIS, along with the Florida Department of Agriculture and Consumer Services and the Florida cotton industry, began surveying the perimeter of the commercial cotton area in the northern part of the State and the adjacent okra fields in the city of Homestead to ensure that PBW has not spread. In FY 2023, APHIS will continue to survey these areas in Florida to ensure that isolated PBW populations in southern Florida do not move into the commercial cotton production areas north of the Everglades.

According to the National Cotton Council of America, where BW has been eradicated, the combined annual direct economic benefits from increased yields, reduced insect damage and lower insect control costs are more than $80 million.

Overall, base funding for the Cotton Pest program currently supports salaries and benefits, cooperative agreements, and programmatic contracts, as well as other normal operating expenses such as travel, rent, and utilities to conduct program activities.

An increase of $128,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $255,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(13) Field Crop and Rangeland Ecosystem Pests program: An increase of $3,730,000 and 1 staff years ($10,942,000 and 75 staff years available in the FY 2022 Annualized Continuing Resolution).

The Field Crop and Rangeland Ecosystem Pests (FCREP) program protects U.S. agricultural crops and rangelands from the establishment or spread of invasive or economically significant pests. In doing so, it facilitates safe international trade and domestic commerce, preserves economic opportunities for U.S. farmers and ranchers, and fosters healthy ecosystems in rangelands and other areas. APHIS conducts survey and suppression activities in western States to reduce grasshopper and Mormon cricket (GMC) infestations that could cause significant economic losses for livestock producers by requiring them to buy supplemental feed or sell their livestock at reduced prices. APHIS develops treatments for land managers to remove imported fire ant (IFA) from their products and prevent re-infestation; conducts regulatory activities to prevent Karnal bunt (KB) and IFA from "hitchhiking" on regulated articles (i.e., nursery stock and farm equipment) to uninfested areas of the United States and foreign countries through trade; and, conducts survey, treatment, and regulatory activities for witchweed infestations in North Carolina and South Carolina to protect U.S. corn production. This program directly protects more than 230,000 acres of wheat and corn (based on APHIS analysis). It indirectly protects all U.S. wheat and corn production, valued at $70 billion in 2020 (National Agricultural Statistics Service, Crop Values 2020 Summary), from the spread of KB and witchweed.

When grasshopper populations reach outbreak levels, they can decimate grasslands. APHIS' GMC program monitors and protects 661 million acres of rangeland each year. A 2012 University of Wyoming study found that healthy rangeland provides forage value worth $6.7 billion and overall benefits ranging from $10.7 to $21.2 billion. Each year, APHIS conducts surveys in western States for GMC, collecting data at more than 27,000 survey points in FY 2021, to determine where potential outbreaks could occur and where treatments might be necessary. The program also addresses witchweed, a parasitic plant that can significantly damage corn, sorghum, and sugarcane. If witchweed were to spread throughout the Corn Belt, crop yields for corn and sorghum could decrease by 10 percent and trade in commodities from these areas could be negatively impacted.

APHIS' IFA program works to prevent human-assisted spread of this pest by requiring treatment of materials capable of harboring IFA, such as nursery stock and hay, are treated before leaving infested areas. Based on

studies of areas with climate suitable for IFA (Korzukhin et. al, Environmental Ecology, 2001), APHIS estimates that preventing human-assisted spread is protecting up to 10 States from potential infestations. APHIS will continue conducting annual surveys and other activities to manage these pests in FY 2023.

APHIS coordinates an annual voluntary survey of the grain delivered to elevators to check for KB across the country and conducts regulatory activities to prevent the spread of the disease from the remaining infested area in Arizona. Based on the program's quarantine and survey data, APHIS issues export certificates that are required by countries importing U.S. wheat. These certificates demonstrate to trading partners the safety of U.S. wheat exports, retaining export markets and facilitating wheat movement into international markets. If KB funding was eliminated, the disease could enter the grain market system and directly impact almost every State. Many trading partners will not accept U.S. wheat exports unless the commodity is certified to be from areas where KB is not known to occur. Working with cooperators, APHIS has reduced the wheat production areas regulated for KB from all or portions of 4 States to approximately 170,000 acres in Arizona since 1996. APHIS will continue survey and regulatory activities aimed at keeping KB from causing damage and/or trade disruptions in FY 2023.

The FCREP program is also working to address pests and other stressors that impact Roseau cane, an important grass species in wetland areas of the lower Mississippi Delta, Louisiana. The plant's root system provides wildlife habitat, protects the interior from storm surges, and protects riverbanks from erosion, which impacts the Mississippi River navigation channel. Since 2017, researchers from Louisiana State University (LSU) and ARS have investigated multiple potential stressors causing dieback of Roseau cane in the Mississippi River Delta. These stressors include high water levels, salinity intrusion, scale insects, plant pathogens, and soil chemistry. The work to date by the Roseau cane die-back team has improved our understanding of plant stressors on roseau cane and the biology, distribution, feeding ecology, and impact of the scale insect attacking the cane at the Mississippi River Delta. APHIS will continue this effort in FY 2023, with LSU and ARS.

Overall, base funding for the FCREP program currently supports salaries and benefits, cooperative agreements, and programmatic contracts. Other funding supports normal operating expenses such as rent, utilities, travel, supplies, and equipment to conduct program activities.

An increase of $3,000,000 and 1 staff year for cogongrass
The 2023 Budget provides funding for cogongrass in the Field Crop and Rangeland Ecosystem Pests line item. In the FY 2021 Appropriations Act, these funds were provided as a General Provision for a pilot program for APHIS to provide grants to State Departments of Agriculture and forestry commissions in States identified in the Agency's final environmental assessment (EA) related to cogongrass control. Cogongrass control efforts are more appropriately funded under this line item since it is an ongoing program that is expected to continue for the foreseeable future. Cogongrass is an invasive perennial weed that is a prolific seed producer and forms an extensive rhizome network underground. The wind-dispersed seeds are easily spread along rights of way encouraging population expansion. Cogongrass invades pine plantations and is believed to create chemical interference that decreases pine production. Controlling this weed is difficult because its rhizomes are drought, fire, and herbicide tolerant. APHIS estimates that cogongrass has the potential to spread across 82 percent of the United States. APHIS provided funds to Alabama, Georgia, Mississippi, and South Carolina to address cogongrass in FY 2021, and will continue providing funds to these States in FY 2023, to combat cogongrass.

An increase of $195,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $380,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $155,000 for implementation of E.O. 14003
This increase will support implementation of E.O. 14003 and corresponding Office of Personnel Management guidance which increased the minimum wage for Federal employees.

(14) Pest Detection program: An increase of $1,404,000 and 0 staff years ($27,733,000 and 186 staff years available in the FY 2022 Annualized Continuing Resolution).

The Pest Detection program serves as the early warning system for the detection of plant pests of economic and environmental significance in the United States. The program helps farmers and producers by documenting the status (or absence) of plant pests and diseases that could impact trade opportunities, both interstate and international. It also helps APHIS' State-level partners by providing funding and infrastructure to conduct surveys for high-risk pests that may affect their State. The information the program collects provides the basis for APHIS' emergency response and regulatory efforts that preserve economic opportunities for farmers and safeguard U.S. agricultural and natural resources. Specifically, the program identifies and prioritizes plant pest and disease threats; develops scientifically sound pest survey protocols; procures essential survey materials (traps, lures, etc.); cooperates with State partners to conduct the pest surveys; and shares data with States about significant pest detections.

APHIS provides national coordination for the program and develops policies and procedures for commodity-based and resource-based pest surveys. These surveys enable APHIS and cooperators to target high-risk hosts and commodities, gather data about pests specific to a commodity, and provide accurate assessments of pest distribution, including pest-free areas. Negative data from program surveys supports U.S. market access for several important commodities by demonstrating that the pests are not present. Examples include data showing that the Khapra beetle, a serious pest of wheat and grain, and the European grapevine moth, a pest of grapes, are not present in the United States. Additionally, while many entities are involved in protecting crops and resources, APHIS' role is to verify that U.S. exported products do not pose risks to other countries. For example, when a survey first detected the pale cyst nematode in Idaho, the program had data demonstrating negative survey results in other potato-producing States that kept export markets open for U.S. potatoes. The value of the markets that remain open was $243 million in 2020 (Foreign Agricultural Service Global Agricultural Trade System). As a result of this program, highly skilled, national cadres of surveyors are in the field on a daily basis looking for high-risk pests. In FY 2021, the program and its cooperators conducted a total of 434 surveys in 50 States and 5 territories targeting more than 97 percent of the high-risk pests and diseases identified for FY 2021 surveys. APHIS and State cooperators conduct surveys for multiple pests at each location for efficiency and economy of survey.

Early pest detection is important to avert economic and environmental damage; once a pest becomes established or spreads significantly the mitigation costs can reach millions of dollars, in addition to lost farm revenues and damage to ecosystems. The Pest Detection program communicates and develops partnerships through cooperative agreements with state departments of agriculture and natural resources, universities, industry partners, tribal and local governments and communities, non-profit organizations, and individuals in all 50 States.

Overall, base funding for the Pest Detection program currently supports salaries and benefits, and cooperative agreements, as well as other normal operating expenses such as travel, rent, utilities, and supplies to conduct program activities.

An increase of $485,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $919,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(15) Plant Protection Methods Development program: An increase of $970,000 and 0 staff years ($20,884,000 and 128 staff years available in the FY 2022 Annualized Continuing Resolution).

The goal of the Plant Protection Methods Development (PPMD) program is to develop scientifically viable and practical tools for exotic plant pest exclusion, detection, and management. The program plays an essential role in APHIS' mission by developing tools for the detection of exotic plant pests in survey programs; molecular diagnostic tests and identification tools for pest identification; integrated pest management methods, including biological control, to help eradicate or manage invasive pests; and treatments to support interstate and international trade.

APHIS' nationwide pest detection surveys and pest management programs depend on accurate and effective tools. The PPMD program supports development of pest trapping, identification, and survey technologies. Digital pest identification tools and molecular diagnostics developed through PPMD funding supports both domestic programs and import pest identification responsibilities. APHIS uses these tools to conclusively identify exotic species introductions in order to take appropriate regulatory actions. The program also develops pest management techniques that APHIS national programs use to manage or eradicate invasive pest threats.

The PPMD program aims to develop new, or improve existing, tools each year to enhance APHIS' safeguarding capabilities. For pest identification, the program continues to design, develop, and deliver digital, media-rich, identification tools for APHIS to support trade and domestic, port, and offshore pest identification responsibilities.

The PPMD program also maintains its own quarantine and rearing facilities for biological control agents in Arizona, California, Colorado, Massachusetts, Michigan, Texas, and Guatemala. APHIS partners with USDA's Agricultural Research Service (ARS), the U.S. Fish and Wildlife Service, State departments of agriculture, universities in 30 States and Territories, and two Native American Tribes to evaluate and establish biological control agents for invasive plants, pests, and diseases. The biological control program has been responsive in developing biological control agents to address invasive pests and weeds such as Asian longhorned beetle, emerald ash borer (EAB), roseau cane scale, air potato, and spotted lanternfly.

The biological control program works with State cooperators for the release and establishment of approved biological control agents. In FY 2021, APHIS permitted four new biological control agents for release against air potato, common crupina, Russian wheat aphid, and spotted-wing drosophila. The biological control portfolio in FY 2021, included 37 cooperative agreements with States and Tribal Nations that have released of 51 biological control agents that collectively attack 23 weeds and four arthropod pests.

The PPMD program also supports research related to invasive honey bee pests, specifically Varroa mites. A Varroa mite feeds on the honey bee's fat body tissue (an organ similar to the human liver), in turn weakening and shortening the bee's life. The Varroa mite is considered the greatest single driver of the global honey bee colony losses (Proceedings of the National Academy of Sciences, Jan 2019: "Varroa destructor feeds primarily on honey bee fat body tissue and not hemolymph."). In FY 2021, the program funded priority projects with other Federal and State agencies, as well as the public, to support managing, suppressing, and eradicating Varroa mites, as well as small hive beetles and other pests and diseases contributing to a decline in honey bee health. These projects included investigating new pesticide control options for Varroa mites and researching other important pests of honey bees.

In FY 2023, the program will continue working to develop new management tools and pest detection methods for the highest priority pests and diseases.

Overall, base funding for the PPMD program currently supports salaries and benefits, cooperative agreements, and programmatic contracts, as well as other normal operating expenses such as travel, rent, and supplies to conduct program activities.

An increase of $333,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $637,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(16) Specialty Crop Pests: An increase of $22,980,000 and 33 staff years ($196,553,000 and 768 staff years available in the FY 2022 Annualized Continuing Resolution).

The Specialty Crop Pests (SCP) program protects U.S. farmers and producers of fruits and vegetables, tree nuts, horticulture, and nursery crops from adverse impacts associated with invasive pests, such as crop damage or threats to international trade and interstate commerce. APHIS works in coordination with State, Tribal, university, and industry partners to prevent or mitigate impacts from invasive pests of Federal regulatory significance. These efforts promote the ability of U.S. farmers and producers to export their products, prevent damage to specialty crop production, and protect natural resources, including forests and residential landscapes.

Specialty crops are of high value and are grown in all 50 States. APHIS' SCP program directly protected specialty crop production worth more than $10 million in 2020, and indirectly protected additional specialty crop production valued at $7 billion by preventing the spread of these damaging pests and diseases to new areas (APHIS internal analysis based on National Agricultural Statistics Service data). APHIS is currently using SCP resources to address the following pests and diseases: exotic fruit flies, a variety of citrus pests and diseases, pale cyst nematode (PCN), navel orangeworm (NOW), light brown apple moth, plum pox virus (PPV), European grapevine moth (EGVM), glassy-winged sharpshooter (GWSS), Phytophtora ramorum, and spotted lanternfly (SLF), among others.

The SCP program partners with affected industries, States, Tribes, academic institutions, and other Federal agencies to deliver domestic programs. Additionally, the program works with its counterparts in foreign countries to address pest risks offshore. For example, the SCP program works with Mexico and Guatemala to mitigate the risk of exotic fruit flies entering the United States. The program has kept the United States free of Mediterranean fruit fly (Medfly) and Mexican fruit fly (Mexfly) for many years by conducting preventive releases of sterile insects to disrupt normal population growth in at-risk areas; detecting and responding to outbreaks when they occur; maintaining a barrier against the natural spread of the Medfly in Mexico and Central America; and developing advanced methods for survey and control. Medfly has a host list that includes 300 cultivated and wild fruits. The Mexfly also has a wide-ranging host list and presents a particular threat to the Texas citrus industry due to its proximity to infested areas in Mexico. Increasingly, tephritid fruit flies of the genus Bactrocera pose a threat with several outbreaks in California and Florida in the past decade. APHIS and cooperators maintain 160,000 fruit fly traps in vulnerable areas to ensure that any introductions of exotic fruit flies are quickly detected. In FY 2021, APHIS continued addressing Mexfly outbreaks in Texas and initiated response to an outbreak of Oriental fruit fly in California near the end of the fiscal year. Without the program's efforts to detect and eradicate these outbreaks when they occur, many important crops would become impossible to grow due to fruit fly infestations. To reduce ongoing risks related to Mexfly infestations, the program is replacing its outdated sterile Mexfly facility in Texas and expanding capacity to more than double the number of sterile insects produced to improve the program's preventive efforts. APHIS will continue activities to prevent, detect and respond to any outbreaks that occur in FY 2023.

APHIS also works with citrus producing States and industry groups to support industry's ability to grow and market U.S. citrus despite the presence of devastating diseases such as citrus greening, also known as Huanglongbing (HLB). Through the Citrus Health Response Program, APHIS supports cooperators in citrus-producing States with on-the-ground operations, such as surveys, regulatory inspections, and outreach to affected growers and the public, as well as methods development activities. APHIS conducts inspections of Florida citrus shipments destined for export to the European Union and other countries, allowing citrus producers to take advantage of export opportunities. Because of the ongoing threat that HLB poses, APHIS, other Federal agencies, State partners, and the citrus industry have worked together on the HLB Multi-Agency Coordination (MAC) group since 2013, to identify and implement tools to combat the disease. By funding work to bridge the gap between research and field deployment, the HLB MAC Group speeds implementation of practical tools that can aid the citrus industry to combat HLB. The HLB MAC group has initiated a grower-collaborative approach that brings researchers and growers together to generate data that will serve as the foundation for grower-specific guidance on best management practices for HLB. The solutions found through this effort will continue to help citrus growers manage the disease while research into long-term solutions for HLB continues. APHIS will continue to address HLB and other citrus diseases in FY 2023.

Federal response activities take place in concentrated areas where the infestations occur (e.g., PCN in Idaho or SLF in Pennsylvania and surrounding States), but also work to protect all at-risk States producing specialty crops. For example, while the SCP program works to address the PCN in Idaho, it also conducts nationwide surveys for the pest to demonstrate to trading partners that potato-producing areas outside of the quarantined area are not affected by PCN, protecting fresh potato export markets worth $243 million in FY 2020 (Foreign Agricultural Service Global Agricultural Trade System Database). The program also addressed PPV, a devastating viral disease of stone fruit, in New York, Michigan, and Pennsylvania. USDA declared the United States free of PPV in October 2019. APHIS has completed surveys for PPV and will maintain PPV-preparedness by ensuring that the United States has certified laboratories and diagnosticians for rapid response activities, protecting more than 1 million acres of stone fruit across the United States. Without the SCP program, trading partners might not accept a variety of U.S. fruits and vegetables. The value of trade in specialty crops that could potentially be disrupted without the SCP program was $3.8 billion in 2020, according to an internal APHIS report using data from the Foreign Agricultural Service's Global Agricultural Trade System.

Through the SCP program, APHIS also addresses SLF, a serious pest of grapes, apples, hops, walnut trees, and other hardwood trees. APHIS and cooperators are using an area-wide strategy that includes expanded surveillance, control, and outreach activities for this pest. Agricultural producers across the country are concerned about the pest's spread. APHIS is using treatments to suppress populations on the leading edge of the infestation, and to eradicate outlying populations. APHIS and cooperators are continuing to develop new methods to control SLF, including improved traps and biological control methods. APHIS will build these new tools into the program as they continue to show success in research trials. SLF is particularly damaging in vineyards and preventing it from spreading to new areas and continuing to develop new treatment methods will protect grape production across the country. Grape production in New York, Pennsylvania, and Virginia (all affected by SLF) covered 50,000 acres and had a value of $113 million in 2017 (NASS Quick Stats).

To protect the U.S. grape industries, APHIS partnered with the State of California and grape growers to eradicate EGVM and continues to prevent the spread of GWSS into other grape-producing areas. APHIS declared the eradication of EGVM in 2016, after an intensive, 7-year cooperative effort. The program conducted three additional years of post-eradication surveys, ending in 2019, and continues to survey for re-introduction of EGVM. The GWSS program began in 2000, to limit the spread of GWSS, a vector of Pierce's disease, which is deadly to grapevines and costly to growers and the industry. Through survey, treatment, and inspection, the program has restricted GWSS to southern California, protecting over half of the grape growing acreage in California. APHIS will continue working with partners in California to prevent the spread of GWSS in FY 2023, and is working to determine the appropriate level of survey for EGVM.

APHIS partnered with tree nut industries, as well as Arizona and California State cooperators, to develop sterile insect technology to address NOW, a serious pest of pistachios, almonds, and walnuts. In FY 2021, APHIS continued to produce sterile NOW and conducted an area-wide control program with industry and State partners covering 5,000 acres. APHIS and its partners' goal is to expand sterile insect technology across all infested areas. APHIS will continue working with cooperators to address NOW in FY 2023. These efforts will help protect nut production worth more than $8.03 billion for the 2019/2020 season (ERS Fruit and Tree Nut Yearbook Tables).

Overall, base program funding supports salaries and benefits, cooperative agreements, as well as other normal operating expenses such as supplies, equipment, and rent, to support program activities.

An increase of $8,011,000 and 30 staff years for activities targeting exotic fruit flies

For decades, APHIS has mitigated the risk of exotic fruit flies through a combination of early detection, rapid response to outbreaks, and prevention of fruit fly establishment through the release of sterile insects that mate with wild flies and prevent normal population growth as well as maintenance of a barrier in Central America against the natural, northward spread of Mediterranean fruit fly. The program has domestic operations in Florida, Texas, California, and New York, detection networks in other States with climate and host material suitable for fruit flies, and operations internationally in Mexico, Guatemala, and Belize. Over the last several years, costs associated with APHIS' fruit fly program facilities, supplies, staff, and equipment have increased substantially. Examples of areas where costs have increased include the lease for the new sterile insect technology facility in Florida, contracts for aerial release of sterile insects in Florida and California, and the traps and lures used in the detection efforts across the country and internationally. Additionally, the program's overseas operations incur costs specific to international programs, and these costs have increased as well. These include increases in International Cooperative Administrative Support Services costs charged by the U.S. State Department to provide shared administrative services at overseas locations as well as increases to locally employed staff salaries and benefits, which are tied to local laws in other countries. This adjustment of $5,722,000 will allow the program to continue to exclude exotic fruit flies from the United States and detect and respond to introductions that occur by allowing for increased purchases of traps and lures and equipment necessary to detect and eradicate flies, and filling of vacancies in the domestic and international program. Without the additional funding, the program's ability to maintain its trapping network and sterile insect release programs at current levels will be eroded.

The FY 2023 Budget also requests $2,289,000 and 30 staff years to continue addressing the European cherry fruit fly (ECFF) in New York. This temperate fruit fly species differs from the tropical species that APHIS more typically detects and eradicates in Florida, Texas and California by having only one life cycle per year, whereas other species have many lifecycles per year and can usually be eradicated within several months. APHIS declares an outbreak eradicated if there are no detections within three lifecycles. Additionally, one of ECFF's primary hosts is the honeysuckle plant, which is widespread throughout New York and surrounding States and

Canada. The ECFF quarantine includes 1,612 square miles in northwestern New York. Cherry producers are able to mitigate damage ECFF might cause to crops through current management practices, and APHIS and cooperators are using a systems approach to permit the movement of cherries out of the quarantine zone. APHIS has funded ECFF since FY 2018, with funding available under Plant Protection Act 7721 and prior year funding available in the Specialty Crop Pests line item. However, due to the number of emerging and growing pest programs in Specialty Crop Pests (including those targeting NOW and SLF as well as ECFF), APHIS needs additional funding to maintain this quarantine and protect cherry producers outside the currently affected areas. APHIS will use the requested funding to continue survey and regulatory activities necessary for the protecting U.S. cherry production and export opportunities. In FY 2020, the U.S. cherry industry (sweet and tart cherries) had a production value of $743 million (National Agricultural Statistics Service), and exports of cherries were worth more than $500 million (Foreign Agricultural Service Global Agricultural Trade System).

An increase of $8,500,000 and 3 staff years for citrus greening
The 2023 Budget provides funding for citrus greening in the Specialty Crops line item. In the FY 2021 Appropriations Act, these funds were provided as a General Provision to support priorities and strategies identified by the Huanglongbing Multi-Agency Coordinating (HLB MAC) group. HLB control efforts are more appropriately funded under this line item since it is an ongoing program that is expected to continue for the foreseeable future and would consolidate citrus greening funding under one funding source.

HLB is the most devastating disease of citrus around the world. APHIS established the HLB MAC response framework in December 2013, to help address the citrus industry's immediate and long-term needs in dealing with this disease. In addition to APHIS, the MAC is comprised of representatives from USDA's Agricultural Research Service, National Institute of Food and Agriculture, and Office of Pest Management Policy; the Environmental Protection Agency; State departments of agriculture in Arizona, California, Florida, and Texas; citrus research organizations in California and Florida; and citrus industry organizations in California, Florida, and Texas. Since FY 2014, the HLB MAC group has funded nearly 100 projects carried out by State cooperators, universities, private companies, and Federal agencies. The projects have focused on strategies for vector control, therapies for infected trees, sustainability of new plantings, early detection technologies, best management practices for citrus groves, and support for the development of HLB-resistant citrus varieties. In recent years, APHIS provided funding for a large-scale project in Florida designed to improve management of citrus in HLB-affected groves, testing combinations of management and therapeutic strategies on a 5,000-acre test site. The goal is to provide citrus growers with simple and proven strategies for keeping their groves productive under high pressure from HLB. In FY 2021, APHIS expanded this to California and Texas. In FY 2023, APHIS will continue supporting projects that will identify and implement tools to manage HLB and keep citrus groves productive, supporting and protecting the U.S. citrus industry, with production valued at $3.3 billion for the 2020-2021 season (National Agricultural Statistics Service Citrus Fruits 2021 Summary).

An increase of $2,000,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $4,105,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $364,000 for implementation of E.O. 14003
This increase will support implementation of E.O. 14003 and corresponding Office of Personnel Management guidance which increased the minimum wage for Federal employees.

(17) Tree and Wood Pests program: An increase of $2,398,000 and 0 staff years ($60,456,000 and 292 staff years available in the FY 2022 Annualized Continuing Resolution).

America's forests are valuable resources that provide jobs and recreation opportunities and create habitat for wildlife. Through the Tree and Wood Pests (TWP) program, APHIS addresses devastating pests such as the Asian longhorned beetle (ALB), emerald ash borer (EAB), and spongy moth, formerly referred to as European gypsy moth (EGM) [The Entomological Society of America selected a new common name for EGM, and APHIS plans to incorporate the new common name in its regulations when a new name is also identified for the Asian gypsy moth complex]. Numerous native hardwood tree species that are common throughout U.S. forests and urban landscapes are hosts to these pests. When forest pests like ALB kill large numbers of trees in urban and suburban areas, they can cause tremendous, wide-ranging impacts to communities, landscapes, and

commerce. In addition, exports of forest products such as logs and timber could be at risk due to trade restrictions put in place by other countries.

Nationwide, APHIS programs protect 596 million acres of forested land by preventing the spread of damaging pests. Without Federal funding, forest pests would spread more rapidly throughout the United States, and responding to newly introduced pests would become increasingly difficult. The value of forest products that APHIS protects is nearly $300 billion (American Forest and Paper Association).

APHIS cooperates with State and local agencies and organizations in 48 States to conduct various activities to manage and, when feasible, eradicate forest pests. These activities include conducting surveys, implementing control measures, developing methods and processes to combat pests, and conducting outreach efforts to prevent pest spread. APHIS' role in the TWP program is to oversee the regulatory framework to prevent the human-assisted movement of these pests and to provide national oversight and coordination for program activities to detect and eradicate or manage the pests.

In FY 2023, APHIS will continue addressing ALB outbreaks in Massachusetts, New York, Ohio, and South Carolina, and continue pursuing biological control options as a long-term EAB management strategy. In addition, APHIS, alongside the Forest Service and the EGM Slow-the-Spread Foundation, continues its work to slow the spread of EGM and eradicate isolated populations, keeping this pest from becoming a larger issue.

Overall, base funding for the TWP program currently support salary and benefits, contracts, and cooperative agreements, as well as other normal operating expenses such as rent, supplies, travel, and equipment to conduct program activities.

An increase of $761,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $1,480,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $157,000 for implementation of E.O. 14003
This increase will support implementation of E.O. 14003 and corresponding Office of Personnel Management guidance which increased the minimum wage for Federal employees.

An increase of $8,444,000 and 6 staff years for Safeguarding and Emergency Preparedness/Response – Wildlife Services

(18) Wildlife Damage Management program: An increase of $4,492,000 and 0 staff years ($111,647,000 and 574 staff years available in the FY 2022 Annualized Continuing Resolution).

The Wildlife Damage Management (WDM) program resolves human/wildlife conflicts and protects agriculture, human health and safety, personal property, and natural resources from wildlife damage and wildlife-borne diseases in the United States. This program protects livestock from predators, manages damage from invasive species, such as feral swine and brown tree snakes; conducts a national rabies management program; and manages damage, conflicts, and diseases caused by various wildlife species, such as beavers, double-crested cormorants, and other migratory birds. APHIS conducts these activities under the authority of the Animal Damage Control Act, which allows the Agency to control mammals and birds that are a nuisance or serve as reservoirs for zoonotic diseases. These activities benefit farmers, ranchers, other private landowners, businesses, and Federal, State, county, and city government offices. APHIS carries these activities out with appropriated funding the Agency receives as well as funding from Federal, State and local cooperators.

APHIS protects resources and safeguards human health and safety from wildlife damage by providing both technical and direct control assistance upon request. For example, the Agency will provide assistance if a rancher is experiencing predators killing their cattle and sheep, or if a farmer is having trouble with fish-eating birds damaging their catfish and other aquaculture crops. This could include providing advice, information, recommendations, and materials (and in some cases the necessary equipment) to the producer, farmer, or rancher to resolve the wildlife-caused damage themselves. APHIS maintains specially trained staff around the nation to provide direct control assistance, which can be necessary when the problem cannot be resolved

through technical assistance alone. APHIS implements integrated approaches, consisting of multiple and varied methods, to protect resources from wildlife damage.

APHIS' wildlife disease biologists provide technical assistance, conduct surveillance, and actively assist in managing more than 30 wildlife diseases, pathogens, and syndromes, as well as collaborate with domestic and international academic and research institutions regarding wildlife disease surveillance. Ongoing surveillance of avian influenza in wild bird populations and diseases in feral swine is critical to manage and determine threats to the U.S. poultry and swine industries. Wildlife disease biologists also serve as multi-hazard first responders, providing support on foreign animal disease introductions (e.g., virulent Newcastle disease, avian influenza) and natural disasters (e.g., floods, hurricanes, wildfires).

Overall, base funding for the WDM program currently supports salary and benefits, supplies, and equipment, as well as other normal operating expenses such as cooperative agreements, rent, and travel, to conduct program activities.

An increase of $1,495,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $2,894,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $103,000 for implementation of E.O. 14003
This increase will support implementation of E.O. 14003 and corresponding Office of Personnel Management guidance which increased the minimum wage for Federal employees.

(19) Wildlife Services Methods Development program: An increase of $3,952,000 and 6 staff years ($21,046,000 and 122 staff years available in the FY 2022 Annualized Continuing Resolution).

The Wildlife Services Methods Development (WSMD) program works with cooperators to conduct research to develop methods to assess, prevent, and mitigate damage caused by wildlife, including invasive species, on agricultural production and to detect and prevent wildlife diseases that may impact animal health and agricultural biosecurity. APHIS provides the only dedicated Federal leadership in developing methods to manage wildlife-related damage programs and to resolve human-wildlife-agricultural conflicts. These methods enable APHIS, cooperators, and individuals to protect crops, livestock, natural resources, property, and public health and safety.

Many methods that Federal, State, and private sector wildlife professionals use today stem from APHIS' research on integrated wildlife damage control approaches. Examples of methods developed include a potential new toxicant and delivery system for managing feral swine populations; a repellent application for blackbirds that cause extensive crop damage and lower yields at harvest for sunflower growers; and adaptation of effective methods for managing wolf and coyote predation. Each of these methods has enabled APHIS to reduce damage to property, livestock, agriculture, human health and safety, and/or native wildlife and ecosystems.

Additionally, the WSMD program registers products that enable the private sector to further manage human-wildlife conflicts. For example, the program recently patented a new vehicle-based lighting system to reduce deer-vehicle collisions during low light conditions. In partnership with the private sector, this technology will reduce wildlife deaths and increase driver safety on roads. The program also explores ways to reduce the spread and transmission of zoonotic diseases and develops disease surveillance and diagnostic methods.

These methods are essential to cooperators and preserve businesses and regional employment opportunities. In FY 2023, the WSMD program will continue to serve as an international leader in research to reduce wildlife damage, including the development of non-lethal control methods.

Overall, base funding for the WSMD program currently supports salary and benefits, contracts, and cooperative agreements, as well as other normal operating expenses such as, supplies, equipment, travel, and rent to conduct program activities.

An increase of $3,000,000 and 6 staff years for chronic wasting disease research
APHIS proposes an increase of $3 million and 6 staff years to research the implications of climate change on the prevalence and distribution of chronic wasting disease (CWD). Climate change is already thought to be increasing the distribution and density of deer populations in the United States. These changes could significantly increase the prevalence of CWD in areas where the disease already occurs, as well providing an opportunity for disease spread into new areas. With additional funding, APHIS' National Wildlife Research Center would develop research to improve our understanding of changes in risk of the disease spreading to new areas, the role climate change will have on environmental persistence of prions, and on developing rapid diagnostic technologies for detecting the disease in animals and the environment

An increase of $317,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $635,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $3,072,000 for Safeguarding and Emergency Preparedness/Response – Regulatory Services

(20) Animal and Plant Health Regulatory Enforcement program: An increase of $2,359,000 and 0 staff years ($16,400,000 and 114 staff years available in the FY 2022 Annualized Continuing Resolution).

The Animal and Plant Health Regulatory Enforcement (APHRE) program provides investigative, enforcement, and regulatory support services to the Agency's four regulatory programs and Agricultural Quarantine Inspection activities carried out through the Department of Homeland Security's Customs and Border Protection. APHRE investigates alleged violations of Federal laws under its jurisdiction and pursues appropriate enforcement actions through administrative, civil, or criminal procedures.

The APHRE program ensures compliance through comprehensive investigations, sound enforcement actions, and strong educational efforts. The program uses monetary penalties and alternative enforcement actions, including non-monetary settlement agreements, and works with USDA's Office of Inspector General and Office of the General Counsel, and/or the U.S. Department of Justice to pursue administrative, civil, or criminal action, as appropriate, in response to alleged violations of APHIS-administered laws. Program activities serve to deter individuals and companies from engaging in acts to cause extensive economic damage and/or excessive expenses related to eradication or mitigation efforts designed to protect the American agriculture system.

Overall, base funding for the APHRE program supports salaries and benefits, equipment, contracts, as well as other normal operating expenses including travel, supplies, printing, rent, and utilities to conduct program activities.

An increase of $1,500,000 related to animal and plant health investigation and enforcement services
The effectiveness of the regulatory enforcement program is under significant strain due to demand for services that are increasing while staffing levels have steadily declined. In addition, the line item has not received a significant increase in recent years which has led to a net reduction in funding available to cover rising operational costs such as step increases and administrative expenses. Without the additional funds, the program will need to reduce operational costs and decline program customers' requests for mission critical investigative activity. The program estimates that without these funds it will need to reduce the number of investigations conducted from 146 animal health and 66 plant health investigations in FY 2020, down to 135 and 58 investigations, respectively, in FY 2023.

An increase of $297,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $562,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(21) Biotechnology Regulatory Services: An increase of $713,000 and 0 staff years ($19,020,000 and 93 staff years available in the FY 2022 Annualized Continuing Resolution).

Innovative biotechnology products can help promote more efficient use of resources, mitigate and adapt to climate change, and address growing environmental and food security challenges facing the United States and the world. Developers are using genetic engineering to produce new plants and organisms that help ameliorate direct effects of climate change (like heat, drought, and salt tolerance) and indirect effects resulting from spread and damage by plant pests and pathogens and reduce the use of pesticides and insecticides. Crops developed using genetic engineering can also improve food security and nutrition with improved yields and healthier oils, among others. Before any of these products can be brought to market, it is essential to demonstrate, through rigorous, scientific review, that they are safe for American agricultural and our natural resources.

APHIS ensures certain organisms developed using genetic engineering will not pose a pest risk to plants when released into the environment. APHIS' reviews and regulatory determinations support producers of new and innovative products in their efforts to enter commerce and the worldwide marketplace. These controls instill confidence in the public and in our trading partners that organisms developed using genetic engineering and produced in the United States are safe and of the highest quality. APHIS ensures that developers, growers, and others take important steps to prevent unauthorized release and movement of organisms developed using genetic engineering. APHIS inspects fields, equipment, and other facilities to ensure developers meet the permit conditions outlined in authorizations allowing field trials and movement of organisms developed using genetic engineering.

APHIS takes a coordinated and collaborative approach to ensure the safe development of products produced using genetic engineering. This includes working with the Environmental Protection Agency and the Food and Drug Administration, consistent with the principles of the Coordinated Framework for the Regulation of Biotechnology; and partnering with the National Plant Board to allow States to participate in the review of permit conditions for authorized field trails and movement. APHIS also shares information with international partners to enhance the harmonization of regulatory approaches for the safe use of organisms developed using genetic engineering; and to provide capacity building assistance to developing countries for the regulation of organisms developed using genetic engineering. For example, while implementing the revised plant regulations, APHIS engaged in discussions with Canada, Korea, and the United Kingdom to promote risk and science-based oversight for agriculture biotechnology products, with a goal of advancing global harmonization in product reviews and, ultimately, facilitating market access for U.S. developers and producers. APHIS also shared scientific risk assessment approaches with countries contemplating legislation and regulatory changes in economies in South America, Asia, and Africa, building cohesion for trade and ensuring safety of plant products.

Overall, base funding for the Biotechnology Regulatory Services (BRS) program currently supports salaries and benefits, contracts, and agreements, as well as other normal operating costs, such as travel, equipment, and supplies to conduct program activities.

An increase of $242,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $471,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $9,048,000 and 5 staff years for Safeguarding and Emergency Preparedness/Response – Emergency Management

(22) Civilian Climate Corps: An increase of $6,038,000 and 5 staff years ($0 and 0 staff years available in the FY 2022 Annualized Continuing Resolution).

Climate change has allowed invasive plants, pests, and diseases to move around the world and become established in new areas more easily. The speed at which pests and disease spread to new areas that previously may not have been hospitable to them is unprecedented in human history. Effects have included increased wildfires caused by establishment of invasive plants that are more fire-prone, as well as crop losses caused by insects arriving in the United States and becoming established further north than believed possible because of

higher-than-average temperatures. Additionally, some methods to fight invasive species compound the impacts because they themselves—such as pesticides—may have their own impacts on climate.

Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad,* signed on January 27, 2021, calls for the establishment of a Civilian Climate Corps Initiative to put a new generation of Americans to work conserving and restoring public lands and waters, increasing reforestation, increasing carbon sequestration in the agricultural sector, protecting biodiversity, improving access to recreation, and addressing the changing climate.

An increase of $6,000,000 and 5 staff years for the Civilian Climate Corps
APHIS will lead coordination between Federal agencies and the Civilian Climate Corps on issues related to invasive species control and climate change. APHIS will work with the Corps and engage in identifying emerging invasive species threats, such as pests and diseases that climate change has made more likely to arrive and become established in the United States or regional areas, and which could have deleterious effects. APHIS will continue to expand efforts to develop and implement new surveillance methods to more quickly detect incursions of invasive pests as well as develop new mitigation methods to address those already present and causing economic and environmental damages.

An increase of $38,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(23) Contingency Fund: An increase of $36,000 and 0 staff years ($478,000 and 5 staff years available in the FY 2022 Annualized Continuing Resolution).

The APHIS Contingency Fund is the Agency's resource to immediately implement short-term, coordinated, emergency activities that are relatively small in scale and not otherwise supported by the Agency's other appropriated commodity line items. APHIS uses this fund to respond to small, isolated pest and disease outbreaks before they can spread and cause significant economic and financial damage to producers across the United States. Specific examples include addressing outbreaks of the European grapevine moth in California, rabies in the Eastern United States and Texas, contagious equine metritis in Kentucky and other States, giant African land snail in Florida, feral swine in New Mexico, cattle fever ticks in Texas, and grasshopper and Mormon crickets in the Western United States.

By allowing APHIS programs to promptly address small scale outbreaks, the Agency decreases the likelihood of pest and disease spread that could cripple otherwise healthy agricultural production systems and export markets.

Overall, base funding for the program currently supports salaries and benefits, equipment, contracts, and agreements, as well as other normal operating costs, such as travel and supplies to conduct program activities.

An increase of $13,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $23,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(24) Emergency Preparedness and Response program: An increase of $2,974,000 and 0 staff years ($41,268,000 and 193 staff years available in the FY 2022 Annualized Continuing Resolution).

The Emergency Preparedness and Response (EPR) program improves APHIS' capability to prevent, prepare for, respond to, and recover from animal health emergencies. This program's goal is to respond to animal health events within 24 hours from the time APHIS determines that a Federal emergency response is needed to manage an agricultural outbreak. It develops strategies, policies, and procedures for incident management and response coordination that meet national and international standards. The program participates in joint Federal, State, and local animal health and all-hazards exercises to improve response capabilities. In addition, this

program works with major commodity groups to ensure the continuous movement of livestock products during animal health emergencies. The EPR program funds activities that enable APHIS to achieve a high state of readiness and be able to respond rapidly and effectively to emergencies, thus lessening the impact of those events on producers, consumers, taxpayers, and the economy. Also, through this program, APHIS and the Centers for Disease Control and Prevention (CDC) jointly manage the Federal Select Agent Program (FSAP), which oversees the possession, use, and transfer of biological select agents and toxins that have the potential to pose a severe threat to public, animal, or plant health, or to animal or plant products.

The EPR program provides national leadership and regional coordinators in the 10 Federal Emergency Management Agency (FEMA) regions for Emergency Support Function #11: Agriculture and Natural Resources (ESF #11). These coordinators work with local, State, Tribal, Territorial, Insular Area Governments, and other Federal agencies to prepare for and respond to emergency incidents and disasters. In addition, APHIS provides support to FEMA for the care of pets and service animals during disasters. The EPR program also maintains Emergency Qualifications System dispatchers, who coordinate the delivery of emergency resources, as well as the APHIS security coordinator program and the Voluntary Emergency Ready Response Corps program, continuity planning, and Geographic Information System capability during incidents. APHIS also provides subject matter experts on pet owners and their pets, for breeders, dealers, and exhibitors regulated by the Animal Welfare Act to enhance emergency response coordination. In addition, APHIS' Wildlife Services program supports the Agency's response efforts for animal diseases, natural disasters, hazardous spills, and wildfires.

APHIS' National Preparedness and Incident Coordination Center (NPIC) develops animal health emergency management guidelines to protect U.S. animal agriculture through collaborative, science- and risk-based strategies. The guidelines are based on the National Incident Management System and National Response Framework. The NPIC National Training and Exercise Program improves preparedness, mitigation, and response to animal disease emergencies and is informed by national priorities of APHIS' stakeholders. It creates dynamic, real-world learning scenarios to build response capabilities of emergency responders and maintain the Agency's response readiness. In FY 2021, the NTEP relied on more than 300 volunteers working more than 10,000 support hours on 48 simulated emergency scenarios. APHIS, State cooperators, and industry developed exercises to related to the development of foot-and-mouth disease (FMD) vaccination plans, response to African swine fever (ASF) in packing plants, and the Secure Food Supply. The Secure Food Supply plans provide business continuity and biosecurity guidance to producers in regulatory control areas with no evidence of foreign animal disease infection on their premises. Under the plans, these producers may move products to processing if approved by local, State, Tribal, and Federal regulatory officials. These plans resulted from a multi-year collaboration by industry, State, Federal, and academic representatives. APHIS sustains its animal health readiness capacity by maintaining 5 Incident Management Teams of approximately 30 volunteer first-responders per team. One of these teams is ready to deploy anywhere, at any time, to respond rapidly to animal health disease events in support of incident management.

APHIS and the CDC jointly administer the select agents and toxins regulations as the Federal Select Agent Program. Any individual or entity possessing, using, or transferring select agents or toxins must register with APHIS if the agent affects plant or animal health or the CDC if it affects human health. Facilities must meet biosafety requirements to ensure the safety and security of select agents. APHIS and CDC inspect facilities that possess, use, or transfer select agents to ensure regulatory compliance. APHIS' Division of Agricultural Select Agents and Toxins (DASAT) ensures that registered facilities promptly address non-compliances, and DSAT takes corrective actions if necessary. DASAT also works with the Federal Bureau of Investigation, which conducts Security Risk Assessments for the program, to evaluate individuals requesting access to select agents and toxins. In addition, FSAP is coordinating with representatives from APHIS and the Agricultural Research Service overseeing the stand-up of the National Bio and Agro-Defense Facility in Kansas to provide guidance on the select agent registration process. DASAT also supports entities during hazardous events to ensure the safety and security of select agents and toxins.

APHIS uses epidemiologic and economic models to better understand historical events, estimate consequences, and inform strategic, logistical, and budgetary decisions by evaluating varying interventions related to animal health. In FY 2021, the Agency continued to develop and update disease-spread and control models for ASF, bluetongue virus, classical swine fever, FMD, and highly pathogenic avian influenza. APHIS applied these models to guide decision-making and support resource planning. In collaboration with ARS, APHIS continued to develop modeling applications and disease-spread scenarios to explore the impact of alternative control strategies on the severity and duration of simulated, national-level ASF and FMD outbreaks.

Overall, base funding for the EPR program currently supports salaries and benefits of personnel and contracts, as well as other normal operating costs such as travel, supplies, rent, and utilities to conduct program activities.

An increase of $1,400,000 to cover increased costs related to salary, training, and coordination efforts for APHIS' Emergency Management, Safety, and Security Division (EMSSD)
Salary costs such as grade increases, as well as resources to train and coordinate responses continue to rise, but funding from the EPR line item often must be used to respond to animal health emergencies. These response efforts are a priority, but usually leave minimal funding left to support increased costs for maintaining the Agency's basic preparedness functions. EMSSD maintains responder capabilities and coordinates emergency response deployments; manages the Voluntary Emergency Response Reserve Corp program and supports the development and maintenance of responder readiness data systems; oversees APHIS' continuity of operations program; coordinates APHIS emergency preparedness training; manages APHIS' Emergency Operations Center and coordinates support of overseas security and employee safety, plans, and reports; and, maintains the respiratory protection program. Without additional funds to cover the costs, APHIS will reduce operational activities such as trainings available and will need to delay filling vacancies until additional stable resources can be secured. With additional funds, APHIS will be better positioned to respond to emergencies and prevent the diminishing capacity for response. Covering these costs would help ensure APHIS' continued mission-essential functions of protecting the health, welfare, and value of U.S. agriculture resources.

APHIS' FY 2022 budget request, which was developed under the previous Administration, proposed to transfer $3.391 million and 14 staff years associated with the ESF #11 coordinators to the USDA Office of Homeland Security (OHS). The ESF #11 responsibilities include support of State, Tribal, territorial and local authorities, and other Federal agency efforts to provide nutrition assistance; control highly contagious or economically devastating animal/plant diseases to ensure the safety and security of the commercial food supply; and other protection of natural resources. Based on more recent analysis by USDA leadership, APHIS' FY 2023 budget request proposes to revert these functions and staffing to APHIS. USDA leadership determined that APHIS remains the best place for the team to be situated to fulfill the ESF #11 mission and duties. While in APHIS, the team has been exceptional at organizing and harnessing Agency experts to fulfill the ESF #11 mission. The APHIS ESF #11 team is a trusted, interagency counterpart both to other USDA Agencies (including the Food Safety and Inspection Service and the Food and Nutrition Service) and other Federal partners. Because these functions and staffing were housed within APHIS in FY 2021, the Agency's FY 2023 budget request represents a net-zero change in ESF #11 funding and staffing from the funding level that would be provided under the FY 2022 Annualized Continuing Resolution.

An increase of $503,000 for FY 2022, which includes $342,000 for pay inflation and $161,000 for FERS
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $1,071,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $3,440,000 for Safe Trade and International Technical Assistance

(25) Agriculture Import/Export: An increase of $605,000 and 0 staff years ($15,722,000 and 79 staff years available in the FY 2022 Annualized Continuing Resolution).

APHIS works with other Federal agencies, States, foreign governments, industry, and academia to protect U.S. agriculture while facilitating the safe trade of animals and animal products. APHIS' animal health experts ensure that U.S. import requirements safeguard U.S. livestock health, and they negotiate requirements for the worldwide export of U.S. animals and animal products. These requirements are based on international standards, sound scientific principles, and fair-trading practices for animals and animal products. In addition, APHIS sets quarantine, testing, and other requirements under which animals and animal products can be imported or exported. The requirements help ensure that global markets can be accessed, expanded, or maintained with little or no risk to U.S. animal production and human health. APHIS also outlines activities to support aquatic livestock imports and exports through the development of the Aquaculture Business Plan and the National Aquaculture Health Protection and Inspection Act.

In addition, APHIS conducts activities related to the Lacey Act, which prohibits the importation of any plants, with limited exceptions, that are taken or traded in violation of domestic or international laws. The Act requires

a declaration for imported shipments of most plants or plant products. A 2016 study by the United Nations Environmental Programme and Interpol estimated the value of illegal logging, including processing, to be between $50 to $152 billion dollars, or 10 to 30 percent of the global wood trade. The Lacey Act, as amended, is designed to help combat illegal logging by encouraging importers to research their supply chains and be aware of the laws governing products they purchase in other countries. APHIS' role is to evaluate and implement regulations, provide guidance to importers regarding the declaration, perform compliance checks, provide enforcement agencies with declaration information to assist their investigations, and maintain declaration records.

Imports

APHIS evaluates the animal health status of regions that wish to export animals and/or animal products to the United States. This evaluation process minimizes the risk of introducing animal diseases through importation and aligns with international trade requirements. In FY 2021, APHIS completed a substantial number of evaluations and published regulatory actions based on those evaluations in the Federal Register. These include notices to recognize Nicaragua, Serbia, and the United Kingdom's Zone of Jersey as negligible risk for Bovine Spongiform Encephalopathy (BSE), and Ecuador as controlled risk for BSE.

APHIS also conducts site visits to confirm that a regions' surveillance, prevention, and control measures are sufficient to minimize the likelihood of an introduction of foreign animal diseases into the United States. Due to restrictions on international travel as a result of COVID-19, several site visits to countries were postponed in FY 2021. APHIS intends to resume these site visits in FY 2022 as countries begin easing travel restrictions. The Agency continues to ensure that import regulations are effective and science-based and works with U.S. businesses and importers to facilitate safe trade.

Exports

To open, re-open, and maintain U.S. access to worldwide export markets, APHIS negotiates science-based conditions with trading partners for various commodities to facilitate trade. In FY 2021, APHIS negotiated 102 export protocols for live animals (56 new or reopened markets, 21 retained markets, and 25 expanded markets). To complete export requests, APHIS conducted voluntary inspections of 945 U.S. manufacturing facilities to maintain, expand, or open export markets in many countries.

APHIS endorses export certificates for live animals and inedible animal-origin products, documenting the animal health status and facilitating export to all markets. In FY 2021, the Agency endorsed more than 87,000 export health certificates for animal products, livestock, poultry, germplasm, and pets. APHIS continued to increase the number of animal health export certificates issued electronically in FY 2021, by expanding the system capabilities for the Agency's online Veterinary Export Health Certification System (VEHCS). VEHCS capabilities include digital signature capabilities, multiple user roles, a certificate upload feature, certificate re-issuance, and inclusion of supporting documents and payment information. APHIS is working to expand the number of countries and commodities for which electronic certification is available. APHIS digital endorsement for live animal export certificates is now accepted by 33 countries.

Lacey Act

In FY 2021, APHIS received nearly 1.1 million Lacey Act declarations electronically or on paper (the vast majority were received electronically through the Department of Homeland Security's Customs and Border Protection's Automated Cargo Environment system). With the electronic declaration collection process fully operational, APHIS continues to perform enhanced compliance monitoring and enforcement of the Lacey Act requirements. APHIS works with CBP's Regulatory Audit and Office of Trade to implement compliance surveys for Lacey Act declarations and requirements. In FY 2021, APHIS and its Federal partners (including other USDA agencies, CBP, U.S. Department of Justice, and the U.S. Fish and Wildlife Service) continued to expand and improve Lacey Act compliance programs by developing plans for and conducting documentation reviews of importers, continuing development of wood identification technologies and considering alternatives to seizing and forfeiting shipments due to the time and cost involved. In FY 2023, the program will continue to enforce the Lacey Act to ensure imported plants and plant products comply with domestic and international laws.

Overall, base funding for the Agriculture Import/Export program currently supports salaries and benefits of personnel, contracts, and agreements, as well as other normal operating costs such as travel, supplies, rent, and utilities to support program activities.

An increase of $206,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $399,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(26) Overseas Technical and Trade Operations program: An increase of $2,835,000 and 0 staff years ($24,198,000 and 52 staff years available in the FY 2022 Annualized Continuing Resolution).

APHIS helps U.S. farmers, ranchers, and producers export their products to other countries by resolving concerns over animal and plant health issues that affect trade in agricultural products. Exports are crucial to economic viability of U.S. farmers, ranchers, and producers. According to USDA's Economic Research Service, the United States exports 20 percent of its agricultural production. However, agricultural trade is subject to costly disruptions related to animal and plant health issues. APHIS works to continually support economic opportunities by keeping markets open for U.S. agricultural products. Working with other Federal partners, such as the U.S. Trade Representative's Office and USDA's Foreign Agricultural Service, APHIS provides the technical expertise to successfully address animal and plant health regulatory issues associated with trade negotiations for new markets and to reopen markets when they are closed or threatened due to pest or disease issues. Highlights of FY 2021 successes include: live cattle to Moldova worth an estimated $3 million per year; bovine genetics to Uzbekistan worth $500,000; and live cattle and bovine genetics to Gambia worth $500,000 (values based on industry and APHIS analysis).

In addressing animal and plant health trade issues, APHIS uses its strong scientific base and team of technical experts located in the United States and abroad to advocate on behalf of U.S. agriculture. This line item supports APHIS' overseas presence in 28 countries, through which APHIS develops and fosters working relationships with its animal and plant health counterparts. These relationships allow APHIS to advance trade priorities and provide in-country support to resolve issues with shipments of U.S. agricultural goods held up in foreign ports of entry. Even for markets that are open to U.S. agricultural products, APHIS must continually address issues to keep trade flowing smoothly. APHIS works with foreign counterparts to clarify or streamline certification requirements, making it easier and less costly for U.S. exporters to move their products overseas. When shipments are held up at foreign ports, APHIS works with its counterparts to resolve the issues and secure the release of the shipments. In FY 2021, APHIS successfully secured the release of 275 shipments worth approximately $84 million.

APHIS overseas officials are veterinarians and plant scientists who are knowledgeable about the strengths and weakness of countries' animal and plant health programs and can aid to identify and develop programs that build technical and regulatory capacity in countries and the region. APHIS offers a range of sophisticated technical courses such as basic epidemiology, risk assessment, risk based sampling, and transboundary animal diseases, often in partnership with other Federal agencies including USDA's Foreign Agricultural Service, the U.S. Department of Defense, and the U.S. Department of State. These programs are useful in enhancing our bilateral relationships, encouraging regional dialogue, and promoting a coordinated regional response to pest or disease outbreaks. APHIS also fosters a successful trading environment for U.S. exports by working to ensure that the same rules apply to countries around the world through international standard setting. APHIS emphasizes the use of scientific principles as a basis for international trade decisions and works with international standard setting bodies such as the World Organisation for Animal Health and the International Plant Protection Convention. By supporting scientific decision making internationally and following international standards when considering what can be imported into the United States, APHIS encourages trading partners to do so as well, helping provide a level playing field for U.S. agricultural exports.

Agricultural trade is essential for U.S. farmers, ranchers, and producers, and APHIS' technical and regulatory trade activities support their export opportunities. In FY 2023, APHIS will continue to support international trade opportunities for America's animal and plant products while ensuring that U.S. agriculture is safe from pests and diseases.

Overall, base funding for the Overseas Technical and Trade Operations program currently supports salaries and benefits of personnel, contracts, and agreements, and travel, as well as other normal operating costs such as supplies, rent, and utilities to support program activities.

An increase of $2,400,000, to cover increases costs at overseas posts
Costs at overseas posts have increased due to several factors, including increases in International Cooperative Administrative Support Services costs charged by the U.S. State Department to provide shared administrative services at overseas locations as well as increases to locally employed staff salaries and benefits, which are tied to local laws in other countries. Costs for overseas rent and utilities and costs unique to Foreign Service Officers' benefits have also increased. These unavoidable costs continue to rise and reduce funding available for APHIS' Overseas Technical and Trade Operations activities, reducing the number of vacant positions APHIS can fill and threatening to limit overseas engagements related to trade and capacity building. APHIS currently has 32 Foreign Service Officers assigned to 28 countries across the world, down from a historical high of more than 70 officers covering 47 posts. The requested funding will allow APHIS to cover the costs that have increased in recent years without a commensurate increase in funding and increase the level of activities to facilitate the export of U.S. agricultural products. Without this increase, APHIS will need to identify additional vacant Foreign Service Officer positions to remain unfilled, further eroding the Agency's international footprint and its ability to support American agriculture abroad while continuing to absorb these costs.

An increase of $135,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $293,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $7,000 for implementation of E.O. 14003
This increase will support implementation of E.O. 14003 and corresponding Office of Personnel Management guidance which increased the minimum wage for Federal employees.

An increase of $1,807,000 for Animal Welfare

(27) Animal Welfare program: An increase of $1,716,000 and 0 staff years ($31,661,000 and 228 staff years available in the FY 2022 Annualized Continuing Resolution).

The Animal Welfare Act (AWA) requires animals bred for commercial sale, used in research, transported commercially, or exhibited to the public receive Federal standards of care and treatment. APHIS' Animal Welfare Program ensures the humane care and treatment of animals covered by the AWA through inspection, learning opportunities, and enforcement actions. Since the AWA became law in 1966, APHIS has protected millions of regulated animals used in research, exhibition, and the pet trade as well as those transported in commerce.

Before issuing a license, APHIS works closely with potential licensees to ensure they understand the requirements of the AWA regulations and standards and will be able to maintain compliance after obtaining a license from the Agency. After obtaining a license or registration, the Agency determines on-going compliance by conducting unannounced inspections. During these inspections, APHIS officials examine and inspect all areas of animal care and treatment covered under the AWA. The Agency reviews the animals, premises, facilities, husbandry practices, program of veterinary care, records, and animal handling procedures. APHIS confirms that the animals receive adequate housing, transport, veterinary care, and meet husbandry standards as described in the AWA.

Whenever possible, APHIS takes a coordinated and collaborative approach to improve the welfare of animals. Using non-regulatory methods such as education, training, and outreach to stakeholders to convey critical and current animal welfare information, APHIS has been able to reduce inspection frequencies (while staying within legal requirements) for facilities that have implemented strong animal welfare programs and routinely demonstrate substantial compliance during unannounced inspections. This allows the Agency to remain focused on addressing the egregious alleged violators of the AWA, representing approximately four percent of all licensees/registrants.

When APHIS inspectors discover conditions or records that are noncompliant with AWA regulations, the Agency may establish a deadline for corrective action and increase frequency of unannounced inspections to determine whether the facility made the necessary modifications. Continued, serious noncompliance may warrant an investigation that can result in sanctions ranging from monetary penalties to suspension or revocation of the facility's license, after notice and an opportunity for a hearing. The welfare of animals nationwide is subject to significant media attention and passionate public engagement. The American public holds APHIS accountable for ensuring all regulated animals are healthy and treated humanely. Without this program, the Agency would be unable to enforce the AWA, and the health and welfare of millions of animals would be severely compromised.

Overall, base funding for the Animal Welfare program currently supports salaries and benefits of personnel and travel, as well as other normal operating costs such as contracts, supplies, and equipment to support program activities.

An increase of $595,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $1,121,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(28) Horse Protection program: An increase of $91,000 and 0 staff years ($2,009,000 and 12 staff years available in the FY 2022 Annualized Continuing Resolution).

APHIS' Horse Protection program strives to eliminate the cruel and inhumane practice of soring, which involves applying caustic chemicals and/or mechanical devices to a horse's pasterns, causing the horse to experience pain or distress while walking or moving. Soring changes the gait of a horse so that the animal steps higher, allowing its rider to gain a competitive edge at horse events. APHIS has the Federal responsibility to uphold the Horse Protection Act (HPA), which prohibits sore horses from being shown, sold, or transported.

There are an estimated 200,000 Tennessee Walking and Racking Horses in the United States, with potential show winnings reaching as high as $2.5 million. The management of horse shows, exhibitions, sales and auctions have statutory responsibility under the HPA to prevent unfair competition and must identify and disqualify sored horses prior to participating in HPA-covered events. USDA-certified horse industry organizations train and license third party inspectors, known as Designated Qualified Persons (DQPs). DQPs conduct horse inspections at horse shows, exhibitions, sales, and auctions affiliated with these organizations. APHIS attends a select number of HPA-covered events each year to observe DQP performance and inspect horses for HPA compliance. APHIS' presence at horse show events serves as a deterrent; without this program, the Agency would expect to see an increase in the abusive practice of soring. In FY 2021, APHIS expanded the available technology support services by adding additional thermography and iris scanning devices. Thermographic pictures of an animal can reveal areas that are excessively warm or cool—both indicating abnormalities and the need for closer evaluation. Iris scanning allows inspectors to verify the identity of a horse, similar to a fingerprint. The Agency will continue to incorporate this technology during the inspection process in FY 2023.

Overall, base funding for the Horse Protection program currently supports salaries and benefits of personnel, and travel, as well as other normal operating expenses such as necessary contracts, agreements, and equipment for completing programmatic functions.

An increase of $31,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $60,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

An increase of $5,740,000 and 0 staff years for Agency Wide Programs

(29) APHIS Information Technology Infrastructure: An increase of $3,200,000 and 0 staff years ($4,251,000 and 0 staff years available in the FY 2022 Annualized Continuing Resolution).

The APHIS Information Technology Infrastructure (AITI) program provides funding for the hardware, software (including licensing and support costs), and telecommunications infrastructure that gives Agency employees office automation tools, Internet access, and access to mission-critical programs and administrative applications. Funding for this program supports the stable and secure information infrastructure for those mission-critical applications and the day-to-day business of APHIS. The AITI priorities are to continually improve sharing of information across the Agency; improve coordination and accessibility of information, processes, and resources available to enable APHIS employees to provide day-to-day services, and support programs in emergencies; and improve APHIS' cyber-security.

APHIS works with USDA's Office of the Chief Information Officer to support the program goals and manage information technology in a manner consistent with both USDA and Federal requirements. APHIS also works with other Federal partners, including the Department of Homeland Security's Customs and Border Protection and the Department of Health and Human Services' Centers for Disease Control and Prevention to ensure that AITI provides interoperability and required availability for partner agencies, as needed for program delivery.

In support of the Federal Information Technology Acquisition Reform Act (FITARA) and the USDA Data Center Optimization Initiative, APHIS completed migration of all business applications from on-site data centers to the remote cloud servers as of April 2019. This migration decreased the Agency's carbon footprint by using a more energy efficient infrastructure, such as cloud services, and improved data management, application development, and cost control measures.

APHIS continues to review system security patching rates for the APHIS Enterprise Infrastructure workstations and servers on an annual basis to ensure all systems are kept current with the latest security patches. In FY 2021, the AITI program maintained the current version of National Institute of Standards and Technology and Federal Information Security Management Act testing standards to continue protecting our cyber security infrastructure and reducing vulnerabilities of our systems. In addition, the APHIS IT security monitoring system continues to track and mitigate the improper use of personally identifiable information (PII) data stored in the APHIS infrastructure, helping to protect confidential information that could potentially identify a specific individual. In addition to security, accessibility to IT tools is vital to the operations of the Agency.

In FY 2023, AITI will continue to maintain its 99.97 percent availability for its key computing systems. In addition, AITI will continue to emphasize the avoidance of misuse and/or abuse of IT systems to Agency employees in support of increased cyber security strengthening efforts.

Overall, AITI expenditures fund day-to-day operations for the Agency's IT infrastructure, including software license renewals and support, as well as other normal operating costs, such as supplies and equipment.

An increase of $3,200,000, to cover costs to maintain remote cloud storage
In FY 2019, the Agency migrated to remote cloud services to maintain compliance with FITARA and the USDA Data Center Optimization Initiative. The costs associated with the cloud services are anticipated to increase and will need to be covered. The additional funding is needed to ensure the Agency's continued use of remote cloud storage, which supports APHIS' operational and program data systems, and helps reduce the Agency's cybersecurity vulnerabilities. This line item has not received an increase in more than a decade, and the additional funds would ensure operations can continue without further impact to mission critical programs.

(30) Physical Operational Security program: An increase of $40,000 and 0 staff years ($5,153,000 and 4 staff years available in the FY 2022 Annualized Continuing Resolution).

APHIS oversees and implements precautionary measures to ensure continued, efficient mission operations, and protection from disruption, degradation, or destruction of its facilities through the Physical and Operational Security (POS) program. The program provides year-round security measures, such as physical security upgrades, alarms, badging and identification systems, guard services, security assessments, safety and risk assessments, workplace violence training, and investigations of both internal and external threats. These measures protect APHIS employees, as well as visitors and stakeholders from harm, acts of terrorism, and violence. In addition, this program supports part of USDA's contribution to the U.S. Department of State's

continuing implementation of the Capital Security Cost Sharing program, which provides safe and secure workplaces for all government employees located overseas.

APHIS provides numerous types of security training, using a variety of formats. This includes providing training to more than 1,650 agency employees annually, including seminars relating to active shooter response, situational awareness, scenario-based role playing, illegal drugs, self-defense, terrorism, local crime trends, and travel safety. In addition, the program also provides workplace violence training seminars and multiple security briefings for employees who work along the border or in foreign countries. To enhance preparedness and response, APHIS continues its required on-line and classroom based active shooter training for all employees and live active shooter training exercises at agency offices across the United States. This scenario-based training provides a dynamic, interactive exercise for APHIS personnel, and utilizes the participation of local law enforcement, fire, and emergency medical service personnel. The APHIS active shooter training plan and materials are evaluated by 40 law enforcement agencies, as well as one of the nation's leading active shooter private consulting firms.

APHIS investigates and assesses all reported internal and external threats directed at agency facilities, programs, and personnel. These threats include, but are not limited to, death threats, terrorist threats, and assaults. APHIS also works to ensure employee safety in the same manner, at or near the Mexican border, and at APHIS offices in Mexico, Panama, and Guatemala. Specifically, near the Mexican border, the program investigates threats and responds to requests for protection for APHIS employees, such as veterinarians and inspectors, who enforce regulations in challenging environments.

Additionally, APHIS ensures the safety of its employees who enforce the Animal Welfare Act (AWA) and Horse Protection Act (HPA). APHIS security specialists investigate threats and respond to requests for protection throughout the country for APHIS veterinarians and inspectors who are enforcing regulations in difficult situations. Program personnel also worked across the agency to develop standard operating procedures for security support for AWA and HPA inspections and investigations.

The Homeland Security Presidential Directive-12 and Interagency Security Committee (ISC) directives create the standard for secure and reliable forms of identification for facility and network access and compliance regarding physical security at Federal facilities. In support of this standard, APHIS completes physical security assessments and reevaluates previous facility assessments using the updated ISC criteria and USDA reporting format. In addition, the program is responsible for issuing, activating, or updating new or renewed personal identification verification cards to approximately 8,900 APHIS, USDA and other federal personnel and contractors annually.

APHIS also works with other USDA agencies, the U.S. Department of Justice, U.S. Department of Homeland Security, the U.S. Department of State, and local law enforcement agencies to ensure that the appropriate organization takes the lead, contributes to program costs, and integrates security where employees are co-located overseas. APHIS maintains a presence overseas to facilitate agricultural trade and monitor pest and disease threats. The Security Embassy Construction Counterterrorism Act's Capital Security Cost Sharing Program requires the agency to help fund the construction of new Embassy compounds based on the number of authorized positions. In FY 2023, the program will continue to work with the U.S. Department of State to establish a security baseline for APHIS facilities overseas and ensure that mission operations are protected from disruption and degradation.

Overall, base funding for the POS program currently supports contracts, programmatic agreements, and personnel costs, as well as other normal operating expenses such as travel and supplies. In addition, this program supports the mandatory cost share with the Department of State for the Capital Security Cost-Sharing program.

An increase of $10,000 for FY 2022 Pay and FERS costs
This increase will support a 2.7 percent Cost of Living pay increases for civilian employees, and a 1.1 percent increase to cover the expenses for the mandated increase of USDA's contribution to FERS.

An increase of $30,000 for FY 2023 Pay and other inflationary costs
This increase will support a 4.6 percent Cost of Living pay increases for civilian employees, as well as costs to cover increased costs for Department-coordinated services.

(31) Rent and Department of Homeland Security (DHS) Security Payments: An increase of $2,500,000 and 0 staff years ($42,567,000 and 0 staff years available in the FY 2022 Annualized Continuing Resolution).

APHIS personnel are in every State working to carry out our mission and the Rent and DHS Security Payments program assists the Agency in strategically managing the payment portfolio of approximately 220 General Services Administration (GSA) leases and DHS security payments, as well as other leased, owned, and agreement funded facilities. For example, the funding for this program ensures that APHIS employees can effectively and efficiently carry out all mission-related activities, including surveillance for animal and plant pests and diseases, pest and disease eradication programs, diagnostic and methods development work at laboratories, animal welfare inspections, and wildlife damage management activities. APHIS continually identifies opportunities to consolidate, reduce, and/or transform spaces to manage space as effectively and efficiently as possible. Without funding for rent and security payments, APHIS would have to cover these costs by reducing program activities, decreasing levels of service, and diverting fiscal resources from other appropriated line items.

In FY 2023, the program will continue to ensure mission operations while effectively managing its space portfolio.

Overall, base funding for the program currently maintains rent payments and security agreements in support of program activities.

An increase of $2,500,000 to cover rising rent and security costs

APHIS is requesting an increase of $2,500,000 to cover rising rent and security costs. APHIS began paying for rent and DHS security in FY 2015, when USDA decentralized these costs to the agencies. The appropriation for this line item has remained flat even though actual lease and security costs have increased significantly since that time. APHIS has pursued consolidation, reduction, and transformation of spaces to manage space, but these costs continue to rise. In addition to these inflationary cost increases, DHS modified its methodology for billing agencies for basic security costs at GSA leased and owned facilities. The modified methodology resulted in a 52 percent increase between FY 2020 and FY 2021, and 27 percent increase between FY 2021 and FY 2022, in DHS security costs. These increased costs must be absorbed by the Agency, which cuts into programmatic funds that would otherwise support mission-critical work.

GEOGRAPHIC BREAKDOWN OF OBLIGATIONS AND FTE

Table APHIS-14. Discretionary Geographic Breakdown of Obligations and FTE (thousands of dollars, FTE)

State/Territory/Country	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE
Alabama	$5,912	29	$6,768	27	$5,857	32	$6,172	33
Alaska	574	2	643	2	577	3	1,163	3
Arizona	10,274	57	10,657	70	9,761	55	10,404	55
Arkansas	3,676	21	4,109	25	3,667	24	3,910	24
California	81,217	175	57,667	104	70,563	168	74,206	171
Colorado	76,773	371	69,818	304	74,985	401	79,261	405
Connecticut	1,873	8	1,223	6	1,684	7	2,253	7
Delaware	843	5	920	5	781	3	842	3
Florida	46,317	267	37,940	213	41,290	241	44,235	242
Georgia	7,986	56	6,434	36	5,521	35	5,901	35
Hawaii	23,496	261	23,318	258	22,902	296	25,997	298
Idaho	8,338	61	7,595	59	8,321	71	8,977	71
Illinois	3,875	31	3,653	27	5,892	33	7,067	35
Indiana	4,189	27	4,273	25	6,703	32	7,864	33
Iowa	75,292	294	73,145	320	78,202	350	86,777	353
Kansas	3,846	25	3,914	22	3,861	29	4,243	29
Kentucky	4,653	28	4,689	26	4,637	32	4,926	32
Louisiana	5,581	30	5,419	26	5,440	33	5,746	33
Maine	1,270	8	1,188	8	1,266	9	3,203	9
Maryland	290,462	848	274,300	1,026	275,989	828	287,279	877
Massachusetts	21,497	98	19,729	97	21,468	111	22,589	111
Michigan	6,679	50	6,870	47	6,249	53	7,273	53
Minnesota	35,859	205	47,886	188	37,308	214	40,446	218
Mississippi	8,012	41	9,028	40	7,961	48	8,400	48
Missouri	14,447	51	9,533	50	14,378	59	15,084	59
Montana	6,653	39	6,514	39	6,647	45	7,100	45
Nebraska	3,160	20	3,308	20	3,129	23	3,408	23
Nevada	2,397	21	2,743	22	2,381	25	2,599	25
New Hampshire	16,671	18	16,403	18	16,692	21	17,027	21
New Jersey	5,059	31	4,190	31	4,091	25	4,431	25
New Mexico	4,431	32	4,972	33	4,402	36	4,760	36
New York	43,778	138	33,400	126	32,238	145	33,517	145
North Carolina	65,936	235	44,436	173	43,363	196	48,024	200
North Dakota	2,734	17	2,627	15	2,700	20	2,968	20
Ohio	18,419	80	17,562	80	18,380	92	19,275	92
Oklahoma	6,318	35	6,187	39	8,829	41	10,088	41
Oregon	6,718	24	5,186	22	6,659	27	7,081	27
Pennsylvania	12,169	102	12,841	78	11,946	100	12,963	102
Rhode Island	456	1	424	1	454	1	487	1
South Carolina	9,174	30	12,558	31	9,007	32	9,350	32
South Dakota	2,459	15	2,133	15	2,475	17	2,708	17
Tennessee	7,288	40	7,410	36	7,265	46	7,713	46
Texas	84,779	365	69,075	372	62,196	401	69,463	403
Utah	8,835	43	7,784	42	8,883	51	9,373	51
Vermont	1,066	9	1,056	9	1,069	10	1,267	10
Virginia	6,439	31	4,997	29	6,323	35	6,750	35
Washington	6,475	34	5,648	26	5,558	28	5,953	28
West Virginia	2,521	17	2,685	17	2,539	20	2,721	20
Wisconsin	3,629	21	4,604	23	3,585	24	3,851	24
Wyoming	3,987	28	4,254	29	4,012	33	4,332	33

State/Territory/Country	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE
U.S. TERRITORIES:								
District of Columbia	24,880	87	22,564	69	24,281	97	24,764	98
Guam	510	3	316	1	351	2	357	2
Puerto Rico	11,092	122	12,084	104	27,666	119	35,185	120
Virgin Islands	210	1	510	1	1,210	3	1,213	3
INTERNATIONAL REGIONS								
AFRICA:								
Egypt	304	-	709	1	304	-	404	-
South Africa	882	2	825	2	882	2	982	2
Senegal	532	1	362	-	532	1	632	1
ASIA/PACIFIC:								
China	2,333	4	1,801	3	2,333	4	2,633	4
Japan	1,842	2	1,757	3	1,842	2	2,142	2
South Korea	527	1	480	-	527	1	527	1
Other	3,354	5	3,955	7	3,354	5	3,454	5
CARIBBEAN:								
Dominican Republic	744	2	1,710	1	7,615	2	10,293	2
Other	37	-	74	-	37	-	37	-
CENTRAL AMERICA:								
Guatemala	34,025	4	21,740	5	27,154	9	30,832	9
Panama	15,580	3	14,731	4	15,580	3	15,580	3
Other	809	1	648	-	809	1	809	1
EUROPE/NEAR EAST:								
Austria	325	-	365	-	325	-	525	-
Belgium	1,465	2	1,718	2	1,465	2	1,765	2
Other	248	-	986	3	248	-	248	-
NORTH AMERICA:								
Mexico	5,147	2	7,683	3	5,147	2	6,147	2
SOUTH AMERICA:								
Brazil	958	2	548	1	958	2	1,158	2
Chile	206	-	348	-	206	-	306	-
Other	1,687	-	1,523	2	1,687	-	1,787	-
Obligations	1,182,187	4,719	1,071,153	4,548	1,114,599	4,919	1,203,208	4,999
Lapsing Balances	172	934	335	370	-	-	-	-
Bal. Available, EOY	167,620	462	697,806	1,034	658,886	1,236	609,694	839
Total, Available	1,349,979	6,115	1,769,294	5,952	1,773,485	6,155	1,812,902	5,838

Table APHIS-15. Mandatory Geographic Breakdown of Obligations and FTE (thousands of dollars, FTE)

State/Territory/Country	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE
Alabama	$1,469	5	$1,771	16	$1,751	7	$1,751	7
Alaska	190	-	165	-	218	-	218	-
Arizona	2,066	9	2,277	17	2,957	17	2,957	17
Arkansas	1,043	3	1,832	8	1,243	4	1,243	4
California	35,989	53	47,811	102	50,936	94	50,936	94
Colorado	8,121	41	10,992	40	16,115	68	16,115	68
Connecticut	449	3	591	4	786	5	786	5
Delaware	1,253	2	1,023	6	1,509	4	1,509	4
Florida	18,704	92	20,612	163	26,041	163	26,041	163
Georgia	9,172	38	11,064	73	12,592	67	12,592	67
Hawaii	5,022	14	6,427	30	6,493	27	6,493	27
Idaho	1,100	1	1,649	3	1,942	3	1,942	3
Illinois	1,682	8	1,573	12	2,455	14	2,455	14
Indiana	440	1	619	2	694	2	694	2
Iowa	614	1	7,960	2	15,916	24	18,697	24
Kansas	749	-	436	1	1,114	1	1,114	1
Kentucky	637	1	599	2	840	2	840	2
Louisiana	816	5	1,271	10	1,163	7	1,163	7
Maine	694	-	394	1	840	16	840	16
Maryland	53,198	214	90,934	332	113,441	397	113,441	397
Massachusetts	2,574	10	2,562	15	3,076	15	3,076	15
Michigan	1,374	7	1,877	12	2,215	13	2,215	13
Minnesota	7,906	47	12,183	5	9,900	60	9,900	60
Mississippi	798	3	1,334	4	1,069	3	1,069	3
Missouri	515	2	737	6	1,275	5	1,275	5
Montana	1,437	1	520	2	1,672	3	1,672	3
Nebraska	647	1	241	2	854	2	854	2
Nevada	292	1	458	1	378	2	378	2
New Hampshire	375	-	224	-	501	1	501	1
New Jersey	3,711	13	4,767	24	5,193	24	5,193	24
New Mexico	266	2	252	2	811	4	811	4
New York	6,846	20	29,352	42	9,975	38	11,975	38
North Carolina	28,666	90	28,098	116	35,792	152	35,792	152
North Dakota	399	1	318	2	882	2	882	2
Ohio	1,125	3	854	6	1,609	6	1,609	6
Oklahoma	1,019	4	1,326	6	1,449	5	1,449	5
Oregon	1,909	2	1,739	5	2,914	5	2,914	5
Pennsylvania	6,453	7	6,954	17	7,676	13	7,676	13
Rhode Island	94	-	99	-	199	-	199	-
South Carolina	1,369	7	1,747	14	1,797	11	1,797	11
South Dakota	72	-	44	-	379	1	379	1
Tennessee	1,080	2	849	3	1,307	3	1,307	3
Texas	12,400	58	15,113	83	16,064	90	16,064	90
Utah	215	-	280	1	1,520	2	1,520	2
Vermont	257	1	243	1	380	1	380	1
Virginia	12,639	3	7,892	5	13,981	5	13,981	5
Washington	6,531	15	6,547	25	8,014	26	8,014	26
West Virginia	366	1	335	1	487	1	487	1
Wisconsin	1,218	1	723	2	1,756	3	1,756	3
Wyoming	390	1	39	-	526	1	526	1

State/Territory/Country	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE
U.S. TERRITORIES:								
District of Columbia	6,747	24	5,880	4	8,200	29	8,200	29
Guam	447	2	651	3	684	3	684	3
Puerto Rico	3,483	28	3,845	50	5,480	45	5,480	45
Virgin Islands	1	-	-	-	1	-	1	-
INT'L REGIONS								
AFRICA:								
South Africa	21	-	-	-	23	-	23	-
Senegal	16	-	-	-	19	-	19	-
ASIA/PACIFIC:								
China	252	-	234	-	264	-	264	-
Japan	68	-	30	-	71	-	71	-
Other	104	1	2	-	-	-	-	-
CARIBBEAN:								
Dominican Republic	109	-	25	-	125	-	125	-
Other	138	-	97	-	154	-	154	-
CENTRAL AMERICA:								
Guatemala	151	-	-	-	189	-	189	-
Other	83	-	250	-	117	-	117	-
EUROPE/NEAR EAST:								
France	20,800	-	-	-	-	-	-	-
Other	190	-	222	-	193	-	193	-
NORTH AMERICA:								
Mexico	1,002	-	1,660	1	1,211	-	1,211	-
					-	-	-	-
SOUTH AMERICA:								
Argentina	6,000	-	-	-	-	-	-	-
Brazil	58	-	-	-	59	-	59	-
Other	152	-	109	-	-	-	-	-
Obligations	286,171	852	350,713	1,283	409,485	1,497	414,266	1,497
Lapsing Balances	543	66	498	5	-	-	-	-
Bal. Available, EOY	180,564	268	247,730	531	204,092	720	337,500	576
Total, Available	467,278	1,186	598,941	1,819	613,577	2,217	751,766	2,073

CLASSIFICATION BY OBJECTS

Table APHIS-16. Discretionary Classification by Objects (thousands of dollars)

Item No.	Item	2020 Actual	2021 Actual	2022 Estimated	2023 Estimated
	Personnel Compensation:				
	Washington D.C.	$94,812	$87,646	$89,501	$96,666
	Personnel Compensation, Field	317,415	293,424	300,670	328,862
11	Total personnel compensation	412,227	381,070	390,171	425,528
12	Personal benefits	148,415	139,968	143,758	149,917
13.0	Benefits for former personnel	1,003	893	1,003	1,003
	Total, personnel comp. and benefits	561,645	521,931	534,932	576,447
	Other Objects:				
21.0	Travel and transportation of persons	17,074	14,577	15,577	17,662
22.0	Transportation of things	2,906	2,729	3,050	3,125
23.1	Rental payments to GSA	39,366	38,334	38,334	41,634
23.2	Rental payments to others	10,220	9,715	9,815	9,913
23.3	Communications, utilities, and misc. charges	10,084	12,321	13,171	13,745
24.0	Printing and reproduction	697	401	506	506
25	Other contractual services	42,662	31,598	32,898	35,553
25.1	Advisory and assistance services	3,841	6,966	7,066	10,253
25.2	Other services from non-Federal sources	53,623	43,475	47,780	58,150
25.3	Other goods and services from Federal sources	117,787	104,734	106,734	114,734
25.4	Operation and maintenance of facilities	10,095	8,999	9,049	10,049
25.5	Research and development contracts	207,807	199,563	204,563	218,597
25.7	Operation and maintenance of equipment	6,332	10,353	10,428	11,428
26.0	Supplies and materials	52,067	41,958	45,963	47,351
31.0	Equipment	23,958	18,446	25,921	27,247
32.0	Land and structures	146	13	13	13
41.0	Grants, subsidies, and contributions	288	128	128	128
42.0	Insurance Claims and Indemnities	21,585	4,912	8,672	6,672
43.0	Interest and Dividends	6	2	2	2
	Total, Other Objects	620,542	549,222	579,667	626,761
99.10	Total, new obligations	1,182,187	1,071,153	1,114,599	1,203,208
	DHS Building Security Payments (included in 25.3).....	$4,065	$5,649	$5,705	$5,763
	Information Technology Investments:.....				
	Major Investment 1.....				
	Animal Disease Traceability Information System (ADTIS)				
11	Internal Labor.....	446	-	446	459
	External Labor (Contractors).....	4,552	4,204	3,100	3,193
25.2	Outside Services (Consulting).....	-	150	-	-
	Other Cost.....	-	-	-	-
	Total Major Investment 1.....	4,998	4,354	3,546	3,652
	Major Investment 2.....				
	Certif, Accred, Reg, Permitting & Other Lics (CARPOL)				
11	Internal Labor.....	1,077	-	1,092	1,125
	External Labor (Contractors).....	19,360	12,470	8,000	8,240
25.2	Outside Services (Consulting).....	-	-	-	-
	Other Cost.....	2,000	2,030	-	-
	Total Major Investment 2.....	22,437	14,500	9,092	9,365

	Major Investment 3.....				
	National Bio- and Agro- Defense Facility (NBAF)				
11	Internal Labor.....	617	617	617	636
	External Labor (Contractors).....	4,000	4,223	-	-
25.2	Outside Services (Consulting).....	7,490	600	4,221	4,348
	Other Cost.....	18,510	9,210	8,362	8,612
	Total Major Investment 3.....	30,617	14,650	13,200	13,596
	Mission Area Non-Major Investment Totals.....	46,974	49,889	51,010	52,540
	Mission Area Standard Investment Totals.....	41,329	63,077	57,416	59,138
25.3	Mission Area WCF Transfers.....	38,368	63,811	66,330	68,320
	Total Non-Major Investment	184,723	210,281	200,594	206,611
	Position Data:				
	Average Salary (dollars), ES Position	$187,674	$188,612	$189,555	$195,242
	Average Salary (dollars), GS Position	$88,826	$89,270	$89,716	$92,408
	Average Grade, GS Position	10.9	10.9	10.9	10.9

Table APHIS-17. Mandatory Classification by Objects (thousands of dollars)

Item No.	Item	2020 Actual	2021 Actual	2022 Estimated	2023 Estimated
	Personnel Compensation:				
	Washington D.C.	$16,846	$25,714	$27,218	$28,034
	Personnel Compensation, Field	56,399	86,087	91,586	94,334
11	Total personnel compensation	73,245	111,801	118,804	122,368
12	Personal benefits	35,113	55,021	51,605	52,638
13.0	Benefits for former personnel	211	167	250	250
	Total, personnel comp. and benefits	108,570	166,989	170,659	175,255
	Other Objects:				
21.0	Travel and transportation of persons	3,490	2,204	4,587	4,587
22.0	Transportation of things	437	314	2,452	2,452
23.1	Rental payments to GSA	2,597	3,601	2,597	2,597
23.2	Rental payments to others	9,959	10,189	9,959	9,959
23.3	Communications, utilities, and misc. charges	6,169	3,924	6,170	6,170
24.0	Printing and reproduction	156	61	181	181
25	Other contractual services	9,428	11,358	11,990	11,990
25.1	Advisory and assistance services	178	173	177	177
25.2	Other services from non-Federal sources	14,076	11,383	17,635	17,635
25.3	Other goods and services from Federal sources	13,971	22,261	28,042	28,042
25.4	Operation and maintenance of facilities	1,938	823	1,356	1,356
25.5	Research and development contracts	79,613	101,971	103,286	103,470
25.7	Operation and maintenance of equipment	1,784	1,690	2,285	2,285
26.0	Supplies and materials	31,158	11,290	36,574	36,574
31.0	Equipment	2,605	2,479	11,537	11,537
32.0	Land and structures	21	-	-	-
41.0	Grants, subsidies, and contributions	20	-	-	-
42.0	Insurance Claims and Indemnities	-	-	-	-
43.0	Interest and Dividends	4	2	-	-
	Total, Other Objects	177,601	183,724	238,826	239,010
99.9	Total, new obligations	286,171	350,713	409,485	414,266
	DHS Building Security Payments (incl in 25.3)	$283	$576	$582	$589

ADVERTISING EXPENDITURES

Table APHIS-18. Advertising Expenditures (thousands of dollars)

Item	2021 Number of Contracts	2021 Dollars Obligated	2022 Number of Contracts	2022 Dollars Obligated	2023 Number of Contracts	2023 Dollars Obligated
Total Contracts for Advertising Services.....	4	$1,170	5	$6,475	5	$4,600
Contracts for Advertising Services to Socially and Economically Disadvantaged Small Businesses.....	-	-	-	-	-	-
Contracts for Advertising Services to Women-Owned and Minority-Owned Small Businesses.....	1	$300	1	$200	-	-

STATUS OF PROGRAMS – SALARIES AND EXPENSES

SAFEGUARDING AND EMERGENCY PREPAREDNESS/RESPONSE

Current Activities

American agriculture faces many threats from foreign and domestic pests and diseases which have the potential to negatively impact animal and plant agricultural production, trade, and the economy. APHIS monitors and responds to potential diseases of livestock and wildlife, invasive species, and conflicts between humans and wildlife as it strives to assure its stakeholders that it is on guard against the introduction or re-emergence of animal and plant pests and diseases that could limit agricultural production.

When a pest or disease is detected in the United States, APHIS works cooperatively with other Federal, State, Tribal and industry partners to conduct animal and plant health monitoring programs to rapidly diagnose them and determine if there is a need to establish new pest or disease management programs. APHIS, in conjunction with States, Tribes, industry, and other stakeholders, protects American agriculture by eradicating harmful pests and diseases or, where eradication is not feasible, by minimizing their economic impact. The Agency monitors endemic pests and diseases through surveys to detect their location and through inspection to prevent their spread into non-infested parts of the country. APHIS conducts diagnostic laboratory activities that support the Agency's veterinary disease prevention, detection, control, and eradication programs. The Agency also provides and directs technology development to support plant protection programs and cooperators at the State, national, and international levels. APHIS also develops methods to control animals and pests that are detrimental to agriculture, wildlife, and public safety.

The Agency maintains a cadre of trained professionals prepared to respond immediately to potential animal and plant health emergencies. Program personnel investigate reports of suspected exotic pests and diseases and take emergency action if necessary. To facilitate these efforts, APHIS develops pathway studies and thoroughly investigates the progression of outbreaks to determine the origin of animal and plant pests and diseases. APHIS also actively engages State, Tribal, and local governments, and industries to advance their emergency preparedness and response capabilities.

APHIS conducts operations to ensure the humane care and treatment of vulnerable animals covered under the Animal Welfare Act and the Horse Protection Act. The Agency also balances a regulatory system that safeguards agriculture while fostering innovative research and development in the field of biotechnology.

Selected Examples of Recent Progress - Animal Health:

1. Animal Health Technical Services

APHIS' Animal Health Technical Services develops and enhances tools for acquiring and managing information vital for improving global market access for U.S. livestock and animal products. Incorporating national surveillance standards into data management applications allows the program to compile animal health information nationally, thus leveraging the work of animal health professionals nationwide to meet local, State, and national veterinary health objectives. The National Veterinary Accreditation Program (NVAP) trains private veterinarians to help producers meet export requirements and disease program standards. Ultimately, this allows U.S. animals and animal products to compete in the global economy.

Animal Disease Traceability (ADT)

The national ADT framework allows Federal, State, Tribal, and private animal health professionals to work together to identify diseased animals, quickly trace their movements, and control disease spread to protect the livestock industry, whose production value was approximately $104 billion in 2020 (National Agricultural Statistics Service, USDA). The ADT framework enables animal health officials to trace an animal from the location of official identification to the animal's last location, which is often the termination point or slaughter plant. Knowledge of the location of diseased and at-risk animals helps preserve animal health; enables a rapid response in case of an animal disease event; reduces animal illnesses and deaths during outbreaks; and decreases the cost to producers, consumers, and the government. This system also assures our trading partners that States, and USDA can rapidly contain an animal disease event. Each year, APHIS provides cooperative agreement funds to States to help them establish and maintain support for State ADT activities. Currently all States receiving program funds have approved ADT strategic plans in place with APHIS.

The ADT program continues to progress in maximizing flexibility while maintaining effectiveness and increasing the timeliness of retrieving traceability data. APHIS measures the success of the ADT program by conducting trace exercises. Trace exercises document a State's ability to properly administer, record, and retrieve documents pertaining to official livestock identification and interstate movement. In FY 2021, APHIS continued to conduct national priority trace exercises where States treat the trace as a national emergency. States conducted approximately 1,200 national priority trace exercises. States maintained an average of approximately 2.5 hours to complete the exercise at a success rate of 98 percent. The ADT program will continue to administer national priority trace exercises in FY 2022, as part of its performance-based program to evaluate the States' ability to successfully complete a trace investigation.

One of the most significant opportunities to strengthen the ADT system is to improve the accessibility for electronic identification tags in adult beef and all dairy cattle, as well as in bison. The electronic tags use radio frequency identification (RFID), which speeds information capture and sharing. In FY 2021, APHIS purchased official RFID tags to be provided to States as an optional alternative for the currently available metal tags. The tags are provided at no cost, and each State veterinarian distributes the tags in a way that best serves their industry. The tags are available as orange RFID official vaccination tags for use in heifers vaccinated for brucellosis, or white RFID tags for non-vaccinated heifers. Since RFID tag distribution began in FY 2020, approximately 10.8 million tags have been distributed as free tag alternatives to visual metal ID tags. This accounts for about 68 percent of all USDA approved official identification tags distributed by USDA for cattle in that time.

Information Management

Many of the APHIS information management systems are available to States and Tribal Nations to support their traceability plans and other animal health activities. APHIS conducts evaluations of existing data systems and applications to determine if they should modify and enhance them or if they should develop new systems and applications. In FY 2021, APHIS continued modernization efforts for the Animal Disease Traceability Information System (ADTIS). The ADTIS is an information management system that APHIS utilizes to maintain records of official identification devices and other information associated with official identification numbers of animals. The system contains several modules or components that maintain information to support APHIS' ability to respond to animal health events. The modernization efforts focused on maintaining the components, features, and services of ADTIS into a central location without the need to use separate applications. Users of ADTIS were granted access to the modernized system at the beginning of FY 2022.

To further strengthen the nation's animal disease traceability capabilities, in FY 2021, APHIS continued to improve the Animal Health Services (AHS) system, formally referred to as the Mobile Information Modernization system. The AHS system allows for State and Federal animal health officials and accredited veterinarians to gather data electronically instead of keying data or scanning paper records into electronic databases for animal tracing purposes. The improvements made in FY 2021, allow producers and accredited veterinarians to use a free web-based interface and piloted mobile applications to complete electronic Certificates of Veterinary Inspection and program disease testing for Tuberculosis, Brucellosis, and Scrapie without a live internet connection. APHIS will continue to make performance improvement and include new features to the AHS system in FY 2022.

National Veterinary Accreditation Program (NVAP)

More than 70,000 highly trained accredited veterinarians voluntarily participate in NVAP. Accreditation by USDA allows private practice, academic, industry, military, and other veterinarians to serve as the first line of defense for reportable domestic and foreign animal diseases. Once symptoms of a suspected foreign animal disease are reported, further diagnostics can be conducted or facilitated by Federal veterinarians and State animal health officials to provide rapid diagnosis, quarantine, and other control measures to safeguard animal and human health. Accredited veterinarians also provide official animal, flock, and herd health certifications, disease testing, and traceability measures which are needed for the intrastate, interstate, and international movement for billions of animals each year. Mandatory training for participants and renewal of accreditation every three years provides current information of animal disease surveillance, prevention, zoonoses, judicious use of antimicrobials, animal welfare, and disaster preparedness. APHIS currently hosts 33 web-based supplemental training modules for accredited veterinarians. Since FY 2011, accredited veterinarians have completed more than 900,000 web modules, and more than 40,000 modules completed at veterinary conferences nationwide.

2. Aquatic Animal Health

The Aquatic Animal Health program protects the health and value of U.S. farm-raised aquatic animals and natural resources. The program supports commercial producers in domestic and international trade markets, valued at $1.5 billion in 2018 (National Agricultural Statistics Service, 2018 Census of Aquaculture). The new National Aquaculture Health Plan and Standards (NAHPS), which was published in July 2021, replaces the 2008 National Aquatic Animal Health Plan and provides a framework for Federal policies and programs to address aquatic animal diseases for the benefit of aquaculture and aquatic animal resources. The NAHPS affirms USDA as the lead Federal authority for U.S. aquaculture health, which is consistent with other livestock health programs. As such, the Department will oversee the health and promotion of aquatic livestock. The NAHPS outlines the infrastructure measures needed to protect the health of farmed aquatic animals, which include disease reporting, standardized laboratory quality assurance and testing, surveillance, data management, and health certification programs. These elements are fundamental for a robust, comprehensive system.

The Aquatic Animal Health program is implementing the new strategic framework of the NAHPS, which includes a more comprehensive approach to aquatic livestock health management, monitoring, and certification to meet the growth and demand of the domestic aquaculture industry. The program is focused on farm-raised aquatic animal health and promotes industry growth by improving marketability through consumer confidence, as well as facilitating the interstate and international trade and movement of live animals and animal products.

In FY 2021, APHIS continued working with the National Aquaculture Association to develop the Commercial Aquaculture Health Program Standards (CAHPS), a voluntary national and uniform approach to aquaculture health standards. The goal of CAHPS is to support improved health management, protect and expand aquaculture business opportunities, promote and facilitate trade, and improve resource protection. CAHPS establishes site-specific plans for biosecurity, surveillance, and response related to animal health events. Well-managed surveillance planning is the foundation for animal health activities that include disease control and eradication programs, support of emergency preparedness and response, and international trade. In FY 2021, the University of Maine secured a grant from USDA's National Institute of Food and Agriculture to support the implementation of CAHPS in several land-based recirculating aquaculture facilities in the New England area.

3. Avian Health

The Avian Health program protects the U.S. poultry industry, whose production value was $35.5 billion in 2020 (USDA, National Agricultural Statistics Service), while facilitating agricultural trade in poultry and poultry products. This program consists of the surveillance, prevention, and control of avian diseases; disease threat planning and response; and international avian health activities. APHIS' surveillance programs detect foreign, zoonotic, and domestic diseases that could substantially impact domestic production and the economy. Surveillance information facilitates trade and protects public health by demonstrating that certain diseases do not exist in poultry populations. Prevention and control programs minimize the disease threat and protect the value of poultry markets. The Agency also maintains regulations and national program standards and guidelines that direct avian health activities at the Federal, State, and Tribal levels. Maintaining these standards supports interstate and international commerce by providing assurances about the health of avian species and products that are moved or traded. In addition, APHIS uses epidemiological and economic modeling to better understand historical events and inform policy decisions.

APHIS works to quickly detect and address endemic, emerging, and foreign disease threats to ensure that the U.S. poultry industry maintains worldwide competitiveness. To detect these threats, the Agency conducts surveillance in domestic poultry, the live bird marketing system (LBMS), and wild birds. The National Poultry Improvement Plan (NPIP) is a cooperative Federal-State-industry program that helps participants guard against disease incursion and enhance the marketability of poultry and poultry products. The program includes the testing and monitoring of Salmonella Pullorum, Salmonella Enteritidis, Salmonella Gallinarum, Mycoplasma gallisepticum, Mycoplasma synoviae, Mycoplasma meleagridis, and H5/H7 strains of avian influenza (AI). The NPIP H5/H7 prevention and control program involves all 50 States and Puerto Rico; more than 95 percent of commercial broiler, turkey, and egg industries; and the entire primary poultry breeding industry. Ninety-nine approved laboratories in 42 States provide diagnostic testing for the program. Surveillance, diagnostic, and biosecurity activities are funded through cooperative agreements with requesting States. In FY 2021, APHIS implemented changes to align the NPIP Program Standards with poultry industry changes and incorporate new scientific information and technologies. These updates are consistent with the recommendations approved at the 2018 NPIP Biennial Conference. The changes created a new option with the U.S. Newcastle Disease (ND) Clean Program, as well as the U.S. ND Clean Compartment Program for Primary Breeding Companies; updated H5/H7 AI regulations on indemnity and

compensation; and created an NPIP subpart for the complex and growing game bird industry. The ND Clean Program and Compartment Program status focuses on the primary breeder sector of the egg-type chicken, meat-type chicken, and turkey industries. Through the Programs, owners can show that their flocks meet all requirements to be considered unaffected by ND by both APHIS and the Official State Agency. Meeting these requirements allows flocks to participate in interstate and international trade, even during an outbreak. The game bird industry subpart aligns with industry production methods and end uses.

In addition, APHIS manages the NPIP U.S. Poultry Primary Breeder AI Compartmentalization program, which audits and certifies pedigree poultry stock breeding companies that practice high-level biosecurity measures to keep their flocks AI-free. Compartmentalization defines the health status of a subpopulation of animals by common biosecurity and management principles rather than a shared geographic boundary. This voluntary program supports the trade of poultry and poultry products if the United States encounters an AI outbreak. Participating breeders must meet extensive biosecurity, personnel training, disease monitoring, and laboratory infrastructure requirements. APHIS administers the program and serves as the regulatory authority that international trading partners can trust to verify that a participant meets the requirements.

APHIS conducts AI surveillance in commercial poultry under the National H5/H7 AI Prevention and Control program. Although most of the testing is performed locally, APHIS' National Veterinary Services Laboratories provides reagents for testing, and performs confirmation and identification testing of presumptive positive specimens. In FY 2020, APHIS performed approximately 1.4 million AI surveillance tests through NPIP AI cooperative agreements and more than 800,000 tests through the third quarter of FY 2021. Complete FY 2021 data will be available after the agreements with States conclude on March 31, 2022. No H5/H7 AI virus was found in U.S. commercial poultry flocks in FY 2021.

The LBMS is a voluntary network of U.S. live poultry markets and their production and distribution systems, which provides fresh poultry meat to consumers. As of September 30, 2021, 33 States and the U.S. Virgin Islands had live bird market components that participate in APHIS' H5/H7 AI prevention and control program. State cooperators help conduct surveillance and diagnostic activities for the LBMS. When these tests yield presumptive positive results, the Agency confirms the presence and strain of AI. LBMS testing prevents and controls AI in markets and among producers and distributors that supply those markets. In FY 2021, there was one H5N3 LPAI detection in the LBMS. The program conducted 115,491 AI surveillance tests in the LBMS in FY 2020, and approximately 86,000 tests in the first three quarters of FY 2021. Complete FY 2021 data will be available after the agreements with States conclude on March 31, 2022.

AI circulates in waterfowl and shorebirds causing little to no disease, which allows the viruses to move efficiently along migratory flyways in these birds. Occasionally, these viruses will spill over into domestic land-based poultry (e.g., chickens, turkey, guinea fowl, etc.). When poultry are infected with H5 or H7 strains of AI virus, the virus can evolve into the more serious disease-causing form, highly pathogenic AI (HPAI). HPAI usually causes significant disease and mortality in domestic poultry and sometimes in wild birds. APHIS conducts wild bird surveillance to gain insight into AI viruses in wild populations, and how and when they impact poultry. In FY 2021, the Agency coordinated the collection and laboratory analysis of approximately 8,400 wild bird samples from wild waterfowl in select watersheds in the Atlantic flyway (16 total States) and select Western States (Idaho and Alaska). No HPAI was detected in FY 2021, but low pathogenic strains were found in approximately 13 percent of the sampled population. For the current migratory season (Summer 2021 through Winter 2022) APHIS will collect and analyze 16,000 samples in the Atlantic and Pacific flyways.

Regulatory enforcement is critical to contain HPAI. To deter the entry of HPAI and support its containment and eradication, APHIS investigated four new cases in FY 2021, involving avian health issues, primarily involving the import and export of hatching eggs. In addition, the Agency resolved three investigations by issuing Official Warning letters, and two investigations through a stipulated settlement agreement assessing a $350 penalty, all related to the illegal import of hatching eggs on multiple dates.

Internationally, APHIS facilitates agricultural trade, works with agricultural officials, monitors agricultural health, and supports efforts in sanitary and phytosanitary standard-setting. The Agency works with animal health counterparts to reduce the impact of AI in trade by promoting transparent communications; clarifying animal disease status; and when U.S. poultry markets close, providing relevant data to reopen them and minimizing trade disruption of these products. In addition, APHIS works with the USDA's Foreign Agricultural Service and the U.S. Trade Representative's Office to maintain a coordinated, strategic approach to resolving avian health issues that affect U.S. exports. Further, APHIS coordinates with the World Organisation for Animal Health and other international organizations to assist with disease prevention, management, and eradication activities in HPAI-affected regions. In

addition, APHIS sponsors and staffs the Emergency Management Center at the Food and Agriculture Organization of the United Nations, in Rome, Italy. This Center provides assessments, guidance, and resources to enable rapid response to animal disease outbreaks in countries where the United States would have difficulties placing personnel or responding bilaterally. This approach reduces the threat of disease outbreaks becoming widespread and evolving into pandemics. In addition, the Agency works closely with counterparts in Canada and Mexico to address avian disease threats affecting North America. APHIS also delivers capacity-building activities focused on biosecurity, poultry disease diagnostics, quality assurance in the laboratory, and poultry and wildlife surveillance.

4. Cattle Health

The Cattle Health Program protects and improves the quality, productivity, and economic viability of the U.S. cattle industry, whose production was valued at approximately $87 billion (National Agricultural Statistics Service, 2020). The Cattle Health Program has two major goals: to rapidly detect and respond to diseases that could significantly affect the U.S. cattle and bison population and prevent the spread endemic disease of concern or any newly detected disease in domestic cattle and bison.

APHIS activities in the Cattle Health Program include surveillance, disease prevention, disease investigation, and outbreak response actions. In addition, APHIS maintains regulations, national program standards, and guidelines that direct activities at the Federal, State, Tribal, and local levels. Establishing and maintaining these standards is critical to supporting interstate and international commerce by providing assurances about the health of cattle or bison being moved or traded.

In FY 2021, APHIS continued to conduct surveillance for foreign, emerging, and endemic diseases, including bovine tuberculosis (TB), brucellosis, and bovine spongiform encephalopathy (BSE) as well as disease vectors, such as the cattle fever tick (CFT), and new world screwworm (NWS). The Agency conducts surveillance through cattle testing on-farm as well as at slaughter facilities, livestock markets, shows, sales, buying stations (first point testing), and rendering facilities (operations that collect dead, dying, disabled, and diseased animals). APHIS also continued working with Canada and Mexico to prevent the introduction of foot-and-mouth disease, new world screwworm, and other cattle diseases. The following are examples of the Agency's efforts to protect cattle health during FY 2021.

Bovine tuberculosis

Bovine TB primarily affects cattle but has the potential to affect other animal species and humans as well. APHIS' surveillance for this disease includes testing live cattle and using slaughter surveillance data from the USDA's Food Safety and Inspection Service. The bovine TB program, initiated in 1917, has significantly decreased the prevalence of the disease in U.S. livestock. Today the prevalence rate in cattle herds is less than 0.001 percent.

In FY 2021, approximately 148 Federally inspected slaughter establishments submitted 5,760 samples for TB testing. Through these slaughter surveillance efforts, the program detected TB in seven herds in FY 2021: two in Hawaii, one from Michigan's Modified Accredited Free Zone, one from Michigan's Accredited Free Zone, one in New Mexico, one in South Dakota, and one in Texas. APHIS uses a mix of depopulation and test-and-removal strategies to address bovine TB-affected herds. These strategies consider herd size, potential indemnity costs, State and owner preferences, genetics, and the probability of removing infection. These seven herds were all placed under herd management plans and were either depopulated or are in various stages of a test-and-remove or depopulation protocol.

The Cattle Health Program has five State bovine TB classifications. A higher disease prevalence results in classifications that have more restrictive movement requirements. The classifications are, in order of least restrictive to most restrictive: accredited free, modified accredited advanced, modified accredited, accreditation preparatory, and non-accredited. Michigan is currently composed of two classification zones: accredited free and modified accredited status. At the end of FY 2021, 49 States, 2 Territories (Puerto Rico and the U.S. Virgin Islands), and 1 classification zone in Michigan were TB accredited free.

Bovine brucellosis

Bovine brucellosis is an infectious disease that can cause decreased milk production, weight loss, abortions, infertility, and lameness. These effects can negatively impact the livelihood of cattle producers and the supply of meat and dairy products. Federal and State brucellosis eradication efforts have resulted in all 50 States, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands being Class-Free since July 2009. The brucellosis Class-Free

classification is based on no detections of brucellosis in the cattle herd for 12 months. Class-Free States with brucellosis in wildlife work with APHIS to implement a State brucellosis management plan (BMP). Each BMP defines the basis for the area identified; describes the epidemiologic assessment and surveillance activities to determine if wildlife populations are affected; and describes surveillance and mitigation activities for cattle, bison, and wildlife. Although the U.S. is considered Class-Free of brucellosis, there continues to be a presence of brucellosis in free-ranging bison and wild elk in the Greater Yellowstone Area (GYA). APHIS provides expertise to land and wildlife management agencies to manage brucellosis in the GYA, which includes parts of Idaho, Montana, and Wyoming.

In FY 2021, APHIS tested approximately 440,000 head of cattle under the market cattle identification national slaughter surveillance program. The Agency, in conjunction with States, tests cattle and domestic bison on farms and ranches prior to movement, private sale, and herd certification issuance for show and exhibition purposes. In FY 2021, the program tested and vaccinated over 3.5 million calves and 10,000 adult cattle for brucellosis. The number of certified-free herds is steadily declining since all States are considered Class-Free of brucellosis. Agency-accredited veterinarians perform most of the vaccinations and sample collection, and State laboratories test the samples.

No new brucellosis affected herds were detected within or outside of the GYA designated surveillance area in FY 2021. APHIS's Approved Bison Quarantine Facility is used to capture bison inside Yellowstone National Park, test them to determine brucellosis disease status, and release disease-free bison outside the GYA. In FY 2021, APHIS released 28 adult bison and 22 calves to the Fort Peck Bison Testing facility, an approved APHIS assurance testing facility with APHIS has partnered to increase the capacity for bison release.

Bovine spongiform encephalopathy

BSE, widely referred to as "mad cow disease," is a progressive and fatal neurologic disease of cattle. The disease is caused by a transmissible agent, an abnormal prion protein. BSE is not a contagious disease and therefore is not spread through casual contact between cattle or with other species. The primary route of spread of classical BSE infection in cattle is feed contaminated with the infectious agent.

The World Organisation for Animal Health (OIE) evaluates countries that submit a request for disease freedom and assigns a points-based risk status for BSE. The BSE surveillance program uses OIE's weighted surveillance points system, which reflects that the best BSE surveillance programs focus on obtaining quality samples from targeted populations rather than looking at the entire adult cattle population. The OIE's surveillance points system also incorporates a country's history with the disease, the implementation and enforcement of cattle feed regulations, and their overall BSE surveillance. In FY 2021, the Agency tested for BSE in 23,121 cattle, resulting in 397,756 points, exceeding the OIE's international surveillance standards (21,429 points per year) by 18 times. No cases of BSE were detected in FY 2021.

Cattle fever tick

The Federal-State Cattle Fever Tick Eradication Program is a partnership between APHIS and the Texas Animal Health Commission. The cattle fever tick (*Boophilus annulatus*) and the southern cattle tick (*B. microplus*) are vectors for spreading babesiosis, also known as cattle fever. Even when not transmitting this disease, CFT can cause blood loss, damage to hides, and an overall decrease in the condition of livestock. Mortality in cattle without prior exposure to the disease ranges from 70 to 90 percent. The Agency focuses on controlling the spread of tick species that transmit the infectious agent through the inspection of livestock before they leave quarantined areas, surveillance at local markets, inspection of hunter-killed white-tailed deer and other exotic ungulates that can harbor the tick, and horseback river trail patrols to capture stray and smuggled Mexican livestock who may carry ticks into the United States.

The United States remains free of cattle fever. There is a permanent quarantine buffer zone established between Texas and Mexico. Bordering Mexican states harbor tick species, which carry the disease, and tick-infested wildlife or livestock near the U.S./Mexico border can bring the ticks into the United States. Tick eradication activities consist of identifying and quarantining infested premises and treating livestock and wildlife. Approved treatment methods for ticks include dipping or spraying cattle with coumaphos, feeding ivermectin-treated corn to deer found in wildlife, and injecting cattle with Doramectin. To release a quarantine area, every infested premise must have all cattle treated for at least nine months, including inspections and treatments every two weeks. In FY 2021, APHIS conducted 95,418 individual animal inspections and 90,404 treatments throughout South Texas. For FY 2021, the

permanent quarantine zone and the free area of Texas contained 66 newly quarantined premises, compared to 74 in FY 2020.

Carrizo cane is an invasive species and perennial bamboo-like grass that occupies the banks and floodplains of the Rio Grande in Texas. The cane makes for a particularly favorable habitat for CFT which reside in the vegetation waiting for animals to brush by so they can attach. The standard approach for keeping Carrizo cane under control is to cut it down to three feet twice a year using a mechanical cutter bar mounted on a tractor, a process referred to as "topping". In FY 2021, APHIS worked with contractors to aid in the eradication of the invasive cane and increase river visibility by successfully topping approximately 115 miles of land area, primarily alongside river trails used by CFT inspectors.

Screwworm

APHIS and its cooperators eradicated new world screwworm (*Cochliomyia hominovorax*) from the United States, Mexico, Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and down to the southern-most portion of Panama, in addition to Aruba, Curacao, Puerto Rico, and the British and U.S. Virgin Islands. APHIS' international efforts prevent the reestablishment of screwworm in the United States by collaborating with Panama and Colombia to maintain a biological barrier zone in the Darien Gap, a narrow 102-mile stretch of jungle along the border of Colombia and Panama. The program relies on field operations and a sterile insect technique, a process where APHIS and cooperators produce and sterilize insects at a jointly managed facility in Panama and release them in the barrier zone to mate with wild insects, thereby preventing reproduction. This release of sterile flies is a proven method to eradicate insect populations. The United States also has access to the sterile flies in the event of an outbreak in U.S. territory. APHIS produces approximately 20 million sterile flies per week at its Panama rearing facility. In FY 2021, there were 78 positive screwworm cases in the barrier zone. The program detected the majority of the cases in Darien Province, including 36 cases in the Chepigana District in Darien Province, one of the focal points for screwworm detections in the permanent barrier zone. The cases in this area were higher than normal because some field activities were suspended due to movement restrictions related to COVID-19 for much of FY 2020. When the restrictions were lifted in October 2020, the program implemented ground release of sterile screwworm flies in Chepigana. The program also increased surveillance in the Pinogana and Santa Fe Districts of Darien Province, which also experienced positive cases. There were 10 cases located in Panama Province (bordering Darien Province) but still within the barrier zone where the program conducts aerial release of sterile flies weekly. The program took immediate action including ground release of additional sterile flies in the area, increased surveillance, and establishment of a temporary animal inspection station and corral. The last positive case in the Panama Province was on July 26, 2021. The animal inspection station will remain active until January 2022, to continue monitoring. During FY 2021, APHIS successfully continued its sterile screwworm production and field operations while maintaining health and safety rules and regulations.

5. Equine, Cervid and Small Ruminant Health

The Equine, Cervid, and Small Ruminant Health (ECSRH) program protects the health and improves the quality, productivity, and economic viability of the equine, cervid, sheep, and goat industries. APHIS activities include monitoring, surveillance, investigation, response, and disease prevention and preparedness to address animal health issues. The Agency's monitoring and surveillance activities detect foreign, emerging, zoonotic, and domestic diseases that could substantially impact the economy. APHIS also works with international and domestic trading partners to facilitate safe trade in equine, cervids, and small ruminants and their products and ensure diseases incidents of trade concern are reported to the World Organisation for Animal Health (OIE). In 2021, the ECSRH Program conducted disease surveillance and/or monitoring for the following diseases: scrapie, bovine tuberculosis (TB), chronic wasting disease (CWD), vesicular stomatitis virus, contagious equine metritis (CEM), equine piroplasmosis (EP), Eastern equine encephalitis (EEE), West Nile virus (WNV) and equine infectious anemia (EIA).

Sheep and Goat

Scrapie is a fatal, degenerative disease affecting the central nervous system of sheep and goats. Infected flocks can experience significant production losses. The National Scrapie Eradication Program (NSEP) focuses on improving the health of domestic sheep and goat, reducing scrapie-associated economic losses and increasing international marketing opportunities. Regulatory scrapie slaughter surveillance efforts began in FY 2003, and were designed to identify scrapie infected flocks and herds by sampling animals at slaughter. Since the surveillance program began, the program has collected approximately 697,000 samples at slaughter. The current percent of sheep samples that test positive for classical scrapie is 0.0023 percent.

In FY 2021, APHIS collected samples from more than 30,000 sheep and goats for scrapie testing. Out of the total number of samples processed and reported in FY 2021, one sheep tested positive for classical scrapie and one sheep tested positive for non-classical scrapie (Nor98-like). Unlike classical scrapie, non-classical scrapie is either not laterally transmissible or is transmissible at a very low rate. The OIE and APHIS determined that it is not a disease of trade concern.

NSEP has a voluntary flock certification component, the Scrapie Free Flock Certification Program (SFCP). Participation in SFCP enables producers to enhance the marketability of their animals by protecting them from scrapie and provides participants an avenue to export sheep and goats. In FY 2021, 205 flocks were enrolled in SFCP. Of these, 44 were export certified (scrapie-free), 32 were export monitored (working towards documenting scrapie freedom), and 129 were select monitored (reduced scrapie risk).

Cervids

APHIS coordinates with State agencies to encourage cervid owners to certify their herds and comply with the CWD Herd Certification Program (HCP) Standards. APHIS also coordinates a voluntary cervid TB herd accreditation program. Herds that participate in the cervid TB herd accreditation program must test all cervids in the herd over 12 months of age. They must also have negative TB results from two rounds of testing 9 to 15 months apart using either the Dual Path Platform (DPP) test or the Single Cervical Test (SCT) for their herd to be classified as accredited free. Herds must retest every three years thereafter to remain accredited. In FY 2021, approximately 11,000 animals were TB tested using the DPP blood test and 3,200 using the SCT. Of the cervids tested using DPP, 37 were identified on the first round of testing, and 18 were classified as reactors based on the second round of testing. Of the cervids tested using SCT, 24 suspects were identified on the first round of testing, and none were classified as positive on the follow up test. The program necropsied all 18 reactors from the DPP test, and their tissues were tested and ultimately found negative for TB.

In FY 2021, APHIS continued a project to evaluate the DPP test (approved in 2012, as a primary TB test for elk, red deer, white-tailed deer, reindeer, and fallow deer) for use as a primary and secondary TB test in mule and sika deer. The DPP test is a serologic test that performs comparable to skin tests with the added advantage of reducing animal handling and associated morbidity and mortality; its use is expected to enhance TB surveillance in these two species. The project uses samples that accredited veterinarians submit for TB herd certification purposes. The project requires the collection of 306 samples from each species submitted in accordance with APHIS guidelines. The Agency will consider tests conducted as part of the project to be official TB tests. In FY 2021, 50 mule deer and 12 sika deer were tested as part of the project. All animals tested negative.

APHIS' voluntary national CWD HCP helps States, Tribes, and the cervid industry control CWD in farmed cervids by allowing the interstate movement only from certified herds. Currently, 28 States participate in the national CWD HCP. In FY 2021, more than 20,502 farmed cervids were tested for CWD at State and APHIS laboratories. As a result, APHIS identified 35 new CWD positive farmed cervid herds. APHIS provided Federal indemnity to depopulate nine of the newly identified deer herds in FY 2021. The remaining infected herds are under State quarantines. APHIS determines the use of Federal indemnity payments within the CWD program on a case-by-case basis.

In 2021, APHIS made $5.6 million available in cooperative agreement funding to further develop and implement CWD surveillance, testing, management, and response activities, including the further development and evaluation of techniques and strategies to prevent or control CWD in farmed and wild cervid populations. APHIS funded awards to 39 entities: 20 to State Departments of Wildlife, 11 to State Departments of Agriculture, and 8 to Tribal Organizations.

Equines

APHIS collaborates with Federal, State, and industry partners to protect the equine industry from disease, improve the health of our domestic herd, and protect human health. These activities improve trade and facilitate equine movement, which are vital to maintaining the industry's economic value. APHIS provides veterinary support and consultation to the U.S. Department of the Interior's Bureau of Land Management Wild Horse and Burro Program through an interagency cooperative agreement.

APHIS provides expertise and helps develop the industry's National Equine Health Plan. The plan functions as a roadmap for owners, veterinarians, and industry organizations to coordinate with State and Federal animal health officials to recognize, prevent, control, and respond to diseases. APHIS integrates the roles of the State and Federal

health officials with industry stakeholders to improve both equine health and the industry by decreasing the impact of infectious disease on the horse economy.

APHIS collaborated with States and other Federal agencies in the reporting of equine cases of certain zoonotic diseases such as EEE and WNV. In FY 2021, APHIS maintained certification and annual proficiency testing for 20 equine viral arteritis laboratories, 12 EP laboratories, and 13 CEM laboratories, and additionally certified and conducted annual proficiency testing for 392 EIA laboratories. APHIS implemented national guidance for the submission and testing of approximately 1.3 million EIA samples submitted annually by accredited veterinarians.

6. National Veterinary Stockpile

The National Veterinary Stockpile (NVS), overseen by APHIS' Field Operations Logistics Center, serves as the primary source of materials, supplies, and equipment for the response to, control of, and containment of significant animal disease outbreaks. The NVS has two primary objectives. The first is to deploy countermeasures, within 24 hours of approval, against the most damaging animal diseases including highly pathogenic avian influenza, foot-and-mouth disease (FMD), virulent Newcastle disease, classical swine fever, and African swine fever (ASF). The second objective is to assist States, Tribes, and Territories with planning, training, and exercises for the rapid request, receipt, processing, and distribution of NVS countermeasures during an event. The NVS works with States, tribes, and territories to develop their logistics plans, conduct logistics training, and organize full-scale logistics exercises.

The NVS continuously evaluates its inventory of supplies and replaces expired inventory. In FY 2021, the NVS orders for personal protective equipment (PPE) received priority status in the Defense Priorities and Allocations System Program located in the Department of Commerce. This designation permitted the NVS to fill PPE requests for APHIS field employees, allowing them to continue their mission critical work. The NVS also supplemented existing Agricultural Marketing Service (AMS) PPE inventory by providing respirators, which allowed AMS grading operations to continue at meat processing plants during the COVID-19 pandemic. The NVS also deployed animal handling equipment, captive bolt kits and cartridges, and PPE to States conducting depopulation operations to address swine overstock issues, including Indiana, Iowa, Kansas, Missouri, and Oklahoma. In FY 2021, the NVS continued to acquire additional equipment to assist in animal disposal during an emergency response. Additionally, the NVS initiated efforts to upgrade its legacy fleet of foam depopulation units. As of FY 2021, 8 of the 13 foam depopulation units managed by the program have been refurbished. The remaining units will be upgraded in FY 2022.

The NVS continued to seek additional supplies to support response efforts during a foreign animal disease event. In FY 2021, the NVS coordinated with the National Veterinary Services Laboratories, the Foreign Animal Disease Diagnostic Laboratory, and the National Animal Health Laboratory Network coordinator to plan for surge capacity of diagnostic supplies and equipment for an ASF outbreak. The NVS also convened a working group of field employees with outbreak response experience, to solicit recommendations of supplies and equipment that may be needed during an animal disease event. The NVS provided PPE in support of ASF response operations and enhanced surveillance activities in Puerto Rico and the Dominican Republic.

The NVS coordinates and supports activities with States, tribes, and territories to improve logistical readiness in the event of an animal disease outbreak. COVID-19 social distancing protocols prevented the NVS from conducting in-person training and exercises, therefore preparedness activities were accomplished using virtual communication tools. The NVS conducted a series of four virtual workshops with the State of Pennsylvania to help them complete their State NVS Plan. Additionally, the program conducted a successful FMD vaccine importation exercise to validate the vaccine deployment procedures and commercial organization's standard operating procedures as it relates to logistically responding to a request for FMD vaccine delivery through the North American Foot-and-Mouth Disease Vaccine Bank (NAFMDVB). As a result, more Federal, State, Tribe, and Territory officials are better prepared to respond logistically to animal disease outbreaks. These activities enabled the Agency, as well as participating stakeholders and partners, to refine their preparedness procedures. NVS will continue to conduct exercises and trainings in resource deployment and response preparedness to animal health events in FY 2022.

APHIS continued to maintain the NAFMDVB as part of the agency's animal health readiness initiative in FY 2021. The NAFMDVB is a vaccine stockpile that the United States and Canada cooperatively support. Each country has contributed funding to acquire vaccine and maintain a stockpile of vaccine concentrate, from which FMD vaccine is derived. Canada and the United States continue to ensure that the Bank maintains adequate stocks of vaccine concentrate and conduct necessary quality assurance testing. A portion of NVS funding was used to acquire new antigen for FMD preparedness.

7. Swine Health

APHIS' Swine Health Program protects the health and improves the quality, productivity, and economic viability of the swine industry. The 2020 production value of the swine industry was approximately $18 billion (USDA, National Agricultural Statistics Service). In addition, the program facilitates trade in swine and pork products, and addresses swine health issues at the human-swine interface and between wildlife and domestic swine. APHIS activities include comprehensive and integrated swine surveillance, emergency preparedness and response planning, disease investigation and control activities, zoonotic disease prevention and response, swine health studies and special projects, collaborations on emerging issues, and outreach and communication with stakeholders. In addition, the Agency maintains regulatory and programmatic guidelines that direct activities at the Federal, State, and Tribal levels. Establishing and maintaining national standards support interstate and international commerce by ensuring the health of animals and products being moved or traded.

APHIS collects swine samples from various surveillance streams as part of a comprehensive integrated surveillance approach to detect various swine diseases that could substantially affect domestic producers and the national economy. Comprehensive integrated surveillance includes field work and epidemiological investigations, designated surveillance streams, a veterinary diagnostic laboratory infrastructure, data management systems, and methodologies for data analysis and reporting. APHIS collects samples and data from veterinary diagnostic laboratories, slaughter plants, high-risk producer premises, livestock markets, and feral swine during population elimination projects. Surveillance testing supports the swine industry by assuring trading partners and other stakeholders of the status of swine diseases in the United States. Comprehensive surveillance enables APHIS to maintain effective surveillance using a risk-based approach that targets high-risk samples and reduces costs.

For several years, APHIS has closely followed African swine fever (ASF), a highly contagious and deadly viral disease of domestic and wild pigs, as it spread across Asia and Europe. Currently, the only way to stop it is to depopulate all affected or exposed swine herds. Early detection is the key to controlling, containing, and eliminating ASF. While ASF has never been found in the United States and does not threaten public health, an introduction would devastate U.S. pork producers, their communities, and the economy. A 2019 Iowa State University study estimated that a U.S. outbreak could cost the U.S. swine industry $14 billion over 2 years and as much as $50 billion over 10 years. APHIS has instituted a series of interlocking safeguards to prevent ASF from entering the United States and is working closely with States and industry to develop and refine plans in case of an outbreak. In recent years, the Agency increased its testing capacity, increased inspections of products from ASF-affected areas, implemented a nationwide surveillance plan, and coordinated planning efforts with States, industry, Canada, and Mexico to prevent ASF from entering the United States. The Agency's ASF outbreak preparations efforts with States and industry partners include providing guidance on a potential national movement standstill for live swine and swine germplasm, improving depopulation and disposal methods, and developing a flat payment rate for virus elimination of infected premises.

In July 2021, APHIS confirmed ASF in the Dominican Republic. By the end of FY 2021, the disease was likely present in at least 15 of 32 provinces. During the final months of FY 2021, the Swine Health program supported emergency response personnel to conduct surveillance and outreach activities in the Dominican Republic. APHIS deployed employees to the Dominican Republic to provide advisory services and help test samples and train additional staff. In September 2021, USDA confirmed ASF in Haiti on the Haiti- Dominican Republic border. A detection in Haiti was expected, since pigs move freely between the two countries. APHIS is working with the Haitian authorities to expand surveillance to better determine the scope of the problem. The Agency also mobilized additional staff to Puerto Rico to support the domestic swine monitoring response.

In FY 2021, APHIS began a joint pilot project with Iowa State University entitled "Development and Demonstration of a U.S. Swine Health Improvement Plan" (SHIP) modelled after the National Poultry Improvement Plan. Its objective is to develop and implement an ASF-Classical Swine Fever (CSF)-Monitored Certification Program. The pilot will provide a framework to further safeguard the swine industry by ensuring active and effective nationwide surveillance and the ability to quickly zone infected areas. It will enable the Agency to assure trading partners and consumers about the status of these diseases. U.S. pork producers and packing facilities in participating States that meet specified requirements can voluntarily enroll in the program. In FY 2021, APHIS oversaw the first phase implementation of the project which included: hiring a project manager and support staff; establishing membership in the pilot's House of Delegates (a forum of industry stakeholders); identifying State and commercial producer interest and Official State Agency contacts; establishing technical working groups that subsequently drafted program standards in areas such as sampling and diagnostics, traceability, and biosecurity; and hosting the inaugural House of Delegates meeting in August 2021. The pilot project team will develop a system of enrolled farm sites and

packing facilities that meet well-defined biosecurity standards. The team will also develop traceability requirements and program testing requirements. In FY 2022, APHIS will continue to provide policy, technical, and funding support for the pilot. After the 2022 House of Delegates annual meeting, the Agency will assess the potential for transitioning to a more formal ongoing national plan to certify U.S. swine health.

In FY 2021, APHIS tested 98,017 samples for pseudorabies virus (PRV) and swine brucellosis (SBR). While COVID-19 delayed sample testing, testing results received by September 30, 2021, continued to confirm that all commercial swine herds were free from PRV and SBR, although these diseases continue to be found in non-commercial herds after exposure to feral swine. In FY 2021, one non-commercial herd tested positive for PRV, and one non-commercial herds tested positive for SBR. Complete FY 2021 herd data will not be available until February 2022, after States complete investigations and data has been verified. In all test-positive cases, APHIS and States investigate and quarantine infected herds, conduct outbreak testing to determine herd disease levels, and depopulate or remove infected animals through a test-and-removal strategy to eliminate disease risk from these herds. These efforts protect commercial herds that may be exposed to infected backyard herds.

APHIS was able to perform only half the total number of foreign animal disease (FAD) investigations in swine in FY 2021, as were conducted in FY 2020, due to the COVID-19 pandemic. In FY 2021, APHIS performed 1,522 FAD investigations in swine, and all were negative. A total of 1,495 of the investigations were for vesicular diseases, such as foot-and-mouth disease (FMD), and 27 were for hemorrhagic fever. Swine hemorrhagic FAD investigations increased significantly, particularly in Puerto Rico, due to the ASF detection in the Dominican Republic and Haiti. APHIS continued an ASF/ CSF combined hemorrhagic fever surveillance program in FY 2021, testing 5,341 samples at the NAHLN, and 7,903 CSF-only serum samples at the Agency's FAD Diagnostic Laboratory on Plum Island, New York (65 percent from feral swine and 35 from high-risk domestic swine). CSF remains eradicated from the United States.

Swine can harbor several zoonotic disease agents, such as swine influenza (IAV-S) and SBR. In such cases, State public health and animal health officials conduct investigations, and request support from APHIS and the Centers for Disease Control and Prevention (CDC) when warranted. Joint animal health and public health investigations support the One-Health concept and strengthen APHIS' ability to respond when both animal and human health might be compromised. In FY 2021, State public health officials reported nine human variant influenza A cases in four States (Iowa, North Carolina, Ohio, and Wisconsin). Seven of these nine individuals reported exposure to swine, and two did not know whether they were exposed to swine. State public health and animal health officials led the investigation of these outbreaks but did not request assistance from APHIS for any further assessments. Many States and local public health officials find information derived from whole genome sequencing more helpful in their investigations. APHIS and ARS have established a program to help States and industry identify isolates from the swine associated with these outbreaks. In FY 2021, 402 IAV-S samples were entered into this program. States and industry enter genetic sequences from the samples tested in this program into GenBank, a publicly accessible genomic database that provides the scientific community with updated, comprehensive DNA sequence information to support diagnostic test and vaccine development.

APHIS has the responsibility under the Swine Health Protection Act (SHPA) to license and inspect swine production facilities that feed cooked garbage to swine, and to conduct searches for unlicensed facilities that may illegally feed raw garbage to swine. In addition, the SHPA authorizes States to have primary enforcement responsibility, which provides authority to regulate the feeding of garbage to swine. If a State fails to meet the SHPA enforcement requirements, APHIS may assume the responsibility in the State. Feeding untreated or improperly treated garbage could transmit infectious diseases such as ASF, FMD, or CSF to swine. In FY 2021, 11 States held enforcement responsibility and APHIS held enforcement responsibility for 3 States. In FY 2020, APHIS supported 1,806 inspections of licensed premises and 4,751 searches for non-licensed facilities. Through these searches, the Agency identified 18 non-licensed feeders. APHIS worked with States to either bring unlicensed facilities into compliance or force them to cease their illegal activities.

On September 24, 2021, APHIS published a Final Rule effective October 25, 2021, which eliminated the Voluntary Trichinae Certification Program and removed the regulations associated with the program. The Agency eliminated the program, with State and industry support, because it generated little producer participation and poor participation created potential barriers to exports. APHIS had designed a national prevalence study and coordinated the efforts of the Agricultural Research Service and the industry sample contributors and will perform the final analysis when the sampling/testing is complete. All results as of September 30, 2021, were negative.

8. Veterinary Biologics

APHIS' Center for Veterinary Biologics (CVB) regulates veterinary biological products under the Virus-Serum-Toxin Act to ensure that these products are pure, safe, potent, and effective. Organizations develop these products, which include vaccines, bacterins, antisera, diagnostic test kits, and analogous products to prevent, diagnose, and treat animal diseases in a wide variety of animal species. The CVB develops regulations concerning the production and licensing of veterinary biologics, evaluates pre-licensing dossiers and issuance of licenses and permits, tests products submitted for licensure, inspects facilities and products, approves product certifications, investigates non-compliance, and conducts post-marketing surveillance to ensure that manufacturers comply with all relevant regulations and policies. This comprehensive regulatory approach is the most effective way to ensure that only quality, federally licensed veterinary biological products are available to U.S. consumers, available for U.S. export markets, and plays an essential role in protecting animal health and agriculture.

In FY 2020 and FY 2021, Congress provided the CVB with additional funding to hire additional staff to enable the program to achieve a more sustainable staffing level to adequately address current and changing industry needs. The CVB hired 7 additional staff in FY 2020, and 12 in FY 2021. With the increased staffing, APHIS is helping to ensure an effective, efficient, and responsive veterinary biologics program that can provide timely approvals and availability of veterinary vaccines, diagnostics, and other novel biologics to protect animal and public health and enhance export opportunities for U.S. veterinary biologics companies. From FY 2018 through FY 2021, the CVB reduced the average number of workdays needed to issue a license for a veterinary biologic product from 587 to 397 workdays (a 32 percent decrease).

Licensed Products and Inspections

APHIS licenses and inspects facilities to ensure that all veterinary biological products produced and distributed within, imported into, or exported from the United States are of the highest quality, and are not worthless, contaminated, dangerous, or harmful. Before the Agency began regulating these biologics, farmers and animal health officials found products to be ineffective or contaminated with harmful diseases, including foreign animal diseases. While most of the time required in the licensing process is in the control of the potential licensee in developing manufacturing processes and conducting required studies, the CVB analyzes data and conducts confirmatory testing before issuing licenses. To reduce the burden on the regulated industry, CVB has, over recent years, expedited turnaround times, streamlined required information collection under specific circumstances, and implemented electronic submissions for most required regulatory submissions.

The United States and foreign countries require import and export certificates to certify that products are prepared in accordance with the Virus-Serum-Toxin Act. In FY 2021, APHIS reviewed/processed 3,655 Certificates of Licensing and Inspection and reviewed/processed 1,993 export certificates for veterinary biological products. The growth in export certificates processed in recent years demonstrates that companies continue to be able to produce and export more of their products, even during the COVID-19 pandemic. The Agency processed all export certificates within 4 days (the FY 2021 average was 1.4 days), and all certificates of licensing and inspection within 28 days (the FY2021 average was 12.4 days). Timely processing helps ensure that markets are accessible for manufacturers who export their product. APHIS also helped ensure there were no foreign animal disease events related to the importation of more than 441 million doses of biological products, a 29 percent increase from FY 2020, in the number of doses imported.

In FY 2021, APHIS received 110 applications for new and renewal licenses/permits and issued 33 licenses/permits for the prevention, diagnosis, management, or cure of existing or new/emerging animal diseases. This data depends on the biologics manufacturers and is outside CVB's control. A few large company mergers in recent years have slowed the number of new products being presented to CVB, while companies focus less on new product development and more on merger issues. APHIS does not expect this trend to continue once the mergers conclude. The Agency licensed 87 manufacturers and permittees for 1,582 active product licenses/permits for the control of 277 animal diseases in FY 2021. These products are vital for protecting American agriculture, facilitating trade, and enhancing agricultural economic opportunities.

APHIS continued implementing the single-tier labeling rule, which changes the efficacy descriptions for veterinary biologics to a single, uniform label claim. This simpler format better communicates product performance, saves time and money for the manufacturer, and aligns U.S. labeling with international markets. In addition, APHIS clearly defined policy to allow the use of platform and prescription vaccines. These policies allow stakeholders the flexibility to quickly change vaccines to match emerging and changing pathogen threats with very limited risk to people, animals, or the environment. APHIS continued to implement a Virus-Serum-Toxin Act regulation in FY

2021, requiring all veterinary biologics licensees and permittees to submit reports to the CVB concerning adverse events associated with the use of biological products they produce or distribute. An adverse event is any illness, reaction, or other undesirable occurrence after the use of an immunobiological product, whether the product caused the event. For diagnostics products, adverse events include anything that hinders the discovery of the correct diagnosis. Adverse event reports are a vital component of CVB's mission to ensure that veterinary biologics, including those marketed internationally, comply with regulations. Although the regulation took effect on June 18, 2018, it included a minimum 18-month phase-in implementation period with mandatory reporting effective February 2021. During this period, CVB worked with industry to develop guidance documents to help licensees and permittees comply with the new regulation. CVB received 43,092 adverse event reports in FY 2021, compared to only 374 in FY 2020, in response to the mandatory reporting requirement.

APHIS' National Centers for Animal Health (NCAH) Portal allows real-time communication and data exchange between APHIS and biologics manufacturers, reducing the time and costs for application review. Five new licensed firms were provided access to the NCAH Portal in FY 2021. By the end of FY 2021, 94 percent of licensed firms and permittees were using the NCAH Portal. This resulted in CVB receiving 99 percent of marketing documents, 96 percent of biographical summaries, 87 percent of licensing correspondence, and 67 percent of inspection and compliance correspondence via the Portal. In FY 2021, the Portal received 86 percent of export certificates and 94 percent of facility documents. Import permits submitted electronically represented 99 percent of Research and Evaluation Permits, 100 percent of Transit Permits, and 64 percent of Sales and Distribution Permits. In total, CVB received 37,321 submissions from the Portal in FY 2021, as opposed to 35,587 in FY 2020. Overall, 92 percent of FY 2021 CVB submissions were received through the Portal.

Each year, APHIS inspects an average of 50 biologics facilities to assure compliance with regulations. This number decreased in FY 2020, and early FY 2021, due to COVID-19 travel restrictions. However, APHIS found innovative ways to conduct inspections virtually to allow for timely oversight and approval of new and remodeled biologics manufacturing facilities. For example, CVB required licensed manufacturers to provide blueprints and legends of new or remodeled areas for review and approval. After CVB review, the manufacturers submitted videos detailing the construction, process, and personnel flow through these facilities. In some cases, the manufacturers provided additional videos to resolve CVB questions. In FY 2021, APHIS conducted 46 inspections. Of these, 42 were virtual and 4 were on-site.

In FY 2021, APHIS also performed 134 regulatory actions, issued 51 violation notices, and conducted 16 investigations of possible violations. More than 99 percent of the unlicensed entities investigated either moved toward product licensure or ceased the objectionable activity.

Collaborative Efforts

APHIS promotes U.S. policy for the oversight of biologics as a regulatory model for both established and developing markets, and it improves the worldwide marketability of USDA-licensed biologics. The Agency participated in harmonization efforts with major trading partners including Japan and the European Union through the International Cooperation on Harmonization of Technical Requirements for Registration of Veterinary Medicinal Products. Additionally, CVB participates in the Veterinary International Conference on Harmonization's (VICH) Outreach Forum. This forum promotes the use of VICH harmonized guidelines in countries with developing regulatory systems for veterinary medicinal products. To further improve the marketability of USDA-licensed biologics in overseas markets, CVB worked with the industry to create and issue an Inspection Certificate program which provides Good Manufacturing Practices certificates that align with regulatory authorities and facilitate the marketing of U.S. prepared products in the international arena.

9. Veterinary Diagnostics

Laboratory and diagnostic services are essential components of the U.S. animal health infrastructure. The Veterinary Diagnostics line item provides partial funding for the National Veterinary Services Laboratories (NVSL), which consists of laboratories in Ames, Iowa and Plum Island, New York. The NVSL is recognized by the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization as an international reference laboratory for significant animal diseases, such as highly pathogenic avian influenza, foot-and-mouth disease (FMD), and rinderpest. It provides diagnostic test services ranging from a single laboratory test to comprehensive laboratory services covering many pathogens for suspected outbreaks of domestic and foreign animal diseases (FADs). This line item supports the National Animal Health Laboratory Network (NAHLN), which is an animal disease surveillance and monitoring system that interconnects Federal and State laboratory resources to improve the security of the nation's livestock by providing disease diagnostics both daily and at increased levels during

outbreaks. This line item also supports efforts to stand up the National Bio and Agro-Defense Facility (NBAF) in Manhattan, Kansas which will help protect the nation's agriculture, farmers and citizens against the threat and potential impact of serious FADs. NBAF will replace the Plum Island Animal Disease Center (PIADC).

National Veterinary Services Laboratories

Diagnostic testing and confirmation of surveillance samples improves the security of the nation's livestock. NVSL is often on the forefront of emerging and re-emerging diseases of concern including African swine fever (ASF), virulent Newcastle disease virus, tilapia lake virus, infectious hypodermal and hematopoietic necrosis virus, Senecavirus A (SVA), bluetongue, vesicular stomatitis virus, and rabbit hemorrhagic disease virus. In FY 2021, NVSL managed more than 571,000 diagnostic tests and approximately 37,150 accessions (one or more diagnostic samples received from the same submitter on the same day). In FY 2021, NVSL maintained a web-based portal for entering sample information to minimize the manual re-entry of this information. The laboratories produced and shipped more than 100,000 reagent order items representing approximately 552 types of products. Many of these products are only available to stakeholders through APHIS. In FY 2021, NVSL implemented a new laboratory inventory system called DARBI (Diagnostic and Research Biomaterial Inventory) that will be used during the sequestration of biological materials from PIADC to NBAF, with eventual use at NVSL as part of a new Laboratory Information Management System (LIMS). APHIS expects that this new system will improve efficiency. NVSL begun populating the DARBI system with master data and is testing the functionality. As part of the ASF outbreak response, NVSL implemented the ELISA (Enzyme-linked immunosorbent assay test) and PCR (polymerase chain reaction) common workflows in the current NVSL LIMS for the Puerto Rico ASF laboratory. An ELISA test can be used to detect antibodies and other proteins in the blood, while a PCR test is used to diagnose genetic diseases and detect low levels of viral infection.

In FY 2021, NVSL tested samples for 3,138 FAD accessions across 45 States and territories and supported international capacity building and collaborative activities in Argentina, Brazil, Bulgaria, Canada, Chile, Costa Rica, the Dominican Republic, Ecuador, El Salvador, the Republic of Gambia, Germany, Guatemala, Honduras, Ireland, Korea, Latvia, Mexico, Pakistan, Panama, Poland, Romania, Scotland, Singapore, Switzerland, the United Kingdom, and Venezuela. In FY 2021, NVSL's Foreign Animal Disease Diagnostic Laboratory (FADDL) presented three FAD diagnostician refresher training courses to State and Federal participants, including military veterinarians; other in-person scheduled courses at the PIADC were postponed due to COVID-19. In collaboration with the Canadian Food Inspection Agency, APHIS worked on a strategy to improve and harmonize available diagnostic methods to enhance North American ASF preparedness. Since 2014, APHIS has experienced a significant increase in FAD investigations, largely due to the emergence of SVA, a non-fatal infectious disease of pigs. Because the clinical signs are highly similar to those caused by FMD, APHIS must diagnose each case to exclude FMD. Testing all samples at FADDL for FMD and SVA is time consuming, resource intensive, and decreases FADDL's ability to develop new assays or perform other testing. The NAHLN serves as a resource to enable moving high-volume testing with confidence. In this case, SVA and FMD PCR results from NAHLN laboratories can be considered final and actionable for the field. The NAHLN laboratories continue to submit duplicate samples from all cases to FADDL which retested 5 percent for quality assurance. The use of an FMD/SVA multiplex assay in the NAHLN laboratories that facilitates simultaneous testing for both diseases from a single sample has saved time, money, and resources. SVA has been reported across the United States and Canada, as well as in Australia, Brazil, and New Zealand. The program received and tested 11,647 classical swine fever (CSF) surveillance samples in FY 2021. NVSL tested 7,847 of these samples, and NAHLN laboratories tested 3,800.

APHIS conducts proficiency testing of Federal, State, and university-sponsored laboratories when these laboratories perform authorized diagnostic testing as part of APHIS-approved surveillance and/or response programs. This is done to ensure that they use standardized, rapid diagnostic techniques and to maintain the credibility of U.S. diagnostic test results in the international marketplace. In FY 2021, APHIS made 32 types of proficiency panels available to international, Federal, State, and private laboratories, both within and outside the NAHLN network. APHIS made the necessary controls and reference strains available for approximately 200 diseases to help other laboratories develop and validate diagnostic tests. User fees cover the cost of some reagents and proficiency panels.

NVSL led the USDA animal diagnostic response to SARS-CoV-2 with testing capabilities, receiving animal samples for SARS-CoV-2 confirmatory testing. NVSL conducts real time-polymerase chain reaction (PCR) testing, virus isolation, sequencing (partial and whole genome approaches), and virus neutralization for antibody detection. In addition, it has conducted animal testing when State animal and public health officials have approved the submissions. In FY 2021, NVSL tested more than 1,000 animals for SARS-CoV-2 and confirmed SARS-CoV-2 in 235 animals representing 13 species. The confirmation testing results can be found on the APHIS website. https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/SA_One_Health/sars-cov-2-animals-us.

NVSL advanced equine import testing by improving the robustness of reagent characterization through two developmental projects in FY 2021. NVSL tested its use of complement fixation and western blot tests (226 samples and 120 samples, respectively) using the OIE reference laboratory for glanders, an infectious zoonotic disease primarily of equines that was eradicated from the United States in the 1940's. The outcome of these studies will be a proposal to adjust and improve the lab's screening and confirmatory testing platforms, while also incorporating ELISA as a strong informatory screening test. Studies were also conducted to validate the current NVSL compliment fixation test and an immunofluorescence test for dourine, a parasitic disease of horses.

National Animal Health Laboratory Network

The Veterinary Diagnostics program also provides support the National Animal Health Laboratory Network. This support includes limited infrastructure in NAHLN laboratories; NAHLN program staff; the APHIS Laboratory Portal, which provides a secure means of communication for NAHLN laboratories and proficiency test management for NAHLN and non-NAHLN APHIS-approved laboratories; personnel to provide information management system support for electronic messaging; and online quality management training the NAHLN laboratories use to maintain qualifications for participating in the network. NAHLN serves as a vital early warning system for foreign and emerging animal diseases. NVSL trains NAHLN laboratory personnel to ensure proficiency and standardization for performing diagnostic tests. As of September 30, 2021, the NAHLN consisted of 59 State, Federal, and university veterinary diagnostic laboratories in 42 States. These laboratories work with the NVSL reference laboratories to test for 14 economically devastating and/or FADs and potential zoonotic diseases such as FMD, influenza in avian and swine species, bovine spongiform encephalopathy, and CSF. In FY 2021, network laboratories performed approximately 212,000 diagnostic tests, an increase of 80,000 tests, to support APHIS' animal health surveillance and response programs for NAHLN scope diseases, including the NAHLN ASF/CSF active surveillance. NAHLN program staff conduct exercises to prepare participating laboratories for animal disease outbreak scenarios and enable them to remain proficient in animal disease testing. It also enables them to generate rapid, local preliminary diagnostic results while NVSL performs confirmatory testing.

APHIS has established various communication mechanisms to enable NAHLN program staff to efficiently exchange information between and among member laboratories and State and Federal officials. One method for gathering input on the network's function includes the NAHLN Coordinating Council, which consists of NAHLN laboratory directors, State animal health officials, and officials from APHIS and the National Institute of Food and Agriculture. A laboratory designation system reflects different capability levels for surveillance, preparedness, and emergency response preparation. NAHLN laboratories designated as Level-1, -2, or -3 receive infrastructure support from USDA, and conduct fee-for-service testing for the USDA. The Council approved 32 Level-1 laboratories including 9 branch laboratories, 22 Level-2 laboratories including 2 branch laboratories, 4 Level-3 laboratories, and 1 Federal Affiliate laboratory. The NAHLN Coordinating Council continued to maintain electronic messaging as a priority in the laboratory assessments for designation. As of September 30, 2021, 95 percent of NAHLN laboratories are approved to message for all diseases they are approved to test and for which a messaging guides exist. Overall, 56 laboratories were capable of messaging results for at least 1 NAHLN scope disease in FY 2021, and APHIS projects that number will increase to 59 laboratories in FY 2022.

As of September 30, 2021, 32 NAHLN laboratories are capable of testing for SARS-CoV-2, and 22 have the capability to test human samples for SARS-CoV-2. The number of NAHLN laboratories capable of testing for SARS-CoV-2 can fluctuate since laboratories must be certified to test specimens from humans and may decide not to maintain this certification. NAHLN laboratories test only at the direction of the State animal and public health authorities and submit any presumptive positive samples to NVSL for confirmation. More than 10,000 animals were reported to USDA as having been tested in the United States, of which 27 percent were tested by NAHLN laboratories, and 73 percent were tested by private veterinary diagnostic laboratories and research laboratories. Dogs and cats comprise 69 percent of the total animals tested. NAHLN laboratories have reported testing approximately 5.6 million human samples for SARS-CoV-2. However, not all NAHLN laboratories testing human samples are at liberty to report testing numbers.

African Swine Fever Diagnostic Preparedness

For several years, APHIS has closely followed the spread of ASF. The Agency continues to expand its rapid detection capability to maintain a timely, effective response and build surge capacity in case of an outbreak. In FY 2021, APHIS continued working with States, State veterinarians, and industry partners to prepare for a possible ASF incursion into the United States. APHIS engaged in collaborative efforts at FADDL and NAHLN to strengthen ASF diagnostic preparedness. To enhance capacity in NAHLN, FADDL provided proficiency testing to NAHLN

laboratories, expanding its ASF testing capacity in FY 2021, from 47 to 48 approved laboratories. APHIS now has more than 200 analysts approved to run ASF PCR tests in NAHLN laboratories. In FY 2020, the Agency expanded the list of approved sample types to include not only whole blood, but also tonsil, spleen, and lymph node. These samples can now be pooled from up to 5 animals into 1 test for ASF, increasing the NAHLN laboratories daily testing throughput from 200,000 to 430,500 animals per day. Spleen blood swabs and blood cards were approved as additional sample types, which will streamline both sample collection in the field and sample processing time in the laboratory. APHIS determined that these samples will be recommended for use in NAHLN laboratories during an outbreak to increase capacity and high-throughput testing, and can be used in FAD investigations for ASF testing if samples approved for CSF testing are also submitted. APHIS continues to develop strategies to use oral fluids to achieve early and rapid detection of positive cases.

National Bio and Agro-Defense Facility

In FY 2021, APHIS continued to work with the Department of Homeland Security (DHS) and USDA's Agricultural Research Service (ARS) to plan for the move from the PIADC in New York to the state-of-the-art NBAF in Manhattan, Kansas. In addition, USDA and DHS continued planning for the transfer of NBAF management and oversight from DHS to USDA. PIADC, home to FADDL, is the only U.S. laboratory that is permitted to work with virulent FMD virus and hold rinderpest virus. In addition, FADDL is the custodian of the North American FMD Vaccine Bank and now manages the U.S. National Animal Vaccine and Veterinary Countermeasures Bank, as outlined in the 2018 Farm Bill. NBAF will be a key national asset to protect the U.S. animal agriculture industry and the first and only U.S. facility with large animal Biosafety Level-4 (BSL-4) containment capability. The NBAF steady-state operations are assumed to begin in FY 2025, once the BSL-4 laboratories are fully operational. After the transfer, ARS will own the buildings, and ARS and APHIS will have leadership responsibilities on operational aspects of the facility and for their own science programs.

In FY 2021, APHIS and ARS continued to develop a workforce of subject matter experts in foreign, emerging, and zoonotic diseases to conduct diagnostics in preparation for the NBAF transition. Workforce development is critical, given the significant loss of expertise expected during the transition and the need to transfer FAD diagnostic institutional knowledge to the NBAF. While USDA can train diagnosticians to perform specific tests, interpreting unclear results and troubleshooting diagnostic assays when they do not perform properly requires a high level of experience. Additionally, APHIS anticipated a potentially significant expertise gap, particularly during the first 5 to 10 years of operations at NBAF, based on the time required to develop expertise in this area. To address this possible workforce gap, APHIS is continuing the NBAF Scientist Training Program to meet the needs for subject matter experts in foreign animal and zoonotic diseases. Through this workforce development program, USDA is developing personnel to fill NBAF positions through continued service agreements. This program is critical because subject matter expertise and international recognition in FAD diagnostics take years to develop, yet not all the current FADDL workforce with that expertise is expected to relocate to NBAF. This development program will help preserve and transfer the U.S. FAD diagnostic institutional knowledge to NBAF. As of the end of FY 2021, the program has accepted 25 fellows from 14 universities nationwide. APHIS also supported the NBAF Laboratorian Training Program (NLTP) to train future NBAF laboratory technicians. As of the end of FY 2021, 19 students had completed the NLTP. APHIS prioritized certain science positions for hiring before FY 2022. Most of these positions are training on FADDL-specific assay protocols and instrumentation systems at PIADC, before transitioning to NBAF. APHIS is placing the remaining positions at NBAF, since they are critical to developing standard operating procedures, ordering equipment and supplies, developing the International Organization for Standardization (ISO) accreditation paperwork, and helping with the select agent registration process. The overarching responsibilities of all priority hires include the validation of the space for workflows and laboratory practices for both select agent registration and ISO 17025 accreditation, as well as proficiency in the required equipment care, use, and calibration to meet ISO accreditation and biosafety standards.

10. Zoonotic Disease Management

"One Health" is a collaborative, multisectoral, and trans-disciplinary approach—working at the local, regional, national, and global levels—with the goal to achieve optimal health outcomes while recognizing the interconnection between people, animals, plants, and their shared environment. The Zoonotic Disease Management Program enhances State, national, and international collaborative efforts to promote healthy animals, people, and ecosystems by addressing zoonotic diseases (those that pass between animals and people) and other relevant One Health issues.

According to the U.S. Centers for Disease Control and Prevention (CDC) and the World Organisation for Animal Health (OIE), 60 percent of human pathogens are zoonotic, and 75 percent of emerging diseases are zoonotic (including Ebola, Zika, MERS, and SARS). Most zoonotic diseases originate from animal reservoirs. APHIS leads

the national effort to address the animal health component of the One Health approach. The Agency contributes animal health expertise, infrastructure, and networks in combination with those of human and environmental health to provide holistic solutions to complex One Health problems. The Agency collaborates with industry and State partners to develop strategies, policies, and training to help stakeholders effectively engage with public health counterparts, provide guidance, facilitate information exchange, and enhance responses to One Health issues. By enhancing APHIS' efforts to address the animal health component of One Health, the program protects public health and improves animal health and marketability.

Zoonotic Disease and One Health Engagement, Investigation, and Response

In FY 2021, APHIS began work on the Bovine Tuberculosis (TB) Initiative. This initiative is a collection of five separate projects that address the challenges of bovine TB being introduced to U.S. national livestock herds from outside sources. This work, led by APHIS, includes an in-depth epidemiological analysis of affected herd investigations, acquisition of TB samples from other countries, evaluation of new TB diagnostic tests, clinical trials to test the efficacy of TB vaccines in cattle and deer, addressing gaps in slaughter surveillance, and collaboration with public health partners focused on the zoonotic aspects of TB. In FY 2021, APHIS established an executive committee that is actively engaged in improving the science and developing new projects. A program manager was hired to oversee the Initiative. Three international agreements were put in place allowing the receipt of isolates to aid in source attribution of U.S. TB cases. Additionally, APHIS conducted detailed investigations in two large TB affected dairies which revealed risk factors for within herd transmission, then used that information to make strategic herd management decisions and reduce within herd TB infection. APHIS initiated a biweekly meeting with Mexican officials to coordinate the 5-year project to evaluate Bacille Calmette-Guerin (BCG) vaccine in TB infected dairy cattle in Baja California, Mexico initiated a field study of the new interferon gamma in-tube assay and completed the deer BCG vaccine pilot. In FY 2021, APHIS proposed a project with a State public health agency, and the data transfer agreement is currently under review. This project will provide the Agency with the most closely related TB isolates from livestock to compare with isolates from humans infected with bovine TB. In Mexico, four dairies have signed an agreement to participate in the BCG vaccine project.

APHIS' National Veterinary Services Laboratories (NVSL) participated in three leptospirosis projects with USDA's Agricultural Research Service, the CDC, the U.S. Virgin Islands (USVI) Department of Public Health, the University of Minnesota, and local entities in FY 2021, as part of its role as an OIE Reference Center for leptospirosis. NVSL was responsible for the diagnostic testing of the animal samples collected. Project results have provided public health officials with vital information needed to communicate occupational health risks and provide a basis for biosecurity procedures to prevent human exposure and contributed to the critical knowledge of the role of wildlife in the epidemiology of leptospirosis. The projects have also allowed the NVSL to optimize new methods for leptospirosis diagnosis and provided insight on the leptospiral serogroups that should be used in serologic tests and vaccines.

Antimicrobial Resistance

Antimicrobial resistance (AMR) is the ability of a microbe to resist the effects of medication previously used to treat them. To combat AMR, APHIS uses a One Health approach involving multidisciplinary coordination from public health and animal health sectors, and private sector organizations and stakeholders. APHIS works with its State, Federal, and industry partners to promote the judicious use of antimicrobials, which supports a strong, healthy, and thriving U.S. animal agriculture system as well as public health. Additionally, APHIS collaborates with State Departments of Agriculture, diagnostic laboratories, and public health officials to address AMR infections in humans found to have an animal component.

In FY 2021, APHIS continued to work with other USDA agencies to develop practical mitigation strategies to reduce AMR prevalence in human and animal health. These strategies cover a variety of efforts including AMR monitoring at the farm level, collection of antimicrobial drug use data, and efforts to promote stewardship of antimicrobial drugs by animal owners and veterinarians. In FY 2021, APHIS continued a cooperative agreement to investigate methods for group sampling *Mannheimia haemolytica* in feedlot cattle, an important bovine respiratory disease pathogen. APHIS also collaborated with USDA's Agricultural Research Service to investigate antimicrobial resistance on the farm-to-fork continuum in swine. These studies will help improve AMR sampling methods in future on-farm studies. APHIS continued investigating antimicrobial use and resistance trends in poultry. In FY 2021, APHIS completed data collection on antimicrobial use and stewardship on cattle feedlots. APHIS started a new collaboration with a private veterinary clinic to collect antimicrobial use and resistance data on commercial swine operations, including sampling for AMR in bacterial organisms. In FY 2021, APHIS initiated a cooperative

agreement with the National Institute of Antimicrobial Resistance Research and Education to evaluate data security options for the development of an antimicrobial resistance dashboard.

APHIS epidemiologists continued to support the development of on-farm antimicrobial use metrics that academic partners developed, collaborating to review and audit the researchers' methods and data streams. This activity is in support of the Food and Drug Administration (FDA)-Center for Veterinary Medicine approach to measure the use of antimicrobial drugs in food producing animals. APHIS also provided updates on activities to partner agencies that measured progress in completing work associated with the National Action Plan for Combating Antimicrobial Resistance. In FY 2021, APHIS reported progress for the fifth year of the National Action Plan for Combating Antimicrobial Resistance Bacteria (CARB) and helped develop the final report. APHIS also provided detailed information about activities outlined in the first CARB National Action Plan to the National Academies of Sciences, Engineering, and Medicine. In FY 2021, APHIS, in conjunction with FDA, completed the fourth year of a program for collecting antimicrobial susceptibility data from veterinary diagnostic laboratories. An interactive dashboard summarizing the results from the entire program was published on the National Animal Health Laboratory Network website.

In FY 2021, APHIS continued to study 17 common *Salmonella* serotypes across all major animal groups, which incorporated antimicrobial susceptibility testing. APHIS also worked closely with the CDC to investigate human outbreaks of drug resistant bacterial organisms stemming from animal origins. APHIS continues to be involved with the National Antimicrobial Resistance Monitoring System, participating in the development of a 5-year strategic plan for 2021-2025.

APHIS participated in several international AMR activities in FY 2021. APHIS, along with FDA, submitted a report on U.S. antibiotic use in animal agriculture to the OIE Global Database on Antimicrobial Agents Intended for Use in Animals in compliance with the international standards. APHIS represented the U.S. at the Third Country Training Program, a partnership between the U.S. Department of State and the Singapore Ministry of Foreign Affairs to provide capacity building courses for Southeast Asian countries, including participating in a panel discussion on antimicrobial resistance in September 2021. APHIS participated in completing a 5-year strategic plan for the Transatlantic Taskforce on Antimicrobial Resistance. APHIS will continue to review AMR related statements and positions that stakeholders and other governmental and nongovernmental agencies promulgate that may have implications for animal agriculture.

One Health and Pandemic Disease Preparedness

APHIS continues to coordinate with cross sector partners to develop and implement national and international One Health strategies and strengthen our emergency response capacities to ensure a quick response to zoonotic diseases. In FY 2021, APHIS continued to participate in several multisectoral groups that emphasize the mission of One Health, including the Interagency Foodborne Outbreak Response Collaboration (IFORC) IFORC develops and coordinates Federal best practices for detection of foodborne outbreaks and interagency and public health communication strategies and processes. Additionally, APHIS continues to participate in the North American Plan for Animal and Pandemic Influenza Health Security working group. This group exchanges information on animal and human health sector responses to SARS-CoV-2, include modeling, detection, diagnostic information and healthcare capacity and capability data.

APHIS continued to use its position as a coordination leader on the national effort to address the animal health component of One Health during the COVID-19 pandemic. In FY 2021, over 10,000 animals were tested in the U.S. for SARS-CoV-2. National Animal Health Laboratory Network (NAHLN) laboratories also maintained capacity to test human samples for SARS-CoV-2. As of FY 2021, NAHLN laboratories capable of publishing testing numbers reported testing approximately 5.6 million human samples for SARS-CoV-2. Additionally, the National Veterinary Services Laboratories (NVSL) tested over 1,000 animals for SARS-CoV-2 and confirmed over 235 animals representing 13 different species. NVSL tested over 3,000 animals from investigative studies conducted by the CDC. Test results were reported to the OIE as positive detections were identified, contributing to international knowledge of SARS-CoV-2 infections in animals. APHIS subject matter experts continue to provide consultation and guidance to State animal and public health agencies on decisions and testing of animal for SARS-CoV-2.

Global Health Security

The Global Health Security Agenda (GHSA) is a partnership of over 50 nations, international organizations, and non-governmental stakeholders to minimize the threat of infectious diseases on the world stage. APHIS coordinates and reports USDA's international efforts related to implementation of the relevant GHSA processes, including

antimicrobial resistance, zoonotic disease, biosafety and biosecurity, national laboratory systems, and real time disease surveillance, ensuring interagency collaboration and communication in addition to interfacing with other relevant agencies and stakeholders. In FY 2021, APHIS participated in the 6th annual GHSA Ministerial Meeting. The ministerial meeting focused on the need to synergize global efforts on global health security, and emphasized the need to close knowledge gaps during the COVID-19 pandemic responses identified by relevant health security assessments such as the Joint External Evaluation. A Joint External Evaluation is a tool developed by the World Health Organization to help countries assess their health security strengths and weaknesses, and to direct resources toward the most urgent needs, protecting the country and the rest of the world from infectious diseases.

Selected Examples of Recent Progress - Plant Health:

1. Agricultural Quarantine Inspection

APHIS and the Department of Homeland Security's (DHS) Customs and Border Protection (CBP) safeguard U.S. agricultural and natural resources from the introduction of invasive pests and diseases through the Agricultural Quarantine Inspection (AQI) program. APHIS assesses the risks associated with international trade and specific imported agricultural products and develops import regulations to exclude foreign pests and diseases and protect U.S. agriculture. In addition, the Agency conducts off-shore pest risk reduction activities including foreign commodity pre-clearance programs; trains agricultural inspectors and detector dog teams to work at U.S. ports of entry; inspects and takes action as necessary on imported plant propagative materials; monitors the fumigation of arriving containers and cargo to mitigate pest risks; conducts trade compliance activities to detect violations of APHIS' import regulations and prevent smuggling; and provides the scientific support necessary to carry out these activities and those carried out by CBP, including, among other things, the authoritative and timely identification of pests necessary to determine whether regulatory actions on imported products are required.

APHIS collects AQI user fees under the authority of The Food, Agriculture, Conservation, and Trade Act of 1990, to recover costs for services provided by APHIS and CBP associated with preclearance inspections of passengers and the port-of-entry arrival of commercial vessels, trucks, loaded railroad cars, aircraft, and passengers entering the United States from a foreign destination. Due to continuing impacts of travel reductions related to COVID-19, FY 2021 AQI user fee collections were approximately 60 percent lower than FY 2019, the last full fiscal year prior to the pandemic. To ensure that the program could continue operations to prevent the entry of foreign pests and diseases, the FY 2021 Appropriations Act, Consolidated, provided $635 million for the AQI program. APHIS inspectors oversee the preclearance of certain commodities through inspecting shipments for export, monitoring treatments where required, or by monitoring systems approaches for pest mitigation (a combination of integrated pest management practices used in the field and after harvest). In most cases, exporters of the pre-cleared commodity cover the costs of this APHIS service through trust funds established for this purpose.

APHIS also receives appropriated funding for pre-departure inspections of passengers and cargo traveling from Hawaii and Puerto Rico to the continental United States to prevent the introduction of non-native agricultural pests and diseases into the continental United States while facilitating the movement of travelers and agricultural goods. APHIS inspects all passenger baggage leaving these islands because of the risks associated with pests of fruits and vegetables grown in these areas. When inspectors identify an item that poses a specific risk, they take immediate action to prevent the entry of materials that could harbor the pest or disease in question. This action prevents damage to the country's agricultural industry and negates the need for costly control and eradication programs. APHIS also partners with industry groups and State and Commonwealth counterparts to facilitate the safe movement of cargo. In Hawaii, the State Department of Agriculture conducts nursery inspections and certifies nursery stock on APHIS' behalf for shipment to the continental United States.

Cooperative Program Management

APHIS works with CBP to protect America's agricultural resources and food supply through inspecting international passenger baggage, cargo, and conveyances. APHIS and CBP share management of the program through working groups and daily collaboration. Senior leadership of both Agencies meet frequently to develop joint plans and coordinate efforts in priority areas, ensure clear and balanced decision-making, streamline effective outreach and communication, and improve organizational structure and leadership to support the shared work in the agriculture safeguarding mission. APHIS and CBP improved communication at ports of entry through data system integration, which facilitated 65,993 emergency action notifications on incoming cargo in FY 2021. APHIS facilitated the entry of cargo into the United States through monitoring more than 15,000 fumigations and 30,000 cold treatments to reduce pest risks on cargo that would not otherwise have been allowed entry due to agricultural risks. In FY 2021, APHIS and CBP continued to implement the risk-based sampling cargo inspection program to

target higher risk plant pests potentially entering the country and utilize current inspection resources more efficiently. CBP and APHIS initiated risk-based sampling in the air cargo pathway and continued to expand the program in the maritime environment and southern land border. Resource-savings comparisons between standard inspection and risk-based sampling on the southern border found that using the risk-based strategy reduced overall inspection times for CBP officers by an estimated 77 percent. In FY 2021, APHIS trained 291 new CBP agriculture specialists, conducted basic agricultural threat training for 3,840 first line CBP officers, and provided agriculture fundamentals training for 100 CBP import specialists. In addition, APHIS provided training support to CBP Agriculture Specialists who delivered military cooperator inspector training to certify 584 Department of Defense (DOD) cooperators who perform agriculture quarantine inspections in mainland U.S. military installations. These cooperators prevent the entry of agricultural pests and diseases associated with military equipment and/or personnel returning from overseas military installations to the United States. Additionally, APHIS trained 35 canine teams, 7 agriculture field trainers, and 8 agriculture canine team supervisors for CBP.

Pre-Clearance and Offshore Risk Reduction

One of the most effective ways to facilitate the safe movement of commodities into the United States is to address pest threats where they originate. In FY 2021, APHIS inspected and precleared 2.89 billion pounds of 69 different fresh fruits and vegetables from 21 countries. Additionally, APHIS inspected 2.48 billion pounds of avocados in Mexico as a part of a systems approach to facilitate safe trade. APHIS has overseen this program since 1997, and through 66 APHIS-certified facilities, the program accounts for about 90 percent of avocado imports to the United States. APHIS also precleared 4.1 million pounds of cut flowers, bulbs, and perennials from Chile and 25 million bulbs and perennials from the Netherlands. There were zero pest interceptions detected at the U.S. ports of entry. This offshore work, which importers fully fund, allows inspected and precleared perishable products to enter through the U.S. ports of entry without delay.

To help the U.S. military prevent the spread of foreign animal diseases and plant pests, APHIS worked with DOD to inspect 9,070 shipments of personal goods (4,293 household goods, 1,926 unaccompanied baggage, and 2,851 vehicles) and 330,678 pieces of cargo from 18 countries before they returned stateside. APHIS completed annual evaluations and recertifications of 46 military preclearance programs in 8 countries in Europe and Africa, ensuring that these programs meet all administrative, programmatic, and safeguarding requirements. Using virtual meeting platforms due to COVID-19 travel restrictions, APHIS trained 93 military service members to manage these programs locally in Europe and Africa.

APHIS conducts certain inspections and certifications overseas to verify that treatment or production facilities meet our standards and regulatory requirements to help protect U.S. plant health from pests that could move into our country with high-demand, large volume commodity imports. In FY 2021, APHIS certified or recertified 171 treatment facilities, including 72 facilities in Mexico, 6 facilities in Central America, 15 facilities in Caribbean, 74 facilities in South America, and 4 facilities in Asia. APHIS is currently tracking 248 offshore treatment facilities in 19 countries. Among the most common mitigation types are hot water treatment (116 active facilities) and methyl bromide fumigation (52 active facilities). APHIS also certified 11 irradiation facilities. APHIS successfully launched the implementation of the Offshore Greenhouse Certification Program (OGCP) in FY 2021. APHIS worked with the nursery industry to design, test, and implement OGCP to effectively minimize pest risks in live plant cuttings and expedite clearance at U.S. ports of entry. OGCP will help U.S. producers access varieties of healthy plants they need to be competitive in the global marketplace while protecting U.S. plant health from the introduction of harmful plant pests.

Pre-Departure Inspections

APHIS inspected the baggage of more than 9 million passengers before they left Hawaii and Puerto Rico and intercepted approximately 190,788 prohibited items and 1,452 quarantine-significant pests in FY 2021. APHIS conducts commodity certification and inspection programs to facilitate interstate trade between Hawaii, Puerto Rico, and the continental United States. In FY 2021, the program conducted 51,619 inspections of regulated agricultural commodities shipped from Hawaii and Puerto Rico. In addition, the program oversaw or conducted 4,319 cargo treatments in Hawaii and Puerto Rico.

CBP Facilitated Port-of-Entry Inspections

In FY 2021, approximately 73 million passengers and pedestrians entered the United States by air, bus, ship, train, or on foot. This figure is approximately 63 percent below the number that entered the United States in FY 2019, before the COVID pandemic began. CBP agriculture specialists inspected the baggage of more than 8 million of

these travelers for agricultural risks through manual inspection, x-ray technology, or detector dogs. The program also conducted secondary agricultural inspections of 345,590 of the 83.6 million passenger vehicles entering the United States from Canada and Mexico in FY 2021. In addition, inspectors cleared 26,195 ships and more than 1.2 million cargo, mail, and express carrier shipments, intercepting 59,726 pests. Of the mail and commercial cargo inspected, the Agency found approximately 98.6 percent of all mail, 95.4 percent of all maritime cargo, 92.3 percent of air cargo and 99 percent of all land border cargo (northern and southern) to be in compliance with agriculture quarantine regulations.

Propagative Plant Inspection

Importations of nursery stock and other propagative plant materials can serve as significant pathways for invasive pests and diseases. To reduce the risks associated with such imports, APHIS requires that certain imported plant materials enter the United States through 16 plant inspection stations located at ports of entry throughout the country and territories at major international airports and seaports, and at major crossings along the U.S.-Mexico border. Specialists at these stations inspect shipments to ensure that imported plants and seeds do not contain pests and diseases of regulatory significance. In addition, they enforce the regulations that apply to the import and export of plant species protected by the Endangered Species Act and the Convention on International Trade in Endangered Species of Wild Fauna and Flora. In FY 2021, inspectors cleared 30,372 imported shipments containing 2.17 billion plant units (cuttings, rooted plants, tissue culture, etc.) and over 755,993 kilograms of seeds of woody plants. Through these inspections, APHIS employees detected 4,727 pests of which 1,974 were quarantine significant pests at the plant inspection stations. In addition, the stations conducted 3,987 treatments or other action to remediate pests on more than 13 million plant units and 6,640 kilograms of seed.

Plant Germplasm Quarantine

APHIS' Plant Germplasm Quarantine Program (PGQP) provides quarantine services for importing plant cultivars and germplasm safely to prevent foreign pathogens from entering U.S. agricultural production areas and environment. In FY 2021, PGQP released from quarantine 16 bamboo clones, 44 grass clones, 1 kiwi, 26 pome fruits, 66 potato clones, 51 potato true seed lots, 27 rice seed lots, 5 stone fruit clones, 251 Prunus seedlings, 1 sweet potato clone, and 73 woody ornamentals. Nine of the 26 pomes and 27 of the 66 potato clones released this year resulted from therapy performed on the infected imported plants. The program detected new pathogens in potatoes, pome and stone fruits and ornamentals. Quarantine regulations prohibit entry of these high-risk crops into the United States in commercial quantities, but importers can bring in small quantities through an APHIS-approved plant quarantine program, like the one at PGQP. The program developed a new PCR procedure to detect rice endorna viruses so PGQP can now find healthy rice seedlings in an infected seed lot. The pome group discovered a virus in commercial apple seedling rootstocks. Experiments are underway to develop cryotherapy procedures as a therapy treatment for infected plant introductions.

Pest Identification

When pests are detected in cargo, the program must identify them to determine if they are considered quarantine significant under APHIS regulations (i.e., if they are exotic and could pose a significant threat to U.S. plant health, if the program can allow the cargo entry into the United States, and what, if any, mitigation measures would be required.) In FY 2021, APHIS processed and identified more than 122,000 pest interceptions, with approximately 60,000 being quarantine significant. In FY 2021, APHIS continued its use of digital imaging technology for pest identification to support limited staff presence in the pest identification laboratories to protect the health of employees from COVID-19 exposure. APHIS National Specialists performed 74 percent of their identification based on digital images, an increase of 17 percent over FY 2020. APHIS will continue the use of digital imaging technology as means to improve the timeliness of pest identifications for urgent submissions (i.e., those for which cargo is on hold pending a pest identification). APHIS and CBP use the Cargo Release Authority (CRA) program to reduce the numbers of pests that CBP must submit to APHIS for identification, speeding up the inspection process for shipments that contain no suspect quarantine pests. Through the CRA program, APHIS provides training and job aids that allow CBP Agriculture Specialists to recognize frequently intercepted, easily identifiable, low-risk organisms, and to release the cargo if the organism is not a quarantine significant pest. APHIS grants CRA after the Agriculture Specialist has successfully identified a particular pest a certain number of times and submitted documentation to APHIS. APHIS and CBP initiated a review of the program and will relaunch the full CRA program during FY 2022. In FY 2021, APHIS continued the response to a surge in botany identifications related to the mass mailing of unsolicited seeds to U.S. citizens by exporters in China. APHIS completed 4,696 identifications in FY 2021, of the more than 25,000 samples received and found that the seed packets contained mostly flower and vegetable seeds.

Risk Analysis and Methods Development

APHIS develops pest risk analyses and epidemiological approaches to support and improve pest exclusion programs and decision making. In FY 2021, APHIS completed approximately 278 risk analyses associated with imports, exports, invasive pest threats, and other programmatic requirements. This total includes 44 analyses to open, expand, or maintain export markets for U.S. producers and 50 risk assessments for import requests from foreign countries. The laboratory's work also included evaluations of 11 newly detected pests by the New Pest Advisory Group, 7 pathway analyses and spread models,4 economic analyses supporting operational and policy decisions, and 11 New Pest Response Guidelines for preparedness purposes. These products identify potentially harmful plant pests and diseases and help APHIS decide what mitigating actions to take in order to prevent their entry into or limit their spread or economic impact within the United States.

Smuggling Interdiction and Trade Compliance (SITC)

SITC identifies and closes smuggling pathways for prohibited agricultural products into U.S. commerce. SITC works closely with CBP to identify and target agricultural risks at the ports of entry before they enter U.S. commerce. In FY 2021, SITC conducted over 5,545 market surveys and seized 2,323 prohibited agricultural items in retail commercial locations. In addition, SITC initiated 3,021 product traces including 819 items from internet sales and 855 from courier surveys. Those seizures totaled 224,568 pounds of prohibited and/or restricted plants, plant products, meat, and meat products valued at $2.5 million. Additionally, SITC conducted six recalls for restricted material, including noncompliant wooden handicrafts and grain products. Total seizures as a result of recalls weighed 10,800 pounds and had an estimated value of $9,810.

Treatment Program

APHIS supports U.S. imports of plants and plant products by facilitating and monitoring phytosanitary treatments. APHIS facilitated entry of regulated agricultural cargo through the monitoring of 15,219 fumigations, 30,342 cold treatments, 6,468 irradiation certifications, and 298 heat treatments of Niger Seed to reduce pest risks on cargo that would not otherwise have been allowed entry.

Permitting

APHIS requires that importers apply for permits for the importation into the United States and transit through the United States of certain high-risk regulated plants and plant products for consumption or propagation. These products include regulated plants and plant products, pests, and pathogens for diagnostic and research, biological control agents, soil, and Federal noxious weeds. Permits notify importers of commodity import requirements to ensure products and commodities making entry into the United States will not harm American agriculture. During FY 2021, PPQ issued 24,939 import permits for regulated plant material and issued 11,518 letters (Letters of Denial or Letters of No Jurisdiction) in response to permit application requests. In addition, to permits and permit-related correspondences, the Plant Protection and Quarantine Customer Support Center responded to 11,174 customer support calls and emails to assist stakeholders with import related questions. APHIS is improving the customer experience through development and delivery of the new eFile permitting system. The new eFile system supports the implementation of automated permitting for more than 90 percent of plant and plant product permits and reduces the wait time for a permit to be issued to within minutes, as compared to 2-4 weeks using the current ePermits system.

Phytosanitary Export Certification

APHIS facilitates the export of agricultural shipments by tracking plant health import requirements for approximately 200 countries and provides certifications to U.S. exporters to help ensure that U.S. products meet other countries' requirements. More than 2,100 Authorized Certification Officials at the Federal, State, and county levels can access countries' certification requirements on-line and conduct inspections to issue phytosanitary certificates. These certificates facilitate the entry of commodities into foreign markets. The program employs a web-based Phytosanitary Export Database. This database, which is free to exporters, enables them to research requirements and better prepare for shipping. In addition, this program uses a Phytosanitary Certificate Issuance and Tracking (PCIT) database that allows exporters to apply for certificates, schedule inspections, and pay certification fees. PCIT also collects State and county cooperator fees in addition to the USDA fees for phytosanitary certificates. In FY 2021, APHIS collected more than $41.4 million for certificates and remitted more than $22.6 million of that amount to State and County cooperators for certificates they issued. Currently, 37 States and 34 counties use this feature. PCIT also enables APHIS to capture

export application information, document inspection and certification information, print an original phytosanitary certificate on secure paper, and generate export reports. Additionally, the Agency is continuing its effort with international counterparts exchanging phytosanitary certificates electronically. Over the last several years, APHIS worked with the International Plant Protection Convention to establish an electronic hub that countries can access to exchange export certificates with trading partners. The hub provides a central point for document exchange that eliminates the need for countries to establish electronic connections with each trading partner individually. Recent studies by industry have shown that paperwork errors slow down exports, leading to the majority of costly delays. The United States began using the hub in May 2018, and is actively exchanging certificates with 55 countries now (an increase of 12 countries in 2021), with more than 178,000 phytosanitary certificates received and more than 280,000 sent. In FY 2021, APHIS, State, and county officials issued more than 703,000 Federal export certificates for agricultural shipments.

2. Cotton Pests

The Cotton Pests Program works with growers, the cotton industry, States, and Mexico to eradicate the boll weevil (BW) and pink bollworm (PBW) from all cotton-producing areas of the United States and northern Mexico. Collectively, the BW and PBW are the most destructive pests of cotton, worldwide. The Cotton Pests Program also maintains preparedness capabilities to address other cotton pests that could enter the United States. APHIS provides national coordination, operational oversight, and technology development (such as sterile moth production for PBW eradication), while program partners have provided more than two-thirds of the funding for the BW eradication effort and most of the operational funds for PBW eradication. APHIS also provides technical advice on trapping and treatment protocols to its partners in Mexico for their eradication efforts.

The BW has cost cotton growers more than $15 billion since it entered the United States in the late 19th century (National Cotton Council of America, 2021). APHIS began the initial BW eradication program along the Virginia-North Carolina border in the early 1980s. The BW eradication effort involves mapping cotton fields, using pheromone traps to evaluate weevil presence, and applying pesticides. Once BW is eradicated from an area, cotton growers rely less on insecticides, thus reducing their production costs. Over the course of the eradication efforts, the program has increased these growers' global competitiveness, primarily through reduced production costs and increasing yields.

To date, APHIS and cooperators have eradicated BW from 99 percent of the 12.2 million acres of U.S. cotton (Acreage Report, National Agricultural Statistics Service, 2020). The Lower Rio Grande Valley (LRGV) is the last zone within the United States where the pest persists. The LRGV is impacted by the neighboring Mexican cotton producing State of Tamaulipas and the area's security issues. In FY 2021, APHIS continued to work with partners in overcoming program challenges, which include delayed planting due to freezing temperatures, volatile weather systems, and volunteer cotton capable of harboring undetected BW. To assist the Tamaulipas BW Eradication Program, the Agency, along with the United States and Mexican cotton industries, continued working together to eradicate BW from Tamaulipas by funding ultra-low volume malathion and aerial treatment expenses. The Texas Boll Weevil Eradication Foundation (TX-BWEF) also continued providing technical assistance to Tamaulipas through use of their smart device application for monitoring trapping and treatment activities. Tamaulipas employees running this application on their smart phones allows TX-BWEF managers to monitor trap deployment, trap servicing, and treatment activities in real time.

In previous years, APHIS established a meeting schedule, between the month of October through April, with Mexico's National Service for Agrifood Health, Safety and Quality (SENASICA) to discuss the boll weevil program in Tamaulipas. In FY 2020, organizational changes in SENASICA, restrictions on international travel for Mexican government officials, and the COVID-19 pandemic affected this schedule. In response, APHIS began hosting monthly virtual meetings with SENASICA to continue discussing the program and its efforts. In FY 2021, the continuation of these virtual meetings has fostered dialog among participants that addressed and resolved problems as that occurred during the 2021 growing season. As a result, in FY 2021, SENASICA increased its involvement with grower groups in Mexico to ensure deadlines, which play a significant role towards BW eradication, for harvest and plow down.

In FY 2021, unseasonal freezing in February delayed cotton planting by two weeks in the LRGV and Tamaulipas areas. Cooperators in both the United States and Mexico executed a revised operational plan that placed greater emphasis on early-season treatments and maintained aggressive localized aerial treatments triggered by detection of a single weevil. Although the freezing, coupled with the early-season applications, killed emergent BW, heavy rains

in June and July obstructed access to traps and delayed aerial treatments. This allowed for some reproductive BW pockets to establish themselves. In addition, growers in Tamaulipas planted 32 percent more cotton in 2021, compared with 2020, requiring significant increases in BW monitoring and treatment. BW captures in both LRGV and Tamaulipas spiked throughout August and September, with Tamaulipas capturing near or above 1,000 BWs for seven consecutive weeks. Overall, BW captures decreased by 91 percent in LRGV totaling 3,029, compared with 34,787 at the same time in 2020. By October 2021, cooperators treated 753,505 acres in the LRGV, compared with 1,255,294 treated at the same time the prior year. In Tamaulipas, BW captures decreased by 61 percent to 10,060, compared with 26,017 at the same time the prior year. By October 2021, cooperators treated 558,212 acres in Tamaulipas, compared with 444,324 treated by the same time the prior year.

APHIS will continue partnering with the U.S. cotton industry to reduce the BW population in the LRGV and to conduct BW surveillance efforts for all U.S. cotton production areas in FY 2022. APHIS will also continue to partner with SENASICA's Tamaulipas BW Eradication Program to provide technical assistance and funding for their parallel program to the LRGV program. APHIS is committed to monitoring BW to ensure the detection any of reintroductions quickly, and to work toward successful eradication of BW in the United States in the coming years.

In the United States, although the volume of acreage planted with cotton varies from year to year, the PBW commonly caused cotton losses of 20 percent or more in affected areas. Since the PBW control program began in 1967, APHIS and cooperative program partners have eradicated the PBW from Southern California, Arizona, large areas of New Mexico, and the El Paso/Trans Pecos region of Texas. On September 26, 2018, APHIS issued a Federal Order releasing Arizona, California, New Mexico, and Texas from the PBW quarantine. On October 19, 2018, APHIS, in conjunction with industry partners, officially announced the successful eradication of PBW from all commercial cotton-producing areas in the continental United States. In FY 2018, Florida added a PBW quarantine for an area in the Everglades where a wild PBW population has persisted for the last 80 years and appears to only be active in wild cotton. As a result, APHIS, along with the Florida Department of Agriculture and Consumer Services and the Florida cotton industry began surveying the perimeter of the commercial cotton area in the northern part of the State and the adjacent okra fields in the city of Homestead, to ensure that PBW has not spread. In FY 2021, APHIS continued to survey these areas in Florida to ensure that isolated PBW populations in southern Florida do not move into the commercial cotton production areas north of the Everglades. These surveys will continue in FY 2022.

3. Field Crop & Rangeland Ecosystems Pests

The Field Crop and Rangeland Ecosystem Pests (FCREP) program protects U.S. agricultural crops and rangelands from the establishment or spread of invasive or economically significant pests, facilitates safe international trade and domestic commerce, preserves economic opportunities for U.S. farmers, and fosters healthy ecosystems in rangelands and natural lands. To accomplish these goals, APHIS provides national coordination, threat assessment, and strategies to prevent pests and diseases such as grasshoppers and Mormon crickets (GMC), imported fire ants (IFA), Karnal bunt, and witchweed from spreading and impacting export markets for U.S. farmers. These programs help protect resources that small, rural communities depend on for income.

Grasshoppers and Mormon Crickets

Through the FCREP program, APHIS cooperates with Federal, State, Tribal, and local agencies, organizations, and institutions to conduct survey and suppression activities in western States to reduce damage that GMC outbreaks cause, protecting rangeland resources that serve as forage for livestock, provide habitat for wildlife and ecosystem services, as well as recreation opportunities. A 2012 University of Wyoming study found that healthy rangeland provides forage value worth $6.7 billion and overall benefits ranging from $10.7 to $21.2 billion. Uncontrolled GMC infestations could cause significant economic losses for U.S. livestock producers by reducing animal food supply in rangeland, and therefore forcing producers to buy supplemental feed or sell their livestock at reduced prices. Besides feeding on grass, GMC can also devastate cultivated crops such as alfalfa, barley, corn, and wheat. Infestations often cover vast acreage, and landowners or land managers may need Federal support to control them. The program helps landowners and land managers by providing population information, helping to predict where grasshopper populations could develop into outbreaks, and providing technical assistance about options for dealing with problem-level populations. By providing ongoing information, and advice to land managers and conducting suppression treatments where necessary and possible, this program helps protect 661 million acres of rangeland across the western United States.

In FY 2021, APHIS conducted surveys in 14 States for GMC, collecting data at approximately 27,000 survey points. Grasshopper populations can build cyclically, and high population levels that began in FY 2020, continued into FY 2021. Based on the results of the surveys and needs of land managers, the program conducted treatments in eight States in FY 2021, using FCREP funding and reimbursements from participating landowners. The Plant Protection Act specifies that the Federal government covers 100 percent of treatment costs on Federal lands; 50 percent on States lands; and 33.3 percent on private lands. APHIS conducted treatments on 815,531 acres in Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming. These treatments protected rangeland forage and wildlife habitat on more than 1.6 million acres. Before conducting any grasshopper treatments, APHIS confirms the species of the grasshopper as some do not cause damage to rangeland and others can even provide ecological benefits by eating weeds (leaving grasses for grazing livestock).

Imported Fire Ants

IFA is a major public nuisance and serious agricultural pest causing approximately $6.7 billion in damage to homeowners, agriculture, and natural ecosystems within the IFA Federal quarantine area, according to the Ant Pests Community led by the National Institute of Food and Agriculture's Extension Service (https://ant-pests.extension.org). IFA infests more than 367 million acres in Puerto Rico and 14 States: Alabama, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia, which are under a partial or full State quarantine. The IFA program provides regulatory guidelines to stakeholders for the treatment of regulated articles, oversight, and enforcement to help prevent the human-assisted spread of the pest. In FY 2021, the IFA program continued work with university researchers and USDA's Agricultural Research Service (ARS) to develop new pesticide treatments to prevent IFA movement on nursery stock and sod and to stay informed on any new opportunities for biological control. The program also worked with ARS on a second generation of the molecular-based field identification assay kit which identifies red, black, and hybrid IFAs in the same assay. In 2021, the manufacturer brought to market the kit, and the IFA program will integrate it into program activities. The program continued support to California to maintain the scope of their annual IFA surveys and assisted New Mexico with information on IFA surveys. APHIS issued a Federal Order that expanded the existing IFA quarantine areas in Arkansas, North Carolina, Oklahoma, and Virginia. In addition, the IFA program began work with Tennessee to expand the Federal quarantine area for new counties in that State.

Karnal Bunt

The FCREP program also addresses Karnal bunt, a fungal disease of wheat that was first detected in the United States in 1996. Many U.S. trading partners will not accept U.S. wheat unless it is certified to originate from areas where Karnal bunt is known not to exist. The program prevents the disease from entering the grain market system, spreading beyond the areas of Arizona where it is currently found, and directly affecting most other States. Over the last several years, APHIS conducted an evaluation at the request of the cattle and dairy industries and determined that wheat, durum wheat, and triticale grown for silage, also known as wheatlage, posed a negligible risk of spreading Karnal bunt. Based on this determination, farmers in the regulated area increased the fields planted for wheatlage providing needed products to the local cattle and dairy industry. USDA's Economic Research Service estimated in 2010, without the program's efforts, there would be a cumulative reduction of national net farm income of $8 billion over the next eight years. In FY 2021, 28 wheat-producing States participated in the Karnal bunt national survey. As of October 5, 2021, the program tested 789 samples with no positive detections. Based on this national survey, the program certifies wheat exports free of Karnal bunt, assuring trading partners about the safety of U.S. wheat exports, retaining export markets, and facilitating wheat movement into domestic and international markets. In 2020, farmers across the country planted approximately 44.3 million acres of wheat and harvested 1.8 billion bushels of wheat with a value of $9.3 billion (National Agricultural Statistics Service, Crop Values 2020 Summary and Crop Production). The United States exported 26 million metric tons of wheat, valued at $6.3 billion to 100 countries (Foreign Agricultural Service, Global ATS, 2020; Foreign Agricultural Service 2019). Without the Karnal bunt program to certify these exports, wheat trade would be disrupted.

Witchweed

Another concern for the FCREP program is witchweed, a parasitic plant that can significantly damage corn, rice, sorghum, and sugarcane. If witchweed were to spread throughout the Corn Belt, it could decrease crop yields for corn and sorghum by up to 10 percent and could negatively impact trade in commodities from these areas. Since program activities began in 1957, APHIS and cooperators have successfully eradicated witchweed from 99 percent of the infested areas in North Carolina and South Carolina. These activities consist of frequent field inspections, treatment of infested acres (tillage, ethylene injections to stimulate witchweed seeds to sprout, and hand-pulling and

herbicide application), conducting post-eradication surveys, and addressing any new infestations. The program surveyed nearly 26,980 acres during the 2021 growing season. Approximately 1,562 acres were infested at the beginning of the 2021 season, and 90 acres were newly infested or re-infested during the season. In 2021, APHIS treated 999 acres. Because witchweed seeds can remain viable in the soil for up to 14 years, and a host plant must be present for witchweed germination, year-to-year fluctuations in the number of acres infested are common. By preventing the spread of this damaging weed, the program indirectly protects nearly 89 million acres of corn valued at $61 billion in 2020 (National Agricultural Statistics Service, Crop Values 2020 Summary).

Roseau Cane Scale

Roseau cane is an important grass species in wetland areas of the lower Mississippi Delta, Louisiana. The plant's root system provides wildlife habitat, protects the interior from storm surges, and protects riverbanks from erosion, which impacts the Mississippi River navigation channel. Since 2017, researchers from Louisiana State University (LSU) and ARS have investigated multiple potential stressors causing dieback of roseau cane in the Mississippi River Delta. These stressors include high water levels, salinity intrusion, scale insects, plant pathogens, and soil chemistry. To further investigate the possible causes of the die-off, LSU formed a multi-disciplinary and multi-institutional team with support from APHIS, starting in FY 2018. Research objectives include the biology and control of the scale insect that affects roseau cane; other stressors that may affect the health of roseau cane, including soil composition, pH levels, nitrates; marsh grass restoration techniques; host plant resistance to scale insects; impacts of both beneficial and pathogenic microbes on roseau cane; and restoration ecology. In FY 2021, funding from APHIS supported continued work on environmental stressors and roseau cane die-off and restoration; above and below ground interactions impacting roseau cane; field monitoring and remote sensing of roseau cane dieback sites and restoration plots; and categorization of genetics of roseau cane found in the Mississippi River Delta. The work to date by the roseau cane die-back team has improved our understanding of plant stressors on roseau cane and the biology, distribution, feeding ecology, and impact of the scale insect attacking the cane at the Mississippi River Delta.

In addition to the work described above, APHIS and ARS initiated work in FY 2019, through Plant Protection Act Section 7721 funding to evaluate roseau cane scale and its associated natural enemies in its native range in Asia, with the aim of developing biological control methods. With further funding from Plant Protection Act 7721, APHIS, with ARS and LSU AgCenter scientists, has completed three years of surveys across Asia to delineate the native range of roseau cane scale, identify the origins of the invasive population, and investigate candidate biological control agents. The team has identified northeast China as having populations of roseau cane scale with the closest genetic match to the invasive population in Louisiana and has discovered six parasitoid species from Asia with one of these parasitoids identified as the most promising candidate for further biological control work.

4. Pest Detection

The goal of the Pest Detection Program is to document the presence or absence of plant pests and diseases of Federal regulatory significance in the United States. This documented information is the basis of APHIS' regulatory efforts and pest management programs that preserve economic opportunities for farmers (i.e., interstate commerce and international trade) and safeguard U.S. agricultural and natural resources. The program collaborates with Federal agencies, state departments of agriculture, Tribes, academic institutions, and industry partners in all 50 States and several U.S. Territories to conduct program activities.

APHIS and its State cooperators carry out plant pest surveys through the Cooperative Agricultural Pest Survey (CAPS) program. APHIS provides national coordination for the program and develops policies and procedures for surveys. In addition, the program funds survey coordinator positions in each State as part of the personnel infrastructure necessary to ensure early detection of phytosanitary pests and diseases of concern. The program enables APHIS and cooperators to target high-risk hosts and commodities, gather data about pests specific to a commodity, and provide information of pest distribution, including pest-free areas. Early pest detection is important to avert economic and environmental damage. In addition to lost farm revenues and damage to ecosystems, the mitigation costs can reach millions of dollars once a pest becomes established or spreads significantly. While many entities are involved in protecting crops and resources, APHIS verifies that U.S. products do not pose risks to other countries. Pest surveys conducted through the CAPS program demonstrate absence of a pest and are used in some cases to address importing countries' phytosanitary requirements and retain access to foreign markets.

In FY 2021, APHIS and cooperators in 50 States and 5 Territories conducted a total of 434 early pest detection surveys, targeting more than 97 percent of the high-risk plant pests and diseases identified for FY 2021 surveys. Through the Pest Detection program, APHIS also funded a network of approximately 49 State Survey Coordinators

that assisted States, and the public, in identifying and reporting any new pest detection. Some States experienced staffing challenges; and, although five (Alaska, California, Maryland, Nevada, and Utah) were without State Survey Coordinators during FY 2021, they were able to complete surveys for pests. APHIS confirmed 11 species new to the United States through pest detection surveys or other reports through the Pest Detection network. The program confirmed that an additional 36 species were found in new areas or were re-introduced during FY 2021. Documenting these detections allows APHIS and State officials to determine whether control or regulatory measures are necessary to mitigate the potential impacts of the pests or diseases. In addition to the annual surveys and pests that the program detects each year, the Pest Detection program increases awareness of invasive plant pests and diseases and ensures that trained professionals are in the field, monitoring the health of U.S. agricultural production areas, forests, and rangelands, and coordinates development of survey tools with APHIS scientists for high-risk pests. For example, in 2018, APHIS identified a potential new pest threat to box trees, which are high-value landscape and nursery plants. The pest, box tree moth (BTM), defoliates box trees and will eventually kill them when infestations are uncontrolled. In 2018, the only known survey method was to visually look for this small pest during nursery inspections. Visual surveys are time consuming, expensive, and inefficient. APHIS did not have all the needed information to efficiently survey for BTM using pheromone traps in 2018. The Pest Detection program worked with researchers to develop and make pheromone lures available for BTM surveys. In 2020, five States used APHIS funding to survey for BTM with the newly available pheromone lures, and no detections were found. In 2021, the Pest Detection program supported surveys in 14 States for BTM. Only New York has detected a reproducing population of BTM; all other detections were of non-mating stages (caterpillars and pupae). APHIS is working with New York to better understand BTM populations and has completed maps to assist states with targeting and understanding the potential distribution of BTM.

The program's FY 2021 survey target was to detect 90 percent of the 104 targeted pests before they spread to new areas. The program exceeded the target in that all (100 percent) new detections were localized at the time of their detection in FY 2021. The negative survey results for the remaining pests demonstrate that the United States is free from these pests.

5. Plant Protection Methods Development

The Plant Protection Methods Development (PPMD) program develops scientifically viable and practical tools for exotic plant pest exclusion, detection, and management. These tools preserve economic opportunities for farmers and industries who engage in interstate commerce and international trade, and safeguard U.S. agricultural and natural resources from invasive plant pests. The program is essential to APHIS' mission by developing tools for detecting exotic pests in survey programs; developing molecular diagnostic tests and identification tools for pest identification; developing integrated pest management methods, including biological control, to help eliminate or manage invasive pests; and developing phytosanitary treatments to support interstate and international trade. A major focus of this program is to develop and implement biological control technologies that allow for the use of natural enemies alone, or in combination with other control tactics, to effectively mitigate the impacts of introduced, invasive insect pests, weeds, and plant pathogens, while minimizing impacts to the environment.

In support of methods development for ongoing pest program issues, the PPMD program continues to make advances in new technologies for pest detection and management, including the use of unmanned aerial systems and detector canines. In FY 2021, the program improved unmanned aerial systems for use in multiple applications, such as the application of fruit fly treatments, grasshopper baits, releasing sterile insects for pest eradication programs and fire ant management. In support of pest detection, the program continued the use of canines to detect Mexican fruit fly, mollusks, and Asian citrus psyllid (ACP), the vector for citrus greening.

In support of methods development for pest emergency programs, the PPMD program developed effective insecticide application methods for the spotted lanternfly (SLF) and deployed improved circle traps in 34 States. The program developed and operationalized treatment of SLF eggs with Golden Pest Spray Oil. The oil, registered with the Environmental Protection Agency and certified for organic use, is a 93 percent food-grade soybean oil used for controlling spotted lanternfly egg masses and preventing pest spread.

The PPMD program also maintains its own quarantine and rearing facilities for biological control agents in Arizona, California, Colorado, Massachusetts, Michigan, Texas, and Guatemala. APHIS partners with USDA's Agricultural Research Service (ARS), the U.S. Fish and Wildlife Service, State departments of agriculture, universities in 30 States and Territories, and 2 Native American Tribes to evaluate and establish biological control agents for invasive plants, pests, and diseases. The biological control program has been responsive in developing biological control

agents to address invasive pests and weeds such as Asian longhorned beetle, emerald ash borer (EAB), roseau cane scale, air potato and spotted lanternfly.

In FY 2021, APHIS permitted four new biological control agents for release against air potato common crupina, Russian wheat aphid and spotted-wing drosophila. The biological control program works with State cooperators for the release and establishment of approved biological control agents. The current FY 2021 biological control portfolio includes 37 cooperative agreements with States and Tribal Nations that have released of 51 biological control agents that collectively attack 23 weeds and 4 arthropod pests.

In support of the EAB management efforts, new research on EAB biological control agents has identified species that climatologically adapt to cooler or warmer U.S. regions and surrounding areas. This discovery allows the program to better target biocontrol releases, while protecting the next generation of ash trees in eastern region forests. Ongoing field evaluation of these EAB biological control agents are determining best management practices for their operational release. As a result, in FY 2021, the EAB biocontrol rearing facility in Brighton, Michigan, shipped more than 476,413 parasitoid wasps to State and Tribal cooperators, for release at 153 sites, in 104 counties in 25 States. To date, the program has cumulatively released a total of more than 8 million parasitic wasps within 30 States and Washington D.C.

The PPMD program also supports research related to invasive honey bee pests, specifically Varroa mites. A Varroa mite feeds on the honey bee's fat body tissue (an organ similar to the human liver), in turn weakening and shortening the bee's life. The Varroa mite is considered the greatest single driver of the global honey bee colony losses (ARS). Managed honey bee colonies add at least $15 billion to the value of U.S. agriculture each year through increased yields and superior quality harvests (O'Brien, D. 2019 ARS Microscopy Research Helps Unravel the Workings of a Major Honey Bee Pest). In FY 2021, the program funded priority projects with other Federal and State agencies, as well as university and non-profit researchers, that support managing, suppressing, and eradicating Varroa mites, small hive beetles, and other pests and diseases contributing to a decline in honey bee health. These projects included investigating new pesticide control options for Varroa mites, and researching other important pests of honey bees. In FY 2022, the program will continue to fund similar priority projects to combat Varroa and other important issues related to honey bee health.

6. Specialty Crop Pests

The goal of the Specialty Crop Pests (SCP) Program is to protect U.S. fruits and vegetables, tree nuts, horticulture, and nursery crops from adverse impacts associated with invasive pests, such as crop damage or threats to international trade and interstate commerce. APHIS works with State, Tribal, university, and industry partners to develop and implement practices, policies, and regulations that prevent or mitigate impacts for invasive pests of Federal regulatory significance. These activities include verifying pest distribution, identifying and mitigating risk pathways to prevent long distance spread of the pests, developing and implementing diagnostic tools and pest mitigation strategies, and communicating with the public to gain support for program strategies. These efforts help U.S. farmers export their products, prevent damage to specialty crop production (helping to ensure the availability of fresh fruits and vegetables), and protect natural resources, including forests and residential landscapes. Among the pests and diseases, the program currently addresses are exotic fruit flies, a variety of citrus pests and diseases, the glassy-winged sharpshooter (GWSS), spotted lanternfly (SLF), pale cyst nematode (PCN), the light brown apple moth (LBAM), European grapevine moth (EGVM), navel orange worm (NOW), and *Phytopthora ramorum*, among others. Overall, the program directly protects specialty crop production worth more than $10 billion in 2020 (APHIS internal analysis based on National Agricultural Statistics Survey data). The program indirectly protects additional specialty crop production valued at $7 billion in 2020, by preventing the spread of these damaging pests and diseases to new areas (based on APHIS analysis using Economic Research Service data). Without the SCP program, trading partners might not accept a variety of U.S. fruits and vegetables. The value of trade in specialty crops that could potentially be disrupted without the SCP program was $3.8 billion in 2020, according to an internal APHIS report using data from the Foreign Agricultural Service's Global Agricultural Trade System.

Grapes

The SCP program targets several devastating pests and diseases, including GWSS, EGVM and SLF, that could affect grape production and impact export markets. In August 2016, APHIS declared the successful eradication of EGVM from California. In FY 2021, APHIS, in collaboration with the California Department of Food and Agriculture (CDFA), and industry partners, continued monitoring for EGVM with 19,800 traps placed over 37

participating counties. APHIS and cooperators found no infestations. APHIS is evaluating what level of survey to continue for EGVM.

APHIS also continued the successful, cooperative GWSS program designed to suppress populations of this pest where established in grapes, citrus, and nursery stock. GWSS is a vector for Pierce's disease, which is lethal to grapevines. The program's suppression and regulatory activities work to prevent the spread of the vector and disease across California. In FY 2021, the program continued to conduct surveys and other regulatory activities including inspections of nursery stock and bulk citrus for the pest in 49 California counties, and continued area-wide suppression activities in affected agricultural production areas of 4 California counties. With citrus growers' voluntary suppression treatments, the program covered 43,490 acres. Of the more than 28,000 shipments of nursery stock from infested areas, California county inspectors rejected 1 shipment due to GWSS life stages being present. Together, the EGVM and GWSS programs directly protected 895,000 acres of grape production worth $4.5 billion in the State of California in 2020 (National Agricultural Statistics Survey Noncitrus Fruit and Nuts 2020 Summary).

In FY 2021, APHIS and cooperators continued addressing SLF, which is now found in 11 States, including Connecticut, Delaware, Indiana, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Virginia and West Virginia. This invasive pest feeds on more than 70 types of plants including apples, hops, walnuts, and other hardwood trees, but grape vineyards in impacted areas have experienced the most damage related to SLF. The insect sucks sap from stems and leaves, causing damage to plants as they feed. Over the last two years, SLF has continued to spread in the affected States and into new States. It hitchhikes on means of transportation, and can spread long distances, as evidenced by the multiple regulatory incidents documented in 2021. APHIS and cooperators conduct treatments to suppress populations on the leading edge of the infestation, and to eradicate outlying populations, with the aim of reducing the risk of SLF spread to new areas. In FY 2021, APHIS and cooperators treated more than 1,734 properties covering 57,574 acres and treated approximately 79,636 trees in the States listed above. The program is continuing to evaluate treatment strategies and implement new approaches with the goal of preventing human-assisted spread.

Citrus

Citrus fruits are high-value specialty crops and a nutritious food for consumers across the world. The United States was the sixth largest exporter of citrus by value and volume in 2020 (International Trade Centre database). APHIS supports the citrus industry's continued ability to produce, harvest, process, and ship citrus fruits and nursery stock despite the presence of diseases such as citrus canker, citrus greening or Huanglongbing (HLB), sweet orange scab, and citrus black spot, which decrease fruit quality, increase production costs for producers, and threaten export markets in areas when found. HLB is the most serious disease of citrus currently impacting Florida and Texas, and threatening the citrus crop in Arizona, California, and Louisiana. The insect vector, the Asian citrus psyllid (ACP), spreads the disease. Through the Citrus Health Response Program, APHIS and State partners also conduct surveys for other diseases not known to occur in the United States, including citrus leprosis virus and citrus variegated chlorosis.

APHIS and cooperators in citrus-producing States surveyed more than 3 million acres of citrus across the country, providing timely information about the presence of pests and diseases to growers and State government partners. This information allows growers to take necessary actions to manage their groves and allows APHIS and States to update quarantine boundaries and regulations to prevent the spread of serious citrus pests and diseases through the movement of regulated materials. Based on the results of surveys, APHIS adjusted quarantine boundaries during FY 2021, for HLB and sweet orange scab in California, for HLB and citrus canker in Texas, and for citrus black spot in Florida. In areas affected by citrus pests and diseases, APHIS' flexible regulatory protocols have minimized the impact of the quarantines on growers, who can move citrus out of quarantined areas to packinghouses if they follow mitigation procedures to prevent the disease or its insect vector from spreading. APHIS works with citrus nurseries across the United States to ensure that nursery stock produced in areas quarantined for citrus diseases is free from the pests, ensuring that clean plants are moving between the states and available for citrus producers and residential use. In FY 2021, approximately 12,800 businesses moved regulated host materials such as citrus fruit and nursery stock under compliance agreements with APHIS.

APHIS and cooperators continued extensive surveys that establish citrus black spot-free production units, and low prevalence areas for citrus canker in Florida, for export packing to the European Union. APHIS also supports area-wide management efforts in Texas and California. The Agency manages five citrus canker quarantines around Texas (with two quarantine areas added in FY 2021) and is updating regulations to add an additional two areas. In FY 2021, APHIS and cooperators continued to conduct risk-based surveys for HLB in residential and commercial citrus

areas in California to ensure they detect the disease quickly if it is present. Additionally, APHIS assists CDFA in aggressively responding to positive detections of HLB (thus far in residential areas only) and implementing an area-wide management approach for ACP population control. APHIS continued biological control efforts targeting ACP. This program, which employs a predatory wasp against ACP, augments other management methods, especially in residential areas in Arizona, California, Louisiana, and Texas, where use of chemical pesticides is undesirable. These citrus health activities directly protect citrus production on 681,300 acres in the United States worth approximately $3.31 billion for the 2020-2021 growing season (National Agricultural Statistics Survey Citrus Fruits 2021 Summary). Without APHIS' activities, citrus exports could be at risk each year. In 2020, the value of U.S. citrus exports totaled approximately $887 million (Foreign Agricultural Service Global Agricultural Trade System).

Tree Fruit and Nursery Stock

APHIS protects a wide variety of specialty crops (particularly tree fruit and citrus) through exotic fruit fly exclusion and detection activities. One of the Agency's key strategies is maintaining a barrier against the northward movement of Mediterranean fruit fly (Medfly). Medfly is one of the most destructive agricultural pests in the world, attacking more than 300 cultivated and wild fruits and vegetables. APHIS and cooperators produced an average of 1.2 billion sterile Medflies per week in FY 2021, to maintain the barrier in Mexico, Guatemala, and Belize, and to release in high-risk areas of California and Florida on a preventative basis. In FY 2021, the international cooperative program continued addressing Medfly outbreaks that began in FY 2019, in the program-designated free areas of Mexico and Guatemala. The program continued providing sterile pupae to cooperators in Mexico for release in areas with outbreaks. Mexico continues to enforce its enhanced quarantine area inside the State of Chiapas, providing its government authority to conduct additional actions necessary to eradicate the Medfly outbreaks, such as maintaining quarantine stations to control the movement of host materials out of the affected area. Overall outbreaks were reduced from 3,109 in FY 2020, to 1,619 in FY 2021, with detection in September in the single digits. APHIS and cooperators also continued the production and release of sterile Medflies and aerial bait spray treatments in the program area of Guatemala. Through these and other efforts, the program focuses on maintaining the Medfly-free area in Belize, Guatemala, and Mexico, at approximately 148,000 square kilometers.

Since 2015, when the first Medfly outbreak occurred in the Caribbean, APHIS has worked with partner countries in the region to improve surveillance for Medfly and other exotic fruit flies. In FY 2021, 20 Caribbean countries participated in this effort with active trapping and surveillance programs. Going forward, APHIS will continue to support surveillance in the Caribbean through the supply of basic trapping supplies and capacity building, to maintain the early warning network for the occurrence of this damaging pest close to U.S. shores.

Domestically, APHIS and State cooperators maintain the cooperative Preventative Release Program, which releases sterile fruit flies in high-risk areas to prevent any introduced Medflies or Mexican fruit flies (Mexflies) from reproducing and establishing a population in the United States. In the Los Angeles area in California, APHIS and cooperators release 120 million sterile Medflies per week, and in 4 port areas in Florida, 83 million per week. APHIS and cooperators also maintain a detection network of more than 160,000 traps in California, Florida, Puerto Rico, Texas, New York, and other States vulnerable to exotic fruit fly incursions. When outbreaks occur, APHIS and cooperators implement immediate emergency response activities to eradicate them. Near the end of FY 2021, APHIS detected Oriental fruit fly in both Florida and California. APHIS implemented enhanced delimiting surveys in Florida and did not make any further detections in that State, but the program confirmed an outbreak in California on September 30, 2021. With support from APHIS, the California Department of Food and Agriculture is implementing eradication activities for the outbreak, with the quarantine covering 94 square miles in a mostly residential area of Santa Clara County. One small farm (eight acres) with tomatoes, peppers, squash, and eggplant is impacted, and APHIS and State officials will work with the grower to determine whether the produce can be moved. APHIS expects the response to be completed within several months.

In FY 2021, the program continued response activities for a Mexfly outbreak in the Lower Rio Grande Valley, the home of the Texas citrus industry, which experiences frequent incursions of the pest. During FY 2021, the size of the quarantined area expanded and contracted several times as new detections occurred on the edges of the response area. APHIS is evaluating this unusual Mexfly outbreak in Cameron County, and a small area of Hidalgo County, that did not follow typical patterns, and determining what activities will help prevent similar outbreaks in the future. In November 2020, APHIS also established a new Mexfly quarantine in Willacy County. APHIS completed quarantine and regulatory activities and released the area in June 2021. At the end of the year, 677 square miles remain under quarantine. APHIS produced and released an average of 180 million sterile Mexflies per week in Texas and northern Mexico in FY 2021, to support eradication and control programs in that region.

APHIS continued to address the European cherry fruit fly (ECFF) in New York during FY 2021. This temperate fruit fly species differs from the tropical species that APHIS more typically detects and eradicates in Florida, Texas or California, by having only one lifecycle per year, whereas other species have many lifecycles per year and can usually be eradicated within several months. APHIS declares an outbreak eradicated if there are no detections within three lifecycles. Additionally, one of ECFF's primary hosts is the honeysuckle plant, which is widespread throughout New York, surrounding States, and Canada. APHIS and cooperators in New York are enforcing quarantine regulations to reduce the risk that it will spread to other cherry-producing areas. The ECFF quarantine expanded in FY 2021, from 2,182 square miles to 3,223 square miles in northwestern New York. Cherry producers can mitigate damage the pest might cause to crops through management practices. Growers also use a systems approach that APHIS developed for the movement of cherries from the quarantine zone to processing plants outside the quarantine area to prevent ECFF from spreading through this movement.

APHIS and cooperators also work to address plum pox virus (PPV), LBAM, NOW and *Phytopthora ramorum (P. ramorum)* to protect producers of tree fruit and other specialty crops. PPV is one of the most devastating viral diseases of stone fruit in the world. On October 17, 2019, USDA declared the United States free of this disease. APHIS conducted a final year of post-eradication monitoring in FY 2021, with no positive samples. The New York State Department of Agriculture and Markets (NYSDAM) will continue to conduct surveillance along the U.S.-Canada border and other fruit-producing areas in New York using Plant Protection Act Section 7721 funds. APHIS continues to support yearly PPV detection surveys through Plant Protection Act Section 7721 to ensure that any PPV would be found if it appeared in other States.

In FY 2021, APHIS and the State of California continued to monitor for LBAM across California and found that the pest had not spread to any new counties. The quarantined area continues to include 22 counties in California. APHIS currently requires entities shipping regulated products out of the quarantined area to take measures to prevent the spread of LBAM to new areas. APHIS is coordinating with State cooperators and trading partners on how best to manage the pest in the future following a decade of experience with the pest and learning that it can be managed effectively through current integrated pest management methods. APHIS is continuing preparation to deregulate the pest domestically and concurrently change import requirements.

In FY 2021, APHIS and cooperators in California and Arizona continued implementation of the Navel Orangeworm (NOW) Areawide program, targeting the NOW moth which is a serious pest of tree nut crops, including almonds, pistachios, and walnuts. Adult moths exploit gaps or splits in the nut shells or hulls where they lay eggs inside the nuts. Newly hatched larvae damage the nuts through feeding, and contaminate the final product with insect waste, and they also transfer secondary fungal invaders that produce potentially poisonous aflatoxins rendering the nut inedible. The pistachio and almond industries provided the initial funding for APHIS to develop sterile insect technology (SIT) for NOW at its Phoenix, Arizona Rearing facility, where APHIS previously reared sterile moths for the successful pink bollworm eradication program. In FY 2020, APHIS and cooperators implemented an area-wide integrated pest management (IPM) program on 1,280 acres that incorporated SIT with grower-managed pheromone mating disruption treatments, coordinated pesticide applications, and field sanitation practices that remove NOW host material. In FY 2021, APHIS and cooperators expanded the acreage by adding 4 new sites (2 pistachio; 2 almond) and doubled the sterile NOW releases to 2,560 acres. APHIS doubled its production and shipping outputs from approximately 750,000 to 1,500,000 sterile moths per day, maintaining the release rate of approximately 585 sterile NOW moths per acre, per day during the growing season). Additionally, APHIS provided sterile insects to researchers from USDA's Agricultural Research Service and University of California, Riverside, for large-scale field trials aiming to guide the NOW program towards the most effective use of SIT within a broad tree-nut IPM program. APHIS and cooperators continue to evaluate the impact of SIT and the other IPM measures on NOW in tree nut crops.

APHIS protects natural resources and nursery stock production and trade by limiting the spread of *P. ramorum* from quarantine areas and affected nurseries through regulatory strategies and adoption of mitigations and changes to cultural practices. *P. ramorum,* which causes sudden oak death, can be moved through host nursery stock and can affect a variety of forest trees. The disease is present in coastal northern California and a small area in Curry County, Oregon. On May 21, 2021, APHIS issued a Federal Order adding Del Norte County, California to the quarantine area. This county connects the quarantined areas in California and Oregon and brings the number of California counties affected to 16. In March 2021, APHIS confirmed that a sample from Curry County, Oregon was positive for *P. ramorum*. This sample was collected outside of the current quarantine area, and APHIS and State officials are updating quarantine regulations to include this new area (as of October 2021). Because of the presence of *P. ramorum* in the surrounding environment, nurseries within the quarantine area that ship interstate must meet annual

certification survey and sampling requirements to prevent the movement of potentially infested material. The program also regulates nurseries outside the quarantine areas which ship host nursery stock interstate from the time they test positive. The nurseries must remain negative for three years to be deregulated. Any positive interstate shipping nurseries must participate in a compliance program using protocols to eliminate the pathogen and implement required mitigations focused on critical control points to reduce the risk of reintroduction. Currently, 18 nurseries are participating in the program. In FY 2021, four nurseries completed the program, and APHIS released them from the program.

Through all these activities, APHIS directly protects nursery stock production worth approximately $1.3 billion in 2019, and tree fruit production worth approximately $1.5 billion in 2020 (APHIS internal analysis based on National Agricultural Statistics Survey data). By preventing pests and diseases like exotic fruit flies, PPV, and *P. ramorum* spreading to new areas, the program indirectly protects approximately $6.8 billion in fruit and nursery stock production (APHIS internal analysis based on National Agricultural Statistics Survey data).

Potatoes

APHIS addresses two major potato pests, pale cyst nematode (PCN) in Idaho and the golden nematode (GN) in New York. APHIS and cooperators have confined each to a relatively small area, and continued survey and regulatory efforts to protect export markets for U.S. potatoes from 36 States. As of September 30, 2021, APHIS processed 9,836 soil samples for the PCN eradication effort in Idaho, and 7,490 samples from detection surveys in other States. PCN has not been detected outside of Idaho, and fumigations of infested fields in Idaho have reduced PCN populations by 99 percent since the pest was first detected in 2006. The program conducted 1,581 regulatory treatments in FY 2021, of farm equipment to prevent the spread of PCN out of regulated areas. There are currently 31 PCN-infested fields and the current regulated area is 7,083 acres, of which 3,446 acres are infested fields, and 3,637 are associated fields. The infested fields are in an 8.5-mile radius that spans a portion of northern Bingham County and southern Bonneville County. In FY 2021, the program conducted eradication treatments on 5 infested fields with a total of 505 acres. In the treated fields that no longer show PCN viability, according to a greenhouse bioassay test, producers can plant potatoes with continued monitoring by APHIS and cooperators to ensure PCN is not present. During the greenhouse bioassay (three rounds of greenhouse bioassay that is the equivalent of three crop cycles), the program tests the viability of any PCN nematodes found in the soil. If the nematodes are found to be non-viable (they fail to reproduce under favorable conditions in the presence of a host), the fields from which they came are eligible to immediately return to potato production at the landowners' discretion. The PCN program requires infested fields that return to potato production to undergo full-field surveys following each of three subsequent potato crops to check for viable PCN populations. These fields remain regulated but benefit from reduced sanitation requirements. In 2021, farmers planted potatoes in two eligible fields; this will be the first crop for one field and the second crop for the other field since before PCN was found on those fields. The fields will be sampled following harvest and analyzed for the presence of viable nematodes. The program is working with USDA's Agricultural Research Service (ARS), the University of Idaho, and other cooperators to develop PCN-resistant potato varieties. APHIS has funded several projects on PCN-resistant potato varieties through Plant Protection Act 7721 for this long-term effort.

In FY 2021, APHIS and New York cooperators continued an effective survey and regulatory program targeting GN with a focus on deregulation of all eligible land. Adopting strategies used in the more recently established PCN program, the GN program is focusing on fields that are either infested or associated with infested fields rather than political boundaries such as townships. APHIS, working closely with the NYSDAM, has removed 1,186,693 acres from the GN regulated area in New York since 2010, allowing several farmers to grow their crops without continued restrictions. APHIS continues to manage an active control and mitigation program to prevent GN from spreading from the remaining 101,955 regulated acres, including 5,945 acres that are infested with GN in portions of 8 New York counties. The program enforces regulations designed to prevent the spread of GN and requires sanitation treatments of on farm equipment and other items moving out of the quarantined area. As of September 30, 2021, the program processed 2,386 soil samples for the GN deregulation effort in New York. The program conducted 349 regulatory treatments of farm and earthmoving equipment to prevent the spread of GN out of regulated areas and certified 24 shipments of potatoes to Canada, totaling 1,432,650 pounds. APHIS has cooperated with USDA's ARS, NYSDAM, and Cornell University to develop GN-resistant potato varieties for several decades. The program is now headquartered at a newly renovated laboratory on the Cornell University campus to continue this and other work on methods of eradicating GN. The program has developed a total of 45 GN-resistant varieties. Because the pest can overcome resistant potato varieties over time, continued development of new GN-resistant varieties is necessary.

Together, these efforts to address PCN and GN protected 300,000 acres of potatoes in Idaho, valued at $981 million in 2020 (National Agricultural Statistics Survey Quick Stats), and 14,300 acres in New York valued at $45 million in 2018 (National Agricultural Statistics Survey 2018 Potatoes Summary). These programs indirectly protect approximately 1 million acres of potato production nationwide worth $2.9 billion in 2020 (APHIS analysis using National Agricultural Statistics Survey data).

Canine Detection and Surveillance

The FY 2021 Appropriations Act provided $3 million for canine detection and surveillance activities. APHIS worked with State cooperators and identified programs that will benefit from the addition of canine teams. Based on these efforts, APHIS is expanding the use of canines for pest surveillance efforts for several programs, including SLF, ACP, Japanese beetles, and invasive mollusks. State officials and farmers in States that do not currently have SLF detections are concerned about the potential for the pest to spread, and APHIS is supporting two canine teams in North Carolina to support early detection of SLF and plans to expand SLF canine teams to additional States in FY 2022. Canine detector dogs can detect ACP in areas with low populations and will enhance ACP monitoring in California and support efforts to detect any HLB present. APHIS supported the continued development of six ACP canine teams by having them work in citrus groves and residential areas in California and initiating research in detecting evidence of ACP following a regulatory incident at a quarantine nursery facility. APHIS procured canines and established training tools for a pilot project on the canine detection of Japanese beetle larvae in Oregon. Japanese beetles are destructive pests that are difficult to control. Use of canine teams to support detection of Japanese beetle larvae has the potential to enhance efforts to prevent the permanent establishment of the pest in Oregon. APHIS also supported the successful cross training of two environmental mollusk detector canine teams in Florida to work in the parcel environment and two canines working in the express courier environment to detect giant African snail and horntail snail in agricultural settings to provide greater flexibility in the use of these teams for priority needs in preventing the reintroduction and spread of destructive, invasive mollusk pests.

7. Tree & Wood Pests

The Tree and Wood Pests (TWP) program protects forests, private working lands, and natural resources from the Asian longhorned beetle (ALB), emerald ash borer (EAB), gypsy moths (the Entomological Society of America has identified a new common name—spongy moth— for European gypsy moth, and APHIS will update its regulations to update the name when a new common name is also identified for Asian gypsy moth), and most recently shot hole borers (SHB). Numerous native hardwood tree species that are common throughout the United States are vulnerable to these pests. APHIS cooperates with Federal, State, Tribal, and local agencies, organizations, and institutions to conduct survey, regulatory, control, and outreach activities in 48 States to manage and, in some cases, eradicate these pests. Conserving forests enhances the economic vitality of rural communities by supporting forest-related industries, recreation and tourism, and the overall livability of communities. The value of forest products that APHIS protects is over $200 billion (U.S. Forest Service 2014). In addition, trees in residential areas lower cooling bills, filter pollutants from the air, decrease runoff, and improve residents' quality of life (U.S. Environmental Protection Agency).

Asian longhorned beetle

The ALB threatens forest resources nationwide, as roughly 30 percent of U.S. trees are potential ALB hosts. The program's ALB eradication activities prevent multi-billion-dollar losses to the maple syrup, timber, tree nursery, trade, and tourism industries.

ALB was first detected in Brooklyn, New York, in August 1996, and was later found in other areas of New York, Illinois, New Jersey, Massachusetts, Ohio, and in FY 2020, Charleston, South Carolina. The program has successfully eradicated ALB from Chicago, Illinois; Islip, Staten Island; Brooklyn, Queens, and Manhattan, New York; Jersey City, Middlesex County, and Union County, New Jersey; and Batavia, Stonelick, and Monroe Townships, Ohio. The program continues to match State and Federal quarantine boundaries and conduct activities in regulated areas of New York, Massachusetts, Ohio, and South Carolina.

APHIS' eradication strategy for ALB includes surveys, regulatory inspections and quarantine restrictions, removal of infested and high-risk trees, and chemical treatment applications. APHIS conducts several cycles of surveys to determine the scope of infestation, establish a quarantine area, identify trees to remove or treat, determine if the pest has spread outside of the established quarantine area, and determine when to release an area from quarantine. A survey cycle is the time it takes to complete a survey of a given area, which can take

several years depending on the size of the area, the density and type of trees in the area, and type of landscape or land use. Four years is the minimum amount of time between that last detection of the pest in a given area and the completed final survey cycle, when APHIS can declare eradication. APHIS provides ongoing support to evaluate new methods and protocols to combat regulated pests and tailors project responses to site-specific conditions, resulting in a more efficient program.

In FY 2019, the program began investigating the use of unmanned aerial systems (UASs) equipped with digital cameras as an additional survey tool. In FY 2020, the program planned to continue the investigation of this tool and its use. Due to travel related COVID-19 restrictions, much of the work did not occur at the planned pace in FY 2020 or FY 2021. The program will continue the study of these UAS in FY 2022. If successful, the Agency could use UASs to examine trees too risky to climb or in otherwise difficult to access areas, improving safety for program personnel and lowering the cost to survey these types of trees.

In FY 2020, APHIS, in cooperation with the South Carolina Clemson University's Department of Plant Industry (DPI), placed 58.6 square miles under quarantine for ALB in South Carolina. This action was made in response to the June 4, 2020, confirmation of ALB at a residence in Charleston County, South Carolina. Following the 'No Significant Impact' results of an environmental assessment, the program will proceed with using an eradication strategy similar to those used for other ALB infestations. The strategy includes removing infested trees and using, with the landowner's permission, a combination of tree removal, tree girdling, and chemical treatment for trees that are within a half-mile radius of an infested tree. If the landowner does not give permission for chemical treatments, the program will continue to survey and inspect trees, and remove or girdle them only if they become infested. As a result of these efforts, APHIS and DPI expanded the quarantine area by 17.8 square miles in Charleston and Dorchester Counties due to the detection of additional infested trees and is currently 76.4 square miles in FY 2021.

Emerald ash borer

Another forest pest of concern is the EAB. In 2002, this pest was first detected in Michigan and has since been detected in 34 additional States and the District of Columbia. In FY 2021, APHIS deregulated the domestic EAB program.

EAB had spread beyond what a regulatory program could control. To more efficiently address EAB, APHIS initiated work towards rulemaking to deregulate EAB and redirect resources for controlling the spread of this devastating pest by expanding the application of biological control for EAB, investigating methods for integrated pest management (IPM) of EAB, and exploring ways to preserve ash resources. On September 19, 2018, APHIS published a proposed rule in the *Federal Register* to remove the EAB Federal domestic quarantine regulations. On December 15, 2020, APHIS published the final rule in the *Federal Register*, which ended the Federal EAB domestic quarantine with an effective date of January 14, 2021. The removal of the domestic quarantine regulations for EAB discontinued the domestic regulatory component of the EAB program.

In FY 2021, the EAB program transitioned from a program with domestic regulatory activities, to a program that focuses on non-regulatory methods for EAB management. These methods include using biological control agents, the continued development of IPM for EAB in urban and forested areas, and collaboration with the U.S. Forest Service on testing the breeding resistance of ash to EAB. APHIS also completed a roll-out communication plan for the EAB deregulation announcement to Congress, key stakeholders, and the public. Along with the communication plan, APHIS provided transition information and training on EAB deregulation, the continuation of the EAB biological control program, and ongoing methods development for EAB mitigation using IPM strategies. This information was disseminated to state plant regulatory officials to ensure the use of proper EAB management procedures.

The program's biological control initiative, which is designed to effectively manage EAB populations, provides a promising strategy, using four species of parasitic stingless wasps for long-term EAB management. In FY 2021, the biocontrol rearing facility in Brighton, Michigan, shipped more than 476,413 parasitoid wasps to State and Tribal cooperators for release at 153 sites in 104 counties in 25 States. To date, the EAB program has cumulatively released a total over 8 million parasitic wasps within 30 States and Washington D.C.

APHIS and cooperators continue to assess the impacts of the parasitic wasps on EAB populations and tree health at release sites and nearby areas. Field evaluations indicate the EAB parasitoid wasps and other EAB natural enemies are protecting sapling ash from EAB. The EAB biological control program has recovered the parasitic wasps in 22 States, demonstrating that the biological control agents are reproducing and becoming established.

In FY 2021, APHIS updated the content of the EAB program website. This content included, revising the EAB program manual, updating the Biological Control Release and Recovery Guidelines on field releases of the EAB parasitic stingless wasps, factsheets, and a new interactive map for known EAB infested counties. APHIS also continued public outreach on preventing the improper movement of firewood through the "Don't Move Firewood" website.

Gypsy Moths

European Gypsy Moth (EGM) is a destructive pest for some of North America's most beautiful and popular deciduous trees, including maples, oaks, and elms. This pest is established in all or parts of 20 northeastern, mid-Atlantic, and Midwestern States, as well as the District of Columbia. APHIS and State cooperators conduct regulatory activities in the quarantine area to prevent the human-assisted spread of the pest and the establishment of gypsy moth populations in non-quarantine areas. These efforts include inspection, treatment, and certification of regulated articles for movement from quarantine to non-quarantine (non-infested) areas. The program issues compliance agreements and conducts public outreach to ensure that businesses and residents in infested areas comply with regulations to prevent long-distance spread of the pest. EGM also spreads naturally into areas bordering the quarantined zone. APHIS monitors the transition zone along the 1,200-mile-long border of the quarantine area to ensure that newly infested areas are added to the quarantined zone and regulated effectively. Working with the U.S. Forest Service (USFS) and the EGM Slow-the-Spread Foundation, APHIS and cooperators have greatly reduced the rate of EGM's spread and eradicated isolated populations, preventing this pest from becoming a larger issue. In FY 2021, APHIS and State cooperators continued to conduct EGM surveys to detect, delimit, and eradicate any isolated populations.

Asian gypsy moth (AGM) is an invasive threat to North American urban and natural forests because of its broad host range, demonstrated damage potential, and its ability to compromise an effective management system that has taken nearly 100 years of research to assemble. AGM poses a particular risk to western areas because of its ability to hitchhike on shipping vessels from Asia. APHIS supports the exclusion of AGM through negotiations and support of offshore ship inspection and certification. Due to an increase in AGM egg masses that were intercepted on ships in 2012, APHIS, the Department of Homeland Security's Customs and Border Protection, and the Canada Food Inspection Agency conducted increased outreach to the maritime shipping trade over the last several years.

In FY 2021, APHIS and State cooperators performed eradication treatments for Asian gypsy moth at a single location in Washington and for European gypsy moth at a single location in Minnesota. The program and its partners conducted delimiting surveys in California, Oregon, and Washington for AGM that were detected in FY 2018, FY 2019, and FY 2020.

Shot Hole Borers

Various non-native shot hole borers have been detected in several States and hosts, including numerous woody trees in forests and urban landscapes, cultivated tea, and avocado. Shot hole borers are also called ambrosia beetles because they have a symbiotic relationship with ambrosia fungi, which they vector from tree to tree. The fungi disrupt the vascular system of impacted trees. In recent years the polyphagous and Kuroshio shot hole borers and diseases they cause have been devastating riparian habitats in southern California and urban areas in other parts of California. At California's request, APHIS and USFS helped establish a working group, led by USFS, with the goal of strategically addressing the shot hole borers in California.

In FY 2021, APHIS continued to provide support for projects addressing the management of shot hole borers in California. As a result, APHIS identified several semiochemicals that could be used as attractants and repellents for shot hole borers. These semiochemicals come in the form of a pheromone or other chemical that conveys a signal in an attempt to modify the behavior of the shot hole borers. APHIS also supported biological control efforts to determine host specificity of parasitoids on SHB populations. APHIS plans to continue the work on these biological control projects in FY 2022.

Selected Examples of Recent Progress – Wildlife Services:

1. Wildlife Damage Management

APHIS provides Federal leadership and expertise to resolve wildlife conflicts. Specifically, APHIS works to protect agriculture, human health and safety, property, and natural resources from disease and damage caused by wildlife. Cooperator participation and support is critical to the success of the Wildlife Damage Management Program.

APHIS' wildlife biologists coordinate activities in every State and in three Territories with Federal, State and Territorial agencies, Tribes, local governments, private homeowners, farmers, ranchers, and other property owners to protect agriculture, human health and safety, natural resources, and property.

Agriculture

Feral swine are a harmful and destructive invasive species which cause significant damage to property, agricultural animal health and crops, natural resources, public health and native ecosystems. To address this problem, APHIS initiated the National Feral Swine Damage Management Program in 2014, with the goal of reducing damage and risk to agriculture, natural resources, property, animal health, and human health and safety in the United States. Initial estimates cited damages from feral swine to exceed $1.5 billion annually; however, in recent years the Agency has collected more data to include additional resources impacted by feral swine and now estimates damages could exceed $2.5 billion per year.

The Agency's strategy is to provide resources and expertise at a National level, while allowing flexibility to manage operational activities from a local or State perspective. Collaboration with other Federal, State, Tribal, and local entities, universities, and organizations, along with landowners and others experiencing damage, is essential for controlling the spread of feral swine and suppressing or, where possible, eliminating populations. In FY 2021, APHIS conducted cooperative, cost-share operational feral swine programs on approximately 188 million acres in 37 States and 3 Territories, directly protecting 127 threatened and endangered species and habitats. APHIS considers feral swine eliminated from a State after the State is able to complete two years of detection status with no additional sightings. Over the past seven years of the program, APHIS and partners successfully eliminated feral swine from five States (Idaho, Maine, Maryland, New Jersey, and New York), and moved six States (Colorado, Iowa, Minnesota, Vermont, Washington, and Wisconsin) to detection status. APHIS is expediting its feral swine eradication efforts in Puerto Rico with the goal of substantially reducing rural feral swine populations from the island within 18 months. APHIS is conducting enhanced operational population control and African swine fever surveillance activities in Puerto Rico with biologists deploying monthly. In addition to feral swine removal and sampling activities, APHIS is conducting outreach and stakeholder engagement to ensure continuing partnership and cooperation with the local communities.

In collaboration with our partners, APHIS conducted disease surveillance and monitoring, and assessed disease risk, to protect the health of domestic swine, other livestock, and people by collecting a variety of samples from approximately 6,300 feral swine during FY 2021. Other activities include: conducting several economic analyses to better assess feral swine damage to agriculture, livestock, and limited resource farmers; collecting and analyzing environmental DNA to detect feral swine presence through genetic markers in water; and maintaining a National Feral Swine Genetic Archive to assess the movement of feral swine and determine source populations. Finally, the Agency, along with university partners, is working to develop a feral swine toxicant to help control feral swine populations. In FY 2020, the Agency continued refinements to the sodium nitrite bait and baiting strategies, which will allow the maximum efficacy on feral swine while reducing risks to nontarget species. Field trials were conducted in FY 2021, and results will be analyzed and written up for submission and consideration for registration. APHIS will continue efforts to have a toxicant bait registered with the Environmental Protection Agency (EPA) by FY 2023, however the timeframe is dependent on EPA review times and potential further required studies.

While predators serve a vital role in ecosystems, they pose challenges for agriculture producers in the United States. Livestock losses attributed to predators cost producers approximately $232 million annually, according to the most recent surveys by National Agriculture Statistics Service. APHIS prevents and reduces livestock predation through technical assistance (education and outreach) to producers, and operational management programs. In FY 2021, APHIS assisted more than 23,000 livestock producers. APHIS and cooperators often share the cost of APHIS-conducted livestock protection activities. In FY 2021, APHIS conducted 31 predator management workshops attended by more than 1,200 individuals from 10 States.

In collaboration with State wildlife agencies, the U.S. Fish and Wildlife Service (FWS), and Tribes, APHIS conducts wolf damage management programs, and provides additional services to capture and mark wolves for research and population monitoring purposes. Upon request, and with appropriate authorizations, APHIS may remove depredating wolves to resolve conflicts. In FY 2021, livestock producers reported 617 animals killed by wolves. APHIS responded by providing a combination of direct control and technical assistance for wolf conflict to more than 6,500 stakeholders. APHIS provides technical assistance to producers on preventative measures to supplement direct control activities, which producers then implement themselves.

Nonlethal wildlife damage management often involves modifying human activities and practices, manipulating habitats, and other actions to change the behavior of wildlife or reduce its presence and impact. In FY 2021, APHIS promoted nonlethal methods to cooperators in the form of range riding, fladry, fencing, and husbandry practices. APHIS also implemented a new program to increase and expand use of nonlethal methods in 13 States to protect livestock from large carnivore predators. In Wyoming, over 90 percent of APHIS cooperators used some form of nonlethal livestock protection at sites experiencing damage from predators such as black bears, coyotes, cougars, and gray wolves. APHIS plans to continue researching, using, and promoting nonlethal livestock protection techniques for cooperators in FY 2022.

Black vulture populations have increased in both abundance and range during the past 30 years. The Migratory Bird Treaty Act, enforced by the FWS, protects black vultures, which prey on livestock. Under the Migratory Treaty Bird Act, the public cannot kill, destroy, or remove migratory birds, their nests, or their eggs without a Migratory Bird Depredation Permit from FWS. APHIS works collaboratively with FWS recommending short and long-term options to provide producers with relief from damage. If removing vultures is necessary, APHIS assists producers in obtaining a depredation permit from FWS. With cooperator funding, APHIS conducted direct control in 23 States in FY 2021, removing approximately 16,715 black vultures and dispersing approximately 75,010 black vultures to protect agriculture, human health and safety, and property (including buildings, cattle, vehicles, utilities, and sheep, among others), in addition to providing technical assistance to guide private management efforts.

Fish-eating birds, especially double-crested cormorants, can have major impacts on the U.S. aquaculture industry. According to the National Marine Fisheries Service, annual aquaculture production in the United States is valued at $1.5 billion (USDA, National Agricultural Statistics Service), and research from the National Institute of Food and Agriculture estimates that the catfish aquaculture industry incurs an average loss of $64.7 million in costs associated with bird damage and damage prevention (losses ranged from $33.5 to $92.6 million). APHIS provides operational and technical assistance to aquaculture producers, particularly on roost management of double-crested cormorant, harassment of fish-eating birds on catfish facilities, and helping farmers acquire depredation permits under the Migratory Bird Treaty Act. Work is concentrated at lower Mississippi valley and southeastern aquaculture facilities in the fall and winter. During this timeframe in FY 2021, APHIS removed 9,007 and dispersed 208,173 double-crested cormorants to protect aquaculture and other resources.

Human Health and Safety

Rabies is one of the oldest known viral diseases, yet it remains a significant wildlife management and public health challenge. APHIS is the lead Federal agency to prevent the further spread of wildlife rabies, with the goal of eliminating rabies in carnivores in the United States using oral rabies vaccination (ORV). In FY 2021, APHIS and cooperators distributed more than 9 million ORV baits to combat raccoon rabies in 16 eastern States and more than 1.1 million in Texas to prevent the reemergence of rabies in coyotes and gray foxes along the border with Mexico. This is a continuation of the strategic distribution of more than 226 million baits since the program began in 1995. These programs have eliminated canine rabies in coyotes, resulting in the United States being declared canine rabies free in 2007; the elimination of gray fox rabies from Texas (no cases since 2013); and containment of raccoon rabies in the eastern United States. An internal economic analysis projected a $1.1 billion economic impact over 22 years in the absence of the APHIS-led ORV program. Since 2005, APHIS has conducted more than 114,000 tests using a rapid rabies diagnostic field procedure, documenting more than 2,300 rabies cases that, in turn, facilitated science-based wildlife rabies management responses. In FY 2021, APHIS collected more than 4,400 raccoon blood samples in 14 States to estimate rabies antibody levels in ORV zones. APHIS also coordinates with international partners through the North American Rabies Management Plan – which includes the United States, Canada, Mexico and the Navajo Nation – on information transfer, prevention and control, surveillance and monitoring, and research. In FY 2021, APHIS continued collaborative rabies research focused on six main objectives: evaluation of biomarkers for determining vaccine bait uptake by raccoons; evaluation and harmonization of rabies laboratory diagnostic platforms; improvements of vaccines, baits, and attractants to enhance ORV; refinement of baiting strategies in suburban and urban habitats; development of an ORV program in Puerto Rico; and host ecology, genetics, and modeling to enhance surveillance and ORV.

Increased air traffic, faster and quieter aircraft, increased populations of some Federally protected species of birds, and other wildlife all impact the safety of aircraft, particularly in rural communities. Since 1988, bird and other wildlife strikes have destroyed more than 273 civilian and military aircraft and killed 296 people globally. With funding provided by airports, and other Federal, State and local cooperators, APHIS works to reduce wildlife strike hazards to protect people and aircraft. APHIS estimates the annual value of damage prevented from wildlife strikes

exceeds $100 million. In FY 2021, APHIS mitigated wildlife hazards by assisting nearly 865 civil and military airports worldwide which included 160 Department of Defense airports in domestic and international settings.

Property

Beaver damage in the southeastern United States has exceeded $3 billion during the last 40 years. To address and prevent costly beaver damage, APHIS provides assistance by removing beaver dams that clog waterways and flood roads and timber sources. Every dollar invested in beaver damage management protects approximately $45 in natural resources on average. With cooperator funding, APHIS conducted beaver damage management activities in 41 States in FY 2021.

Natural Resources

Non-native, invasive animals can devastate ecosystems. APHIS focuses on eliminating damage from brown tree snakes (BTS), feral swine, nutria, and other invasive species. In Guam, BTS have eliminated most species of native birds, lizards, and bats, and continue to cause power outages leading to economic losses and public safety problems. In FY 2021, with funding other Federal departments and the Guam Department of Agriculture, APHIS continued the multi-agency partnership to prevent BTS movement from Guam to other Pacific Islands, Hawaii, and the continental United States. It is through this partnership that the Agency intercepted approximately 15,000 BTS around ports of exit on Guam during FY 2021.

Nutria damage wetlands, agricultural crops, and structural foundations such as dikes and roads. This South American rodent has destroyed tens of thousands of acres of marshlands critical to the health of the Chesapeake Bay. APHIS led the first large-scale North American effort to eradicate a mainland nutria population in the Chesapeake Bay through agreements with the FWS and other cooperators. Between 2002 and 2015, APHIS, in cooperation with Federal and State agencies and private landowners, removed nutria from more than 250,000 acres of coastal marshland on the Delmarva Peninsula (encompassing Maryland's eastern shore, lower Delaware and Virginia's eastern shore). APHIS continues to monitor the area to remove remaining nutria and conduct rigorous systematic surveys. In FY 2021, APHIS surveyed 1,815 miles (including by foot, boat, and canine) in 18 watersheds. The area remains nutria-free since 2015. The elimination of nutria from the Delmarva Peninsula has protected remaining wetlands and the culturally, ecologically, and economically important fish and wildlife that depend on them. APHIS also partnered with Federal and State agencies in FY 2021, to confirm the current distribution of nutria in Virginia north of the James River and begin eradication efforts in eastern Virginia. This project is funded by FWS' Ecological Services and the Mid-Atlantic Panel on Aquatic Invasive Species.

APHIS partners with various Federal and State resource agencies, private organizations, and community groups to conduct damage management benefiting protected bird species by preventing predation from other birds and mammals to nests, eggs, and juveniles. APHIS has estimated damages or damage threats to birds, including threatened and endangered species, to be more than $70 million annually. Approximately 6,500 projects across 43 States, Guam, and Virgin Islands, benefitted protected species in FY 2021.

2. Wildlife Services Methods Development

Wildlife Services uses Methods Development (WSMD) funding to research effective and socially responsible methods and information to manage conflicts between people and wildlife to protect agriculture, natural resources, and human health and safety. WSMD provides research in support of the Agency's project areas such as feral swine and other invasive species, rabies, wildlife disease, and population and reproduction control, among others. APHIS' National Wildlife Research Center (NWRC) provides the only dedicated Federal leadership in developing methods to manage wildlife-related damage problems. Scientists work on a variety of wildlife damage management problems through discovery, development, and technology transfer and use of products and management methods to Wildlife Services operational programs as well as public and private partners. The majority of NWRC studies involve partnerships with State and Federal agencies, non-governmental organizations, universities, tribal governments, and private sector businesses. In FY 2021, NWRC initiated 85 new studies and published 152 scientific papers, book chapters and technical reports in 83 professional scientific journals.

Agriculture

The WSMD Program develops methods to safeguard livestock from predators, manage invasive species, and minimize the impact of wildlife diseases. The following are examples of efforts to protect American agriculture,

which includes protecting resources related to farming and ranching such as livestock, crops, animal products and other associated industries.

The APHIS National Feral Swine Damage Management Program was created in 2014, to protect agricultural and natural resources, property, animal health, and human health and safety from feral swine damage. NWRC improves the efficiency of existing control methods and develops new strategies to ensure the program and partners use safe, acceptable, and science-based management tools. In FY 2021, APHIS continued efforts to develop a feral swine toxicant, optimize control methods, monitor feral swine populations, assess damage to agriculture and natural resources, and understand public perceptions related to feral swine.

A toxicant and delivery system will serve as a critical component to reduce feral swine populations and the damage they cause in the long-term. In FY 2021, the Agency continued refinements to the bait and baiting strategies, which will allow the maximum efficacy on feral swine while reducing risks to nontarget species. Field trials with a new toxic bait formulation were conducted in Texas and Alabama to evaluate the lethality and non-target hazards of the toxic bait. Data from the field trials will be submitted to the Environmental Protection Agency (EPA) as part of the toxicant registration application. Currently, APHIS expects to submit an application to the EPA during 2022, and anticipates a final decision from EPA by late 2024 or early 2025, however the timeframe is dependent on EPA review times and potential further required studies.

The Agency also partnered with the Texas A&M AgriLife Extension Service to survey more than 37,000 resident and nonresident licensed hunters regarding their tolerance for feral swine. Tolerance toward wildlife is defined as a person's ability and willingness to accept the costs or negative aspects of living with wildlife and desire for positive effects that arise from interactions with wildlife. The results will help inform the long-term strategy of addressing the feral swine population in the State. Results of this research are also useful in expanding current knowledge about human tolerance for wildlife, including those species that are non-native and invasive, and in identifying important factors affecting how hunters perceive and interact with feral swine.

African swine fever (ASF) can significantly impact swine producers, their communities, and the economy. Feral swine can carry and spread ASF. NWRC is working in collaboration with other partners to develop a model to predict ASF transmission in feral swine. The model considers many factors, including feral swine density, movement, interaction and contact between swine, culling capacity (i.e., how many swine would need to be removed daily based on local conditions to prevent disease transmission), and time (i.e., how long it has been between the ASF introduction and initial detection). The final product of this modeling effort is an application whereby users can enter values for the various factors and receive an optimal culling radius for disease elimination. The application also reveals the size of the culling area and the number of feral swine targeted for removal under different management conditions to aid in ASF elimination preparedness and planning.

Black vulture populations are increasing and expanding their range in North America. This, combined with their ability to adapt well to human dominated landscapes, has contributed to increased human–vulture conflicts. In 2021, APHIS summarized the status and trends in black vulture conflicts, reviewed available management strategies, identified knowledge gaps, and provided recommendations to enhance the management and understanding of this species. Agency researchers also assessed the role of human-based and natural landscape features on vulture roost selection to inform managers where current and future roosts may likely occur. Data from APHIS-Wildlife Services' Program Data Reports found vulture conflicts with livestock are increasing, as well as damages associated with private and public property, and collisions between vultures and aircraft. To better understand vulture impacts to livestock, Agency personnel are partnering with Purdue University to survey livestock producers in the United States about their experiences with vultures and vulture damage. They are also conducting necropsies on donated calf carcasses to verify whether the animals were killed or scavenged by vultures which may have implications for depredation permits.

In FY 2020 and 2021, APHIS received additional funding for nonlethal methods to assist livestock producers with managing depredation by large predators. The funds were primarily utilized in 13 States: Arizona, California, Colorado, Idaho, Michigan, Minnesota, Montana, Nevada, New Mexico, Oregon, Washington, Wisconsin, and Wyoming. Most States used funding to install fencing to exclude predators from livestock pastures (47 projects) or to hire range riders to protect livestock from predators by providing a human presence with the livestock (33 projects). Agency researchers evaluated the effectiveness of these and other techniques to reduce conflicts, and surveyed producers about their perceptions of the tools' effectiveness. Results suggest that nonlethal tools, especially range riding and fencing, reduce depredations on livestock. Among nonlethal methods for reducing predation, the use of range riders was perceived to be effective or somewhat effective by the greatest percentage of

producers, followed by electric fencing, guardian animals, nonelectric permanent fencing, and fladry. Approximately 56 percent of participating producers reported their level of interest in nonlethal methods increased after participating in the program.

Natural Resources

Invasive and feral species can have profound and transformative effects on native plants, animals, and ecosystems. APHIS aids in designing, implementing, and evaluating wildlife damage management activities on islands and other sensitive habitats; coordinates and provides guidance on the legal use and registration of vertebrate control methods; and assists in protecting reintroduced or recovering native species.

In 2003, acetaminophen was registered as a pesticide by the EPA for use in brown tree snake control in Guam. Over the years, the label has been amended to allow modifications. More recently, APHIS conducted additional research to evaluate the effectiveness of certain modifications. Recent Agency research determined that some snakes grow much larger than the average and research indicates that these larger snakes require higher doses to ensure lethality. In FY 2021, the label was amended again with EPA to allow a higher dose to be applied per bait when targeting unusually large brown tree snakes and to permit more flexibility in bait station spacing. These label modifications will allow for a broader range of application scenarios and more effective targeting of these invasive snakes.

Riparian habitats play a vital role in filtering pollutants and sediment from water, thus improving water quality and ensuring adequate nutrient cycling. Riparian areas also provide valuable habitat for plants and animals, surface water storage, agriculture and livestock production, and recreational opportunities for people. Invasive feral swine may significantly impact the functionality and quality of riparian ecosystems. APHIS and university scientists compared the water quality of streams from watersheds with and without dense feral swine populations. Results showed that feral swine introduced fecal material and bacteria to watersheds. Streams had elevated dissolved organic carbon and total nitrogen attributable to feral swine feces. Furthermore, watersheds with feral swine had *Escherichia coli* values that were 40 times higher than watersheds without feral swine. This study is the first to definitively link feral swine presence to the introduction of fecal material and waterborne pathogens in watersheds.

In FY 2021, APHIS continued to aid the Bureau of Land Management (BLM) and other agencies seeking solutions to resolve damage from overabundant feral horse populations. The Agency shared proposed protocols for the use of GonaCon-Equine, an immunocontraceptive vaccine developed by NWRC. The vaccine and associated protocols help to suppress fertility in feral horse populations without the need for long-term holding and/or removal of animals. Other EPA-approved immunocontraceptive vaccines require capturing and holding animals for an initial vaccination plus a booster before being released, followed by yearly boosters. Because GonaCon does not require an immediate booster, animals are held for significantly less time. Furthermore, GonaCon does not need to be applied every year so horse roundups and treatments can be spread across several years. APHIS continues to work with agencies to customize procedures for their specific management areas using this existing tool, while continuing to pursue the development of single-shot contraceptive vaccines.

Chronic wasting disease (CWD) is found in 25 States and impacts numerous wild and captive populations of deer and elk. Concerns about the impacts of diseases, such as CWD, on the U.S. livestock industry, and captive and wild cervid populations continues to prompt research studies on preventing disease outbreaks and minimizing the transmission of diseases between wildlife and livestock. In FY 2021, NWRC established cooperative agreements with universities to enhance existing CWD diagnostic tools; assess the movement of prions between wild and captive cervid herds; determine the potential role of scavengers, such as crows and coyotes, in the spread of CWD; and explore the use of environmental monitoring to detect CWD. APHIS is also developing a prion sample archive to retain samples from APHIS and State CWD management efforts for use in diagnostic development and future research.

Human Health and Safety

NWRC develops and evaluates new tools and techniques to address human health and safety issues related to wildlife disease.

Since 1995, the Agency has been working cooperatively with Federal, State, and local agencies; universities; and other partners to prevent the spread and reduce the prevalence of rabies in specific wildlife populations. Each year, APHIS and cooperators distribute more than 8 million oral rabies vaccine baits across 17 States to create vaccination zones that prevent the spread of raccoon rabies virus. NWRC's development of new tools and techniques and its

evaluation of disease management strategies supports the WS National Rabies Management Program and its mission to prevent the spread of wildlife rabies and protect U.S. public health, agriculture, and natural resources. In Puerto Rico, mongooses account for 40 to 80 percent of the reported rabies cases. Starting in 2011, APHIS began efforts to develop a rabies surveillance and control program for mongooses in Puerto Rico by determining the mongoose population density, home range behavior and habitat use, exposures to rabies virus, effective bait formulations and delivery mechanisms, in addition to potential nontarget hazards and public health and environmental risks. In 2021, APHIS evaluated the use of the ONRAB vaccine and bait for controlling rabies in mongoose. The results have allowed researchers recommend modifications to the baits' structure and shape to improve bait update by mongooses.

The COVID-19 pandemic, caused by the novel coronavirus SARS-CoV-2, highlights the substantial public health, economic, and societal consequences of virus spillover from a wildlife reservoir. Studying the susceptibility of certain mammals to SARS-CoV-2 helps to identify species that may serve as reservoirs or hosts for the virus, as well as understand the origin of the virus, and predict its impacts on wildlife and the risks of cross-species transmission. In FY 2021, the Agency conducted surveillance in wildlife as part of One Health investigations involving the Centers for Disease Control and Prevention, the U.S. Geological Survey, and State Departments of Agriculture, Natural Resources, and Health. More than 200 wild and free-roaming animals near SARS-CoV-2 infected mink farms in Oregon, Michigan, Utah, and Wisconsin were captured and sampled by APHIS Wildlife Services biologists. Species included raccoons, minks, skunks, opossums, rodents, and feral cats. Surveillance results showed eleven domestic mink escapees from Utah and one from Oregon tested positive for antibodies to SARS-CoV-2. Further testing showed several of the mink not only had SARS-CoV-2 antibodies but also were positive for the SARS-CoV-2 virus. One wild mink from Utah also tested positive for the SARS-CoV-2 virus. This was the first free-ranging native wild animal confirmed with SARS-CoV-2 in the United States. The Agency also collected and tested samples for exposure to SARS-CoV-2 from white-tailed deer in Illinois, Michigan, New York, and Pennsylvania. Antibodies to SARS-CoV-2 were detected in 33 percent of the 481 samples collected. None of the deer populations surveyed showed signs of clinical illness associated with SARS-CoV-2. In FY 2022, APHIS plans to continue its collaborative monitoring and surveillance efforts for SARS-CoV-2 in wildlife and other animals as part of the American Rescue Plan Act to better understand the impacts of the virus on animal and human health.

Partnerships and Technology Transfer

The Federal Technology Transfer Act of 1986 allows Federal laboratories and industry to form partnerships that enhance the development of new technologies and move them to the marketplace to meet public and consumer needs. APHIS regularly partners with Federal and State entities, private companies, international groups, and non-governmental organizations to encourage the development and licensing of new wildlife damage management products to manage wildlife conflicts. Most NWRC technology development activity and partnerships involve partnerships with universities and small businesses. Technologies pursued include development of devices, baits, formulations, and vaccines. In FY 2021, NWRC furthered its partnership efforts to make sure its research and development activities had a path for commercial development and operational management with the following: two Confidentiality Agreements, four Data Sharing Agreements, six Material Transfer Agreements, eight Material Transfer Research Agreements, two Cooperative Research and Development Agreements, one Invention Disclosure, three Provisional Patent Applications, four Utility Patent Applications, one U.S. patent issued, and eight foreign patents issued.

NWRC collaborates on average with 150 unique entities each year. Since 2013, these collaborations have led to nearly 400 intellectual property agreements, including 30 Cooperative Research and Development Agreements. Examples of recently patented and licensed NWRC technologies include a frontal vehicle illumination system to reduce animal-vehicle collisions and several repellents to protect agricultural crops and structures from wildlife damage.

Selected Examples of Recent Progress – Regulatory Enforcement:

1. Animal and Plant Health Regulatory Enforcement

Animal and Plant Health Regulatory Enforcement (APHRE) provides investigative, enforcement, and regulatory support services to the Agency's four regulatory programs and Agricultural Quarantine Inspection (AQI) activities carried out in partnership with the Department of Homeland Security's U.S. Customs and Border Protection (CBP). APHRE investigates alleged violations of Federal laws under its jurisdiction and pursues appropriate enforcement actions through administrative, civil, or criminal procedures.

In FY 2021, APHRE initiated 1,253 new cases, issued 466 official warnings, issued 491 pre-litigation settlements resulting in the collection of $883,525 in stipulated penalties, and obtained administrative orders assessing $48,100 in civil penalties. The Agency considers a case complete after it issues an official warning or voluntary settlement to which the recipient agrees, finds there is insufficient evidence to support enforcement action, or refers a case to the USDA's Office of the General Counsel (OGC). Highlights from APHRE are described below.

To support animal health, APHRE initiated 145 cases, issued 97 official warnings, issued 35 pre-litigation settlements resulting in the collection of $61,407 in stipulated penalties, and obtained 2 administrative orders assessing $41,000 in civil penalties against persons for violations of laws aimed at protecting animal health and American agriculture. In one case, an accredited veterinarian agreed to pay a civil penalty of $5,000 for failing to accurately complete Interstate Certificates of Veterinary Inspection that were used to transport equine across state lines. In another matter, a subject agreed to pay a civil penalty of $5,000 for transporting a horse that exhibited clinical signs of illness across state lines without the proper documentation, in violation of the Animal Health Protection Act.

To support plant health, APHRE initiated 41 cases, issued 18 official warnings, and negotiated 16 pre-litigation settlement agreements resulting in the collection of $46,906 in stipulated penalties. APHRE negotiated two pre-litigation settlements, one for $8,750 and one for $5,000, in two separate cases, relating to importation violations of the Plant Protection Act. In another case, APHRE negotiated a pre-litigation settlement for $3,750 for violations of the Plant Protection Act that involved the importation of prohibited fruit by a food manufacturer.

To support AQI activities, APHRE initiated 949 cases, issued 293 official warnings, and issued 437 pre-litigation settlement agreements resulting in the collection of $757,012 in stipulated penalties. In one case, APHRE negotiated a pre-litigation settlement agreement in the amount of $65,500 to resolve numerous alleged violations of the Plant Protection Act and the Animal Health Protection Act relating to the handling of regulated garbage. In another case, APHRE negotiated a pre-litigation settlement agreement with a major airline for $37,500 to resolve numerous alleged violations of the Plant Protection Act and the Animal Health Protection Act relating to the breach of agricultural holds for inspection placed by CBP.

To support animal welfare, APHRE initiated 118 cases for alleged violations of the Animal Welfare Act (AWA), issued 58 official warnings, issued 3 pre-litigation settlements resulting in the collection of $18,200 in stipulated penalties, and obtained 8 administrative orders. In one case, working with the OGC, APHRE entered into a Consent Decision and Order relating to multiple violations of the AWA, which suspended the respondent's AWA license for a term of five years. In two other cases, APHRE obtained administrative orders against individuals relating to alleged AWA violations, permanently revoking both respondent's AWA licenses. In two other cases, APHRE worked closely with OGC and the Department of Justice, Environment and Natural Resources Division to pursue enforcement action relating to multiple alleged violations of the AWA. The collective efforts resulted in 21-day license suspensions and swift administrative and civil enforcement.

To support horse protection, APHRE worked with OGC to obtain 9 administrative orders assessing $7,100 in civil penalties and the disqualification, of 4 persons, from participating in activities regulated under the Horse Protection Act. The disqualification period spans over a total of six years for these offenses. In one case involving horse soring activities during a competitive performance show, a subject consented to a $6,000 civil penalty and a 48-month disqualification. In another matter, a subject consented to an 18-month disqualification.

APHRE will continue to post copies of enforcement records (such as initial decision and orders, default decisions, consent decisions, and administrative complaints) on its website: https://www.aphis.usda.gov/aphis/ourfocus/animalwelfare/actions.

2. Biotechnology Regulatory Services

APHIS' biotechnology regulatory system safeguards American agriculture and agriculturally important resources and fosters innovative research and development. Under the Plant Protection Act's (PPA) authority, APHIS oversees certain organisms developed using genetic engineering that may pose a plausible pest risk to plants. The regulations allow APHIS to place requirements on field testing, importation, and interstate movement of regulated organisms until the Agency determines the organisms are unlikely to pose a plant pest risk.

Regulatory Changes

In FY 2021, APHIS fully implemented its revised biotechnology regulations (7 CFR part 340), which were published in May 2020, with a phased implementation. The revised regulations allow APHIS to regulate organisms developed using genetic engineering with greater precision and reduce regulatory burden for developers of organisms that are unlikely to pose plant pest risks. To fully implement the revised regulations, the Agency retired the petition process and fully implemented the Regulatory Status Review (RSR) process; retired the notification process and fully implemented a revised process for permit authorizations; developed guidance documents to assist applicants through the regulatory transition; updated internal processes for scientific review and compliance inspections to align with the revised rule; and held workshops and presentations with stakeholders and international representatives and partners to facilitate understanding and acceptance of the new regulatory approach.

Authorizations

Developers must obtain an authorization for the movement — importation, interstate movement, or environmental release — of regulated organisms. As part of the authorization process, APHIS conducts scientific assessments to determine potential plant pest risks and may impose specific permit conditions to ensure that the regulated organism stays confined. In FY 2021, APHIS retired portions of the legacy authorization process and replaced them with a revised process for permit authorizations under the revised regulations that promotes consistency in the review and oversight of organisms developed using genetic engineering. In FY 2021, APHIS processed over 750 authorizations in 48 states for nearly 100 different species of organisms. The Agency completed 84 percent of FY 2021 authorizations within target timeframes. APHIS also successfully modernized its information technology infrastructure with the launch of the BRS eFile system for receiving and processing permit applications. APHIS issued 304 biotechnology authorizations in the new system.

Regulatory Review for Nonregulated Status

Prior to adopting the revised regulations, biotechnology developers could request, or petition, APHIS to remove their organism developed using genetic engineering from regulation if they provided scientific information that demonstrated their organism did not pose an increased plant pest risk relative to the parental organism from which it was derived. In FY 2021, APHIS made determinations of nonregulated status in response to 6 petitions, including corn, cotton, petunia, and apple varieties, bringing the cumulative total of APHIS determinations to 135. APHIS continues to review eight remaining petitions for nonregulated status submitted under the legacy regulations.

Under the revised regulations, developers may now request a RSR of a plant developed using genetic engineering. The RSR process evaluates whether a plant requires oversight based on the characteristics of the modified plant itself, rather than on whether the plant was modified using a plant pest, as in the legacy regulations. APHIS implemented the new RSR process for six crops in April 2021 (corn, soybean, cotton, potato, tomato, and alfalfa), and fully implemented the process for all other crops in October 2021. APHIS received seven RSR requests in FY 2021, which it will process within the regulatory specified timeframes. APHIS completed the implementation of the new Confirmation Request process that allows developers to request a confirmation from APHIS that a modified plant qualifies for an exemption and is not subject to the regulations. In FY 2021, APHIS used this new process to respond to 12 Confirmation Requests, resulting in 6 letters confirming exempt status that were issued, on average, within 44 days of receiving a complete request, which is 76 days faster than the timeframe specified in the revised regulations.

Compliance and Inspections

APHIS ensures developers, growers, and other individuals, organizations and universities take steps to prevent unauthorized releases of regulated organisms. The Agency requires developers to comply with permit requirements, to help ensure that regulated organisms remain confined and do not persist in the environment. To ensure that activities meet the requirements outlined in the permit, APHIS inspects fields, equipment, and other associated facilities. In FY 2021, APHIS and its State partners (authorized by APHIS) conducted 708 inspections. The virtual inspection process, launched in FY 2018, proved critical for managing travel restrictions imposed during the COVID-19 pandemic, enabling APHIS to complete 88 percent of inspections virtually. The Agency was able to effectively determine compliance of trials through interviews with developers and by using technology to virtually monitor and evaluate field trials. Approximately 98 percent of field trials inspected were in compliance with APHIS biotechnology regulations and permit requirements.

Following the 2008 and 2015 recommendations from the USDA's Office of the Inspector General (OIG), APHIS continues to take steps to strengthen its oversight of regulated field trials. In FY 2021, APHIS continued to refine a risk-based inspection selection process and implemented compliance oversight under the revised regulations. The Agency maintained a tracking system for authorizations under the legacy and revised regulations and updated inspection processes and compliance citations to conform with the revised regulations. APHIS used technology to enhance digital mapping capabilities and remote sensing to augment oversight through virtual monitoring and field trial evaluations. APHIS streamlined compliance evaluation processes resulting in sending letters of noncompliance more than 50 percent faster than the previous fiscal year to promote rapid correction of noncompliance and protect American agriculture. APHIS also continues to update certain requirements for field trials authorized under permits, increasing consistency, and improving clarity of requirements for regulated entities and increasing enforceability of requirements in accordance with the OIG recommendations.

Partnerships

APHIS continued to work with the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA) to share information about, and improve regulatory oversight of, organisms developed through genetic engineering. In particular, APHIS continued working with EPA and FDA to maintain a Unified Biotechnology web-based platform that provides a single point of entry for the regulated community and the public to obtain and access information on the Coordinated Framework and the U.S. biotechnology regulatory system. This includes a mechanism for developers to submit questions to regulators and obtain a single coordinated response from the agencies. In addition, APHIS' international outreach efforts aim to reduce the likelihood of trade disruptions by helping countries to focus on practical, risk- and science-based regulatory approaches. As part of these efforts, APHIS serves as the U.S. government lead of the Working Group on Harmonisation of Regulatory Oversight in Biotechnology in the Organization for Economic Co-operation and Development. The working group promotes international harmonization in environmental risk/safety assessment and regulation of organisms produced through modern biotechnology.

The Agency is also part of the interagency working group for the Cartagena Protocol on Biosafety, as well as its parent convention, the Convention on Biological Diversity. APHIS is also engaged in capacity building efforts for foreign regulatory officials and scientific advisors and by conducting presentations, participating in international forums, and serving on committees. In FY 2021, APHIS delivered approximately 20 virtual presentations to multiple international organizations, regulators, reviewers, and scientists from over 9 economies including Brazil, Canada, Jordan, Korea, Mexico, Portugal, Spain, United Arab Emirates, and the European Union.

Selected Examples of Recent Progress – Emergency Management:

1. Emergency Preparedness & Response

The Emergency Preparedness and Response (EPR) program improves APHIS' capability to prevent, prepare for, respond to, and recover from animal health emergencies. This program's goal is to respond to an animal health event within 24 hours from the time APHIS determines that a Federal emergency response is needed to manage an agricultural outbreak. It develops strategies, policies, and procedures for incident management and response coordination that meet national and international standards. The program participates in joint Federal, State, and local animal health and all-hazards test exercises to improve response capabilities. In addition, this program works with major commodity groups to ensure the continuous movement of livestock products during animal health emergencies. The EPR program funds activities that enable APHIS to achieve a high state of readiness and be able to respond rapidly and effectively to emergency events, thus lessening the impact of those events on producers, consumers, taxpayers, and the overall economy. Also, through this program, APHIS and the Centers for Disease Control and Prevention (CDC) jointly manage the Federal Select Agents Program (FSAP), which oversees the possession, use, and transfer of biological select agents and toxins that have the potential to pose a severe threat to public, animal or plant health or to animal or plant products.

The EPR program provides national leadership and regional coordinators in the 10 Federal Emergency Management Agency (FEMA) regions for Emergency Support Function #11: Agriculture and Natural Resources (ESF #11). These coordinators work with local, State, Tribal, Territorial, Insular Area Governments, and other Federal agencies to prepare for and respond to emergency incidents and disasters. Expertise includes supporting animal and agricultural health incident responses; providing technical expertise to support animal and agricultural emergency management; ensuring the safety and defense of the Nation's supply of meat, poultry, and processed egg products; providing nutrition assistance; and working with the Department of the Interior to ensure the protection of historic

properties and natural and cultural resources. Often, ESF #11 support uses USDA capabilities and resources from APHIS, the Food and Nutrition Service, and the Food Safety and Inspection Service, along with collaboration with the Farm Service Agency, the Natural Resources Conservation Service, and Rural Development to provide support to disaster-impacted areas. In addition, APHIS provides technical support to FEMA for the care of pets and service animals during disasters. The EPR program also maintains Emergency Qualification System dispatchers, who coordinate the delivery of emergency resources, as well as the APHIS security coordinator program and the Volunteer Emergency Ready Response Corps program, continuity planning, and Geographic Information System capability during incidents. This program also provides services to protect the health and safety of Agency personnel. Respirators serve a vital function by protecting workers from significant hazards including insufficient oxygen and harmful pollutants. Respirators would primarily be needed in the event of an avian influenza outbreak or for an emergency response that requires the use of hazardous chemicals. To comply with regulations instituted by the Occupational Safety and Health Administration, APHIS trains employees as respirator fit-testers and fit-tests any employees who may be using respirators at least annually to ensure proper fitting. APHIS had 164 trained fit-testers on staff as of the end of FY 2021 (compared to 169 at the end of FY 2020), and had 575 employees on staff who had been fit-tested (compared to 426 at the end of FY 2020). In FY 2021, the Agency maintained and calibrated 30 fit-testing units to ensure they met requirements.

Preparedness, Partnerships, & Planning

APHIS' National Preparedness and Incident Coordination Center (NPIC) develops animal health emergency management guidelines to protect U.S. animal agriculture through collaborative, science- and risk-based strategies. The guidelines are based on the National Incident Management System (NIMS) and National Response Framework. The NPIC National Training and Exercise Program (NTEP), which addresses the national priorities of APHIS' stakeholders, is dedicated to improving preparedness, mitigation, and response to animal disease emergencies among all stakeholder groups. It creates dynamic, real-world learning scenarios to build response capabilities of emergency responders and maintain the Agency's response readiness. In FY 2021, the NTEP relied on more than 300 volunteers working more than 10,000 support hours on 48 simulated emergency scenarios. APHIS, State cooperators, and industry developed tabletop exercises for foot-and-mouth disease (FMD) vaccination plan development, African swine fever (ASF) in packing plants, and the Secure Food Supply. The Secure Food Supply plans resulted from a multi-year collaboration by industry, State, Federal, and academic representatives, and provide business continuity and biosecurity guidance to producers in regulatory control areas with no evidence of foreign animal disease (FAD) infection on their premises. Under the plans, these producers can move products to processing if approved by local, State, Tribal, and Federal regulatory officials. Also in FY 2021, APHIS began preparing 11 States, 1 Territory, and 1 Native American Tribe for an FAD Southern Agriculture Functional Exercise (SAFE) in November 2021. FAD SAFE is designed to test State agricultural agency response capabilities in the event of a multi-State FMD outbreak. The NTEP offered 35 webinars in FY 2021, and many of these were held to help States prepare for the FAD SAFE exercise or for ASF preparedness in general.

In FY 2021, APHIS continued to sustain its animal health readiness capacity by constantly maintaining 5 Incident Management Teams (IMT) of approximately 30 volunteer first-responders per team (approximately 150 first-responders total). At any particular time, one of these teams is on-call and ready to deploy anywhere to respond rapidly and effectively to animal health disease events in support of incident management. These teams regularly experience personnel turnover reflecting a normal cycling of volunteer positions. The IMT members participate in training and workshops on the Incident Command System, animal disease, information technology, and technical training and workshops. Many of these trainings and workshops are hosted by the NTEP.

In July 2021, APHIS confirmed ASF in the Dominican Republic (DR). By the end of FY 2021, the disease was likely present in at least 15 of 32 provinces. During the final months of FY 2021, the EPR program supported emergency response personnel to conduct surveillance and outreach activities in the DR. APHIS deployed employees to the DR to provide advisory services and help test samples and train additional staff. In September 2021, USDA confirmed ASF in Haiti on the Haiti-Dominican Republic border. A detection in Haiti was expected, since pigs move freely between the two countries. APHIS is working with the Haitian authorities to expand surveillance to better determine the scope of the problem. The Agency also mobilized additional staff to Puerto Rico to build laboratory capacity, support the domestic swine monitoring response, and conduct feral swine removal and ASF detection. APHIS has established a self-declared foreign animal disease protection zone for ASF in Puerto Rico and the U.S. Virgin Islands. The protection zone is an additional layer of safety beyond the controls already in place. The World Organisation for Animal Health (OIE) verified the submission met all criteria and posted the protection zone as declared by the United States. APHIS will work with trading partners to recognize the protection zone and, to minimize effects to trade in the event of an ASF detection.

APHIS provides subject matter expertise on pet owners and their pets, for breeders, dealers, and exhibitors regulated by the Animal Welfare Act to enhance emergency response coordination. In FY 2021, the Zoo and All-Hazards Partnership (ZAHP), a collaborative agreement with USDA and the Association of Zoos and Aquariums, was able to reach 600 entities, including zoos, aquariums, wildlife parks, sanctuaries, rehabilitation facilities, science centers, professional associations, hobbyist groups, private owners, private veterinary practitioners, and State, Federal, and local emergency management agencies. In FY 2021, the ZAHP collected information from States on emergency preparedness in the exotic animal industry that will be used to better understand gaps and strengths across States, in addition to conducting webinars and hosting other events covering topics such as Emergency Animal Transport, Security and Resilience for Zoos and Aquariums, and Mindful Leadership in Crisis.

Response Efforts and Foreign Animal Disease Investigations

In FY 2021, FEMA activated ESF #11 coordinators 30 times to respond to or provide support for incidents including wildfires, tropical storms, hurricanes, severe winter weather, the Presidential Inauguration, and the COVID-19 Vaccination Campaign. For the Vaccination Campaign, ESF #11 and USDA mobilized more than 630 personnel whose efforts resulted in administering approximately 375,000 vaccine doses and preparing approximately 653,000 doses. APHIS dispatchers worked with Agency programs to create announcements for emergency response activities and processed 821 resource requests for 25 agricultural and all-hazards incidents. In addition, the Agency trained 286 employees, including IMT members, safety officers, security coordinators, emergency coordinators, and the Volunteer Emergency Ready Response Corps for various emergency response roles and situations.

APHIS' Wildlife Services program supports the Agency's response efforts for animal diseases, natural disasters, hazardous spills, and wildfires. In FY 2021, personnel supported response efforts involving natural disasters, wildfires, and zoonotic diseases. The program collaborated and coordinated with other Federal agencies to address the response to COVID-19 outbreaks in domestic mink, sampling 265 animals from 14 species from off-farm areas to understand the role wildlife may play or spillover events from domestic animals to wildlife. Additionally, the Agency collaborated with State agencies and universities for the first ever case of human Hantavirus in Michigan to trap rodent species to better characterize and understand if the virus was still present in wild species and the community. Finally, agency personnel, at the request of the U.S. Forest Service, assisted landowners in New Mexico in evacuating horses to temporary shelters during a wildfire.

In FY 2021, APHIS conducted 2,218 FAD investigations, of which 1,774, or 80 percent, were vesicular disease investigations. Vesicular diseases are viral diseases that affect various livestock animals, primarily swine and cattle. The most prominent vesicular disease is FMD, which is the highest-consequence FAD in terms of regulatory intervention and economic consequences. Several vesicular diseases exhibit similar clinical signs and can only be differentiated through laboratory testing.

Safeguarding of Select Agents

APHIS and the CDC jointly administer the select agents and toxins regulations as the FSAP. Any individual or entity possessing, using, or transferring select agents or toxins must register with APHIS if the agent affects plant or animal health, or the CDC if it affects human health. Facilities must meet biosafety requirements, including employing measures to ensure the safety and security of select agents. APHIS and the CDC inspect facilities that possess, use, or transfer select agents to ensure regulatory compliance. To eliminate potential conflicts of interest, the CDC inspects USDA facilities, and APHIS inspects CDC facilities that possess select agents. APHIS' Division of Agricultural Select Agents and Toxins (DASAT) ensures that registered facilities promptly address non-compliances and take corrective actions. As of September 30, 2021, 33 entities were registered with APHIS and 201 entities were registered with the CDC.

In FY 2021, FSAP conducted 167 inspections of which 124 were conducted by the CDC, 17 were conducted by APHIS, and 43 were conducted jointly. The 60 inspections in which APHIS was involved consisted of 33 verification inspections, 17 renewal inspections, 3 Biosafety Level 4 (maximum containment) inspections, 3 new entity inspections, 3 new space inspections, and 1 compliance inspection. Due to the COVID-19 pandemic, 37 of the 60 inspections were remote inspections, 15 were on-site inspections, and 8 were hybrid inspections. APHIS identified deficiencies during these inspections and notified the inspected entities. The Agency also conducted joint inspections with the CDC, the Department of Homeland Security (DHS), and the Department of Defense. DASAT worked with the Federal Bureau of Investigation (FBI), which conducts Security Risk Assessments (SRA) for the program, to evaluate individuals requesting access to the select agents and toxins. In CY 2020, FSAP facilitated 2,577 FBI SRAs, and restricted the access of 12 individuals based on the results. FSAP issued 157 final inspection

reports in CY 2020, and all were issued within the target timeline of 30 business days. Calendar year (CY) 2021 figures will be available in January 2022. In FY 2021, DASAT supported entities during several hazardous events to ensure the safety and security of select agents and toxins. In addition, DASAT continued to respond to an Office of Inspector General audit by providing information on inspections, training, and standard operating procedures. Also, in FY 2021, FSAP continued to coordinate with representatives from APHIS and the Agricultural Research Service (ARS) overseeing the stand-up of the National Bio and Agro-Defense Facility in Kansas to provide guidance on the select agent registration process. FSAP provided input into select agent regulatory standards and the select agent program's facility registration approval process.

Modeling and Monitoring

APHIS uses epidemiologic and economic models to better understand historical events, estimate consequences, and inform strategic, logistical, and budgetary decisions by evaluating varying interventions related to animal health. In FY 2021, the Agency continued to develop and/or update disease-spread and control models for ASF, bluetongue virus (BTV), classical swine fever, FMD, and highly pathogenic avian influenza. APHIS applied these models to guide decision-making and support resource planning. In collaboration with the ARS, APHIS continued to develop modeling applications and disease-spread scenarios in the InterSpread Plus model to explore the impact of alternative control strategies on the severity and duration of simulated, national-level ASF and FMD outbreaks. APHIS and ARS used these scenarios to inform planning for emergency response, support purchasing decisions for the National Veterinary Stockpile, and anticipate the impacts of policy changes on laboratory testing demand.

APHIS worked to ensure that modeling tools are under development in anticipation of future needs. The Agency collaborates with academic partners focused on outbreak surveillance optimization and assessment of the impacts of enhanced traceability on the severity and duration of transboundary disease outbreaks. In FY 2021, APHIS continued adaption and parameter development within the Australian Animal Disease Spread Model (AADIS) framework using U.S. data. This framework will be used to examine regional-level simulations of BTV and model disease spread at wildlife-domestic animal interfaces. The AADIS is a novel, hybrid framework with excellent computational efficiency and the ability to model disease dynamics within insect vectors, as well as livestock populations. Because APHIS' current national modeling frameworks do not have this capability, the Agency has been working with Australia to adapt their model to the U.S. context, particularly for vector-borne diseases like bluetongue. When the AADIS model is fully developed, APHIS will be able to use it to simulate disease outbreaks at different locations and at different times of the year to assess the effectiveness of potential control strategies and the resources that might be required for the response. AADIS will be able to inform questions such as the influence of resource shortfalls on disease control, potential benefits of emergency vaccination, potential extent of an outbreak, post-outbreak surveillance to support proof-of-freedom from disease, and the impact of post-outbreak management of vaccinated animals on return to trade. In addition, APHIS completed the third phase of a collaborative project with the Texas Center for Applied Technology to develop a next generation modeling framework for high-consequence FADs. This project has developed a comprehensive conceptual model, high-level software design specifications, and a software testbed to assess the component-based architecture for an efficient, cloud-friendly national disease-spread and control model. This application will allow for increased functionality and improved processing times to evaluate complex, overlapping disease control strategies. In addition, APHIS continued the development and application of the U.S. Animal Movement Model (USAMM), which has been updated to estimate cattle shipments sizes. The new model outputs are being incorporated to estimate source regions of animals presented for processing to better understand the representativeness of the Agency's slaughter-based surveillance programs. APHIS is using the cattle shipment model to help evaluate metrics for managing TB-affected herds. In addition, the Agency continued to modify USAMM to model swine shipments occurring through both interstate certificates of veterinary inspection and swine production health plan agreements. APHIS is using the model to explore how shipments influence disease spread before a disease outbreak is detected.

SAFE TRADE AND INTERNATIONAL TECHNICAL ASSISTANCE

Current Activities

APHIS monitors animal and plant health throughout the world and uses this information to set effective agricultural import policies to prevent the introduction of foreign animal and plant pests and diseases. APHIS and the Department of Homeland Security cooperate to enforce these policies at U.S. ports of entry. APHIS also develops and conducts pre-clearance programs to ensure that foreign agricultural products destined for the United States do not present a risk to U.S. agriculture. The Agency engages in cooperative programs to control pests of imminent concern to the United States and to strengthen foreign plant protection and quarantine organizations. The Agency also provides scientific and technical support in resolving sanitary (animal) and phytosanitary (plant) trade barriers.

APHIS negotiates animal and plant health certification requirements, assists U.S. exporters in meeting foreign regulatory requirements, ensures requirements are proportional to risk without being excessively restrictive, and provides any necessary technical information to support the safety of U.S. agricultural products destined for foreign markets.

Selected Examples of Recent Progress in Facilitating Safe Trade:

1. Agriculture Import/Export

APHIS works with other Federal agencies, States, foreign governments, industry, and academia to protect U.S. agriculture while facilitating the safe trade of animals and animal products. APHIS' animal health experts ensure that U.S. import requirements safeguard U.S. livestock health and negotiate requirements for the export of U.S. animals and animal products worldwide. These requirements are based on compliance with international standards, sound scientific principles, and fair-trading practices for animals and animal products. In addition, APHIS sets quarantine, testing, and other requirements under which animals and animal products can be imported or exported. These requirements help ensure that global markets can be accessed, expanded, or maintained with little or no risk to U.S. animal production and human health. APHIS also outlines activities to support aquatic livestock imports and exports through the development of the Aquaculture Business Plan and the National Aquaculture Health Protection and Inspection Plan.

APHIS conducts activities related to the 2008 Farm Bill amendments to the Lacey Act, which prohibit the importation of any plants, with limited exceptions, that are taken or traded in violation of domestic or international laws. The Act requires a declaration for imported shipments of most plants or plant products. A 2012 study by the United Nations Environmental Programme estimated the value of illegal logging, including processing, to be between $30 to $100 billion dollars, or 10 to 30 percent of the global wood trade. The Lacey Act amendments are designed to help combat this illegal logging by encouraging importers to research their supply chains and be aware of the laws governing products they purchase in other countries. APHIS' role is to evaluate and implement existing regulations, provide guidance to importers regarding the required declaration, perform compliance checks, provide enforcement agencies with declaration information to assist their investigations, and maintain declaration records.

Imports

To facilitate imports, APHIS evaluates the animal health status of regions that wish to export animals and/or animal products to the United States. This evaluation process minimizes the risk of introducing foreign animal diseases through importation and is consistent with international trade requirements. In FY 2021, APHIS completed a substantial number of evaluations and published regulatory actions based on those evaluations in the Federal Register. These include notices to recognize Nicaragua, Serbia, and the United Kingdom's Zone of Jersey as negligible risk for Bovine Spongiform Encephalopathy (BSE), and Ecuador as controlled risk for BSE. These regulatory actions account for numerous downgrades of status for trade implemented due to various disease outbreaks in other countries. To ensure countries have appropriate surveillance, prevention, and control measures in place, APHIS conducts site visit around the world to minimize the likelihood of introducing FADs into the United States. Due to restrictions on international travel as a result of COVID-19, several site visits to countries were postponed in FY 2021. APHIS intends to resume these site visits in FY 2022, as countries begin easing travel restrictions.

In FY 2021, 3 additional countries were declared affected with African swine fever (ASF) and 10 with highly pathogenic avian influenza due to continuing spread and new outbreaks. APHIS is working closely with other Federal and State agencies, the swine industry, and producers to take the necessary actions to protect our nation's pigs and keep ASF out of the United States. APHIS and its partners are also conducting exercises and updating response plans as necessary to bolster preparedness efforts as we continue to monitor the global status of ASF.

APHIS continues to ensure that import regulations are effective and science-based, and to work with U.S. businesses and importers to facilitate safe trade. For example, APHIS worked with States in FY 2021, to better understand State-level disease control options and how they can support trade. The Agency improved the traceability and efficiency for imported animals by implementing the use of identification scanners for cattle crossing with Radio Frequency Identification tags at the Mexican border. This allows for field employees to upload ear tag information into traceability databases. The Agency also implemented a customer-friendly veterinary permitting assistant tool to support the new integration of electronic e-File program for all animal permitting needs. Additionally, APHIS issued

20,816 import permits for live animals, animal products, organisms, and vectors in FY 2021. These include new permits, renewals, and amendments.

Exports

To open, re-open, and maintain U.S. access to worldwide export markets, APHIS negotiates science-based conditions with trading partners for various commodities that protect their country while also facilitating trade. In FY 2021, APHIS negotiated or re-negotiated 30 export protocols for animal products (7 new markets, 3 re-opened markets, 10 expanded markets, and 10 retained markets). This includes retaining market access for poultry exports in numerous countries that imposed restrictions due to outbreaks of avian influenza and Newcastle disease.

APHIS negotiated 102 export protocols for live animals (56 new or reopened markets, 21 retained markets, and 25 expanded markets). To complete export requests, APHIS conducted voluntary inspections of 945 U.S. manufacturing facilities to maintain, expand, or open export markets in many countries. APHIS also assisted export markets by participating in industry stakeholder meetings on obtaining new market access, provided technical support to the Office of the U.S. Trade Representative for World Trade Organization (WTO) cases, coordinated, or supported audits with trade partners with whom we have requested new market access, and engaged in bilateral trade meetings with 48 countries. In addition, APHIS developed information packages and questionnaire responses from various countries to maintain, expand, or open export markets as well as to release held shipments.

APHIS continued to increase the number of animal health export certificates issued electronically this year by expanding the system capabilities for APHIS' online Veterinary Export Health Certification System (VEHCS). VEHCS capabilities include digital signature, multiple user roles, a certificate upload feature, certificate re-issuance, inclusion of supporting documents and payment information, and is working to expand the number of countries and commodities for which electronic certification is available. APHIS issued a notice to the WTO in FY 2020, indicating our acceptance of USDA Accredited Veterinarian signature on the issuance of all certificates submitted to APHIS for endorsement, creating the opportunity to use electronic certification at least partially for all live animal exports. APHIS digital endorsement for live animal export certificates is now accepted by 33 countries. In FY 2021, APHIS endorsed 87,865 export health certificates for animal products, livestock, poultry, germplasm, and pets.

Lacey Act

In FY 2021, APHIS received nearly 1.1 million Lacey Act declarations electronically or on paper (the vast majority were received electronically through the Department of Homeland Security's Customs and Border Protection's (CBP) Automated Cargo Environment (ACE) system). Since implementing the 2008 amendments to the Lacey Act, APHIS has added products to the declaration requirement/enforcement schedule in five phases. On July 2, 2021, APHIS published a notice in the Federal Register with the effective date of October 1, 2021, for phase six, which expands the Lacey Act declaration requirement to items such as new wooden pallets and containers, essential oils, and certain musical instruments made of wood, among other items. APHIS originally announced phase 6 in the Federal Register on March 2020, with an effective data of October 1, 2020, but delayed the implementation date by a year to allow pallet producers and essential oil importers time to adjust practices as needed to be able to meet the Lacey Act requirements in response to concerns raised by industry representatives. In FY 2021, APHIS continued issuing letters of noncompliance for importers whose declarations contain errors. This non-punitive outreach tool informs filers that there are likely errors in their declaration, that corrections should be made in future filings, that enforcement action could be taken on future filings, and provides contact information for questions or concerns. APHIS and its Federal partners (including other USDA agencies, CBP, U.S. Department of Justice, and the U.S. Fish and Wildlife Service) continued to expand and improve Lacey Act compliance programs by developing plans for and conducting documentation reviews of importers, continuing development of wood identification technologies and considering alternatives to seizing and forfeiting shipments due to the time and cost involved.

In FY 2020, APHIS received supplemental funding under the United States-Canada-Mexico trade agreement to carry out enforcement of the Lacey Act Amendments related to trade in plant and plant products between the United States and Mexico. In FY 2021, APHIS initiated the development of an ACE modification to automatically reject certain inaccuracies provided by importers on their import documentation when submitting the scientific names of plants. This action will correct both unintentional errors as well as what appear to be intentional errors. Program officials have noted over the last several years a pattern of errors related to declarations filed by certain brokers that import products from Mexico. With this modification, ACE will automatically reject these errors during the filing process, forcing the filer to correct the information to allow declaration submission. This will not only improve the

quality of the declaration data but will also improve our efficiency in supporting data requests from our internal and external enforcement partners.

2. Overseas Technical & Trade Operations

Through the Overseas Technical and Trade Operations (OTTO) program, APHIS facilitates markets for U.S. farmers and ranchers to export their products to other countries by resolving concerns over animal and plant health issues that affect trade of agricultural products. APHIS uses its technical expertise to develop science-based agreements with other countries for U.S. exports and international standards for trade. The Agency also collaborates with USDA's Foreign Agricultural Service (FAS), the Office of the U.S. Trade Representative, and other technical agencies to provide a coordinated effort on trade issues that affect U.S. producers. These efforts facilitated the export of U.S. agricultural products, which totaled nearly $146 billion in 2020 (FAS' 2020 U.S. Agricultural Exports, May 1, 2021).

APHIS uses its strong scientific base and team of technical experts located in the United States and abroad to advocate on behalf of U.S. agriculture and address sanitary and phytosanitary (SPS) barriers to trade. These scientists build relationships with counterparts and use scientific principles to make the case for American agricultural exports and explain to foreign officials why U.S. commodities are safe to import. These conversations take place in ongoing discussions, technical bilateral meetings, and multilateral fora. APHIS has scientists, including veterinarians and entomologists, stationed throughout the world in more than 30 countries who collaborate with their foreign counterparts on animal and plant health issues to support U.S. exports and the establishment of science-based international animal and plant health standards that facilitate trade and reduce risk.

Examples of APHIS' FY 2021 successes in creating new market access include: live cattle to Moldova worth an estimated $3 million per year; bovine genetics to Uzbekistan worth $500,000; and live cattle and bovine genetics to Gambia worth $500,000. APHIS also works to expand U.S. producers' access to export markets and to retain markets that are threatened due to changing requirements in other countries or pest and disease outbreaks in the United States. APHIS worked with Kazakhstan to provide information that led that country to lift its restrictions on poultry products from California after the successful eradication of virulent Newcastle disease in that State and with Taiwan to lift restrictions on poultry products from South Carolina after the detections of avian influenza in that State. APHIS worked with Argentina on declarations for phytosanitary certificates for U.S. apples and pears from the Pacific Northwest, effectively reopening a market worth approximately $500,000 that had been closed since 2007.

APHIS must continually address issues to keep trade flowing smoothly even for markets that are open to U.S. agricultural products. APHIS works with foreign counterparts to clarify or streamline certification requirements, making it easier and less costly for U.S. exporters to move their products overseas. When shipments are delayed at foreign ports, APHIS negotiates the overseas process to get products moving again. APHIS successfully secured the release of 275 shipments worth approximately $84 million in FY 2021. Examples of these detained shipments that were released through our interventions on the ground included: millions of dollars' worth of wheat exports to Mexico and Vietnam; apple and soybean exports to Taiwan; and beef and hay exports to Japan.

Building relationships in emerging markets often involves field visits, or training of foreign government officials to build their capacity to put in place scientifically sound SPS requirements. In FY 2021, in-person visits and trainings continued to be impacted by travel restrictions related to COVID-19. During the fiscal year, APHIS' Representation, Foreign Visitors and Protocol Office hosted 11 virtual connections about the U.S. regulatory process, which were attended by 169 foreign officials from countries such as Jordan, Kazakhstan, Mexico, Canada, Benin, Burkina Faso, Cameroon, Cote 'd Ivoire, Kenya, Mali, Mauritania, Morocco, Mozambique, Nigeria, Rwanda, South Sudan, Togo, Fiji, Brazil, Uzbekistan, Turkey, Guatemala, and Colombia. APHIS received 14 requests for meetings, subject matter experts, and other outreach-related activities. Three of the requests could not be accommodated because the U.S. laboratories or port of entry identified for visiting were not accepting in person visits. Through cooperative agreements with Kansas State University, University of Delaware, and Purdue University, APHIS delivered technical seminars, discussions, and workshops to 85 animal health officials representing 40 countries in Asia, Africa, Europe, the Americas, and the Caribbean. These activities focused on high containment techniques for laboratories, poultry diseases, and African swine fever. Through a cooperative agreement with the Inter-American Institute for Cooperation on Agriculture (IICA) APHIS supported transboundary animal disease courses delivered by Iowa State University to 540 animal health officials from Panama, the Caribbean, and South America. These opportunities help trading partners improve their regulatory capacity and prevent the spread of serious animal diseases such as avian influenza and African swine fever that could jeopardize the safe trade of agricultural products

and importation into the United States. Most requests for capacity building focused on animal health and infectious diseases but APHIS also assisted with requests about the sterile insect technique, sanitary and phytosanitary detector dogs, and import/export inspections, regulations, licensing, and biosecurity. These activities are designed to help other countries increase their regulatory capacity and general knowledge, which over the long term, help prevent the trans-national spread of serious pests and diseases as well as increase other countries' ability to engage in safe agricultural trade.

APHIS emphasizes use of scientific principles as a basis for international trade decisions to help ensure the same rules apply to countries around the world and foster a safe, successful trading environment. To achieve this level playing field and pest and disease mitigation, APHIS works with international standard-setting bodies such as the World Organisation for Animal Health (OIE) and the International Plant Protection Convention (IPPC) and encourages other countries to follow this science-based model. APHIS increases U.S. agricultural exports by gaining support for scientific decision-making and following international standards when considering what can be imported into the United States. This safeguards domestic production from foreign diseases and pests. In FY 2021, APHIS participated in the effort by the Commission on Phytosanitary Measures (the IPPC's governing board) to adopt a 10-year strategic framework for the Convention, ensuring that the group addresses the high-risks to global plant health and members' priorities. International phytosanitary standards adopted during the year include revised measures for determination of pest status, requirements for using modified atmosphere treatments as phytosanitary measures, and requirements for national plant protection organizations to follow in authorizing entities to perform phytosanitary actions. The Convention also adopted irradiation and cold treatments for seven regulated pests, and a recommendation for safe provision of food and other humanitarian aid. APHIS also participated in a variety of expert working group meetings and technical consultations (held virtually because of the pandemic) on requirements for establishing pest-free areas, guidelines for phytosanitary import regulatory systems, and diagnostic protocols, among others, to help ensure pests and diseases do not follow trade pathways. In the animal health arena, OIE adopted more than 16 updates to animal health standards in FY 2021, in areas such as notification of diseases, surveillance, and official control programs for animal diseases. These included new chapters addressing animal welfare and laying hen production systems and control programs for listed and emerging diseases.

APHIS continued its comprehensive succession planning efforts, with special emphasis on developing the Foreign Service cadre and establishing an annual overseas rightsizing effort. The recruitment, assessment, and developmental process emphasizes applicants' animal and plant science backgrounds while also increasing new officers' knowledge of all APHIS mission areas, understanding of U.S. embassy protocols, and increasing cooperation with other international partners like USDA's FAS. The training program further develops Foreign Service trainees' diplomatic, cross-cultural, and leadership skills. Through this succession effort, APHIS is augmenting its current overseas Foreign Service cadre, many of whom are eligible for retirement in the next 5 to 10 years. The succession effort helps ensure that APHIS has trained staff to support U.S. exports and overseas animal and plant health programs. As a result of this program, APHIS has deployed ten new Foreign Service personnel over the last several years to Belgium, Brazil, China, Costa Rica, the Dominican Republic, Japan, Peru, Senegal, South Africa, and Thailand. APHIS will be deploying new Foreign Service personnel in FY 2022, and intends to start a new foreign service trainee class at the end of the FY 2022, for deployment in the spring of FY 2023. APHIS has also established a Pathways scholarship program to bring new college students into the Foreign Service. In addition to the trainee and Pathways programs, APHIS has established a workforce planning process to evaluate resource allocation overseas, assess which locations are optimal, and determine the necessary staffing required to support the Agency's mission, strengthening APHIS' ability to address SPS and other issues overseas in traditional and emerging markets.

Agricultural trade is essential for the U.S. export market and may be subject to costly disruptions from animal and plant health barriers. APHIS' technical trade, capacity building, and regulatory activities support export opportunities for U.S. producers while providing fruit, vegetables, and animal protein sources to international markets. The Agency will continue to cultivate international trade opportunities for America's animal and plant products while safeguarding U.S. agriculture from pests and diseases.

ANIMAL WELFARE

Current Activities

The Agency ensures the humane care and treatment of certain animals and horses as required by the Animal Welfare Act of 1966, as amended (7 U.S.C. 2131-2159), and the Horse Protection Act (HPA) of 1970 as amended (15 U.S.C. 1821-1831) through inspection, education, and enforcement efforts. Animal welfare activities include inspection of certain establishments that handle animals intended for research, exhibition, wholesale pet trade, or transported in

commerce. During these inspections, APHIS reviews the animals, premises, facilities, husbandry practices, programs of veterinary care, records, and animal handling procedures. APHIS also administers the HPA, as amended, which prohibits the showing, sale, auction, exhibition, or transport of sore horses. Program personnel evaluate the performance of industry-licensed inspectors and conduct unannounced inspections at horse shows, exhibitions, sales, and auctions.

Selected Examples of Recent Progress in Animal Welfare:

1. Animal Welfare

APHIS' Animal Welfare Program has the unique Federal role of ensuring the humane care and treatment of animals covered by the Animal Welfare Act (AWA) through inspection, learning opportunities, and enforcement efforts. More than 50 years ago, in 1966, the AWA was signed into law. Since that time, APHIS, acting through the Animal Care Program and its predecessors, has protected millions of regulated animals used in research, exhibition, and the pet trade as well as those transported in commerce. In FY 2021, the program oversaw 11,785 licensees and registrants.

Licensing Activities

The AWA requires all facilities that use animals regulated under the Act to obtain a license or registration with APHIS. Prior to issuing a license, APHIS works closely with potential applicants to ensure they understand the requirements of the AWA regulations and standards and demonstrate compliance with them. The Agency develops customized materials and presentations to focus on specific aspects at each facility, and, by regulation, allows facilities up to three inspections to demonstrate compliance prior to issuing a license. In FY 2021, APHIS conducted 564 pre-licensing inspections, and issued 518 new licenses. The Agency determines initial compliance by conducting unannounced inspections within three months of issuing the license. At the first unannounced inspection, 98 percent of these newly licensed facilities were in substantial compliance, with no critical AWA citations on the inspection report. In FY 2021, the Agency added approximately 2,500 new Class T registrants as part of online pet transportation services.

For licensed and registered facilities, APHIS inspectors perform primarily unannounced inspections to assess compliance with the AWA. During inspections, Agency officials examine and inspect all areas of animal care and treatment covered under the AWA. The Agency reviews the animals, premises, facilities, husbandry practices, program of veterinary care, records, and animal handling procedures. In FY 2021, APHIS conducted 7,670 inspections and found 96 percent of all facilities to be in substantial compliance with the AWA. Inspection activities were significantly impacted by the COVID-19 pandemic. Several regulated species are susceptible to COVID-19 transmission from humans and therefore the Agency took appropriate measures to safeguard employees and animals. To ensure ongoing oversight of facilities, APHIS conducted about 1,012 virtual inspections between January and September. This process allowed inspectors to safely review records, provide remote assistance and monitor compliance.

APHIS' compliance support program assists facilities struggling to achieve or sustain compliance with the AWA. The program conducts a root cause analysis of the compliance challenges, works with the licensee to develop an individual plan to address the non-compliances, and provides learning opportunities for facility employees. The Agency also maintains a team of animal welfare specialists to conduct additional visits to regulated facilities with specialized species.

Permitting Activities

In August 2014, APHIS amended the AWA to require that dogs imported into the United States for resale are healthy, vaccinated, and are over six months of age, with limited exceptions. Since November 2014, importers, prior to import, are required to demonstrate proof of age, vaccination, and health of dogs imported for resale. In FY 2021, APHIS issued 3,167 permits covering 15,412 dogs entering the United States. Beginning in FY 2017, APHIS automated the permitting process to allow importers to obtain a permit online.

In FY 2021, the Agency implemented the electronic sharing of dog importation data with U.S. Customs and Border Protection's (CBP) Automated Commercial Environment database to facilitate CBP's administration of the permit requirements at U.S. ports of entry. Finally, to assist in mitigating the risk of introduction of African swine fever into the United States by the importation of live dogs, the Agency developed and implemented procedures for informing

affected import customers about new requirements outlined in a Federal Order. The process allows importers to utilize electronic means to expedite the necessary paperwork required by the Federal Order. These efforts in FY 2021, further facilitate the safe and timely entry of dogs into the United States.

Registered Research Facilities Activities

Of the 11,785 regulated entities, nearly 1,089 are comprised of research facilities (RFs) registered under the AWA. APHIS collaborates with The National Institutes of Health (NIH) and the Food and Drug Administration (FDA) to help oversee the welfare of animals used in research. While each Agency has distinct authorities and areas of responsibility, we work together to ensure laboratory animals receive the level of care required under Federal regulations. All three Agencies require research facilities to have an Institutional Animal Care and Use Committee (IACUC). This oversight body is empowered to conduct facility inspections, investigate complaints of inhumane animal care, and approve or suspend animal research activity. In FY 2021, APHIS continued to partner with NIH, FDA, and other agencies on the Interagency Collaborative Animal Research Education Project. The project is designed to empower IACUC's and their institutions to improve animal welfare and increase compliance with Federal standards while minimizing regulatory burdens.

In addition to conducting more than 1,200 unannounced inspections of research facilities in FY 2021, all USDA-registered research facilities and Federal research facilities are required to submit an Annual Report that documents its use of animals for research, testing, teaching, and experimentation. The reports identify the number of animals used or held for all such activities. In FY 2021, the Agency saw continued success of the electronic reporting system, which has now become routine for facilities to complete Annual Reports, saving Agency resources while improving the overall customer experience and reducing burden for registered facilities. For the FY 2021 reporting period, we anticipate that more than double the number of facilities will use the electronic system from the previous fiscal year.

Since FY 2016, USDA's Agricultural Research Service (ARS) has voluntarily registered its animal research facilities with APHIS to promote animal welfare and establish the fully functioning IACUC. APHIS has registered 38 ARS research facilities under the AWA. APHIS monitors the health and welfare of animals housed at ARS facilities using our unannounced inspection process. In FY 2021, APHIS conducted 49 inspections at all ARS facility sites. Of those inspected in FY 2021, all but three facilities were found in compliance during the unannounced inspection process.

Enforcement Activities

When APHIS inspectors discover conditions or records that are noncompliant with the regulations, the Agency may establish a deadline for corrective action and increase the frequency of unannounced inspections to determine whether the facility made the necessary modifications. Continued, serious noncompliance may warrant an investigation that can result in sanctions ranging from monetary penalties to suspension or revocation of the facility's license, after notice and an opportunity for a hearing.

In FY 2021, APHIS initiated 118 cases for alleged violations of the AWA, issued 58 official warnings, issued 3 pre-litigation settlements resulting in the collection of $18,200 in stipulated penalties, and obtained 8 administrative orders. In one case, working with the USDA's Office of General Counsel (OGC), APHIS entered into a Consent Decision and Order relating to multiple violations of the AWA, which suspended the respondent's AWA license for a term of five years. In two other cases, the Agency obtained administrative orders against individuals relating to alleged AWA violations, permanently revoking both respondent's AWA licenses. In two other cases, APHIS worked closely with OGC and the Department of Justice's Environment and Natural Resources Division to pursue enforcement action relating to multiple alleged violations of the AWA. The collective efforts resulted in 21-day license suspensions and swift administrative and civil enforcement.

APHIS continues to post copies of enforcement records (such as initial decision and orders, default decisions, consent decisions, and administrative complaints) on its website: USDA APHIS | Animal Welfare and Horse Protection Actions.

Regulatory Changes

The 21st Century Cures Act directs several Federal agencies to reduce administrative burden on investigators while maintaining the integrity and credibility of research findings and the protection of research animals. On September 17, 2020, APHIS published a proposed rule that would reduce duplicative requirements and administrative burden

on more than 1,000 AWA registered biomedical facilities, while maintaining scientific integrity and humane animal care. Feedback obtained from the proposed rule was considered in developing a final rule, which the Agency expects to be published in fall 2021.

In June 2021, APHIS published a proposal to lift the stay and make minor changes to the contingency plan regulations. The rule, which was published in December 2012, and immediately placed in stay, requires licensed and registered facilities to maintain contingency plans for the handling of animals during emergencies and training of personnel. In FY 2021, APHIS conducted additional review to further consider the impact of contingency plan requirements on regulated entities, in addition to evaluating the impact of regulatory changes that occurred since FY 2012, such as the *de minimus* exemption. The Agency expects to publish a final rule in early 2022. The lifting of the stay and proposed revisions will better ensure that entities responsible for animals regulated under the AWA are prepared to safeguard the health and welfare of such animals in the event of possible emergencies or disasters.

The AWA authorizes the regulation of birds not bred for use in research. In fall 2020, APHIS held a series of virtual listening sessions to gather information to assist in the development of regulations that will ensure the humane care and treatment of birds, consistent with the AWA. The Agency has since considered public input from stakeholders and has drafted a proposed rule that would implement appropriate regulations and standards for birds covered under the Act. Publication of the proposal is anticipated on or before February 2022. Comments received will be utilized to inform the development of a final rule, which is anticipated to be published and implemented in 2023.

2. Horse Protection

Since 1970, APHIS has enforced the Horse Protection Act (HPA), a Federal law aimed at ending the cruel and inhumane practice of soring and preventing unfair competition by making it unlawful to show, sell, or transport sore horses. Soring is a practice in which people apply caustic chemicals and/or mechanical devices to a horse's pasterns, which cause the horse to experience pain or distress while walking or moving. This practice is used primarily in training Tennessee Walking Horses, racking horses and related breeds to produce a high stepping gait, which is prized at some competitive horse shows and other events. USDA conducts oversight of the program through evaluation of the performance of industry-licensed inspectors and conducting unannounced inspections at horse shows, exhibitions, sales, and auctions.

Inspection Activities

Under the HPA, the management of horse shows, exhibitions, sales, and auctions are responsible for ensuring that sored horses do not unfairly compete alongside horses that are not sore. If a horse is found to be sore, management has the responsibility of disqualifying them from participating in HPA-covered events. Management may use third-party inspectors that USDA-certified horse industry organizations (HIOs) train and license to inspect horses for compliance with the HPA. These third-party inspectors are known as Designated Qualified Persons (DQPs).

APHIS attends a number of HPA-covered events each year to observe DQP performance and inspect horses for HPA compliance. Since FY 2020, there has been a significant decrease in the number of horse shows held by the HIOs due to the COVID-19 pandemic. In FY 2021, APHIS attended 17 horse events, inspected 541 horses, and identified 159 instances of suspected noncompliance with the HPA. The DQPs attended 208 HPA events and inspected 48,771 horse entries. In total, DQPs identified 473 HPA noncompliance's, and management disqualified 447 entries. Inspections conducted by DQP's increased in number from the previous fiscal year (less than 38,000 horses with 423 instances of noncompliance with the HPA were detected in FY 2020).

In FY 2021, the Agency continued to build its relationship with horse show management. This included collaborating with horse industry officials to develop and implement an industry testing protocol for prohibited substances. Previously, testing was completed by Agency officials. The results of instituting industry led testing across the 5 participating HIOs will increase testing by more than 75 percent from previous years. The Agency expects to see fewer violations for prohibited substances at future shows.

APHIS also provided training to Agency inspectors and DQPs to promote consistency in compliance inspections, increasing direct communication with management to ensure they receive updates on USDA's HPA Disqualification List. APHIS provided full inspection report data, including noncompliant items identified by type and number of horses management disqualified from participating in HPA-covered events, on the APHIS website: https://www.aphis.usda.gov/aphis/ourfocus/animalwelfare/SA_HPA

Enforcement Activities

In collaboration with the USDA's Office of General Counsel, APHIS obtained nine administrative orders assessing $7,100 in civil penalties and disqualifying four persons for a total of approximately six years from participating in activities regulated under the Horse Protection Act. In one case involving the entrance of a horse for the purpose of showing the horse at a horse show while the horse was sore, a subject consented to a $6,000 civil penalty and a 48-month disqualification. In another matter, a subject consented to an 18-month disqualification.

AGENCY MANAGEMENT

Current Activities

The Agency Management programs support the daily operations of APHIS and provide for a safe and secure work environment. These programs provide the information technology, space, and telecommunications infrastructure that gives Agency employees the tools they need to carry out their responsibilities. These programs also oversee and implement precautionary security measures for continued mission operations while ensuring the safety of APHIS people and facilities. In addition, these programs support APHIS' contribution to the U.S. Department of State's continuing implementation of the Capital Security Cost Sharing Program, which provides safe and secure workplaces for all U.S. government employees located overseas.

Selected Examples of Recent Progress in Agency Management:

1. APHIS Information Technology and Infrastructure

APHIS' Information Technology Infrastructure (AITI) is comprised of the hardware, software, cloud computing and cyber-security infrastructure that provides Agency employees with office automation tools, Internet access, and access to mission-critical information technology (IT) programs and administrative applications. APHIS maintains, enhances, and operates the IT infrastructure to support Agency business, conduct research and analysis, carry out administrative processes, record program activities, and deliver program services. AITI objectives and priorities are to continually improve sharing of information across the Agency; improve integrity and accessibility of information, processes, and resources available to assist programs in emergencies; and improve APHIS' cyber-security. APHIS uses AITI funding to maintain annual software license and hardware agreements, cloud services, and for regular life-cycle replacement of enterprise hardware.

The FY 2021 accomplishments listed below support these objectives.

License Renewal

APHIS supported approximately 9,700 users including contractors with license renewals so they can access and legally use the enterprise software in conducting business.

Availability

APHIS supported internal and external stakeholders by providing optimal levels of service. The Agency continued to maintain 99.97 percent availability for its key computing systems in FY 2021. The AITI program also maintained applications availability outside of the normal operational hours, on weekends, and holidays to ensure availability of systems.

Cloud Services

As a requirement of the Federal government's Data Center Optimization Initiative, APHIS has completed migration of all business applications from on-site data centers to the remote cloud servers. As of April 2019, APHIS closed all on-site Agency data centers. To date, APHIS remains in phase three of its cloud migration plan. This phase of the plan focuses on further program data consolidation and enabled the ongoing development of cloud applications for new program mission needs. In FY 2022, the Agency will complete the consolidation phase of the plan. The program will continue improving the management of the consolidated systems from a cloud perspective for controlled operational costs, and Agency security protections.

In response to the COVID-19 pandemic, APHIS employees continued utilizing the ability to telework with minimal access to physical office sites in FY 2021. As a result, cloud services have allowed the Agency to continue monitoring and accessing business applications remotely as well as offer seamless IT support for APHIS employees.

Cyber-Security

APHIS maintained the current version of National Institute of Standards and Technology and Federal Information Security Management Act testing standards to continue protecting our cyber security infrastructure and reducing vulnerabilities of our systems. APHIS also introduced an Agency led intrusion prevention security system called Checkpoint, further increasing security protection. In FY 2021, this security system continued its success in providing technological threat insight, allowing the Agency to detect and block attempts of unauthorized access to APHIS systems at a faster and more accurate rate.

Security Monitoring

The Agency renewed the upgraded security monitoring system that tracks improper use of personally identifiable information data stored in the APHIS infrastructure. This action helps protect confidential information that could potentially identify a specific individual such as citizenship, legal status, gender, race and/or ethnicity. In just one year, the software was able to identify vulnerabilities in APHIS forms that contain bank account, credit card, driver license, passport, social security and telephone numbers as well as date of birth details. Collectively, the numbers exceed over a million incidents of vulnerable information. The Agency's security branch continued to work with the human resources office to mitigate the identified vulnerabilities.

2. Physical Operational Security

APHIS oversees and implements precautionary measures to ensure continued, efficient mission operations, and protection from disruption, degradation, or destruction of its facilities through the Physical and Operational Security (POS) program.

The POS program, as a newly realigned portion of the Emergency and Regulatory Compliance Services (ERCS), has the continued responsibility for the oversight of safety programs, physical security, and Agency-wide readiness in response to agricultural and all-hazard emergencies. The program utilizes a Government-wide approach to agricultural health issues affecting the Nation through preparedness, personnel security, and an array of safety initiatives. This includes providing year-round security measures, such as physical security upgrades, alarms, badging and identification systems, guard services, security assessments, safety and risk assessments, workplace violence training, and investigations of both internal and external threats. These measures protect APHIS employees, visitors, and stakeholders from harm, acts of terrorism, and violence. In addition, this program supports part of the USDA's contribution to the U.S. Department of State's continuing implementation of the Capital Security Cost Sharing program, which provides safe and secure workplaces for all government employees located overseas.

The POS program provides numerous security trainings to Agency employees. In FY 2021, the program provided training to more than 1,650 employees, including seminars relating to active shooter response, situational awareness, scenario-based role-playing, illegal drugs, self-defense, terrorism, local crime trends, and travel safety. The program also provided multiple security briefings for employees who work along the U.S.-Mexico border or in foreign countries.

APHIS investigates, educates, assesses, and mitigates internal and external security threats directed at agency facilities, programs, and personnel. For example, APHIS focuses on employee security at or near the Mexican border, investigating threats and responding to requests for protection for APHIS employees who enforce regulations in this challenging environment. In FY 2021, APHIS investigated 95 external threats to its employees and 42 workplace violence incidents.

The Homeland Security Presidential Directive-12 (HSPD-12) and Interagency Security Committee (ISC) directives create the standard for secure and reliable forms of identification for facility and network access and compliance regarding physical security at Federal facilities. In FY 2021, the POS program completed physical security assessments at 26 facilities using the updated ISC criteria and USDA reporting format. As a result, the POS program provided security upgrades and repairs to 56 facilities. In addition, the POS program is also responsible for issuing, activating, or updating approximately 8,900 personal identification verification cards to APHIS personnel.

APHIS security specialists investigate threats and respond to requests for protection throughout the country for APHIS veterinarians and inspectors who are enforcing regulations in challenging environments. In support of safety precautions for APHIS employees who enforce the Animal Welfare Act (AWA) and Horse Protection Act (HPA),

the POS program provided security during 15 inspections of regulated AWA entities, 25 HPA events, and coordinated security support for 9 Federal employees attending a multi-day court proceeding related to AWA incidents.

The program also works with other USDA agencies, the U.S. Department of Justice, U.S. Department of Homeland Security, the U.S. Department of State, and local law enforcement agencies to ensure that the appropriate organization takes the lead, contributes to program costs, and integrates security where employees are co-located overseas. APHIS maintains a presence overseas to facilitate agricultural trade and monitor pest and disease threats. The Security Embassy Construction Counterterrorism Act's Capital Security Cost Sharing Program requires the Agency to help fund the construction of new Embassy compounds based on the number of authorized positions. The POS program worked with the U.S. Department of State to establish a security baseline for APHIS facilities overseas. In FY 2021, APHIS had approximately 300 full-time employees based in countries around the world. This program provides safe and secure diplomatic facilities for the Agency's overseas personnel.

3. Rental and Department of Homeland Security Payments

This account supports the Agency's costs associated with General Services Administration (GSA) leased facilities. The account funds approximately 220 locations associated with GSA leases and Department of Homeland Security (DHS) payments. The funding allows APHIS programs to continue carrying out activities that safeguard the health and value of U.S. agriculture and natural resources, including surveillance for animal and plant pests and diseases, pest and disease eradication programs, diagnostic and methods development work at laboratories, animal welfare inspections, and wildlife damage management activities, without diverting fiscal resources from operations to cover these costs.

APHIS took steps to better utilize space within its facilities and offices beginning in FY 2020. In April 2019, the Agency awarded a lease for its Raleigh, North Carolina hub. This project consolidates two agency leases and one GSA lease under one Raleigh GSA lease. APHIS took final occupancy of the new space in August 2021. Other major APHIS hub locations in Riverdale, Maryland; Minneapolis, Minnesota; and Fort Collins, Colorado are also supported by this account.

This account also funds the DHS/Federal Protective Service (FPS) basic and building specific security costs. In FY 2020, DHS/FPS began implementing their modified security billing process that will be phased in through FY 2022. The new security billing process uses the previous 5-years of actual security costs to derive an average basic security assessment billed to the agencies annually. These basic security costs are projected to increase by 21 percent in FY 2022, and another 27 percent in FY 2023, as the new billing methodology is implemented. In addition to the basic security costs, agencies are billed specific security costs for building specific services required to implement and maintain security requirements in accordance with standards set by the Interagency Security Committee.

APHIS will continue efforts to strategically manage its space portfolio in FY 2022.

GENERAL PROVISIONS

Selected Examples of Recent Progress in Programs Funded by General Provisions

1. Multi-Agency Coordination (MAC) Group

Huanglongbing (HLB), also referred to as citrus greening, is a serious citrus disease that threatens U.S. citrus production valued at $3.31 billion for the 2020-2021 growing season (National Agricultural Statistics Service, Citrus Fruit 2021 Summary). HLB is widespread in Florida resulting in higher production costs, lower yields, and lower productive acreage. Additionally, the disease is present in all of Texas' citrus producing areas, and residential areas of Los Angeles, Orange, San Bernardino, San Diego, and Riverside Counties in California. HLB's insect vector, the Asian citrus psyllid (ACP), is widespread in urban areas in southern California, threatening the State's citrus industry, valued at nearly $2.5 billion for the 2020-2021 growing season (National Agricultural Statistics Service, Citrus Fruits 2021 Summary). ACP is also present in Arizona, Alabama, Georgia, Florida, Louisiana, Nevada, South Carolina, and Texas. APHIS established the HLB Multi-Agency Coordination (MAC) response framework in December 2013, to help address the citrus industry's immediate and long-term needs in dealing with this devastating disease. In addition to APHIS, the MAC is comprised of representatives from USDA's Agricultural Research Service (ARS), National Institute of Food and Agriculture, and Office of Pest Management Policy; the Environmental Protection Agency; State departments of agriculture in Arizona, California, Florida, and Texas; citrus

research organizations in California, Florida, and Texas; and citrus industry organizations in California, Florida, and Texas. Since FY 2014, the HLB MAC group has funded a total of 105 projects carried out by State cooperators, universities, private companies, and Federal agencies. The projects have focused on strategies for vector control, therapies for infected trees, sustainability of new plantings, early detection technologies, best management practices for citrus groves, and support for the development of HLB-resistant citrus varieties.

In FY 2019 and 2020, APHIS provided HLB MAC funds towards the Florida Citrus Research and Field Trials (CRaFT) project to conduct field evaluations of strategies that showed previous scientific evidence of success in combating the disease to determine the best management practices and methodologies for producing citrus under the threat and pressure of HLB. This long-term project brought in growers, as collaborators, to evaluate interactions between methods, treatments, environments, rootstock/scion combinations, and growing practices. In 2021, building on the CRaFT approach in Florida, APHIS initiated similar projects in California and Texas. Each State is at a different stage of disease progression, but they share the common goal of robust healthy trees and a productive industry. This approach offers a window to evaluate the impact of tools available for the challenges that HLB poses in different environmental conditions. The goal is to provide citrus growers with simple and proven strategies for keeping their groves productive. The results of these CRaFT-like projects will benefit all citrus-growing regions in the United States that are threatened by this devastating disease. Also in 2021, APHIS provided funds to ARS and Colorado State University to develop a data management tool for use CRaFT projects in California and Texas.

Over the last several years, HLB MAC funded projects have:

- Removed nearly 6,000 acres of abandoned groves in Florida, eliminating uncontrolled ACP habitat and prompting State legislation to incentivize further removal of abandoned groves.
- Developed and released training methods to teach canines to detect ACP and HLB in commercial and residential settings.
- Developed planting designs that reduce ACP pressure and produce healthier trees and better fruit with reduced water and herbicide use.
- Developed an ACP attract and kill device that can reduce ACP intensity by over 60 percent.
- Developed soil acidification technology that could be used on a broad scale to lower the pH of infected tree roots, helping to improve overall tree health and production.
- Developed harmonized methodology for evaluating greenhouse and field trials to combat HLB across growing areas and regions.
- Initiated a rapid propagation project to accelerate field testing of 35 varieties of HLB-tolerant mandarin and sweet orange trees, which will make them available 2 years earlier than traditional propagation practices.

Growers are using one out of every three HLB MAC-funded shovel-ready technologies today. APHIS will continue working closely with partners in industry, private research, State departments of agriculture, and other government agencies to support continued development of tools to address HLB.

2. Cogongrass

Cogongrass is an invasive perennial weed that is a prolific seed producer and forms an extensive rhizome network. The primarily wind-dispersed seeds spread easily along rights-of-way and in other disturbed areas encouraging population expansion. Cogongrass readily invades pine plantations and is believed to create chemical interference that decreases pine production. Moreover, cogongrass is difficult to control because the rhizomes are drought, fire, and herbicide tolerant. APHIS estimates that this species has the potential to spread across 82 percent of the United States. In FY 2021, APHIS provided funds to Alabama, Georgia, Mississippi, and South Carolina to support survey, outreach, and control activities related to cogongrass infestations in these States. APHIS is continuing to work with the States to determine whether the program needs additional treatment strategies and accompanying environmental documentation related to the National Environmental Policy Act and Endangered Species Act.

ACTIVITIES FUNDED BY TRANSFERS FROM COMMODITY CREDIT CORPORATION

Selected Examples of Recent Progress in Transfers from Commodity Credit Corporation:

1. Bovine Tuberculosis

In FY 2021, APHIS spent $2.5 million in Commodity Credit Corporation funds (CCC) on tuberculosis (TB) eradication activities. In FY 2021, APHIS identified seven TB affected herds: two in Hawaii, one from Michigan's Modified Accredited Free Zone, one from Michigan's Accredited Free Zone, one in New Mexico, one in South Dakota, and one in Texas. These seven herds were placed under herd management plans. APHIS used CCC funds to conduct test-and-remove protocols and depopulation activities in accordance with each herd's management plan.

The detection of these herds demonstrates the effectiveness of APHIS' surveillance system. To respond to TB detections, APHIS works closely with State animal health officials to quickly identify any cattle that may have come into contact with the infected herds and conduct thorough trace back investigations. In addition, the States work closely with the herd owners involved, as well as the State dairy industry, to ensure the disease is quickly contained, and affected owners can return to normal business practices as soon as possible.

2. Farm Bill

The Agricultural Act of 2014, consolidated two of APHIS' Farm Bill programs under Section 10007: Plant Pest and Disease Management and Disaster Prevention Program and the National Clean Plant Network (NCPN). This authority was codified in Section 7721 of the Plant Protection Act (PPA). For FY 2021, PPA 7721 provided $75 million for the consolidated program. These funds are subject to the sequestration of mandatory funds ($4.275 million in FY 2021).

Through the program, APHIS funds projects for early plant pest detection and surveillance, identification and mitigation of plant pests and diseases, and technical assistance in the development and implementation of audit-based certification systems and nursery plant pest risk management systems. Since 2009, USDA has supported more than 4,800 projects and provided approximately $700 million in funding through the Plant Pest and Disease Management and Disaster Prevention Program, including projects funded in FY 2021. Collectively, these projects allow USDA and its partners to quickly detect and rapidly respond to invasive plant pests and diseases. In addition, the NCPN provides reliable sources of pathogen-free planting stock of high-value specialty crops. Since 2009, the NCPN, through its cooperative agreements program, has provided about $65 million in support of 47 initiatives at 34 clean plant centers or programs in 20 States and U.S. Territories. These initiatives span commodities ranging from fruit trees, grapes, citrus, berries, hops, sweet potato, and roses.

Plant Pest and Disease Management

APHIS and cooperators have identified six major strategies (the first with two sub-goals) to implement Plant Pest and Disease Management efforts: 1a) enhancing plant pest/disease analysis; 1b) enhancing plant pest survey; 2) targeting domestic inspection activities at vulnerable points; 3) enhancing pest identification tools and technology; 4) developing programs to safeguard nursery production; 5) enhancing outreach and education; and 6) enhancing mitigation capabilities. The program funded 502 projects in FY 2021, supporting a variety of Federal, State, academic, Tribal, and private entity stakeholders.

Enhance Plant Pest/Disease Analysis, Goal 1A

Under this goal, APHIS supports projects that compile, synthesize, or evaluate data to inform or enhance risk and pathway analysis, surveillance methodology, or resource prioritization. Examples include the development of analytical models to identify and prioritize exotic pests for survey and response and improving risk modeling and monitoring for invasive fruit pests. In FY 2021, the program supported a project to improve predictive modeling and allocation of survey resources with the Cost-Effective Surveillance Allocation Tool. The program also continued a project to develop the Eradication Analysis & Decision Support tool and the algorithms and workflow to help evaluate the feasibility of entering an eradication or containment program following a new pest incursion and to suggest effective strategies on managing the new pest. Overall, in FY 2021, the program provided approximately $2 million for 21 projects in this goal area.

Enhance Plant Pest Survey, Goal 1B

Under this goal, APHIS supports surveys for multiple, high-risk pests not known to be established in the United States and pests of concern to cooperators. These surveys protect and help small growers and nursery owners avoid control costs through a more rapid and thorough detection of pests that threaten their operations. One key project is the National Survey Supply Program that oversees timely procurement and delivery of quality survey supplies, such as traps and lures, to APHIS and State cooperators. In FY 2021, the National Survey Supply Program used PPA 7721 funds to distribute over 708,426 different plant pest trap and lure units to 50 States and 3 Territories; and executed approximately 421 different trap and lure procurement orders. The orders consisted of approximately 126 different products to support the various detection activities and surveys that APHIS and State cooperators conduct. These surveys complement those conducted under the Pest Detection program (Cooperative Agricultural Pest Survey) and have expanded the number and scope of pest survey activities across the United States, as well as help demonstrate our country's freedom from certain high-risk pests. In FY 2021, APHIS supported a total of 324 unique pests targeted for survey in all 50 States and 1 Territory. These included commodity surveys of apple, grape, stone fruit, palm, solanaceous, small fruit and berries, and other orchard crops, as well as surveys for Asian defoliators, exotic woodborers, bark beetles and other forest pests, cyst nematodes, mollusks, and pathway surveys covering multiple agricultural systems. Overall, the program provided approximately $14 million for 185 projects in this goal area in FY 2021.

Targeting Domestic Inspection Activities at Vulnerable Points, Goal 2

Under this goal, APHIS supports domestic inspection activities at high-risk sites (e.g., warehouses and parcel facilities), inspects regulated articles moving interstate, and uses trained canine detection teams to improve detection capabilities. Developing these cooperative efforts with State agriculture regulatory agencies helps minimize impacts to producers and distributors of agricultural commodities. In FY 2021, the program continued to support canine team efforts in California where 10 teams work at Express Couriers and U.S. Postal Service offices in 32 of 58 counties in the State, and in Florida where 4 teams work at Express Couriers in 3 counties. With their keen sense of smell, dogs can detect hidden agricultural products at an accuracy rate higher than 85 percent. The program uses canine teams to enhance capacity for early detection and better response to exotic pests found during surveys; increases liaison between State and Federal cooperators by reviewing, developing, and implementing educational programs; provides additional resources at high-risk areas within the State for inspection; and benefits inspections at parcel service locations to enhance interdiction efforts. Overall, the program provided approximately $6 million for 12 projects in this goal area in FY 2021.

Enhance Pest Identification Tools and Technology, Goal 3

Under this goal, APHIS supports the ongoing development of improvements in pest identification and detection. This includes improved identification capacity and taxonomic understanding of groups of organisms, taxonomic support for surveys targeting high consequence pests, and the development of pest detection technology. Through this goal area, the program supported a project to provide pest screening and identification services for wood-boring insect pests to Federal and State agencies for FY 2021, and supported development of diagnostic tools for all life stages of *Anastrepha* (which includes Mexican fruit fly) and other exotic pest fruit flies which threaten U.S. agriculture, among others. The program provided approximately $6.24 million for 83 projects in support of this goal in FY 2021.

Developing Programs to Safeguard Nursery Production, Goal 4

Under this goal, APHIS supports projects to develop science-based best management practices and risk mitigation practices to exclude, contain, and control regulated pests from the nursery production chain, and developing and harmonizing audit-based nursery certification programs. These activities help small producers and distributors establish best management practices for mitigating pest risks, reducing operational costs, and enhancing the value of nursery stock they produce. Examples of projects funded in FY 2021, include continued support for the National Ornamentals Research Site at Dominican University of California and an update of New York's apple tree nursery stock certification program to harmonize the State's requirements with surrounding States' certification programs. The program also supported projects to evaluate the potential for using sterile insect testing, mating disruption, and other integrated pest management tools to eradicate box tree moth. The box tree moth (BTM), *Cydalima perspectalis*, is a serious pest of nearly all *Buxus* spp. in the family Buxaceae. Investment in development of integrated pest management methods and detection tools for BTM will allow APHIS, State agriculture officials, and the nursery industry to implement efforts to control or slow the spread of the pest. The program provided approximately $2 million for 20 projects in this goal area in FY 2021.

Enhancing Outreach and Education, Goal 5

Under this goal, APHIS works to engage the public in early detection efforts by strengthening existing volunteer networks. APHIS emphasizes efforts that can lead to behavior changes among the public and the regulated community to prevent the introduction or spread of high-consequence pests into and throughout the United States. FY 2021 projects in this goal area include a nationwide campaign raising awareness of invasive species, such as the PlayCleanGo Campaign to stop the spread of invasive species through recreational activities, a variety of projects in multiple States targeting awareness of forest pest outreach, Asian giant hornet community outreach and education, and multiple outreach campaigns for spotted lanternfly. Overall, the program provided approximately $3.8 million for 57 projects in this goal area in FY 2021.

Enhance Mitigation Capabilities, Goal 6

Under the goal of enhancing mitigation capabilities, APHIS provides technical assistance prior to, during, and immediately following a plant pest outbreak, develops new mitigation tools and strategies, and increases emergency preparedness through the development of New Pest Response Guidelines and Incident Command System training. Some of these efforts provided continued support for developing new methods or treatments for economically significant pests including Asian giant hornet and spotted lanternfly response, khapra beetle, wood boring and bark beetles, and coffee berry borer, among others. These efforts also support the development of potato varieties resistant to the pale cyst nematode. APHIS provided funding under this goal area to Washington State Department of Agriculture to (WSDA) to address Asian giant hornet. In October 2020, WSDA eradicated the first nest detected in the United States and continued survey efforts. WSDA is able to locate nests using tracking technology developed by APHIS. In August and September 2021, APHIS and cooperators found and eradicated 3 additional nests, removing a total of 2,600 individual life stages. Under this goal area, the program also supported rapid response to a variety of pest and disease outbreaks, including Mexican fruit fly outbreaks in Texas, BTM outbreaks in New York State, and coconut rhinoceros beetle in Hawaii. APHIS also supported the nationwide effort to survey and control spotted lanternfly throughout the East Coast, including Pennsylvania, Virginia, New Jersey, New York, West Virginia, North Carolina, and Maryland. Overall, the program provided approximately $28.5 million for 121 projects in this goal area in FY 2021.

National Clean Plant Network (NCPN)

In FY 2021, APHIS used $7.5 million in PPA 7721 funds to provide NCPN support to qualified clean plant centers through a cooperative agreements program. The application process allowed stakeholders to offer input into projects proposed for funding through pre-proposals, which are designed to help clean plant centers prioritize and harmonize their resourcing requests. As a result, APHIS entered into 29 cooperative agreements with clean plant centers and related entities in 16 States and 1 U.S. territory (Puerto Rico). The clean plant centers that receive NCPN funding are using the resources to: 1) diagnose for harmful pathogens that cause disease in covered specialty crops; 2) apply therapeutic measures to eliminate these pathogens; 3) establish plantings of clean plant 'starter' material and make this material available to nurseries and growers; 4) work with nurseries and growers in education/outreach programs to communicate the economic value to industry of using clean nursery stock; 5) advance quality management initiatives to further strengthen confidence in program processes and products, and 6) engage in the process of establishing and governing a network of collaborative clean plant centers. These activities will result in clean plant centers providing additional sources of healthy planting stock for fruit trees, grapes, citrus, berries, and hops -- as well as sweet potato and roses. This healthy planting stock will be available to nurseries, growers, breeders, and others, ensuring that they have access to clean plant material necessary to sustain their businesses, maintain productivity, and improve the quality of their products.

Since the program's inception, the clean plant centers on an annual basis have helped the following commodities:

Fruit Trees - Maintain approximately 2,250 clean fruit tree accessions in foundations (blocks of pathogen-tested plant materials) that have delivered more than 525,000 cuttings, scions, and plantlets as well as more than 1.8 million buds to nurseries and growers.

Grapes – Maintain approximately 1,000 selections of clean grapevine accessions in foundations and distribute more than 725,000 clean grape-wood cuttings, buds, plants, or special seed to industry.

Berries – Diagnose and clean approximately 75 new berry accessions annually and maintain clean plant foundations that provide mother plants to industry that have produced nearly 35 million clean berry plants annually.

Citrus – Maintain approximately 1,000 clean citrus tree accessions in foundations and deliver 'starter material' to industry that has resulted in more than 60 million clean citrus trees over the past 10 years.

Hops – Maintain more than 75 clean hop selections in foundations that are used to accommodate about 30 percent of the world's need for clean hops. The program has distributed more than 5,000 clean propagative units to industry; each unit can be expanded rapidly to provide thousands of plants for planting annually.

Sweet potato – Add approximately 40 new sweet potato accessions annually to existing foundations, with 170 accessions currently available for use by industry in addition to numerous heirlooms and introductions maintained. Clean plant centers delivered more than 215,000 clean plants to industry in FY 2021.

Roses – Continue advanced testing of approximately 750 rose selections currently maintained in foundations and associated collections. This material is then available to industry for further propagation

Animal Disease Prevention and Management Program

The Animal Disease Prevention and Management Program (ADPMP) was authorized by Section 12101 of the Agriculture Improvement Act of 2018 (P.L. 115-334). It created two new animal health programs - the National Animal Disease Preparedness and Response Program (NADPRP) and the National Animal Vaccine and Veterinary Countermeasures Bank (NAVVCB) - and expanded on the National Animal Health Laboratory Network (NAHLN). The bill provided the first four years of funding ($120 million for FY 2019 to FY 2022) upfront as no-year funding, and provides $30 million in mandatory funding each year thereafter, beginning in FY 2023. APHIS has the discretion to distribute the total funding among the three programs, provided that NADPRP receive at least $5 million per year through FY 2022, and $18 million per year beginning in FY 2023. The no-year funding provision provides APHIS with the flexibility to allocate funding in the most effective manner to safeguard American agriculture. For the NAVVCB, Congress directed the Agency to prioritize the acquisition of sufficient quantities of foot-and-mouth disease (FMD) vaccine antigen concentrate. The funds provided to the NAHLN in the Farm Bill are in addition to approximately $17 million per year in appropriated funds that go to USDA to support the NAHLN. Of this total, APHIS receives approximately $12.7 million and USDA's National Institute of Food and Agriculture receives approximately $4.3 million. These three programs are critical in supporting APHIS' efforts to protect the health and improve the quality, productivity, and economic viability of U.S. livestock, helping farmers and ranchers provide high-quality agricultural products to domestic and international consumers. The NAHLN Coordinating Council, the NADPRP Consultation Board, and other leaders in animal health and laboratory diagnostics provide recommendations for the types of projects that are necessary and are targeted to where they can make the most impact.

The NADPRP addresses the increasing risk of the introduction and spread within the United States of animal pests and diseases affecting the economic interests of the U.S. livestock and related industries, including the maintenance and expansion of export markets. APHIS offers annual competitive funding opportunities and enters into cooperative agreements with States, universities, industry groups, and other entities to carry out high-value projects to improve animal disease emergency preparedness efforts. In FY 2020, the Agency formed the NADPRP Consultation Board, which includes State, academic, industry, and tribal representatives, to provide recommendations on funding priorities, spending plans, and program improvements. In January 2021, APHIS awarded $9.3 million through the NADPRP for 46 projects to increase livestock biosecurity measures and advance rapid, large-scale depopulation and carcass disposal abilities for high-consequence outbreaks across all regions of the United States through State animal health authorities in 16 States, 14 land-grant universities, and 2 industry/veterinary organizations. Of these projects, 24 focus on biosecurity and 22 focus on depopulation and disposal. In July 2021, APHIS began seeking proposals for projects to increase animal vaccine planning for high consequence diseases, to support animal movements decisions, and to enhance disease prevention and preparedness outreach and education. In December 2021, the Agency provided $7.6 million for 36 projects focused on developing vaccination plans for foreign animal disease (FAD) outbreaks, supporting animal movement decisions in an FAD outbreak, or delivering outreach and education on animal disease preparedness and response topics to targeted audiences. These projects will be led by state animal health authorities, land-grant universities and industry/veterinary organizations. The Agency plans to announce the 2022 NADPRP funding opportunity by July 2022.

The NAVVCB has significantly increased the U.S. stockpile of FMD vaccine, its top priority, and provides the flexibility to stockpile other countermeasures and diagnostics to serve as an insurance policy in case of an outbreak of a high-consequence foreign animal disease. APHIS announced an initial $27.1 million purchase of vaccine

antigen concentrate for the Bank in FY 2020, and a second purchase of $14.9 million in FY 2021. The concentrate will be converted to vaccine to be used in the event of an FMD outbreak. APHIS awarded contracts to private companies to help supply the vaccine to the Bank. While APHIS is confident in its ability to exclude FMD from the country, vaccines are an important part of the Agency's strategy to eradicate the disease and can be a critical tool to allow America's farmers and ranchers to recover quickly should the disease be introduced into the United States. The use of vaccines will depend on the circumstances of the incursion and will require careful coordination with affected animal industries. Vaccination helps control the spread of infection by reducing the amount of virus shed by animals and controlling clinical signs of illness. While an outbreak would temporarily disrupt international markets, vaccination would allow animals to move through domestic production channels. APHIS will leverage the infrastructure of the National Veterinary Stockpile for the distribution of vaccine, should it be needed. On August 3, 2020, APHIS continued its efforts to strengthen the NAVVCB, and announced the availability of a sources-sought notice to gather information from diagnostics manufacturers on their ability to supply test kits for FMD, African swine fever (ASF), and classical swine fever (CSF). APHIS received 14 responses to the notice and will use the information provided in those dossiers to help determine whether it would recommend inclusion of test kits and their components in the NAVVCB. Limited reagent availability during the COVID-19 pandemic highlighted the potential need for a diagnostics stockpile to support a nationwide large-scale FAD outbreak. APHIS anticipates the need for diagnostic kits and reagents from more than one source to ensure an adequate and more resilient supply for the surge of diagnostic samples that could result from an infectious disease epidemic.

The NAHLN is a nationally coordinated network and partnership of Federal, State, and university-associated animal health laboratories that provide animal health diagnostic testing to detect endemic and high-consequence pathogens in the nation's food animals. This effort is vital to protecting animal health, public health, and the U.S. food supply. The NAHLN laboratories serve as an early warning system for detecting animal diseases and pathogens, and they provide surge capacity during an outbreak and recovery response. Rapidly diagnosing and detecting the extent of an outbreak plays a key role in limiting the impact on producers. In FY 2020, APHIS provided $5 million in Farm Bill funds for 26 projects led by NAHLN laboratories in 19 States. The projects addressed test method development and validation, improving electronic data transmission, increasing laboratory biosafety and biosecurity, and enhancing emergency preparedness. These efforts will help the Agency bolster NAHLN diagnostic capability. In December 2020, APHIS awarded $5.1 million to support 30 projects led by NAHLN laboratories representing 21 States to enhance the early detection of high-consequence animal diseases and improve diagnostic testing for high concern diseases, including ASF, CSF, FMD, and avian influenza. In August 2021, APHIS provided an additional $2.5 million for the 47 primary NAHLN laboratories through cooperative agreements for infrastructure needs. In December 2021, APHIS announced that it would award $4.4 million to help NAHLN laboratories enhance the early detection of high-consequence animal diseases and improve emergency response capabilities at NAHLN veterinary diagnostic labs.

Also, in December 2021, APHIS announced that it would provide $4.3 million in Farm Bill funds in the first joint NAHLN/NADPRP funding opportunity. These funds will support seven projects to develop and evaluate FAD point-of-care diagnostic tests. The NADPRP Consultation Board and NAHLN Coordinating Council strongly supported this collaborative initiative that addresses a high priority for all stakeholders. These projects will receive funding through cooperative agreements in the first quarter of calendar year 2022.

Feral Swine Eradication and Control Pilot Program

The Feral Swine Eradication and Control Pilot Program (FSCP) was authorized by Section 2408 of the Agriculture Improvement Act of 2018 (P.L. 115-334). The Farm Bill provided $75 million in mandatory funding for fiscal years 2019 through 2023. This funding is equally divided between the Natural Resources Conservation Service (NRCS) and APHIS to carry out the pilot program.

The objective of FSCP is to pilot collaborative efforts to address the threat that feral swine pose to agriculture, native ecosystems, and human and animal health. Feral swine are an invasive species that damage agricultural crops, degrade natural systems, and carry diseases that can be passed on to livestock and humans. Feral swine occur across the United States, but the heaviest concentrations are found in Southeastern portions of the country and stretch as far west as Texas and Oklahoma with high populations also found in California.

Pilot areas were identified collaboratively by NRCS and APHIS personnel in consultation with State technical committees. FSCP is delivered within pilot areas through three coordinated components. First, APHIS works directly to control feral swine populations. Second, NRCS provides funding to partner organizations to provide technical and financial assistance to agricultural producers for on-farm trapping and other means of feral swine control. Partner organizations also provide other services including pre- and post-project damage assessments and

other means to assess progress in control efforts. Finally, NRCS provides technical and financial assistance for restoration of damage caused by feral swine after those populations have been controlled.

Delivery of FSCP is prioritized to those States that have the highest and most damaging feral swine populations. While feral swine do have a wide distribution, APHIS has an existing program for controlling the species that has proved effective in addressing emerging populations in conjunction with States. The pilot program builds upon and expands work already underway by APHIS' National Feral Swine Damage Management Program to remove feral swine while reducing damages in areas with high population densities in partnership with local government, the private sector, industry, and academia.

Since 2019, USDA has funded 34 projects in 12 States (Alabama, Arkansas, Florida, Georgia, Hawaii, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, and Texas). These projects focus on addressing issues with a high density of feral swine. Projects can last for one to three years and are expected to conclude at the end of 2023. At the end of FY 2021, all projects are ongoing. The Agency is also collecting data on the types and number of agriculture and property resources protected, as well as damage data to those resources, as part of the effort to best determine the economic impacts of feral swine. Specific to Farm Bill projects, APHIS is currently protecting an estimated 1.93 million acres of crops, range/pastureland, timber, and other natural resource from feral swine damage. In addition, an estimated 1.38 million head of livestock are also being protected. These figures will continue to be evaluated through the completion of the projects.

Table APHIS-19. Summary of key FY 2021 CCC/Farm Bill funded activities

	Emergency/Activity	Total Available in FY 2021	Total Obligations in FY 2021
1	Bovine Tuberculosis	$16,185,274	$2,435,105
2	Farm Bill – Plant Protection Act, Section 7721	70,725,000	70,227,291
3	Farm Bill – Animal Disease Prevention and Management, Section 12101	88,800,921	39,013,990
4	Farm Bill – Feral Swine Eradication and Control Pilot Program, Section 2408	28,243,706	7,231,093
	Total	$203,954,901	$118,907,478

a/ Total Available includes account recoveries, where applicable.

OTHER APPROPRIATED FUNDED ACTIVITIES

Selected Examples of Recent Progress in – American Rescue Plan

1. American Rescue Plan

In FY 2021, Congress provided USDA $300 million through the American Rescue Plan (ARP) Act to conduct monitoring and surveillance of susceptible animals for SARS-CoV-2, addressing the longstanding need to strengthen our ability for early detection of emerging and zoonotic diseases in animals. APHIS, designated as the lead USDA agency for the effort, developed a strategic framework to strengthen our One Health capacity and improve the country's ability to prevent, detect, report and respond to SARS CoV-2, including potential emerging variants. This framework includes four strategic focus areas: prevention, detection, investigation and control of spread, and communication and outreach. APHIS established operational planning cells for three of the four strategic focus areas to develop activities and projects that advance the overall framework goals. APHIS integrated communication specialists into each of the planning cells. A fourth planning cell for strategic and operational information technology and management will be developed in FY 2022. The framework was made publicly available in August 2021.

Activities developed from the operational planning cells will include expanding surveillance to a wider range of animal species, including farmed animals, free-ranging and captive wildlife, peri-domestic species, and companion animals; increasing diagnostic testing capability and capacity; and conducting multisectoral, One Health investigations of new animal detections and exposures. This approach provides essential information needed by USDA and our One Health partners to develop and evaluate effective interventions and prioritize research efforts to safeguard animal health, prevent transmission at the human-animal interface, and minimize potential impacts to the food supply. This framework creates the foundation for an early warning system that offers public health partners

the opportunity to act sooner and potentially prevent or limit the next zoonotic disease outbreak or the next global pandemic. APHIS will continue implementing activities in support of the framework in FY 2022, and beyond.

ACCOUNT 2: BUILDINGS AND FACILITIES

APPROPRIATIONS LANGUAGE

The appropriations language follows (new language underscored; deleted matter enclosed in brackets):

For plans, construction, repair, preventive maintenance, environmental support, improvement, extension, alteration, and purchase of fixed equipment or facilities, as authorized by 7 U.S.C. 2250, and acquisition of land as authorized by 7 U.S.C. 2268a, $3,175,000, to remain available until expended.

LEAD-OFF TABULAR STATEMENT

Table APHIS-20. Lead-Off Tabular Statement (In dollars)

Item	Amount
Estimate, 2022	$3,175
Change in Appropriation	-
Budget Estimate, 2023	3,175
Budget Estimate, Current Law 2023	$3,175

PROJECT STATEMENT

Table APHIS-21. Appropriation Project Statement – Appropriations (thousands of dollars, FTE)

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.	Chg Key
Discretionary Appropriations:											
Buildings and Facilities	3,175	-	3,175	-	3,175	-	3,175	-	-	-	
Subtotal	3,175	-	3,175	-	3,175	-	3,175	-	-	-	
Total Adjusted Appropriations	3,175	-	3,175	-	3,175	-	3,175	-	-	-	
Total Appropriation	3,175	-	3,175	-	3,175	-	3,175	-	-	-	
Rescission	-	-	-	-	-	-	-	-	-	-	
Sequestration	-	-	-	-	-	-	-	-	-	-	
Recoveries, Other	114	-	1,884	-	-	-	-	-	-	-	
Bal. Available, SOY	44,836	-	43,938	-	43,695	-	43,370	-	-325	-	
Total Available	48,125	-	48,996	-	46,870	-	46,545	-	-325	-	
Bal. Available, EOY	-43,938	-	43,695	-	-43,370	-	-43,045	-	+325	-	
Total Obligations	4,188	-	5,301	-	3,500	-	3,500	-	-	-	

Table APHIS-22. Obligations Project Statement – Obligations (thousands of dollars, FTE)

Item	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	Inc. or Dec.	FTE	2023 Budget	FTE
Discretionary Obligations:										
Buildings and Facilities	4,188	-	5,301	-	3,500	-	-	-	3,500	-
Total Obligations	4,188	-	5,301	-	3,500	-	-	-	3,500	-
Balances Available, EOY:										
Discretionary										
Buildings and Facilities	3,803	-	3,560	-	3,235	-	-325	-	2,910	-
General Provision 743 Fruit Fly Rearing Facility	40,135	-	40,135	-	40,135	-	-	-	40,135	-
Total Bal. Available, EOY	43,938	-	43,695	-	43,370	-	-325	-	43,045	-
Total Available	48,125	-	48,996	-	46,870	-	-325	-	46,545	-
Recoveries	-114	-	-1,884	-	-	-	-	-	-	-
Bal. Available, SOY	-44,836	-	-43,938	-	-43,695	-	325	-	-43,370	-
Total Appropriation	3,175	-	3,175	-	3,175	-	-	-	3,175	-

JUSTIFICATION

Buildings and Facilities: $3,175,000 and 0 staff years available in the FY 2022 Annualized Continuing Resolution

The Buildings and Facilities (B&F) program addresses facility needs in support of the Agency's mission to protect the health and value of agriculture and natural resources nationwide. The program's goal is to systematically address the Agency's needs for maintaining and repairing existing facilities, as well as constructing new facilities. APHIS' Facility Condition Index (FCI) drives the projects; the FCI is the sum of the costs of needed repairs divided by the replacement value of the facility. APHIS strives to maintain an FCI for facilities assessed of less than 0.10, meaning that the cost to make repairs is less than 10 percent of the estimated replacement value for the facility.

This program serves a vital role in maintaining APHIS' facilities so that employees can continue to carry out their responsibilities in a safe and efficient manner. The commitment to maintain the condition and functionality of facilities is an ongoing process that demands significant management of capital resources. The program manages the implementation of scheduled facility improvements, safety, construction, and maintenance. Contractors perform inspections and tests to substantiate that the supplies or services furnished under the contract conform to contract requirements. In addition, a design firm validates that the work aligns with approved plans and specifications. APHIS typically identifies on-site certified personnel to perform the contracting services. The Agency's engineering staff assist with the development of project plans, attend on-site construction progress meetings/reviews, and APHIS collects performance data through contractor reports and on-site verification.

In FY 2021, APHIS awarded 14 design/construction tasks associated with projects at a cost of approximately $3.4 million and completed 21 construction projects. Approximately 67 percent of these projects were major renovations, and the remaining were for minor repairs. Two examples of these major renovation projects include floor resurfacing at the Miami Animal Import Center in Miami, Florida and the chiller replacement at the National Wildlife Research Center Field Station in Fort Collins, Colorado.

The B&F program allows APHIS to centrally coordinate and prioritize these types of projects. Without necessary maintenance and repairs to facilities there could be program delays, environmental impacts, and noncompliance with State and local laws and codes. Many of APHIS' facilities have specialized functions that support various Federal, State, and local government programs, stakeholders, and customers. B&F projects ensure that APHIS' programs can be conducted at safe, secure, sustainable, and high-performing facilities.

Approximately 99 percent of B&F funding supports indefinite delivery, indefinite quantity contracts (e.g., architect and engineering support), and construction contracts. These contracts, which provide indefinite supplies or services during a fixed period, help streamline the contract process and expedite service delivery. The remaining funds support operating costs.

GEOGRAPHIC BREAKDOWN OF OBLIGATIONS AND FTE

Table APHIS-23. Geographic Breakdown of Obligations and FTE (thousands of dollars, FTE)

State/Territory/Country	2020 Actual	FTE	2021 Actual	FTE	2022 Estimated	FTE	2023 Estimated	FTE
California	$1,477	-	-	-	-	-	-	-
Colorado	-	-	$105	-	-	-	-	-
Florida	59	-	65	-	$100	-	$100	-
Hawaii	45	-	-	-	-	-	-	-
Iowa	-	-	52	-	250	-	300	-
Maryland	96	-	402	-	350	-	400	-
Mississippi	20	-	-	-	-	-	-	-
Montana	-	-	-	-	-	-	-	-
New York	-	-	1,236	-	750	-	800	-
Texas	2,223	-	3,442	-	1,550	-	1,500	-
Utah	-	-	-	-	-	-	-	-
Virginia	46	-	-	-	500	-	400	-
Wisconsin	35	-	-	-	-	-	-	-
INTERNATIONAL REGIONS								
CENTRAL AMERICA:								
Guatemala	141	-	-	-	-	-	-	-
NORTH AMERICA:								
Mexico	45	-	-	-	-	-	-	-
Obligations	4,188	-	5,301	-	3,500	-	3,500	-
Lapsing Balances	-	-	-	-	-	-	-	-
Bal. Available, EOY	44,836	-	43,695	-	40,235	-	40,910	-
Total, Available	49,024	-	48,996	-	43,735	-	44,410	-

CLASSIFICATION BY OBJECTS

Table APHIS-24. Classification by Objects (thousands of dollars)

Item No.	Item	2020 Actual	2021 Actual	2022 Estimated	2023 Estimated
	Other Objects:				
25.2	Other services from non-Federal sources	2,175	3,435	2,000	2,000
25.3	Other goods and services from Federal sources	1,979	1,866	-	-
25.4	Operation and maintenance of facilities	35	-	1,500	1,500
	Total, Other Objects	4,188	5,301	3,500	3,500
99.9	Total, new obligations	4,188	5,301	3,500	3,500

STATUS OF PROGRAMS

The Buildings and Facilities (B&F) appropriation funds major, nonrecurring, construction projects in support of program activities, and recurring construction, alterations, and repairs of existing facilities. These projects and activities allow other programs and employees to focus on APHIS' mission of protecting the health and value of agriculture and natural resources nationwide. The goal of the B&F program is to systematically address the Agency's needs for maintaining and repairing existing facilities as well as constructing new facilities.

This program serves a vital role in maintaining APHIS' facilities so that employees can carry out their responsibilities safely and efficiently. Maintaining the condition and functionality of these facilities is an ongoing process that demands significant management of capital resources. Many of APHIS' facilities have specialized functions that support various Federal, State, and local government programs, as well as stakeholders and customers. B&F projects ensure that APHIS' programs are conducted at safe, secure, sound, sustainable and high-performance facilities that support the Agency's mission.

APHIS' B&F program maximizes its efficiency through comprehensive construction projects. The Agency spends approximately 99 percent of its funding on indefinite delivery, indefinite quantity and construction contracts. These contracts, which provide an indefinite quantity of supplies or services during a fixed time period, help streamline the contract process and expedite service delivery. Remaining B&F funds support information technology projects (i.e., Facilities Capital Planning and Management software).

Facilities Condition Assessment

APHIS assigns each facility with a Facility Condition Index (FCI), which is the sum of the costs of needed repairs divided by the replacement value of the facility and uses the FCI scores to determine each year's projects. APHIS strives to maintain an FCI for facilities assessed of less than 0.10, meaning that the cost to make repairs is less than 10 percent of the estimated replacement value for the facilities.

Since FY 2000, APHIS has used a comprehensive Facilities Condition Assessment program to better understand the condition of facilities, strategically maintain them by identifying deficiencies and funding needs, stabilize the facilities repair backlog, predict maintenance needs, and implement financial management and capital asset improvement efforts. To implement this Facilities Condition Assessment program, a consulting firm is tasked with assessing the relative condition of assets and facilitating comparisons both within and among APHIS' facilities. The consulting firm calculates an FCI for each facility by program and Agency. In FY 2021, the program began utilizing a new contracted consulting firm to assess our facilities. This change in operation, as well as COVID-related travel restrictions, delayed the annual assessment of APHIS' facilities and the development of the FCI summary for FY 2021. Assessment activities are expected to resume as practicable in FY 2022.

Summary of Current Projects

The B&F program implements scheduled improvements, and conducts security, construction, and maintenance activities. Contractors perform inspections and tests to substantiate that the supplies or services furnished under the contract conform to contract requirements. In addition, a third-party design firm validates that the work aligns with approved plans and specifications. APHIS typically identifies on-site certified personnel to perform the Contracting Officer's Representative services. The Agency's engineering staff attends construction progress meetings in person, on-site, or virtually and APHIS collects performance data through contractor reports and on-site verification.

As of October 2021, APHIS' B&F appropriation supported twelve active projects. In FY 2021, APHIS awarded 14 design/construction tasks associated with projects at a cost of approximately $3.4 million and completed 21 construction projects. Approximately 67 percent of these projects were major renovations, and the remaining were for minor repairs. Two examples of these major renovation projects include floor resurfacing at the Miami Animal Import Center in Miami, Florida and the chiller replacement at the National Wildlife Research Center Field Station in Fort Collins, Colorado. To ensure the construction modifications are in compliance with requirements for Federally operated facilities, the program performed final inspections to confirm all work is complete in accordance with the design documents.

Some of the ongoing projects requiring major or minor renovations include replacing the HVAC system at Moore Air Base, Building 6414, in Mission, Texas, and upgrading the incinerator at the New York Animal Import Center (NYAIC) in Rock Tavern, New York. Progress on these projects in FY 2021, are summarized below:

Moore Air Base, Building 6414 HVAC System
This project includes replacing existing chilled water piping and air handling units that have reached their life expectancy for optimal usage. The construction contract was awarded in FY 2021, and construction is expected to continue into FY 2022. Construction is anticipated to be complete by the end of FY 2022.

NYAIC Incinerator Upgrades
The NYAIC is an animal quarantine center used to screen birds and hoof stock entering the country. In 1980, two gas-fired incinerators were installed to destroy animal bedding and similar type waste. Recent revisions to the air emission standards upheld by the New York State Department of Environmental Conservation, state that incinerators and crematories installed prior to January 1, 1989, must meet a more stringent air emission requirement. If the new standards are not met, NYAIC could possibly be fined and/or the incinerators shutdown until compliance is achieved. APHIS is proactively upgrading the incinerators. In FY 2021, the construction contract for this project was awarded. Construction is anticipated to be complete by the end of FY 2022.

AGENCY-WIDE PERFORMANCE

Introduction

OBPA leads the Department in performance management including, evaluation, evidence, and risk management; it also chairs the Performance, Evaluation, Evidence Committee (PEEC) and the Enterprise Risk Management (ERM) committee. APHIS is a member of both the PEEC and ERM committees which is comprised of individuals from different Mission Areas and backgrounds throughout USDA. The impact of different perspectives and expertise allows for improvements regarding buy-in across the Department, augments technical expertise, and creates a greater diversity of perspectives. Partnerships with the Chief Data Officer and Statistical Officer allow for greater insight and advisement on data access, data quality, and statistical methods.

APHIS' Policy and Program Development unit spearheads its efforts in Strategic Planning, Performance, Evidence and Evaluation, and Enterprise Risk Management, works directly with OBPA and senior leadership, and actively engages with both internal and external stakeholders.

Alignment to USDA 2022 – 2026 Strategic Plan

APHIS activities contribute to the success of USDA's overall mission to provide leadership on food, agriculture, natural resources, rural development, nutrition, and related issues using sound public policy, the best available science, and effective management, to the benefit of all Americans. APHIS is responsible for achieving and measuring results with respect to the following 2022 – 2026 Strategic Goal and Objectives:

Strategic Goal 2: Ensure that America's agricultural system is equitable, resilient, and prosperous
Objective 2.1: Protect agricultural health through minimizing the impact of major pests, diseases, and wildlife conflicts

SUMMARY OF PERFORMANCE

A more detailed report of the performance plan can be found at https://www.usda.gov/our-agency/about-usda/performance . The following table summarizes the results for the Departmental Key Performance Indicators (KPIs) for which APHIS is responsible.

Table APHIS-25. KPIs

Strategic Objective 1.2		**FY 22**	**FY 23**	**FY 24**	**FY 25**	**FY 26**
Wildlife Disease Sampling	Results	-	-	-	-	-
2.1.1 Number of zoonotic and agricultural diseases sampled in wildlife	Target	16	17	18	19	20

Strategic Objective 1.2		**FY 22**	**FY 23**	**FY 24**	**FY 25**	**FY 26**
Climate Suitability Mapping	Results	-	-	-	-	-
2.1.2 Number of priority pests for which climate suitability maps have been completed	Target	14	22	30	38	46

Expected Performance Progress Towards the Achievement of Strategic Objectives:
Strategic Objective 2.1: Protect agricultural health through minimizing the impact of major pests, diseases, and wildlife conflicts.

- **Wildlife Disease Sampling:** This KPI represents the number of zoonotic and agricultural diseases for which APHIS has developed methods and procedures to sample in wildlife.
    - In FY 2023, APHIS will develop methods and procedures to sample for new zoonotic or agriculturally significant diseases in wildlife, for a total of 17 diseases. APHIS currently reports on 15 diseases in wildlife populations, including avian influenza, rabies variants, chronic wasting disease, and SARS-CoV-2. APHIS will add new sampling methods based on those diseases that pose the highest risk to agricultural health or human health, in the case of zoonotic diseases.

- **Climate Suitability Maps:** This KPI represents the number of maps APHIS has completed related to climate suitability for high-risk pests and diseases.
    - In FY 2023, APHIS will complete eight climate suitability maps for a cumulative total of 22 maps. APHIS develops the maps using a modeling framework that depicts the changing suitability of an area for pest or disease occurrence based on occurrences of three favorable conditions specific to the pest or the disease. The maps will help guide efforts to determine where to conduct surveys. Importantly, the maps will help APHIS and cooperators use survey resources more effectively by eliminating the need to survey for some high-risk pests if suitable conditions do not exist in an area.