Interim Report

to the 84th Legislature

House Committee on Agriculture and Livestock

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HOUSE COMMITTEE ON AGRICULTURE AND LIVESTOCK
TEXAS HOUSE OF REPRESENTATIVES
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A REPORT TO THE
HOUSE OF REPRESENTATIVES
84TH TEXAS LEGISLATURE

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CHAIRMAN

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Committee On
Agriculture and Livestock

January 6, 2015

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P.O. Box 2910
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The Honorable Joe Straus
Speaker, Texas House of Representatives
Members of the Texas House of Representatives
Texas State Capitol, Rm. 2W.13
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Dear Mr. Speaker and Fellow Members:

The Committee on Agriculture and Livestock of the Eighty-third Legislature hereby submits its interim report including recommendations and drafted legislation for consideration by the Eighty-fourth Legislature.

Respectfully submitted,

Representative Tracy O. King

Representative Charles "Doc" Anderson

Representative Tim Kleinschmidt

Representative James White

Representative Mary González

Representative Drew Springer

Representative Kyle Kacal

Representative Charles "Doc" Anderson
Vice-Chairman
Members: Tim Kleinschmidt, James White, Mary González, Drew Springer, Kyle Kacal

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AGRICULTURE AND LIVESTOCK

INTRODUCTION

At the beginning of the 83rd Legislature, the Honorable Joe Straus, Speaker of the Texas House, appointed 7 members to the House Committee on Agriculture and Livestock. The committee membership consisted of: Representatives Tracy O. King (Chairman), Charles "Doc" Anderson (Vice-Chairman), Mary González, Kyle Kacal, Tim Kleinschmidt, Drew Springer, and James White.

During the interim, the Speaker assigned the committee five charges:

1. Evaluate actions by state agencies under the committee's jurisdiction to increase transparency, accountability, and efficiency. Consider cost-saving technologies such as the route optimization system used by the Texas Department of Agriculture to save funds in inspection activities. Identify and make recommendations to address gaps and to improve efficiency and access to user-friendly information while protecting appropriate data security.

2. Study the feasibility of the creation of a border agricultural inspection training program and the authority of the Texas Department of Agriculture (TDA) employees to augment federal inspectors at Texas border land ports of entry. The study should include similar subject matter to HB 3761 (83R). Measure and estimate the increase in state revenue and secondary economic benefits that could be created from implementing the efficiency measures in HB 3761 (83R) as a way to offset costs for additional state inspectors.

3. Evaluate the Texas Right to Farm Act and determine if certain recommendations and updates to the law should be made in efforts to protect agricultural operations.

4. Examine current statutes and rules to determine any necessary enhancements that can assist in the eradication of feral hogs by using practical solutions and effective eradication techniques. *(Joint charge with the House Committee on Culture, Recreation and Tourism)*

5. Conduct legislative oversight and monitoring of the agencies and programs under the committee's jurisdiction the implementation of relevant legislation passed by the 83rd Legislature. In conducting this oversight, the committee should:
    a. consider any reforms to state agencies to make them more responsive to Texas taxpayers and citizens;
    b. identify issues regarding the agency or its governance that may be appropriate to investigate, improve, remedy, or eliminate;
    c. determine whether an agency is operating in a transparent and efficient manner; and

d. identify opportunities to streamline programs and services while maintaining the mission of the agency and its programs.

BORDER WAIT TIMES FOR AGRICULTURAL IMPORTS

BACKGROUND

Under the U.S. Department of Homeland Security (DHS), the U.S. Customs and Border Protection is responsible for performing inspections on non-livestock agricultural products at Texas land ports of entry (POE). Due to a variety of factors identified by researchers at Texas A&M AgriLife, including a lack of qualified plant inspectors, certain land ports of entry are experiencing exceptional congestion. This issue is expected to be greatly exacerbated by the completion of the Mazatlán-Matamoros superhighway in Mexico. It is reported that this highway will redirect a substantial amount of northbound import traffic through South Texas bridges that otherwise would have entered the United States elsewhere.

As an attempt to alleviate congestion and wait times, HB 3761, as introduced, originally sought to allow the Texas Department of Agriculture (TDA) the authority to train state employees to assist federal agriculture inspectors at Texas land ports of entry. The bill limited training TDA inspectors to inspect non-livestock products only. Through such an agreement, products subject to inspection by TDA employees would include, but would not be limited to, animal products and byproducts, cut flowers, fresh fruits and vegetables, grains and seeds, and propagative plants.

Partially due to the complicated process of forming a working agreement with the federal government, HB 3761 was rewritten to direct TDA to conduct a study exploring the federal agricultural inspection process. This study would determine what agreements between Texas and the federal government would be needed to implement a state sponsored training and inspection program. In the event of an agreement, TDA would be responsible for hiring, and paying for the training of inspectors in accordance with federal standards and guidelines.

Unfortunately, the federal government is unwilling to contract with state employees in such a manner.

Texas-Mexico Ports of Entry that Conduct Agricultural Inspections

Of the 1,254 miles of the Texas-Mexico border, there are 28 crossings under some form of federal jurisdiction. Of those 28, only 13 international bridges conduct agricultural inspections. Depending on highway infrastructure and geographic location, agricultural import traffic can vary significantly. For example, the Del Rio International Bridge conducts such a limited amount of agricultural inspections it does not have to report to the U.S. Department of Agriculture (USDA).

The table below matches each port of entry that conducts agricultural inspections with the reported amount by weight in kilograms of imported produce. 170 imported agricultural

commodities are counted in these figures. (Note: Other agricultural products pertaining to this study are not included due to limitations on available data.)

Port of Entry	Bridge	Total Weight
Brownsville/Los Indios	Free Trade International Bridge	23,209,131.0
	Veterans at Los Tomates	17,091,633.5
Eagle Pass	Camino Real International Bridge	40,622,688.4
El Paso	Bridge of the Americas	22,764,817.0
	Ysleta-Zaragoza Bridge	12,528,873.0
Hidalgo/Pharr/Anzalduas	Pharr International Bridge	2,040,090,421.0
Laredo	Laredo-Colombia Solidarity Bridge	507,867,075.0
	World Trade International Bridge	337,391,395.0
Presidio	Presidio Bridge	7,084,791.0
Progreso/Donna	Progreso International Bridge	456,612,524.0
Rio Grande City/Los Ebanos	Rio Grande City International Bridge	206,816,544.8
Roma/Falcon Dam	Roma International Bridge	6,540.0
Total		3,672,086,433.7

FEDERAL AGRICULTURAL INSPECTION PROCESS

As a result of the Homeland Security Act of 2002, both the DHS's U.S. Customs and Border Protection (CBP) and the USDA's Animal and Plant Health Inspection Service (APHIS) are responsible for the inspection of agricultural imports. The complicated arrangement between the two agencies provides that CBP performs agricultural inspections while APHIS sets inspection policy, oversees CBP agriculture specialists' training, and manages and collects user fees. This relationship has become increasingly strained as CBP is forced to direct more attention to border security and APHIS faces declining budgets and resources.

Upon arrival, agricultural products are inspected by USDA-APHIS trained agricultural specialists. These inspectors typically have a degree in botany, entomology, biology, or plant pathology. The imports are inspected for harmful insects, plant/animal diseases, and any other biological threat. Upon the discovery of an insect, the specimen must be properly identified and determined non-threatening prior to the release of cargo. The insects found by CBP inspectors at ports of entry in South Texas are typically sent to an APHIS Identifier in Los Indios. It is there that most insect and plant disease identifications are made. For reasons unclear, this lab is located at a point of entry that does not have particularly high levels of agricultural import traffic. Recognizing this problem, APHIS has been approved to hire one new Identifier that will be located at the Pharr Bridge. While most specimens are sent to Los Indios, Rio Grande City also has an APHIS lab which is permitted to make certain identifications via digital photos. If both the Rio Grande City and Los Indios labs are unable to make certain identifications, the specimen is then shipped overnight to the APHIS lab in Washington D.C. In such cases, cargo is not released until a determination has been made that a specimen poses no threat.

Division of Responsibilities

As two agencies are responsible for the inspection process, two sets of regulations delineate their duties and responsibilities. First, is the memorandum of agreement (MOA) between the USDA and DHS. Second, is the Code of Federal Regulations (CFR) relating to agricultural inspections.

The MOA between APHIS and CBP clearly defines the separation of duties between the two agencies. The following summary provided by Texas A&M AgriLife highlights major duties assigned in articles 2 and 3 of the MOA to each agency.

For cargo inspections, CBP's role is to:

- Review manifests and hold shipments of agriculture concern, and determine entry requirement.
- Inspect shipments, including fruit cutting, to validate treatment. Determine if shipment meets import requirements.
- Submit pest interceptions to APHIS Plant Protection Quarantine (PPQ) for identification. Complete Emergency Action Notification (EAN) if an actionable pest is found or mandatory treatment required. Safeguard commodity prior to treatment, re-export, or destruction. Monitor destruction or re-export per established guidelines.
- Monitor reconditioning of cargo when repackaging or removal of non-compliant packing material is required.
- Inspection and safeguard dunnage. Monitor destruction if required.
- Notify PPQ if cargo fumigation is required, and then transfer custody to PPQ.
- Monitor non-fumigation treatments. Release treated shipments as appropriate.
- Take necessary actions and recover costs for remedial measures when importer or agent fails to follow EAN.

APHIS-PPQ’s primary function is to provide pest identifications and action status, select

appropriate treatments, and safeguard shipment at fumigation sites and monitor fumigations.

For clearance of plants, seeds, and other propagules, CBP's role is to:

- Review manifests and hold shipments of plants, seeds, and other propagules.
- Determine if shipments meet regulatory requirements.
- Inspect and release, if appropriate, admissible shipments not requiring clearance through a Plant Inspection Station or admissible without a permit per 7CFR 319.37
- Refer to PPQ those shipments requiring clearance through a Plant Inspection Station
- Destroy or re-export prohibited or refused shipments
- Coordinate and safeguard the movement of live plant pests (permitted) to a Plant Inspection Station

APHIS-PPQ's primary function is to inspect and treat (when appropriate) shipments imported under a permit or admissible without a permit, and to refer prohibited or refused shipments to CBP for destruction or re-export.

For Agricultural Quarantine Inspection Monitoring (AQIM), CBP's role is to:

- Provide local port AQIM coordinator and members to the National AQIM team.
- Maintain local port sampling procedures per PPQ guidelines; select and inspect sample from appropriate population; enter data into Epi database and transmit data file.
- Perform primary data quality control and provide PPQ access for AQIM activity reviews.

APHIS-PPQ agrees to:

- Provide member to the National AQIM team.
- Determine AQIM pathways and content; consult with statistical resources; determine sampling protocols and communicate sampling protocols to CBP.
- Provide AQIM procedure training, worksheets and data base entry files.
- Provide additional data quality control.
- Coordinate with CBP to perform AQIM port activity/reviews.

For Pest Interception Tracking, CBP's role is to:

- Collect and prepare pest interceptions, complete appropriate forms needed for APHIS-PPQ to identify pests, and to communicate cargo disposition options to the broker or importer. APHIS-PPQ's primary role is to analyze intercepted pests, determine quarantine response, and provide pest identification training to CBP.

Statutory Authority:

Statutory authority for regulation of items of agricultural interest is in the Animal Health Protection Act (7 U.S.C. 8301 et seq.). The authority of specific regulatory actions pertaining to inspections discussed in this report is found in Title 7 (Agriculture), Code of Federal Regulations, referred to as "7CFR."

Components of the Inspection Process:

Primary Inspections by CBP Officers

CBP officers conduct primary inspections of cargo, both agricultural and nonagricultural, and refer USDA-regulated cargo to CBP agriculture specialists for secondary inspections. The following describes the primary inspection process.

User Fee. After clearing Mexican Customs, a United States-bound commercial truck crosses an international bridge. The truck driver may be required to pay a toll to the bridge owner or operator. Additionally, a CBP annual user fee for customs services and animal and plant health inspection services is required. Once the user fee has been paid, a transponder will be issued for the truck. The transponder will transmit information about the vehicle and its border crossing user fee payment status. A truck that has not paid the annual user fee must pay a crossing fee each time the truck enters the United States.

Cargo Lot. Immediately upon entering the United States, the truck is directed to the federal inspection compound at the cargo lot. Entrance to the compound may be through primary inspection booths. There may be designated lanes for truck drivers enrolled in the Free and Secure Trade program, or FAST, which provides expedited processing for low-risk shipments entering the United States from Canada or Mexico.

Anti-Terrorism Screening. Depending on the risk factors, CBP officers may use nonintrusive inspection technology to detect the presence of narcotics, weapons, and other contraband in the truck and cargo without physically opening or unloading the truck. The technology includes large-scale x-ray and gamma-ray imaging systems as well as portable and handheld devices. It also includes radiation detection equipment that may be used to scan the truck and containers for illicit nuclear and radiological materials.

Document Review. Certain documentation or information is required for the entry of any imported commercial merchandise. Most formal entry documents are filed with CBP electronically through the Automated Broker Interface available to licensed customs brokers and other qualified participants. The documents enable CBP to properly assess duties on the merchandise, collect accurate statistics with respect to the merchandise, and determine whether the merchandise is compliant with applicable entry requirements.

Cargo of Agricultural Interest. All cargo that is determined to be of agricultural interest is placed on hold by CBP officers. Items of agricultural interest include animal products and by-

products; cut flowers and greenery; dried and processed fruits, vegetables, and plant materials; fresh fruits and vegetables; grains, seeds, and nuts; timber and wood products; and propagative plant materials. Items of agricultural interest are regulated by USDA and may also be regulated by FDA.

Precleared Cargo. USDA-regulated cargo that arrives cleared for pests under an APHIS-PPQ preclearance program in a foreign country will be accompanied by APHIS-PPQ official documentation. Precleared cargo may include fresh fruits and vegetables, bulbs for planting, certain seeds, and military cargo. Shipments of precleared fruits and vegetables that lack specific instructions for officers or special inspection procedures will be released without further inspection if all other import conditions are met.

Nonpropagative Plant Material Not Precleared. When nonpropagative plant material, including cut flowers and greenery, dried and processed fruits, vegetables, and plant materials, and fresh fruits and vegetables, has not been precleared, the CBP officer will consult the appropriate APHIS-PPQ import manual to verify the import requirements. Clearance of admissible material may be made by presentation of paperwork, by an inspection (random, routine, or targeted examination), or by a combination of both methods.

Propagative Plant Material Not Precleared. Propagative plant material, including nursery stock, flower bulbs, and seeds for planting, that has not been precleared will be referred to a CBP agriculture specialist for inspection or forwarded to a PPQ plant inspection station. The PPQ plant inspection station at the Free Trade International Bridge (near Brownsville) is one of 16 plant inspection stations in the country and one of two inspection stations in Texas. The other Texas plant inspection station is in Humble.

Secondary Inspections by CBP Agriculture Specialists

Many factors influence the regulatory action taken in response to a hold on agricultural cargo. The following description provides an overview of the regulatory action that may be taken.

When Cargo is Inspected. While all cargo is subject to inspection, certain USDA-regulated cargo may not require inspection if APHIS import requirements are met and the cargo is at low risk of introducing a foreign pest of concern. High-volume, low-risk agricultural commodities entering the United States from Mexico may be inspected at reduced rates if a shipment contains a single commodity or a mix of commodities on the approved list for the National Agriculture Release Program (NARP). Commercial shipments of fresh, frozen, processed, and semi-processed fruits and vegetables from specific countries may be eligible for the program. Approval to include an agricultural commodity in NARP is determined by the commodity, its country of origin, and various pest risk factors that are reviewed and analyzed by USDA-APHIS-PPQ.

How Cargo is Inspected. When USDA-regulated cargo is inspected, it is referred to a CBP agriculture specialist for inspection. The specialist will take a representative sample of the cargo

for physical examination. There may be specific guidance related to the physical examination in an APHIS import manual such as the Fresh Fruits and Vegetables Manual. The specialist also may check cargo conveyances, including trucks, containers, and packing materials, for regulated pests of concern.

Finding of Nonregulated Pest. If a CBP agriculture specialist confirms that a pest found in cargo is a nonregulated pest and the specialist has cargo release authority for that pest, the shipment is released.

Finding of Other Pest. The CBP agriculture specialist must classify and route the plant pest interception to the appropriate PPQ area identifier. Digital technology is used to transmit images to the PPQ area identifier when feasible. If necessary, the PPQ area identifier will forward the interception to a PPQ national specialist. While waiting for the final pest identification, the CBP agriculture specialist will safeguard the cargo to minimize the risk of pest dissemination or accidental release. Safeguards include applying physical barriers around the cargo and sealing the cargo, truck, or container.

Voluntary Treatment of Cargo. When a pest is found in a perishable commodity shipment and the CBP agriculture specialist does not have cargo release authority for that pest, it may not be feasible to wait one to three days for final pest identification. Upon request of the importer, treatment can be authorized before final pest identification under certain conditions relating to risk factors identified by APHIS-PPQ. Quarantine treatments can be chemical or nonchemical. Treatment must occur at a PPQ-approved treatment facility.

Nonactionable Pest. If the final pest identification indicates that the pest is nonactionable, the shipment is released.

Actionable Pest. If the pest is actionable, the CBP agriculture specialist will issue an emergency order to the importer and give the importer the option to treat, destroy, or re-export the cargo. If the importer opts to treat the cargo, PPQ staff will take possession of the cargo and supervise treatment by an approved commercial applicator. If a shipment is transferred to PPQ for treatment, it is the responsibility of PPQ to notify CBP that the treatment has been completed so that the shipment can be released once the treatment requirements are satisfied.

Finding of Contamination. If an imported article is contaminated with soil, the CBP agriculture specialist will have the soil removed and arrange disposal of the soil. If the specialist finds noxious weeds or other contamination and the truck can be cleaned and disinfected at an approved facility, the specialist will allow the truck to move to the approved facility. If the vehicle cannot be cleaned and disinfected, the contaminated article must be exported.

Final Regulatory Action. The final regulatory action relating to a hold on agricultural cargo is documented by CBP and conveyed to interested parties. Appropriate final regulatory actions include "Caution: Shipment Authorized," "Inspected and Released," "Prohibited Entry," "Released for Export," "Seized," or "Treated and Released."

FDA-Regulated Cargo

CBP Coordination with FDA. CBP requires any product offered for entry into the United States to be identified according to tariff codes. CBP uses the tariff codes to determine if a shipment of food, including animal feed, falls under the jurisdiction of FDA and whether prior notice information must be submitted to FDA before the shipment arrives in the United States. FDA indicates to CBP whether the shipment is acceptable for release or should be held for further review. FDA identifies food shipments for examination based on the relative risk of the food, the compliance history of the food and food facility, and information from general surveillance programs.

FDA Examinations. FDA personnel may be located at the federal inspection compound or may travel to the compound from a nearby port of entry. Analytical results from products sampled by FDA are evaluated by FDA compliance officers in Dallas (for the El Paso port of entry) or in Laredo (for all other ports of entry on the Texas-Mexico border that have federal agricultural inspections). The FDA compliance officers are responsible for the decision to admit or refuse a shipment that has been sampled.

WAIT TIMES

While certain Texas-Mexico ports of entry are already experiencing record levels of imported fruits and vegetables that have contributed to increased wait times, Mexico is on the verge of completing construction on a new superhighway between Mazatlán and Matamoros. Creating a fairly direct route from Mexico to South Texas, this superhighway is expected to shift a significant portion of trade traffic from Arizona to Texas. Products currently entering the Nogales POE in Arizona will likely reroute to the Pharr, Progreso, and Rio Grande City POEs. Today, Nogales is the country's most heavily trafficked entry point for fruits and vegetables. Pharr-Reynosa International Bridge follows second. However, with the completion of the Mazatlán-Matamoros superhighway, the Nogales POE stands to lose an estimated 30% of its commercial traffic. Accordingly, South Texas trade traffic is expected to substantially increase over the next several years, with estimates ranging from 62% to 128% by the year 2020.

The table below shows the weight in 40,000 lb. units for all Texas-Mexico POEs with significant produce imports in 2012. Despite importing less produce than Laredo, Progresso and Rio Grande City are reporting more significant wait times and delays because of infrastructure improvements in Mexico that have shifted traffic to them. For Pharr, being in the same region and the largest produce port of entry in Texas, the problem is compounded. There has been little indication from the federal government that sufficient action will be taken to resolve the issue in its entirety.

U.S Imports of Produce From Mexico through Texas Land Ports, 40,000 lb. Units (2012)

Pharr	92,436
Laredo	27,320
Progresso	22,657
Rio Grande City	12,661
Los Indios	1,336
El Paso	1,206
Eagle Pass	1,036
Brownsville	253
Roma	59

With trade up from a recession decline, there has been increased interest in tracking wait times at POEs over the past several years. However, data varies greatly from one study to the next. Discrepancy grows even more so when compared to anecdotal evidence provided by industry stakeholders. Being that such discrepancy exists, it is unsurprising that a Government Accountability Office (GAO) study submitted to Congress found that the methods used by CBP to collect wait time information are both inadequate and unreliable. Partially because of this unreliability, CBP implemented web-based interfaces with real-time traffic information. Sadly, even this effort was found to be of little help for stakeholders planning long-term travel logistics.

Industry surveys have proven useful in identifying many prevalent factors contributing to delays at POEs. However, in regards to this report, the majority of data collected in both surveys and wait time studies is broad. They do not target a specific import group such as non-livestock agricultural products. Instead, they sample commercial import traffic at-large. Nevertheless, when asked to rate challenges relating to wait times, transporting perishables such as fruits and vegetables on a reliably estimated timetable is a very common issue faced by industry stakeholders.

A survey of stakeholders in an upcoming report by the Texas Department of Transportation provided a list of write-in responses listing factors contributing to delays. Among those listed are:

- Growth in trade
- Inadequate/inexperienced staff
- Poor infrastructure
- Technology failures
- Exhaustive inspections
- Inefficient inspection process
- Lack of consistency of CBP policies and procedures

Considering the complicated nature of importing goods from Mexico, it is unsurprising that

delays exist. Because there are many layers to the import/customs process, any number of issues can arise resulting in increased wait times. However, when all measures are considered, staffing issues consistently rank highest. As Texas A&M AgriLife reported, the following staffing issues have been indicated as being responsible for increased delays:

- Employee breaks and lunches halt inspections
- Shutting down inspections early
- Hours of operation too short
- Not enough inspectors
- Allow inspectors the authority to identify pests which are easily identifiable
- Not enough personnel with cargo release authority
- Need improved management of resources
- Inefficient process for placement of verification seals
- The hours of operation for both FDA and CBP differ
- Lack of education

The Texas Transportation Institute (TTI) has been tracking import traffic at ports of entry for some time. However, neither the literature on the subject nor stakeholder testimony line up with TTI's figures. For example, over the course of 2012, TTI monitored import traffic as it crossed the Pharr/Reynosa Bridge. According to the study, the weighted average duration required to travel from the end of the queue on the Mexican side to the entrance of the CBP compound was 51.6 minutes, with a high of 69 minutes in March and a low of 35 minutes in August. The high and low correspond respectively to heavy and light produce import months. The weighted average duration it took to enter the CBP compound and exit the DPS inspection station was 16.7 minutes.

With a combined high of 88 minutes for one of the most heavily utilized import bridges in the country, the TTI figures may not paint the whole picture. For one, times exceeding two hours were viewed as anomalies that skewed weighted averages, and so were excluded. Furthermore, it is unclear whether TTI took into account traffic utilizing specialized transport passes such as FAST. Finally, as TTI was unable to differentiate types of import traffic, agricultural product inspection times are averaged with other, easier and quicker imports.

CONCLUSION

Because problems with a single truck can cause major delays, stakeholders have indicated that the unreliability at bridges is reflected in the price of goods. A single spoiled truck can cost in the hundreds of thousands of dollars. In fact, an analysis of border trade found that poor staffing and infrastructure problems cost the U.S. economy $7.1 billion in 2011. As trade grows this figure is expected to double by 2020. Because higher prices are absorbed by everyday citizens, Texas has an interest in ensuring that the transport of goods across the Texas-Mexico border runs smoothly and efficiently. With deep economic consequences, trade security should be taken just as seriously as border security. This concern is so salient in border communities with bridges that

some have taken it upon themselves to invest in solutions. The Laredo POE, for example, built a vast cold-storage warehouse where produce can be inspected. This warehouse helps extend the shelf life of produce by keeping it out of the sometimes harsh Laredo climate.

The initial charge directed this committee to study the possibility of deploying TDA employees to POEs to assist the federal government in processing non-livestock agriculture products as they make their way through customs. Because of security concerns, the Department of Homeland Security will not grant clearance to state employees.

In light of this conclusion, industry stakeholders have turned to forming trade alliances that can potentially contribute money to fund more inspectors with cargo release authority at ports of entry. As opposed to the original idea, the federal government has been amenable to this proposal. One such public-private partnership is the South Texas Asset Consortium (STAC). STAC is made up of ports of entry in McAllen, Pharr, Rio Grande City, Laredo, and Cameron County. This partnership allows industry groups and state and local governments to propose solutions to problems unique to each area and reimburse the federal government after they are implemented. A similar partnership exists in El Paso.

Supported in Congress by U.S. Representatives Michael McCaul, Pete Gallego, Henry Cuellar, Filemon Vela, Blake Farenthold, Beto O'Rourke and Senator John Cornyn, these partnerships show promise beyond any other current initiative to support reliable trade for the foreseeable future. Rather than continue to work on providing state employees to the federal government, it is in the best interest of the state to participate in such programs through funding support. This committee supports any legislative attempt to allow the state to become involved in programs such as STAC.

REFERENCES

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FERAL HOG ABATEMENT

BACKGROUND

With an approximate 8 million head nationwide, Texas accounts for some 2.6 million feral hogs. Documented in 253 of Texas' 254 counties, it is estimated that 79% of the state's landscape is suitable for feral hogs. Once viewed as a strictly rural issue, the economic and environmental impact of feral hogs has become ever more noticeable in both urban and suburban regions of the state.

Extrapolating data gathered from a landowner survey in 2003-04, it is estimated that feral hogs cause $52 million in direct agricultural damages with an additional $7 million spent on control efforts. Because feral hogs have such a rapid rate of reproduction, these decade old figures are considered to be quite conservative estimates. Further, these numbers do not include damage done to urban/suburban landscapes and personal property/injuries due to disease transmission and/or vehicle/hog collisions. That figure is estimated to be around $500 million. Clearly, if feral hogs are not kept under control (which they currently are not) the economic and environmental toll will continue to rapidly increase.

Estimates of dollars in damage per hog have ranged anywhere from $50 to $500. This figure fluctuates based on region: in areas with intensive crop production, hogs will likely cause more expensive damage than in areas that are predominantly rangeland. For example, a TDA funded pilot project in Hill, Navarro, Titus, Camp, and Matagorda Counties, found an estimated $1.4 million reduction in damage with a reported savings of $389.70 per hog after removing 3,799 hogs over the course of two years. This project provides overwhelming evidence that eradication costs are thoroughly justified by the savings.

With federal and state resources to combat feral hogs on the decline, damage is expected to grow. However, economic repercussions are only one aspect of the danger associated with allowing this invasive species to continue to spread. It is vital from both an economic and public health perspective that sufficient measures are taken to reduce and maintain a manageable feral hog population.

Feral hogs are susceptible to a wide variety of infectious and parasitic diseases. They are known to carry 30 different diseases and 37 parasites. The more feral hog populations increase and expand, the greater the chances are that they may transmit diseases to other wildlife, livestock, and humans.

External parasites that infest feral hogs include: fleas, hog lice, and ticks. Internal parasites include: roundworms, liver flukes, trichinella, kidney worms, lungworms, stomach worms, and whipworms.

Hog diseases that could have severe repercussions for agribusiness include: swine brucellosis, pseudorabies, leptospirosis, tuberculosis, tularemia, plague, anthrax, swine influenza, porcine reproductive and respiratory syndrome, porcine delta coronavirus, and porcine epidemic diarrhea. Exotic or foreign diseases of concern include: foot and mouth disease, African swine fever, classical swine fever, and swine vesicular disease. A small selection of some of these afflictions are highlighted below:

Swine brucellosis is a bacterial disease of animals and humans. It causes abortions in sows and can cause infertility in boars. It is a threat to the swine industry. It is transmitted through reproductive discharges (semen and afterbirth) and, once infected, a hog is a carrier for life. Brucellosis is contagious to humans. Chronic symptoms range from severe flu to arthritis and meningitis. Humans can be treated with antibiotics to alleviate symptoms, but there is no cure for livestock or people. Anyone who handles a feral hog should wear protective gloves, particularly if there is contact with blood or reproductive organs.

Pseudorabies, a viral disease, attacks the central nervous system and can be fatal to cattle, horses, goats, sheep, dogs, cats, raccoons, skunks, opossums, and small rodents. It is not related to rabies and it does not infect humans. Pseudorabies is a special concern to swine producers because it causes abortions and stillbirths. Once infected, hogs are lifetime carriers and periodically shed the virus through their noses and mouths. Livestock can be infected by direct contact with infected animals, consuming contaminated feed or water, or contacting contaminated equipment.

Anthrax is a soil-borne disease that occurs irregularly in Texas, usually where the daily minimum temperature is at least 60 degrees Fahrenheit, where wet periods are followed by long dry periods and where soils are alkaline or neutral. All mammals, especially ruminants, are susceptible to anthrax. Feral hogs may come into contact with the bacteria while feeding or by interacting with infected animals. Humans can contract the disease from contaminated soil or animals. Vaccines are available for both humans and livestock.

Foot and mouth disease is a foreign animal disease of great concern because it is highly contagious, spreads rapidly, can cause serious economic losses, and can constrain international trade in livestock products. It is a viral disease of ungulates (mainly cloven-hoofed ruminants, including swine) and some rodents. It does not affect humans, but humans can spread the virus. There is no known cure. Symptoms include fever and blister-like lesions on the tongue, teats, lips, inside of the mouth, and between the hooves. Many infected animals recover but are permanently debilitated. The virus can be spread by contact with infected animals and with contaminated feed, water, or equipment.

ABATEMENT TECHNIQUES

Current abatement techniques such as exclusion (fencing), snares, cage traps, shooting, and aerial hunting have proved largely ineffective in controlling and reducing the feral hog population across this state. While each method certainly contributes to a reduction in numbers, they are all outmatched by the pace in which feral hogs are able to reproduce. Considering the well

documented health risks and damage caused by feral hogs, it is clear that other more effective abatement methods need to be introduced.

A summary of new feral hog abatement techniques is listed below. Texas is engaged on the cutting edge of a handful of these new methods.

Trail Cameras and Radio Transmitters in New Mexico. In January 2013, USDA/APHIS initiated a demonstration program in New Mexico to focus on feral hog elimination methods that work in states where low-density feral hog populations are widely scattered. The demonstration program uses trail cameras at bait stations to monitor for feral hog presence. Once feral hogs are found, traps are set, and radio transmitters are used to monitor the traps from a distance. When an animal is captured, the transmitter sends a unique pulse rate to a monitor, alerting the field staff to check the trap. The staff can check multiple traps by sight from a high point, such as the top of a mesa. One advantage of using remote trap monitors is that it saves considerable driving time over rough terrain to check traps. A key disadvantage is that a monitor's effective distance is reduced if it is used in flat or gently rolling terrain.

APHIS/WS staff in New Mexico are also using radio telemetry to locate large groups of feral hogs to target for control. Typically, an adult sow equipped with a radio transmitter is monitored until she joins a large group of feral hogs, which are subsequently eliminated, and then she is turned loose and monitored again to help locate additional feral hogs.

Thermal Imaging Scopes in Colorado, Mississippi, Nebraska, and Wisconsin. Handheld thermal imaging scopes that can be attached to a rifle are being used to combat feral hogs in several states. USDA/APHIS recently solicited bids for 11 thermal scopes to be delivered to USDA/APHIS/WS offices in Colorado (4 scopes), Mississippi (3 scopes), Nebraska (3 scopes), and Wisconsin (1 scope). The technology uses thermal imaging to capture the portion of the infrared light spectrum that is emitted as heat by objects. Warm-blooded animals emit more light and show up as white when viewed through the scope. The scopes greatly enhance the success of night shooting operations by making feral hogs easy to detect. As this technology improves, the devices are becoming smaller and more practical for commercial use.

Drones in Louisiana and Mississippi. A commercial company in Louisiana is using a radio-controlled airplane equipped with a thermal imaging camera to locate feral hogs and relay their location to a nearby hunter. Some stakeholders believe this method outperforms helicopter hunting because the thermal imaging leaves nowhere for the hogs to hide in Louisiana's thick canopy of vegetation. In addition to using drones to locate feral hogs, researchers at Wildlife Services' National Wildlife Research Center, Mississippi Field Station, in conjunction with staff at Mississippi State University, are studying the use of drones to locate and assess damage from feral hogs.

Drop-Nets in Oklahoma. In a study conducted in Oklahoma, scientists at Wildlife Services' National Wildlife Research Center compared the effectiveness and efficiency of a drop-net and a traditional corral trap for trapping feral hogs. An analysis showed that more hogs

were removed with drop-nets than with corral traps. Feral hogs did not appear to exhibit trap shyness around drop-nets, which often allowed the researchers to capture entire family units in a single drop. Use of drop-nets also eliminated capture of non-target species. Results of the study indicate that drop-nets are an effective tool for capturing feral hogs.

Remote Sensing Technology in Texas. This technology, which requires cellular coverage in affected areas, has been used to trap feral hogs in urban areas in Texas. The technology is designed to be used with corral-type hog traps. These traps are equipped with a motion-activated camera system and remote-controlled triggering mechanism. When the hogs enter the trap, the motion activates the camera, which begins taking pictures. The user is notified by e-mail, text message, or phone that the equipment has been activated and can then review the photographs to determine whether to close the trap gate. Upon this determination, the user enters a unique code into the cell phone or computer to activate the triggering mechanism that closes the gate. While a key advantage of this method is the ability to confirm what is in the trap, one disadvantage is the cost.

Sodium Nitrate Toxicant Trials in Alabama, Florida, Mississippi, Missouri, Oklahoma, and Texas. Sodium nitrate, a common meat preservative, has been shown to be a quick-acting and low-residue toxicant for feral hogs in Australia. Because it could adversely affect other wildlife and the environment, a sodium nitrate toxicant developed for use in the United States would have to be registered with the U.S. Environmental Protection Agency (EPA). The registration process at EPA requires significant testing. Field trials using placebo baits and a bait delivery system have been conducted in six states, including Texas. APHIS/WS and the Texas Parks and Wildlife Department will evaluate the efficacy of various sodium nitrate formulations in animal pen studies before proceeding with any field studies of a sodium nitrate toxicant bait.

Warfarin Toxicant Trials in Texas. Warfarin is a common rodent toxicant that has been used to control feral hog populations in Australia. A U.S. manufacturer has been granted an Experimental Use Permit from EPA to conduct large-scale testing of a warfarin-based bait in the Texas Panhandle/High Plains region until June 2015. Test results may support submitting the toxicant to EPA for registration or conducting additional trials.

Contraceptive Trials in Texas. Researchers in Texas evaluated an oral contraceptive for feral hogs and found the chemical appeared to be ineffective for fertility control and concluded that it was not efficacious to orally deliver the product for this purpose. An injectable contraceptive has been shown to be more effective, but this delivery method is not conducive to managing free-ranging feral hog populations. APHIS/WS continues to work with researchers to identify new contraceptive options.

CONCLUSION

While feral hog management is the responsibility of landowners, the state has an interest in ensuring that effective, legal control methods are available and encouraged. Multiple state agencies are currently engaged in funding grants to eliminate hogs and/or are conducting research on effective eradication toxicants. Both are vital to controlling the feral hog population and deserve increased funding. Agencies tasked with controlling feral hogs through either research or removal programs should have wide latitude in how such funds are spent to ensure the most cutting-edge techniques and technologies can be quickly implemented.

While effective toxicants for feral hog control are not yet on the market, research has shown promising potential for at least one to be on the market in the next several years. In order to be approved for use, toxicants must go through a stringent review process by certain federal agencies. Because such reviews are so thorough, Texas should defer to federal standards for the use of approved toxicants. Relevant state agencies should be tasked with monitoring toxicant use in the event one is eventually approved.

Local eradication programs should be encouraged on the county level. These have proved to be quite effective as they are best suited to respond to local variables such as geography and habitat. The Caldwell County Feral Hog Task Force is a prime example of an effective local eradication program.

Ground and aerial hunting of feral hogs is certainly encouraged, but these methods are not necessarily effective large-scale eradication techniques so much as they are sport. In regards to aerial shooting, there are programs focused purely on eradication rather than sport hunting. One such program that has worked in partnership with the Caldwell County Feral Hog Task Force is Operation Dustoff. This non-profit employs military veterans as aerial shooters and contracts with landowners to eliminate feral hogs. The effectiveness of this program has justified its cost. More partnerships between the state and local governments with programs that employ veterans and focus on eradication rather than sport hunting are encouraged.

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Feral Hog Disease Summary, Texas Animal Health Commission, 2014

TEXAS RIGHT TO FARM ACT

BACKGROUND

Passed by Senator John Wilson and Representative Jim Rudd in the 67th Legislature (1981), SB 488 laid the foundation for what is colloquially known as the Texas Right to Farm Act. It has been changed very few times since its passage. According to the original House Study Group analysis, the bill, as introduced, sought to ban all zoning regulations from affecting pre-existing agricultural operations within cities. As passed, SB 488 limited the regulatory authority of local political subdivisions over agricultural operations. Both versions sought to create protections for agricultural operations against nuisance actions.

After World War II, many communities experienced rapid growth. To accommodate ballooning populations, cities and towns were forced to annex rural lands. Over the years, many began to find that agricultural land in Texas was disappearing at an alarming rate. In response, the Legislature passed the Right to Farm Act with the purpose of creating strong public policy that protects and encourages the retention of agricultural land. The law was two-fold. First, it sought to limit the circumstances in which an agricultural operation may be held liable as a nuisance. This was to protect agricultural interests from expanding urban/suburbanization. Second, the law put limits on the types of zoning restrictions cities are able to place on agricultural land when annexed. As saving the "family farm" was a priority intention of SB 488, this latter part barred cities from being able to "zone out" farms and ranches with overly burdensome and impossible ordinances.

It is well understood that some normal and accepted agricultural practices can yield undesirable conditions such as odors, flies, noises, pesticide drift, and dust. As the American Law Reports (ALR) notes, "for most of the nation's history, concern over the effect of these conditions on others who lived in and around an agricultural operation area was largely nonexistent, since those who lived in and around an agricultural production area were also involved in agricultural production." However, as America's population swelled following WWII and once small agricultural-based communities were transformed into urban and commercial centers, many new residents objected to these undesirable conditions by bringing nuisance actions against agricultural producers. In much the same manner, cities began restricting land use. This was effectively putting pre-existing agricultural operations out of business.

Combined, the threat of these actions became a disincentive for agricultural operations to update their practice for fear of being put out of business down the road. These uncertainties also had the effect of creating incentive to sell farmland to be converted to residential/commercial use. Having the foresight to recognize the consequences of disincentivizing land use for food production throughout the 1970s and 80s, state legislatures passed Right to Farm Acts across the nation. Today, all fifty states have some form of this Act.

CHALLENGES

Despite their necessity, Right to Farm Acts have been the subject of much debate. With mixed results, they have been construed, applied, and interpreted in a variety of factual and legal contexts. Throughout the years, many common challenges have arisen. A sample listing of those includes:

- Constitutionality, under the 5th amendment and due process.
- Validity on the grounds that they constitute a taking under a state constitution.
- Violated a state constitution's inalienable rights clause.
- Constituted special or local legislation in violation of the state constitution.
- Confliction with other state or local laws.
- Created an easement or quasi easement on another's property.
- Whether or not a significant change had occurred in an agricultural operation.
- Definitions such as "farm," "ranch," "farm operation," "agricultural operation," "agricultural product," etc.

For a thorough legal discussion of challenges to Right to Farm laws see ALR.

TEXAS RIGHT TO FARM ACT

Title 8. Protection and Preservation of Agricultural Operations, of the Agriculture Code begins by clearly laying out the intended purpose of the law. Sec. 251.001 reads:

> It is the policy of this state to conserve, protect, and encourage the development and improvement of its agricultural land for the production of food and other agricultural products. It is the purpose of this chapter to reduce the loss to the state of its agricultural resources by limiting the circumstances under which agricultural operations may be regulated or considered a nuisance.

Such an unambiguous preamble leaves little room to question the original intent of this legislation.

With the express purpose of protecting and encouraging the use of land for agriculture, the Texas Right to Farm Act was engineered to give producers protection against claims of nuisance brought against them as a result of conditions created by generally accepted agricultural practices. Providing an affirmative defense against nuisance claims, in order to invoke the protection of the Right to Farm Act, a producer must meet two basic requirements. First, an agricultural operation must have been in existence for at least one year prior to the action being filed. Second, the conditions or circumstances complained of in the action must have remained substantially unchanged since the established date of operation.

In this chapter, the manner in which the established date of operation is defined accommodates for changes to an agricultural operation. The chapter states that the established date of operation is the date on which an agricultural operation commenced operation. However, it goes on to specify that if the physical facilities of the agricultural operation are subsequently expanded, the established date of operation for each expansion is separate and independent from other parts of the operation. Each expansion subsequent to the original operation, then, has a unique established date of operation which does not divest the agricultural operation of any previously established dates of operation.

It is important to note that the courts have found that a specific date of established operation is not necessary. The Texas Court of Appeals, in 2005, held that a specific date is not necessary so long as it is clear the operation existed at least one year prior to the complaint. That determination has since been upheld, as when the Texas Court of Appeals later stated:

> "When Sections 251.003 and 251.004(a) are read together, the critical inquiry is whether the defendant commenced the operations on which the plaintiff bases his nuisance action more than one year before the plaintiff filed suit."

Further promoting the spirit of protecting agricultural lands, it is instructed that a person who brings an action for damages or an injunctive relief against an agricultural operation that meets the standards required by this law is liable to the agricultural operator for all costs and expenses incurred in defense of the action. Of course, a person is entitled to recover for injuries or damages sustained if an agricultural operation or portion of an agricultural operation is indeed found in violation of an applicable federal, state, or local requirement.

Beyond giving an affirmative defense against nuisance claims, the Right to Farm Act limits the ability of counties and cities from placing regulations on agricultural land.

Counties:

> A governmental requirement of a county applies to an agricultural operation with an established date of operation after the effective date of the requirement. It does not apply to an agricultural operation with an established date of operation prior to the effective date of the requirement.
>
> It should be made aware that a county requirement does apply if it was in effect and applicable to an agricultural operation prior to the creation of the Right to Farm Act (1981).

Cities:

> A governmental requirement of a city does not apply to an agricultural operation situated outside the corporate boundaries of the city before the creation of the Right to Farm Act (1981). If an agricultural operation that existed outside of the corporate boundaries of a city prior to the creation of the Right to Farm Act is subsequently annexed, the

requirement does not apply unless it reasonably protects persons residing in the immediate vicinity or persons on public property in the immediate vicinity of an agricultural operation from the danger of explosion, flooding, vermin, insects, physical injury, contagious disease, removal of lateral or subjacent support, contamination of water supplies, radiation, storage of toxic materials, traffic hazards, or the discharge of firearms (subject to Sec. 229.002, Local Government Code).

While the list may appear to conflict with certain accepted agricultural practices, before a requirement can be enforced, the governing body of a city must find, by resolution, that the requirement is necessary to protect public health. Prior to making these findings and passing a resolution, the governing body of a city must commission a report prepared by the city health inspector or consultant to identify the health hazards related to agricultural operations and determine the necessity of a regulation and the manner in which agricultural operations should be regulated.

A 1997 addition to this section of the law established that improvements made on agricultural land not expressly prohibited by statute at the time of construction do not constitute a nuisance so long as the improvement does not obstruct the flow of water, light, or air to other land. Like other sections of the law, this one does not prevent the enforcement of statutes that protect the health and safety of the public.

VICTORY FOR TEXAS AGRICULTURE

A Texas Court of Appeals decision from 2010 is considered a major victory for Texas agricultural operators. Reaffirming an earlier decision by a trial court, the Texas Court of Appeals held in *Ehler v. LVDVD, L.C.* that the Right to Farm Act provides protection against both nuisance and trespass allegations. This decision fits squarely within the spirit and intent of the law in that it bars plaintiffs from using artful pleading to sidestep the protections against nuisance allegations by calling it "trespass" instead.

The Ehlers alleged that at least twice after heavy rains, waste from the neighboring dairy farm was transported to their property. Challenging the affirmative defense of the Right to Farm statute, the Ehlers first argued the dairy farm could not prove that the operation was in existence for one year prior to the complaint. Further, they argued that while the Right to Farm statute offered protection against nuisance, it did not explicitly state in the same manner trespass, and therefore was limited in its application to only nuisance actions.

Following precedent, the Court ruled that an exact date of established operation was not necessary. Next, the Ehlers pleadings alleged they could prove the dairy was a "nuisance and/or trespass," simultaneously saying they are the same and different. In response, the dairy stated that such artful pleading should not allow the Ehlers to exploit a linguistic loophole in the law to avoid the application of the Right to Farm statute. To do so, they argued, would be contrary to the intended purpose of the law, which is to protect established agricultural operations. The Court agreed.

Because the statute does not provide a definition for "nuisance action," the Court must give the phrase its ordinary meaning. Establishing ordinary meaning after an exhaustive examination of what constitutes a nuisance action, the Court then turned to defining trespass. With similar treatment, the Court determined that "giving 'nuisance action' its ordinary meaning, we conclude that a trespass action is included in the phrase 'nuisance action' as used in section 251.004(a)." The Court went on to affirm the purpose of the law when it stated:

> "Permitting the Ehlers' to avoid the application of Section 251.004(a) by pleading a nuisance action as a trespass would eviscerate the statute and deny Appellees the protection intended by the Legislature when it passed the Right to Farm Act. We decline to give the statute such a construction. Issue two is overruled."

Undoubtedly, this is a major victory for Texas Agriculture. Not only did the Court recognize a broad interpretation of protection offered by this law, but did so in large part based on the intention and spirit of the Texas Right to Farm Act.

CONCLUSION

After a thorough review of the Texas Right to Farm Statute, the Committee understands this law to be one of great importance not only to Texas farmers and ranchers, but to the state as a whole. This law was designed to ensure that Texas remains at the forefront of the food and fiber industry by ensuring that land is able to remain productive even in the face of a growing population, something particularly relevant today. The Committee believes that without this statute, not only would a significant sector of our economy be put at risk, but so would the spirit and heritage of the state. As such, while recommending no changes, the Committee would like to reassert the importance of this statute with the same enthusiasm the 67th Texas Legislature had when the Right to Farm bill was originally passed.

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TEXAS STATE SOIL AND WATER CONSERVATION BOARD

BACKGROUND

Established in 1939, the Texas State Soil and Water Conservation Board (TSSWCB) is charged with working in conjunction with local soil and water conservation districts to encourage wise and productive uses of natural resources. With a 2014-15 budget of $52.6 million, the agency has three major goals: (1) to provide soil and water conservation assistance; (2) to control and abate agricultural and silvicultural nonpoint source pollution; and (3) to enhance the state's water supply.

Over the past several years, the agency has substantially grown. After review by the Sunset Commission in 2010, many updates to the agency were subsequently adopted by the 82nd Legislature to reflect recommendations to modernize a low-profile agency with a growing budget. This Committee believes the agency is one of great importance and applauds the steps taken following the Sunset recommendations.

Water Supply Enhancement Program Overview

In 1985, the Legislature created a program within the TSSWCB based on available science that showed that under certain conditions removal of water-depleting brush species, such as juniper, mesquite, or salt cedar led to increases in available surface and groundwater. This program sat unfunded until a rider to the 1999 General Appropriations Act funded a pilot project in the North Concho watershed.

Formerly known as the Texas Brush Control Program, a 2011 legislative action compelled the agency to rename the program to the Water Supply Enhancement Program (WSEP) in an effort to clarify the major goal of increasing available surface and groundwater. Working in conjunction with local soil and water conservation districts, TSSWCB identifies watersheds across the state where they believe it is feasible to implement brush control to enhance water supplies. Prioritizing projects that balance the highest water yields with the most critical water conservation needs of municipal water users, the TSSWCB uses a competitive grant process in which the state provides a maximum of 70% of the cost to remove brush. The landowner pays the remaining costs.

During the 2014-15 biennium, $4.3 million in General Revenue Funds make up the budget for this program. That money is expected to treat approximately 50,000 acres. Though the same for the previous two budget cycles, the program's funding history has varied greatly over the years.

Legislature	FY	Amount	Source
76	2000-01	$9,163,189	General Revenue
77	2002-03	$24,163,189	General Revenue & Agricultural Water Conservation Board
78	2004-05	$3,722,599	General Revenue
79	2006-07	$3,690,185	General Revenue
80	2008-09	$4,417,853	General Revenue
81	2010-11	$9,087,282	General Revenue
82	2012-13	$4,2708,26	General Revenue
83	2014-15	$4,270,826	General Revenue
TOTAL		**$62,785,949**	

Agency literature summarizes that in "watersheds where WSEP grant funds have been allocated, the TSSWCB works through SWCDs to deliver technical assistance to landowners in order to implement brush control activities for water supply enhancement. A 10-year resource management plan is developed for each property enrolled in the WSEP which describes the brush control activities to be implemented, follow-up treatment requirements, and brush density to be maintained after treatment. Cost-share assistance is provided through the WSEP to landowners implementing brush control activities on eligible acres."

Feasibility Studies

Since 1998, TSSWCB has conducted studies assessing the feasibility of brush control for the purpose of water supply enhancement in watersheds across Texas. Such studies estimate the potential water yield enhanced through brush control. An accepted feasibility study must demonstrate increases in projected post-treatment water yield.

WSEP watersheds established by accepted feasibility studies are:

- Lake Arrowhead
- Lake Brownwood
- Upper Guadalupe River above Canyon Lake
- Gonzales County [Carrizo-Wilcox Aquifer Recharge Zone and Guadalupe River]
- Frio River above Choke Canyon Reservoir
- Nueces River above Lake Corpus Christi [above confluence Frio River]
- Edwards Aquifer Recharge Zone [Frio River, Hondo Creek, Medina River, Upper Nueces River, Sabinal River, and Seco Creek]

- North Concho River [O.C. Fisher Lake]
- O.H. Ivie Reservoir [Upper Colorado River]
- Wichita River above Lake Kemp
- Canadian River above Lake Meredith
- Palo Pinto Reservoir
- Fort Phantom Hill Reservoir
- E.V. Spence Reservoir [Upper Colorado River]
- Lake J.B. Thomas [Upper Colorado River]
- Pedernales River [Lake Travis]
- Twin Buttes Reservoir [including Lake Nasworthy]

Feasibility studies in progress:

- Goliad and Victoria Counties, including lower San Antonio and Guadalupe Rivers
- Lake Alan Henry (impounds South Fork Double Mountain Fork Brazos River)
- O.H. Ivie Reservoir lake basin (saltcedar specific)
- Upper Llano River, including South and North Llano Rivers and Junction City Lake
- Wilson, Karnes, & Refugio Counties (third-party funding; SARA)
- Edwards Aquifer Recharge Zone – Upper Nueces River (Carrizo cane specific) (third-party funding; NRA and EAA) [not shown on map]

Proposed feasibility studies:

- Bandera County groundwater recharge to Medina River
- DeWitt County, including lower Guadalupe River & Lavaca River
- Hubbard Creek Lake (saltcedar specific)
- Stillhouse Hollow Reservoir (impounds Lampasas River)
- Upper Brazos River Basin above Possum Kingdom Reservoir (endangered species issues)
- Caldwell & Guadalupe Counties, Carrizo-Wilcox Aquifer Recharge Zone
- Upper Blanco River, Edwards Aquifer Recharge Zone
- Upper Cibolo Creek, Edwards Aquifer Recharge Zone
- Lake Buchanan, including San Saba River, Brady Creek, & lower Pecan Bayou
- Lake LBJ, primarily Llano River below confluence South and North Llano Rivers
- Lake Whitney, including Steele Creek

Water Yield Modeling

In order to be eligible for funding, feasibility studies for a proposed brush control project "must demonstrate increases in post-treatment water yield as compared to pretreatment conditions." The projected water yield is included in proposals and is considered in the evaluation process. The water yield is calculated through a modeling process that must be conducted by a "person with expertise in hydrology, water resources, or another technical area pertinent to the evaluation of water supply."

The agency recommends that for all new feasibility studies, the Soil and Water Assessment Tool (SWAT) or the Ecological DYnamics Simulation (EDYS) model be used. If an alternative method is used, it must be justified and approved.

Agency literature goes into great detail to describe modeling requirements.

BRUSH REMOVAL AS WATER CONSERVATION

The basic narrative underlying brush removal always begins with early European settlers. It is often pointed out (erroneously or not) that when settlers arrived, much of what is now dense and wooded was then grasslands or savannas. Overtime, treeless rangeland gradually gave way to increased shrub cover due to a variety of factors. Prior to these rangelands being settled, animal grazing and wildfires were sufficient to suppress the establishment of tree seedlings, allowing grasses to dominate the landscape. The arrival of settlers, however, altered grazing patterns and worked to suppress fire. Such factors would eventually create conditions favorable to shrubs and other trees. As put in the TSSWCB Water Supply Enhancement Plan, "overgrazing, range fire suppression, and droughts caused a gradual ecological change that promoted the spread of noxious brush."

As woody cover expanded, the land was able to accommodate fewer animals, and the economic toll on ranching operations became apparent. Because of the impact of land conditions on livestock, ranchers have a vested interest in controlling the landscape on which their livestock graze. Though this fact is unsurprising, it is unclear when exactly the focus on brush control shifted and became primarily justified by water conservation.

Citing the National Resources Inventory Rangeland Resource Assessment by the WSEP, the conventional wisdom of brush removal and water conservation becomes apparent, and convincingly so:

> "Where increased woody cover is associated with reduced grass cover, infiltration capacity can decline with increased runoff in interspace areas between shrubs. Accelerated runoff over time can result in changes of natural water flow paths and the formation of interspace rills which may develop into gullies. Soil loss can be excessive and recovery on these sites can be slow. On shallow soils, these channels can quickly erode to bedrock. In contrast, dense grass cover and associated root mass tend to increase both soil porosity, soil aggregate stability, and overall soil health."

Grounding this assessment as a beneficial and perhaps unintended byproduct of general range management, the WSEP goes on to cite an early example from the 1960s. The story of Rocky Creek, in West Texas, appears to serve as an origination point for a shift in the narrative of brush control from simple surface improvement to a focus on water conservation. The story, at length, follows:

> “In the early 1960's landowners on five ranches, covering about half the watershed, began rootplowing, reseeding, treedozing, aerial spraying, and chaining. The ranchers received technical assistance and cost-share for this work through the Great Plains Conservation Program. The program was administered through local SWCDs in selected Great Plains counties by USDA NRCS. West Rocky Creek flowed yearlong until the drought of 1918-1919, when it became an intermittent stream. By 1935, springs feeding the creek had been dried up by mesquite and other invading woody plants. Located in the Edwards Plateau region, West Rocky Creek is a tributary of the Middle Concho about 20 miles west of San Angelo.
>
> In 1964, following the accelerated range conservation program, one of the five ranchers noticed that a spring – dry since 1935 – had started flowing again. By replacing the water-hungry brush with a good grass cover, more rainfall soaked into the aquifer, recharging the dormant springs. By 1970, springs had begun flowing on all 5 ranches. All the conservation work was done in a manner that would benefit white-tailed deer and turkey. The role of sound grazing management cannot be overlooked. The grazing management on each ranch enhanced the cover of grasses on the watershed. This grass cover retarded the reinvasion of brush and helped hold water and soil on the land. The turf decreased the sediment load in surface water supplies. Although the brush succession was retarded, these ranchers periodically did maintenance brush work just to keep things in the desired balance.
>
> Even though the rangeland improvements reduced erosion in the watershed and increased forage production for the ranchers' livestock, the story of the West Rocky Creek may be more important to the residents of San Angelo. Water from the creek supplements the city's water supply reservoirs. The West Rocky Creek Watershed yielded an estimated 525,600,000 gallons annually. If the West Rocky Creek treatment were expanded to the entire watershed above San Angelo, one could predict a long lasting supply of clear water, increased livestock and wildlife production, and decreased sedimentation of downstream water supplies.”

The science of brush removal to promote water conservation followed early anecdotes such as the one above. Nevertheless, it is clear that even prior to any scientific and measurable backing, such stories have substantially contributed to the conventional opinion that brush removal results in water conservation.

It is worth noting that although scientists have never reached full consensus on the efficacy of brush removal programs, drawing on several decades of research, the TSSWCB points to a study that concludes a scientific consensus holds steady on these several points:

- The roots of some brush species extract water from greater depths than do grasses and forbs, and brush control can reduce the total amount of water used by vegetation.

- Brush and other deep-rooted vegetation growing over shallow aquifers near streams can be expected to use large amounts of groundwater, likely reducing the amount in both the interconnected stream and aquifer.
- Removal of brush, like juniper and live oak, from upland areas some distance from streams may increase streamflow and/or recharge aquifers especially when:
    - The brush canopy is dense and intercepts substantial amounts of rainfall (e.g., dense juniper or live oak stands), effectively reducing the amount of rainfall reaching the soil surface, and
    - Soils, subsoils, and/or geologic strata are permeable, and streams in the area are fed by seeps and springs. Water can quickly percolate below the roots of grasses and forbs and move through subsurface pathways to local streams or aquifers.
- Brush control in upland areas is unlikely to increase significantly water yields if soils and geologic formations are not conducive to increased runoff and/or subsurface flows to streams or to aquifers.
- For brush control to have substantial long-term impacts on water yield, most or all of the woody vegetation in the treated area should be killed, and regrowth of brush and herbaceous vegetation should be controlled so that it is less dense and more shallow rooted than the pre-treatment vegetation.
- New science-based tools (e.g., GIS and spatial analysis) can help pinpoint locations where brush control should substantially increase water flows in streams.
- A geographically targeted brush control program with careful scientific verification of impacts is needed to guide long-term brush control policies.

Other factors influencing water yield include: the physical characteristics of a watershed (geology, soils, topography, and land use); meteorological events; general climatic conditions; type and species of vegetation being removed; how vegetation is removed (chemically, mechanically, or fire); replacement vegetation (if any); and how reliable water yield data is before treatment. Further, the continued maintenance of a treated area is also integral to capturing a desired water yield.

For an overview of watersheds considered successes by the TSSWCB, see Chapter 2 of their recently published Water Supply Enhancement Plan, which briefly describes findings from the North Concho River, and Honey Creek. It also provides a summary explanation of the hydrological impact of different brush species, the basics of the science behind brush removal as a tool for water enhancement, and an overview of the influential variables effecting water yields. Each feasibility study will show, in significant scientific detail, the estimated effects of brush removal on particular watersheds. Interestingly, the Plan notes "if there is one common thread in all these reports, it is the fact that the results frequently are not consistent with expectations."

CRITICAL RECEPTION

Critics have maintained for some time that any perceived benefit of brush removal is a result of misperception; an acceptance of anecdotal stories despite limited scientific evidence. This is not

to suggest that these critics doubt either the genuine importance of brush removal, or the well-intended nature of the TSSWCB, only its effectiveness as a method to conserve water for large-scale municipal use.

It should be pointed out that the TSSWCB has never been required by the Legislature to conduct field tests to back up or test modeled water yield projections. Such field tests require extensive on-site work by qualified scientists and can be very expensive to complete.

Critics maintain that a review of the most credible research published on this topic in the last decade suggests brush removal for the purpose of water conservation is less effective than previously believed. This has been acknowledged by other state agencies.

Other concerns raised in the hearing were not necessarily critical of the premise that brush control leads to water conservation, but took issue with the manner in which certain projects are designed. Those critics take issue with projects meant to increase runoff and its associated effects.

The focus on promoting runoff seems counterintuitive when considering the history and anecdotal justification of the brush removal program: originally, brush removal was said to increase seepage, allowing springs to come back to life. Many stories of this sort are mentioned in agency literature and were brought up during the hearing. There is significant concern, however, that increased runoff will have an adverse effect on river quality, and could also have the potential of reducing spring flow.

Criticism of this nature finds no fault in the agency itself, but rather in the agency's legislative direction. It has been pointed out that in 2011, the Legislature forced the Board to abruptly change its primary function in regards to the program. The transition from the Brush Control Program to the Water Supply Enhancement Program shifted the focus from supporting rural economies through enhancing land for agricultural and wildlife purposes to large scale brush removal for consumer use.

CONCLUSION

The Committee acutely recognizes that with this program comes strong and divergent opinions. Charged with monitoring not only the state's agricultural industries, but all issues affecting rural areas, the Committee steadfastly recognizes the importance of brush removal. From enhancing lands to promote productivity to conserving water, the Committee draws no line in regards to the continued existence of this program. If brush removal is best suited for range management purposes, then it is the job of this Committee to support the program's existence for purely that reason. Healthy, productive land is key to the continued existence of Texas agriculture, and if supporting producers through brush removal programs helps further that goal then, the program needs no further explanation. Likewise, if brush removal is proven to substantially supplement water resources, then the program needs no further justification.

While the Board has done a great job responding to the requirements set forth by the Legislature, they are not required to conduct field studies as follow-ups to compare projected figures with actual results. To require such studies would surely stretch Board resources thin, though to a certain extent, field work on project sites does exist. Perhaps that work should be taken into consideration when evaluating the program. Alternatively, the Board could voluntarily work with universities engaged in this subject and encourage them to study program sites and share results.

Second, as previously mentioned, there is concern that a focus on municipal consumers has perhaps inadvertently forced the Board to make changes to the program that stray from the concerns of rural communities and agricultural producers. From the perspective of the Committee, this has the potential to be quite troubling. The Board should not be forced to change programs at the expense of the communities in which it was designed to aid. The Committee would support efforts to re-tool the program to strongly maintain a rural and agricultural focus.

As put forth by the Board itself, much of what it now knows about brush removal was learned over the course of implementing various projects. Because many changes to the Board's programs were put in place only a few years ago, it is the Committee's recommendation that the Water Supply Enhancement Program continue to operate as the Board sees fit. If only to generate more scientific data, continued implementation (while keeping in mind the stated criticisms and concerns) is necessary to fully understand the program as it is currently written.

REFERENCES

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