



# **4.16** CROP FAILURE



## SECTION 4.16 CROP FAILURE

### 4.16-1 HAZARD OVERVIEW

Crop failure is defined as the complete or near-complete loss of a marketable crop on a farm. Unfavorable weather conditions and pest infestation can both lead to the damaging or destroying of fruits and vegetables and lowering crop yields.

The New Jersey agricultural industry brought in \$984,530,000 in crop sales in 2017. The industry as a whole is supported by 9,883 farms statewide producing over 100 crop species (United States Department of Agriculture (USDA), 2017; USDA, n.d.). Additionally, out of all states, New Jersey ranks third in the nation in production of cranberries, peaches, and spinach; fourth in bell pepper production; sixth in blueberries, cucumbers, and squash; and seventh in tomatoes (USDA, n.d.) These agricultural products are processed and shipped annually throughout the northeast and beyond, with many products reaching global suppliers (Keep it Green, 2013).

The agricultural industry within New Jersey is vulnerable to a variety of different hazards. They include but are not limited to flood, drought, wind, fire, and other severe weather events. In addition, threats such as disease outbreaks (whether natural or intentional) and pest infestation endanger the crop population within the State. Over the past decades, New Jersey has experienced significant drought as well as flooding, both of which proved to have an adverse effect on the crop production within the State, leading to disaster declarations and in certain instances federal financial aid.

Half of the major insect pests in the United States have been introduced from foreign countries. Approximately 1,065 to 1,118 plants species, nearly 62% of plant species in New Jersey, have been introduced from continents other than North America (New Jersey Department of Agriculture (NJDA), n.d.). When non-native insects and plants are accidentally transported into the United States, they often arrive without natural enemies that can control their populations. Pests are adaptable and build resistance to pesticides. However, pest damage can be controlled through the use of biological and chemical methods. The USDA estimates that the average cost to control agricultural pests is approximately 34% of a farmer's variable crop production costs (NJDA, n.d.).

### 4.16-2 LOCATION, EXTENT, AND MAGNITUDE

#### Location

The regions of agricultural industry within the State are determined by the product being grown. The southern region topography, combined with soil composition, supports the development of fruits such as peaches, grapes, cranberries, and blueberries; and more than 40 vegetable crops that include tomatoes, bell peppers, sweet corn, cucumbers, herbs, as well as soybeans. The northern region supports the development of other products such as corn, grapes, and apples. The majority of the farming communities within the State can be found outside the urban regions with the highest concentration located to the northwestern and southern regions of the State. Refer to Table 3.0-5 Census of Agriculture for New Jersey, by County (2017) in Section 3.0: State Profile for the acres of cropland by county.

#### *Location of Invasive Pests*

Invasive pest species have had a significant impact on agriculture across New Jersey. Invasive pests to New Jersey include the Spotted Lanternfly, Asian Longhorned Beetle, Hemlock Woolly Adelgid, Mexican Bean Beetles, Scale, Tarnished Plant Bugs, Mile-a-Minute Weed, Purple Loosestrife, the Gypsy Moth, Pineshoot Beetle and the Emerald Ash Borer.

Hemlock Woolly Adelgid is a small sap sucking insect that is originally from Asia. Many hemlock trees in New Jersey have been killed by the Hemlock Woolly Adelgid.

Mexican Bean Beetles eat soybean plants, which is a crop grown in New Jersey. Since 1980 there has been a parasitic wasp released into New Jersey soybean fields to control this pest.

Scale insects suck the sap from stems and leaves, killing the trees they feed on. In New Jersey many landscapes are prone to impacts of Scale.

Tarnished Plant Bugs feed on many plants including forage crops, small grains, stone fruit, strawberries, and vegetables. Their feeding can damage fruit and reduce crop yields.

Mile-a-Minute Weed are the biggest threat to stream bank and roadside plants. However, they can also be a problem in agricultural areas including Christmas tree farms and reforestation seedling plantations.

Purple Loosestrife threatens the New Jersey wetlands by displacing plants essential to wildlife for food and cover. Beetles to control the pest have been released in 16 of New Jersey's 21 counties.

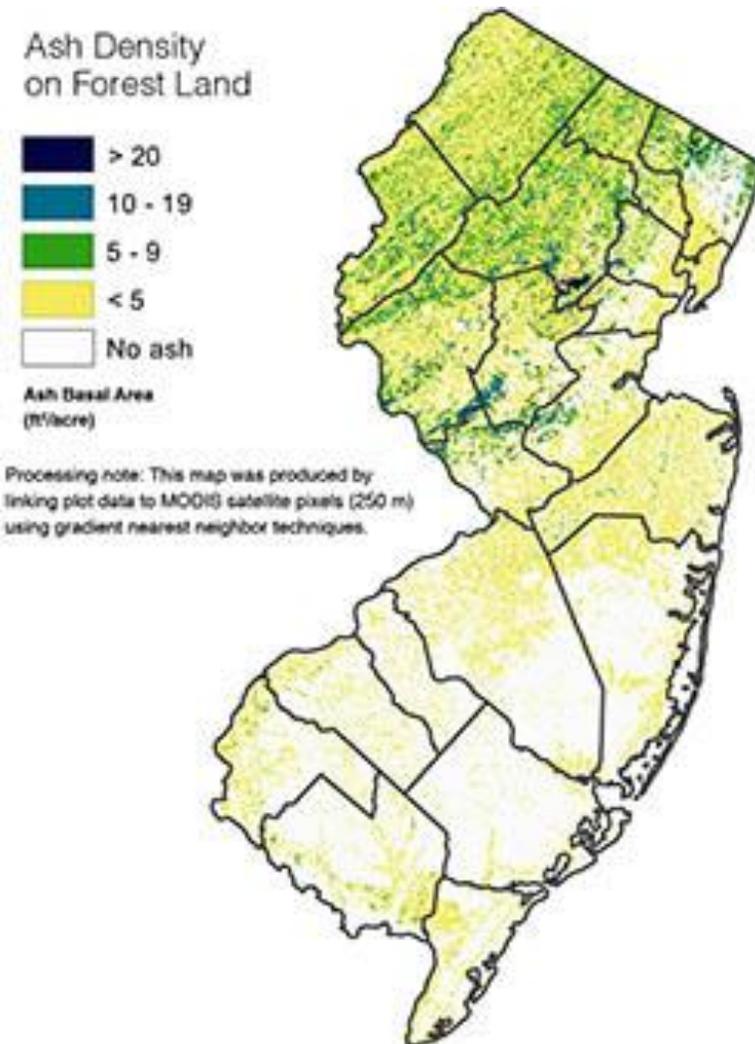
The Spotted Lanternfly, which is native to China, India, and Vietnam, feeds on plants using their sucking and piercing mouthparts to extract plant sap from over 70 different plant species. The Spotted Lanternfly has the potential to greatly impact agricultural crops and hardwood trees. This insect feeds on the plant sap of many different plants including grapevines, maples, black walnut, and other important plants in New Jersey. The damage caused by feeding significantly stresses the plants which can lead to decreased health and potentially death. As the insect feeds, it excretes a sugary substance which can attract bees, wasps, and other insects. The sugary substance also builds up and promotes the growth for sooty mold (fungi), which can cover the plant, forest understories, patio furniture, cars, and anything else found below feeding areas (NJDA, 2021). In 2022, New Jersey set up a quarantine in 13 counties across New Jersey to stop the spread of spotted lanternflies. These counties include Burlington, Camden, Essex, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Salem, Somerset, Union, and Warren (Fallon, 2022).

The Gypsy Moth and the Emerald Ash Borer are two invasive pest species that have caused significant losses to New Jersey agriculture. The gypsy moth is the most destructive forest insect pest to infest New Jersey's forests. Repeated defoliation by the gypsy moth represents a serious threat to New Jersey woodland and shade tree resources. The Emerald Ash Borer is a major threat to New Jersey Trees as well, and many counties have been impacted by infestations (New Jersey Department of Agriculture, 2018).

The Emerald Ash Borer was discovered in New Jersey in May 2014 in Somerset County. Infestations throughout the U.S. and Canada have killed tens of millions of ash trees since 2002 (NJDA, 2022). Through December 2, 2022, emerald ash borer has been found in every county in New Jersey (NJDA, 2022).

More locations are prone to impacts of EAB infestations. Approximately 9% of the State's total forested area, or 24.7 million ash trees, are susceptible to an EAB infestation. Most of the ash is concentrated in the north-western part of the state. In addition, ash has been commonly planted as street trees and on private properties in many cities and towns. Trees infested with EAB on public and private lands in urban areas will pose the greatest danger where falling branches have the potential to hit people, structures, or cars. Figure 4.16-1 illustrates the location of ash density on forest land that could be prone to infestation and Figure 4.16-2 shows where EAB has been detected in New Jersey (NJDA, 2022).

Figure 4.16-1 Ash Density on Forest Land in New Jersey

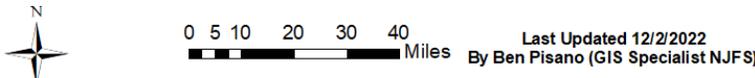
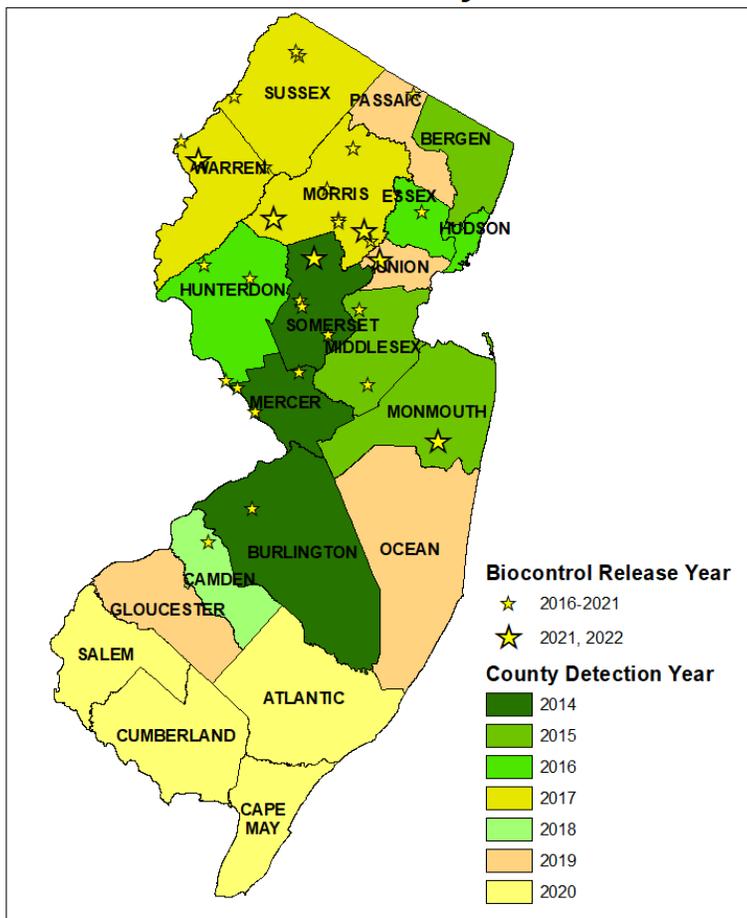


Source: USDA Forest Service, *New Jersey's Forest, 2008*

Similar locations in New Jersey are also prone to infestation of the gypsy moth. The New Jersey Department of Agriculture promotes an integrated pest management approach, which encourages natural controls to reduce gypsy moth feeding and subsequent tree loss. Each year this program maps gypsy moth defoliation, gypsy moth spray blocks and more, indicating locations threatened by the gypsy moth. This [link](#) provides the 2018 ArcGIS Online version of this map (NJDA, 2018).

Figure 4.16-2 EAB Detections in New Jersey

### Emerald Ash Borer Detection New Jersey



Source: NJDA, 2022

### Extent

As stated below in the Section 4.16-3 Previous Occurrences and Losses, New Jersey farmers have historically been impacted by losses caused by insects and pests, weather-related incidents, and disease outbreaks. These hazards continue to have the potential to result in crop damage and complete crop loss. The impact and severity of each will vary by the cause of loss and/or failure. For a description of the extent for each of the hazards which may cause crop failure, see Section 4.4: Drought, Section 4.6: Flood, Section 4.8: Hurricane, Nor'easter, and Tropical Storm, Section 4.10: Severe Weather, Section 4.13: Animal Disease, and Section 4.22: Pandemic.

## 4.16-3 PREVIOUS OCCURRENCES AND LOSSES

### USDA Declarations

Agriculture-related drought disasters are quite common. The Secretary of Agriculture is authorized to designate counties as disaster areas. Producers suffering losses in or near counties designated as disaster areas are eligible for emergency loans.

The Farm Service Agency provides assistance for natural disaster losses resulting from drought, flood, fire, freeze, tornadoes, pest infestation, and other event disasters. Table 4.16-1 presents USDA-declared drought and excessive heat events impacting the State as of May 2023.

**Table 4.16-1 USDA Crop Failure Related Disaster Declarations (2011 to 2023)**

Incident Period	Event Type	USDA Designation Number	Counties Included in Disaster
August 14-September 15, 2011	Hurricane, Tropical Storm Lee, Excessive Rain, and Flooding	S3219	Warren
March 1, 2012 – Continuing	Frosts and Freezes	S3249	Bergen, Passaic, Sussex
March 26-April 8, 2012	Frosts, Freezes, High Winds, and Hail	S3251	Bergen, Passaic, Sussex
June 2012 – Continuing	Drought, Excessive Heat	S3427	Passaic, Sussex
June 28, 2012 – November 9, 2012	Drought, High Winds, Hail, Excessive Heat, Excessive Rain, Flash Flood, Hurricane Sandy, Snowstorm, and Nor’easter	S3487	Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Monmouth, Morris, Ocean, Passaic, Salem, Sussex, Warren
May 1 – September 24, 2013	Excessive Rain and Related Flooding, High Winds, and Hail	S3593	Passaic, Sussex
May 22, 2014	Excessive Rain and Related Flooding, High Winds, and Hail	S3712	Atlantic, Camden, Cape May, Cumberland, Gloucester, Salem
August 15 2014	Drought	S3759	Passaic, Sussex
April 1, 2015 to September 29, 2015	Drought, Heat, Excessive Heat, High Temperature	S3930	Atlantic, Burlington, Camden, Essex, Cumberland, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren
May 28 - July 15, 2015	Excessive rain, flash flooding, high winds, and lightning	S3931	Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, Salem
July 16, 2015 to September 29, 2015	Drought, Heat, Excessive Heat, High Temperature	S3932	Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, Salem
April 1, 2016 to September 19, 2016	Combined effects of freeze, excessive heat, and drought	S4071	Atlantic, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Salem, Somerset, Union, Sussex
November 15, 2016	Drought	S4114	
May 1, 2016 to December 10, 2016	Drought, Heat, Excessive Heat, High Temperature, Frost	S4165	Hunterdon, Mercer, Warren, Burlington
April 25, 2018 to June 21, 2018	Torrential Rain and Flooding	S4351	Cumberland, Salem
May 1, 2018 to June 30, 2019	Excessive Rainfall and Cool Spring Temperatures	S4424	Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, Salem
June 24, 2018 to July 21, 2018	Excessive Heat and Drought Conditions	S4425	Atlantic, Camden, Cumberland, Gloucester, Salem
June 14, 2018 to November 29, 2018	Combined Effects of Excess Rainfall, Flooding, Hurricanes Florence and Michael	S4450	Cumberland, Gloucester, Salem
July 20, 2018 to September 27, 2018	Excessive Rain and Moisture	S4454	Hunterdon, Mercer, Middlesex, Morris, Somerset, Union, Warren
July 20, 2018 to September 27, 2018	Combined Effects of Excessive Rainfall, Moisture, and Storm-Force Winds from Hurricane Florence	S4455	Essex, Hunterdon, Morris, Passaic, Somerset, Sussex, Union, Warren
July 21, 2018 (Incident Still Open)	Excessive Rain, Flash Flooding, and Flooding	S4465	Warren
July 23, 2018 (Incident Still Open)	Excessive Precipitation	S4479	Bergen, Passaic, Sussex

Incident Period	Event Type	USDA Designation Number	Counties Included in Disaster
April 1, 2019 to June 21, 2019	Excessive Rain, Flash Flooding, and Flooding	S4519	Atlantic, Burlington, Camden, Mercer, Monmouth, Ocean
August 15, 2019 to October 16, 2019	Drought	S4602	Atlantic, Camden, Cumberland, Gloucester, Salem
April 6, 2020 to May 15, 2020	Freeze and Frost	S4748	Atlantic, Camden, Cumberland, Essex, Gloucester, Hunterdon, Morris, Passaic, Salem, Somerset, Sussex, Union, Warren
August 3, 2020 to August 4, 2020	High Winds and Heavy Rain from Hurricane Isaias	S4892	Essex, Hunterdon, Morris, Passaic, Somerset, Sussex, Union, Warren
August 1, 2020 to September 1, 2020	Excessive Rain	S4908	Cumberland, Salem
August 21, 2021 to September 2, 2021	Excessive Rain	S5092	Essex, Hunterdon, Morris, Passaic, Somerset, Sussex, Union, Warren
September 1, 2021 to September 2, 2021	Hurricane Ida	S5093	Hunterdon, Mercer, Middlesex, Morris, Somerset, Union, Warren
August 9, 2022 to N/A	Drought (Fast Track)	S5305/S5306	Bergen, Essex, Hudson, Passaic, Sussex, Union
August 16, 2022 to N/A	Drought (Fast Track)	S5312	Hunterdon, Mercer, Middlesex, Monmouth, Morris, Somerset, Union
April 7, 2022 to October 3, 2022	Drought	S5338	Burlington, Hunterdon, Mercer, Warren
July 1, 2022 to August 19, 2022	Drought and Excessive Heat	S5345	Essex, Hunterdon, Morris, Passaic, Somerset, Sussex, Union, Warren
July 1, 2022 to September 19, 2022	Drought	S5346	Hunterdon, Mercer, Middlesex, Morris, Somerset, Union, Warren
June 18, 2022 to September 5, 2022	Drought and Excessive Heat	S5347	Atlantic, Burlington, Camden, Gloucester, Mercer, Monmouth, Ocean
July 1, 2022 (Incident Still Open)	Drought and Excessive Heat	S5348	Atlantic, Burlington, Camden, Cape May, Cumberland, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, Salem, Somerset, Union
July 1, 2022 to September 4, 2022	Drought	S5359	Sussex, Warren
August 1, 2022 to November 11, 2022	Excessive Heat and Drought	S5364	Cumberland, Salem

Source: USDA, 2023

## FEMA Disaster Declarations

Between 1954 and 2023, FEMA did not declare any crop failure-related disasters (DR) or emergencies (EM) in the State of New Jersey (FEMA, 2023).

## 4.16-4 PROBABILITY OF FUTURE OCCURRENCES

Based on the nature of the growing process, the susceptibility of crops to hazards is unavoidable. The likelihood of future loss is great based on losses that have been recorded in the past.

### Potential Effects of Climate Change

Large-scale crop failures may become more common as a result of climate change. More extreme weather events are predicted to occur, and these events may lead to more crop failures (University of Leeds, 2010).

Agriculture within the State of New Jersey relies on the climate conditions found within the State to thrive. Changes in these conditions may have adverse impacts on the growing cycles and yields. The increase in temperature generally creates an

advanced growing season forcing crops to mature at a faster rate. This rate does not allow for the same crop yield as found during normal conditions (U.S. Environmental Protection Agency, 2012).

Changes in precipitation may have an adverse impact on crop development. Too much rain produces flooding, which may prevent the growth of certain crops and may introduce disease and fungi that impact plants. Additionally, lack of precipitation may also prevent proper growth.

Invasive pests have had a significant influence on agriculture in New Jersey. Since they are not native to the ecosystem they invade, they may not have any natural predators or controls which allows them to aggressively breed and spread (National Wildlife Federation, 2018). As climate changes, more species will be able to migrate to and live in New Jersey. While the state is home to many plants and pests already, including the gypsy moth and the emerald ash borer, other species will be able to migrate to New Jersey Ecosystems since the climate may be able to accommodate their needs.

## 4.16-5 VULNERABILITY ASSESSMENT

This section discusses New Jersey’s vulnerability, in a qualitative nature, to the crop failure hazard. A consequence analysis for this hazard was also conducted and presented in Section 10.0: EMAP. Impacts on the public, responders, continuity of operations, and delivery of services; property, facilities, and infrastructure; and the environment, economic condition of the State, and the public confidence in the State’s governance are discussed in Section 10.0: EMAP in accordance with Emergency Management Accreditation Program (EMAP) standards. This section addresses assessing vulnerability and estimating potential losses by jurisdiction and to State facilities.

### Built Environment

The State owns or operates 23 barns for confinement, feeding, freestall or milking, 1 creamery, 2 dairies, and 85 farm buildings that serve a variety of purposes. These buildings are owned or operated by the Department of Corrections (53 buildings), Department of Environmental Protection (40 buildings), the Department of Health (1 building), the Department of Human Services (4 buildings), the Juvenile Justice Commission (4 buildings), the State Police (1 building), the Department of Transportation (2 buildings), and the Department of the Treasury (6 buildings) (NJOMB, 2023). Crop-related assets in these State facilities are considered the most vulnerable to this hazard.

### Population and Economy

The New Jersey agricultural industry brought in \$984,530,000 in crop sales in 2017 . The industry as a whole is supported by 9,883 farms statewide producing over 100 crop species (United States Department of Agriculture (USDA), 2017; USDA, n.d.). Additionally, out of all states, New Jersey ranks third in the nation in production of cranberries, peaches, and spinach; fourth in bell pepper production; sixth in blueberries, cucumbers, and squash; and seventh in tomatoes (USDA, n.d.)

Table 4.16-2 shows the leading agriculture sectors in New Jersey, along with their total sales for 2017. These total sales represent the potential total loss to the agricultural community.

**Table 4.16-2 Leading New Jersey Agriculture Sectors (Crops)**

Agriculture Sector	Total Sales (2017)
Nursery, greenhouse, floriculture, sod	\$498,125,000
Vegetables, melons, potatoes, sweet potatoes	\$222,465,000
Fruits, tree nuts, berries	\$141,323,000
Grains, oilseeds, dry beans, dry peas	\$92,222,000
Other crops and hay	\$27,598,000

Source: USDA, 2017

### Ecosystems and Natural Assets

Crop failure could have a potentially severe impact on the environment if it were due to contamination by a foreign agent or a biological organism. In this event, large swathes of agricultural crop land may have to be abandoned or water sheds may

need to be monitored for contamination (NJ HMP 2011). Crop failure can also be the result of drought and severe weather events, such as hurricanes, Nor'easters, hailstorms, etc. See Sections 4.4: Drought, Section 4.7: Flood, Section 4.9: Hurricane, Nor'easter, Tropical Storm, and Section 4.10: Severe Weather for environmental impacts regarding these hazards.

Acreage of cropland and the percentage of farmland that is used to grow crops by county was calculated and can be referenced in Section 3.0: State Profile. All counties are vulnerable to the crop-failure hazard. The most vulnerable Counties to crop failure are the ones that have the most cropland. Counties that have over 35,000 acres of cropland are: Hunterdon (101,290 acres), Salem (98,239 acres), Burlington (96,256 acres), Warren (73,874 acres), Cumberland (66,256 acres), Sussex (59,766 acres), Gloucester (49,381 acres), Monmouth (39,198 acres), and Somerset (35,852 acres) (USDA, 2017).

## Impact Analysis

### *Severity and Warning Time*

Drought and crop failure in the United States could spike world food prices and have serious implications for places such as Mexico, China, Central America, and India. These places rely heavily on imports of crops for human consumption as well as animal feed (The Center for Climate and Security, 2012).

In New Jersey, depending on the severity of an event, the Farm Service Agency has helped the agricultural industry recover from the effects of a disaster. From drought to flood, freeze and tornadoes - FSA was financially responsive to New Jersey producers following natural disasters. Between 2012 and 2016 FSA has provided the following financial assistance to New Jersey Farms.

2012 Disaster Assistance: \$2,488,111

- \$1,332,928 - Non-Insured Crop Disaster Assistance Program (NAP) provides financial assistance to producers of non-insurable crops when low yields, loss of inventory, or prevented planting occurs due to natural disasters.
- \$977,080 - Supplemental Revenue Assistance Payment (SURE) provides benefits for 2008 through 2011 crop year farm revenue losses due to natural disasters. It is the 2008 Farm Bill's successor to prior ad hoc crop disaster programs.
- \$58,519 - Livestock Indemnity Program (LIP) provides partial reimbursements to eligible livestock owners for livestock losses suffered due to a natural disaster or other emergency.
- \$1,554 - Emergency Livestock Assistance Program (ELAP) provides emergency assistance to eligible producers that have livestock losses due to disease, adverse weather, or other conditions, including losses due to blizzards and wildfires.
- \$118,030 - Tree Assistance Program (TAP) provides financial assistance to qualifying orchardists and nursery tree growers to replant or rehabilitate eligible trees, bushes and vines damaged by natural disasters

2013 Disaster Assistance: \$1,300,724

- \$482,658 - Non-Insured Crop Disaster Assistance Program (NAP) provides financial assistance to producers of non-insurable crops when low yields, loss of inventory, or prevented planting occurs due to natural disasters.
- \$816,350 - Supplemental Revenue Assistance Payment (SURE) provides benefits for 2008 through 2011 crop year farm revenue losses due to natural disasters. It is the 2008 Farm Bill's successor to prior ad hoc crop disaster programs.
- \$1,716 - Tree Assistance Program for Orchardists and Nursery Tree Growers (TAP) provides financial assistance to replant or rehabilitate eligible trees, bushes and vines damaged by natural disasters.

2014 Disaster Assistance: \$888,165

- \$861,503 - Non-Insured Crop Disaster Assistance Program (NAP) provides financial assistance to producers of non-insurable crops when low yields, loss of inventory, or prevented planting occurs due to natural disasters.
- \$5,640 - Supplemental Revenue Assistance Payment (SURE) provides benefits for 2008 through 2011 crop year farm revenue losses due to natural disasters. It is the 2008 Farm Bill's successor to prior ad hoc crop disaster programs.
- \$16,784 - Tree Assistance Program for Orchardists and Nursery Tree Growers (TAP) provides financial assistance to replant or rehabilitate eligible trees, bushes and vines damaged by natural disasters

- \$4,238 - Livestock Indemnity Program (LIP) provides partial reimbursements to eligible livestock owners for livestock losses suffered due to a natural disaster or other emergency.

2015 Disaster Assistance: \$679.0 thousand

- \$336,634 - Non-Insured Crop Disaster Assistance Program (NAP) provides financial assistance to producers of non-insurable crops when low yields, loss of inventory, or prevented planting occurs due to natural disasters.
- \$176,594 - Tree Assistance Program for Orchardists and Nursery Tree Growers (TAP) provides financial assistance to replant or rehabilitate eligible trees, bushes and vines damaged by natural disasters.
- \$1,508 - Livestock Indemnity Program (LIP) provides partial reimbursements to eligible livestock owners for livestock losses suffered due to a natural disaster or other emergency.
- \$164,301 - Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP) provides emergency assistance to eligible producers of livestock, honeybees and farm-raised fish that have losses due to disease, adverse weather, or other conditions.

2016 Disaster Assistance: \$1.2 million

- \$995,155 - Non-Insured Crop Disaster Assistance Program (NAP) provides financial assistance to producers of non-insurable crops when low yields, loss of inventory, or prevented planting occurs due to natural disasters.
- \$125,133 - Tree Assistance Program for Orchardists and Nursery Tree Growers (TAP) provides financial assistance to replant or rehabilitate eligible trees, bushes and vines damaged by natural disasters.
- \$6,188 - Livestock Indemnity Program (LIP) provides partial reimbursements to eligible livestock owners for livestock losses suffered due to a natural disaster or other emergency.
- \$39,387 - Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP) provides emergency assistance to eligible producers of livestock, honeybees and farm-raised fish that have losses due to disease, adverse weather, or other conditions (USDA Farm Service Agency, 2018).

The USDA FSA provides loans for farmers based on USDA declared disasters. See Table 4.16-1 for the most recent USDA Declared Disasters in New Jersey (USDA Farm Service Agency, n.d.).

Warning time for crop loss can be divided into weather-related warnings and pathogen/pest forecasts. Adverse weather such as high winds, hail, and other severe storms generally occur with a few minutes to hours of warning times. The possibility of these conditions are generally known a few days in advance, and general weather pattern trends can be predicted prior to a particular season, but the duration of the event is unknown.

Disease and pest conditions are an annual threat for the agricultural industry and are predictable to a degree. Farmers generally know the types of recurring pests to plan for prior to each growing season. Additionally, disease outbreaks are planned for annually, with the exception of new disease introductions. Farmers have been successful in fending off many of the diseases presented annually, based on the known threat.

### ***Secondary Hazards***

Crop losses within the State present secondary impacts on New Jersey's economy. The State's economy relies on the stability within the agricultural industry to sustain jobs, tax bases, and programs. The catastrophic loss of any significant part of the farming market will present dire consequences to the State's economic stability.

Additionally, the loss of the agricultural industry would pose a significant threat to the availability of food to the residential populations. While New Jersey produce has been noted as being recognized globally, many communities rely heavily on locally grown produce for human consumption. This loss would lead to an elevated price in the cost of food and ultimately to a food shortage within the State.