



Guide to Expanding Mitigation

MAKING THE CONNECTION WITH AGRICULTURE



FEMA

RiskMAP
Increasing Resilience Together



Most people eat three meals a day without giving much thought to the industries that produce our food. The eggs and blueberries at breakfast, the grilled cheese sandwich and apple at lunch, or the pork chops with cranberry sauce and potatoes at dinner are often produced by nearby farms. Food is indispensable to our livelihoods, yet the agriculture sector is typically overlooked when communities plan for hazards.

When there is a disaster, such as a major flood, and food is at risk, it is too late to start the mitigation actions that would help local farmers. Communities need to incorporate an agriculture perspective in their current hazard mitigation planning to add protections now, before the next disaster. Agriculture advocacy organizations, farmers, and industry experts can be engaged during the Hazard Mitigation Plan process to share their insights on vital local crops and resiliency challenges.

The *Guide to Expanding Mitigation* shows how community officials can work together with the agriculture sector to support hazard mitigation, including the planning process. This guide is a starting place for community officials to initiate a conversation about mitigation investments that make agriculture more resilient.



This *Guide to Expanding Mitigation* is part of a series highlighting innovative and emerging partnerships for mitigation.

AGRICULTURE IN YOUR COMMUNITY

Nationwide, agriculture is such a large industry that our first thoughts may turn to the bountiful farm belt in the Midwest that serves as a breadbasket for the world. The U.S. has 900 million acres of farmland, which accounts for 37 percent of the Nation's land. The U.S. Department of Agriculture (USDA) tracks farms producing and selling products with a market value more than \$1,000 during a year. The market value of products sold in 2017 from the 2 million farms across the country was \$388 billion. Agriculture is also a key part of local economies. For example, New York and New Jersey have over 43,000 farms, and the market value of products sold in 2017 was \$6.5 billion. Agriculture is present in rural areas, the suburbs, and even in cities that have small urban farms and community gardens.

The local agricultural sector is very diverse. The fish you grilled or raw oysters you ate last night could have been from a local aquaculture farmer. Agriculture also goes beyond the food we eat: when we play golf on lush turf grasses or when we landscape our home with new shrubs, we can thank a local farmer who produces these products.

Agriculture is a significant part of state and local economies, and the industry represents an important partner in bolstering community resilience. By protecting farms and the services vital to their operations, we are protecting more than just farmers, we are protecting the local economy and the food supplies we all enjoy. Additionally, by protecting agriculture, we help provide for our community's most vulnerable. Many low-income families and seniors are unable to store a 3-day supply of food for emergencies. State and local officials can improve resiliency in their communities as well as the agriculture industry.

DID YOU KNOW?



	NY	NJ
Number of Farms	33,438	9,883
Acres of Farmland	6,866,171	734,084
Product Value	\$5.4 B	\$1.1 B
• Crops	\$2.1 B	\$1.0 B
• Livestock, Poultry, and their products	\$3.3 B	\$0.1 B

Source: USDA 2017 Census of Agriculture

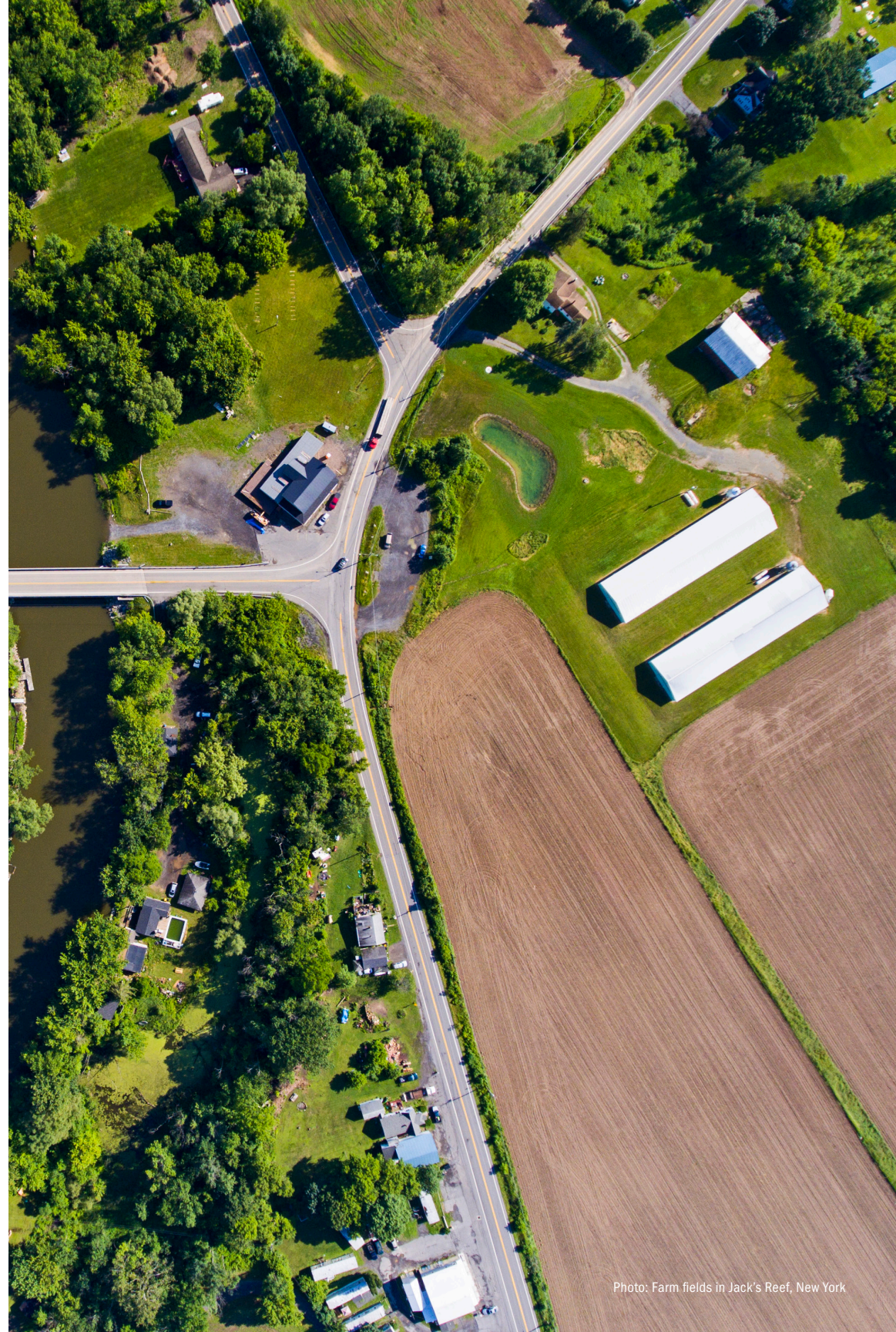


Photo: Farm fields in Jack's Reef, New York



Photo: Buffers along a river bank in Pennsylvania

Engaging the Agriculture Sector in Mitigation Decisions

Actions can be taken to ensure the resiliency of the local agricultural sector and to secure food supplies before, during, and after a disaster. Discussions with farmers, farm representatives, and community garden stewards will identify possible mitigation opportunities, and supporting cooperative community garden programs promotes resiliency by enhancing a sense of community. Officials can begin working with the local agricultural community to address questions such as:

- Are crops spoiling in the aftermath of a disaster? If so, why? Was the spoilage due to the closure of farm-to-market roads? Was it due to the power grid failing and farmers not being able to maintain cold storage? Or was it because storage facilities on or off the farm did not withstand the event?
- What effects might an earthquake have on farms that rely on well water? Even moderate earthquakes can render water wells inoperable.
- To what degree are farms vulnerable to changes in development, erosion, dam control, land management practices, and nonpoint source pollution?
- Are the potential effects of sea level rise well-understood or anticipated? Which farms risk inundation? Will salt water modify the water table that farmers rely upon?
- What can be done to mitigate the impacts of climate change? Beyond sea level rise, the effects of more intense rain, increasing temperatures, and drought will impact farms.
- What are the vital services farms depend upon that need protecting?

In addition to evaluating how hazards impact agriculture, emergency managers and community planners should also consider that agricultural practices can inform hazard mitigation actions. For example, farming practices can play an important role in reducing flood risk. According to the Union of Concerned Scientists, when farmers engage in no-till planting and keep the soil continuously covered with living

plants (through cover crops or perennial crops like alfalfa), water runoff from extreme weather events has been reduced by 20 percent, protecting downstream properties. The natural water table is also replenished and there is less erosion.

Another approach to reducing runoff is to ensure farms are designated for agricultural uses only. Farmland preservation programs, for example, pay landowners to place deed restrictions on land to prevent future development that could increase stormwater runoff. There are many private land trusts and state and federal programs dedicated to farmland preservation, including the USDA Natural Resources Conservation Services (NRCS).

Vegetative buffers are another useful and low-cost mitigation tool. They protect the streams they border, and there are Federal funds to share the cost of creating buffers. While FEMA's hazard mitigation grant programs focus on public infrastructure, the NRCS makes financial assistance available for landowners to offset costs for projects that make improvements to private properties. Through the mitigation planning process, these potentially complementary funding sources may be used together.



DID YOU KNOW?

The U.S. Department of Agriculture (USDA) Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency loans available to producers suffering losses. Eligible natural disasters must have substantially affected farms, causing severe production losses. This designation is different from, but often occurs alongside, the Presidential Disaster Declarations administered by FEMA.

USDA Disaster Declarations (12/22/13 to 4/1/19)

New Jersey:
18 disasters declared,
affecting 76% of counties

New York:
21 disasters declared,
affecting 93% of counties



Photo: Flooded farm field in Auburn, New York

Agriculture Representatives

Which organizations might be invited to engage in the planning process? The answer will vary from county to county and state to state, but these organizations should be considered:

- Cooperative Extensions
- Local Farm Bureaus
- County Soil and Water Conservation Districts
- County Boards of Agriculture
- County Agriculture Development Boards
- State Departments of Agriculture
- USDA NRCS
- USDA Rural Development
- Academic Institutions

In addition, the Extension Disaster Education Network links disaster research and resources from agriculture educators working across the country. State and territory institutions within the network also offer locally-relevant resources and connections that may be useful during the planning process.

Relationships Go Beyond Mitigation Planning

Involving organizations that represent the agriculture sector in mitigation planning will lead to benefits in other areas of emergency management. In some cases, these relationships already exist through emergency preparedness planning:

- Farms store chemicals on site. Actions taken to protect the storage of chemicals from damage during a natural hazard are mitigation actions. Additionally, some first responders meet annually with farmers to update their records regarding what is being contained and where.
- Plans for managing the movement and storage of farm animals before a disaster continue to be utilized and may be relevant to inform or incorporate into a Hazard Mitigation Plan.
- In Iowa, for example, the state partnered with rural electric cooperatives to repair infrastructure damaged following a major ice storm that left many farms without electricity for an extended time. The state's Hazard Mitigation Plan now includes an annex for the cooperatives, which has helped with collaboration and identification of mitigation projects that improve electricity service to farms.

RESOURCES FOR ENGAGING THE AGRICULTURE COMMUNITY

FEMA Hazard Mitigation Planning

<https://fema.gov/hazard-mitigation-planning>

Review standards and guidance for the planning process

What is Mitigation?

<https://www.fema.gov/what-mitigation>

Learn more about how FEMA defines mitigation

What to Do if Your Business or Farm Was Damaged

<https://www.fema.gov/what-do-if-your-business-or-farm-was-damaged>

Learn about what assistance is available for business owners and farmers affected by a disaster

USDA Disaster Resource Center

<https://www.usda.gov/topics/disaster>

Find information about USDA and other assistance to recover from disasters and build resilience

Extension Disaster Education Network

<https://eden.lsu.edu/>

Find disaster-specific courses, exercises, and resources from educators in Extension programs

Funding Opportunities

<https://toolkit.climate.gov/content/funding-opportunities>

Learn about a range of government and private financing for climate adaptation and resilience projects

Fourth National Climate Assessment

<https://nca2018.globalchange.gov/chapter/10/>

Learn how climate change affects agricultural productivity, the health of people and ecosystems, and the vulnerability of rural communities

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ENGAGE WITH US

Are you a state, territorial, tribal, or local official interested in making the connection between agriculture and hazard mitigation? Are you an agricultural organization or cooperative interested in connecting with local officials to reduce risk from hazards? Please contact us at FEMA-R2-MT-Planning@fema.dhs.gov.

