

CHAPTER VII: NATURAL RESOURCE CONSERVATION

Natural Resource Protection Coordination

Natural Resource Conservation Service

The USDA Natural Resources Conservation Service (NRCS) is an important partner in support of natural resource conservation for the agricultural community. The NRCS assists landowners and managers with conserving soil, water, and other natural resources. The agency has a field office at 101 Bilby Road in Hackettstown and offers technical and financial assistance. It also oversees conservation programs, such as the Environmental Quality Incentive Program (EQIP) Conservation Stewardship Program (CSP), and Agriculture Management Assistance (AMA).

Conservation plans are a written record of management suggestions and conservation practices to be used on a farm and are intended to help protect soil fertility and productivity, improve water quality, and attract desirable wildlife. These plans are required within one year of the date of the deed of easement for those who wish to sell a development easement via the Farmland Preservation Program or apply for natural resource conservation program grants such as EQIP, CSP or AMA. The local NRCS office administers these conservation program grants, which offer financial incentives to support conservation projects, including the creation of riparian buffers and protection of wildlife habitat. Administration of these grant programs includes field visits to prepare the Conservation Plans, preparation of grant program contracts, assistance with installation of contract conservation practices, and the inspection of farms to verify that the contract conservation practices are implemented and maintained.

Soil Conservation District

An additional partner in the conservation of resources is the New Jersey Department of Agriculture, Division of Agricultural and Natural Resources. Among its responsibilities, the Division implements the natural resource conservation programs administered by the State Soil Conservation Committee (SSCC). These programs provide engineering services and regulatory guidance to soil conservation districts, homeowners, engineers and planners regarding nearly all development activities, with the goal of reducing the danger from stormwater runoff, retarding non-point source pollution from sediment, and conserving and protecting the land, water and other natural resources of the State. Morris County is served by the Morris Soil Conservation District. The Soil District Office mailing address and website is:

30 Schuyler Pl. 4th Floor
Morristown, NJ 07960
<https://mcscd.org/>

The Morris County Soil Conservation District oversees a range of soil conservation and water quality programs. The office provides assistance with agricultural conservation planning, including the development of conservation management plans using best management practices (BMPs) for soil erosion and sediment control, water quality improvement, and nonpoint source pollution control. The Conservation District helps farmers secure water use allocations and better manage irrigation water and stormwater, and provides guidance concerning the application of organic materials (animal waste, leaves, grass clippings, food processing waste, and sludge) on agricultural lands.

The Morris County Soil Conservation District office is charged with reviewing and approving natural resource conservation assistance and agricultural conservation cost-sharing program grants and implementing agricultural conservation planning assistance programs. It also oversees agricultural water supply management, soil erosion and sediment control management, storm water discharge authorization, soil surveys and the application of organic materials on agricultural land.

In accordance with soil standards, construction, grading and demolition projects that disturb more than 5,000 square feet of the surface area of the land require soil erosion and sediment control plans. Commercial farms may be required to prepare such plans for parking lot installation, soil grading and the erection of agricultural structures. Cultivation of farmland for food, fiber or animals is typically exempt.

Natural Resources Protection Programs

SADC Stewardship Grants

The SADC provides cost-sharing grants to landowners in the permanent or Term Preservation programs to fund approved soil and water conservation projects. These projects protect soil and water resources and increase productivity and profitability for the farmer. Projects include terrace systems, diversions, water impoundment reservoirs, irrigation systems, sediment retention, erosion or water control systems, drainage systems and animal waste control facilities as well as land shaping and grading.

Soil and Water Conservation Grant Program – The SADC Soil and Water Conservation Grant Program awards grants of up to 50 percent of the project cost to owners of permanently preserved farms and term preservation program participants. Irrigation, erosion control, and stream corridor enhancement projects are among those that are eligible.

Deer Fencing Grant Program – The SADC Deer Fencing Grant Program can provide 50 percent matching grants to assist farmers with the materials and installation of fencing to protect permanently preserved farmland from crop losses related to deer. The maximum grant award is \$200 per acre or a total of \$20,000 to eligible farmers. Applications are accepted on a rolling basis, with no deadlines.

Federal Conservation Programs

The NRCS, under the USDA administers a number of Federal Farm Bill programs. As a means to boost conservation efforts, the NRCS offers financial assistance in the form of the Environmental Quality Incentives Program (EQIP), the Conservation Reserve Enhancement Program (CREP), the Conservation Stewardship Program (CSP), and Agriculture Management Assistance (AMA) and under the U.S. Forest Service, the Forest Stewardship Program. These programs are examples of multilateral partnerships which aim to financially incentivize voluntary conservation practices among local farmers.

EQIP is open to eligible agricultural producers including livestock, forestry and organic production that offers financial and technical assistance to implement conservation practices on eligible land. Opportunities within EQIP include assistance with aquaculture, beginning farmers, conservation activity plans, high tunnels, on-farm energy, organic production, socially disadvantaged producers, soil health, and working lands for wildlife.

The primary objectives of CREP are to maintain and improve water quality by reducing agricultural pollutants into streams, to enhance farm viability, and to contribute to the State's open space goals. The program implements a either a 10- to 15-year rental contract or a permanent easement in combination with a 10- to 15-year contract agreement to reduce non-point source pollutants by preserving stream buffers and implement conservation practices. The program pays 100 percent of the cost to establish these mechanisms on eligible farms and it serves as a way to recognize farmers for their environmental stewardship.

CSP is a voluntary conservation program that encourages producers to address resource concerns in a comprehensive manner by undertaking additional conservation activities and improving, maintaining and managing existing conservation activities. CSP participants will receive an annual land use payment for operation-level environmental benefits produced. Participants are paid for conservation performance, meaning the higher the operational performances, the higher the payment. For example, if a farmer has been practicing prescribed grazing, CSP would give options to enhance that practice with activities such as grazing management to improve plants for wildlife, to reduce soil compaction, or to improve riparian function.

AMA is another voluntary conservation program that targets beginning and limited resource farmers, small farms, and producers who have had limited participation in other USDA financial assistance programs. AMA provides assistance to address issues such as water management, water quality, and erosion control by incorporating conservation into their farming operations. The program has five priority areas:

1. Reduction in non-point source pollutants

2. Irrigation water use efficiency
3. Reduction in particulate or ozone precursor emissions
4. Reduction in soil erosion and sedimentation
5. Promotion of at-risk species habitat conservation

Projects eligible for assistance utilizing the AMA program include constructing efficient irrigation systems and implementing irrigation water management practices, reducing non-point source pollutants via filter strips and nutrient management, and projects to improve habitat conservation through conservation cover and windbreaks.

The U.S. Forest Stewardship Program is an additional source of preservation for forested lands on active farm properties that may not qualify under other programs. The U.S. Forest Service sponsors the Forest Stewardship Program, which supports landowners whose property has a woodland management plan that recognizes and manages the wetlands, wildlife, aesthetics, soil and water in addition to the woodlands on the property. This program, when fully funded, offers landowners cost-share initiatives to allow the landowners to fully follow the guidelines in their woodland management plan. In New Jersey, the state farmland assessment tax program and the U.S. Forest Service program have merged to allow one planning document for the landowner where the stewardship plan meets the state tax code and eliminates conflicts between the two. Increasing enrollment of landowners in this merged state-federal program will ensure increased protection of the natural resources for an extended period; the minimum is a 10-year management plan. This does not ensure preservation of the land in perpetuity, but it does allow recognition of the importance of the land value and stewardship of the property for a longer period of time.

Farms applying to the stewardship program have been consistently smaller and more fragmented than previous years. The rise in the number of farms and the small drop in acreage may be attributed to the development pressures facing the entire region. At this time there is no county-level or state-level woodland preservation program to complement existing farmland preservation; however, should a program be developed at the county or state level, the County should consider seeking grant funds to preserve wooded areas that are compatible with farmland preservation activities.

The NRCS previously offered a voluntary program that was designed for non-federal landowners who wish to improve or develop fish and wildlife habitats. The program known as Wildlife Habitat Incentives Program (WHIP), was not reauthorized as part of the Federal Agricultural Act in 2014. Similarly, the NJDEP Division of Fish & Wildlife formerly administered a program known as the Land Owner Program (LIP), which offered technical and financial assistance to private landowners interested in conserving threatened and endangered plant and animal species on their property. The LIP was an annually appropriated program originally created by Congress in 2002; however, appropriations ceased in the fiscal year 2007 and the program was discontinued.

North Jersey Resource Conservation and Development Council

The North Jersey Resource Conservation & Development (RC&D) Council is a regional non-profit that was initially established in 1972. The organization's mission is to facilitate the transition to sustainable use and protection of the region's human and natural resources through partnerships, education and innovation. This is accomplished by working with communities and regional partnerships to: address issues related to water quality and water resource protection, sustainable farming and farm communities, building local community capacity and resource management on public lands.

There are currently five Board Members made up of representatives from Morris County, Warren County, Sussex County, Hunterdon County, and Union County. The staff of RC&D includes an Executive Director, Agricultural Specialists, Conservation Specialists, and financial staff.

Partners include the Natural Resources Conservation Service (Frenchtown and Hackettstown Service Centers), Musconetcong Watershed Association, New Jersey Audubon, Trout Unlimited, Lopatcong Creek Initiative, and Rutgers New Jersey Agricultural Experimental Station.

The RC&D focuses on specific projects pertaining to on-farm soil health, no-till and cover crops, renewable energy development assistance, drill rentals, and river friendly farms.

For more information pertaining to the RC&D, visit their website: <https://www.northjerseyrcd.org/>

River-Friendly Farm Program

River Friendly Farm is a voluntary certification program based on standards that define sustainable agricultural practices. Farms that meet River Friendly Farm standards, as determined by a Certification Committee, use the River Friendly Farm Certification to differentiate their products, strengthen their brands, and support credible claims for environmental responsibility. The certification program aims to provide cleaner water and healthier soil, provide wildlife habitat, and encourage climate resilience.

The River-Friendly Farm Program was originally created to provide incentives through recognition for agricultural producers who voluntarily manage their land in a manner that protects and enhances the water resources of the Raritan River Watershed. However, the River Friendly Farm Certification is currently available to farms located in Northern and Central New Jersey, as well as the Cumberland River Compact (Kentucky and Tennessee). By publicly recognizing farmers' voluntary contributions to resource protection, the River-Friendly Farm Program seeks to increase public awareness and appreciation for the role agriculture plays in the community.

Currently, the River Friendly Farm program is administered through the North Jersey RC&D and the New Jersey Water Supply Authority. Farms are eligible for certification provided they are located in Morris, Warren, Sussex, Hunterdon, Middlesex or Union Counties.

For more information regarding River-Friendly Farm Program, visit their website:

<https://www.riverfriendlyfarm.org/>

Water Resources

The supply of groundwater and surface water in a given area is increasingly critical to sustained human activity. The maximum rate that water is potentially available for human use and management is often considered the best measure of the total water resources of a given region. The protection of water resources is a vital tool in land management techniques that seek to sustain agriculture in the long-term, as farms are dependent upon an abundant, uncontaminated and sustainable water source.

As discussed in Section 3 of this Plan, Morris County adopted a Water Supply Element to its Master Plan in 1994 which addresses water distribution, water quality, and the protection of water supplies.

Supply Characteristics

The following chart details the types of water withdrawals for all uses based upon the New Jersey Geological and Water Survey Water Transfer Model for 2018. As discussed in previous sections of the Plan, potable water supply accounts for the majority of water withdrawals, of which a significant portion is exported to neighboring counties. Industrial uses account for the second largest amount of water withdrawal, followed by irrigation. Agricultural withdrawals account for less than 0.01% of the total water use in Morris County.

2018 Water Withdrawals from Morris County Summary Table ⁸⁹					
Use Group	Total Withdrawal (MGY)	Groundwater Withdrawal (MGY)	Surface Water Withdrawal (MGY)	Surface & Groundwater Withdrawal (MGY)	Unknown (MGY)
Agricultural	28.3	11.4	13.5	3.4	-
Commercial	31.3	31.3	0.0	-	-
Industrial	1,780.5	1,380.1	400.4	-	-
Irrigation	111.1	38.9	67.4	4.8	-
Mining	11.6	11.6	-	-	-
Potable Water Supply	34,282.0	16,737.6	17,542.4	-	2.0
Total	36,244.8	18,210.9	18,023.7	8.2	2.0

Source: NJGS, 2021 Water Transfer Model

In 2018, approximately 40% of the reported agricultural water withdrawals stemmed from groundwater sources, 48% from surface water withdrawals, and 12% of the reported withdrawals utilized a combination of both surface water and groundwater withdrawals.

Among the water supply trends faced by Morris County farms, the Board notes that there is an ongoing issue with municipalities putting well heads on farms. In addition, some farmers have recently had their water allocation permits “cut back” by NJDEP as the farmer uses less water annually likely due to advances in technology and the incorporation of trickle irrigation, resulting in the need to use less water.

As climate change and global warming continue to alter the seasons and weather patterns, it is unknown as to how precipitation patterns will affect the agricultural community.

Agricultural Demand and Supply Limitations

The following chart shows the total water withdrawals compared to the agricultural water withdrawals for Morris County. Since 2005, agricultural water withdrawals have made up a very small portion of the total water withdrawn from groundwater and surface waters. Since 2005, the amount of water used by the agricultural community has fluctuated- In 2006, only 12.1 MG were used by the agricultural community, representing less than 0.1% of the total water withdrawn. However, in 2001, this number spiked to 200.7 MG, the most withdrawn in a given year to date. The agricultural water withdrawals continued to fluctuate, decreasing to 24.8 MG in 2013, before peaking to 55.3 MG in 2016, to the most recent data available, which was 28.3 MG in 2018.

⁸⁹ This table includes all water withdrawn from Morris County aquifers.

Annual Water Withdrawals from Morris County ⁹⁰			
Year	Total Water Withdrawals (MG)	Agricultural Withdrawals (MG)	Percentage of Agriculture Withdrawal
2005	40,903.0	24.0	0.1%
2006	39,171.2	12.1	0.0%
2007	38,459.8	38.5	0.1%
2008	39,061.8	52.7	0.1%
2009	36,610.7	25.0	0.1%
2010	37,013.5	36.0	0.1%
2011	35,451.2	200.7	0.6%
2012	34,808.5	38.8	0.1%
2013	31,319.0	24.8	0.1%
2014	33,926.9	35.5	0.1%
2015	36,552.3	43.8	0.1%
2016	35,075.6	55.3	0.2%
2017	34,818.8	26.6	0.1%
2018	36,244.9	28.3	0.1%

Source: New Jersey Geological and Water Survey Water Transfer Model (January 2021)

There is currently a \$3.2 million Water Supply Improvement Project planned by the Southeast Morris County Municipal Utilities Authority (SMCMUA) which includes the upgrade of roughly 1.53 miles of water mains in the Greater Morristown area, along with other improvements. An interactive map of the impacted areas is available here: <https://water-supply-enhancement-smcmua.hub.arcgis.com/>.

Conservation and Allocation Strategies

The protection of water resources as it relates to agriculture and farmland preservation in the County cannot be overstated. Without a consistent, plentiful, adequate and clean water source, agriculture cannot exist. Farms also serve a valuable function in providing critical open space areas for aquifer recharge. Careful consideration should be given to the existing water supply and future water demand, with the understanding that water supply management is critical, and requires a proactive approach. To ensure a healthy water supply into the future, sound farmland management measures are essential:

- Advocate for the responsible use of synthetic chemicals, such as fertilizers, herbicides, pesticides, and fungicides, as to lessen their impact to the ground water. While the application and use of these products increases yield and can enhance the quality of agricultural output, they can have significant negative effects on water resources. Proper timing as well as application rates must be considered as to minimize any harmful effects to water sources;
- Creating riparian buffers by planting rows of trees and shrubs, including strips of native grasses, along the land area adjacent to surface water bodies, so as to ensure adequate protection from synthetic chemicals, organic byproducts, and soil erosion;
- Emphasizing the importance of water conservation techniques such as drip irrigation and water recycling. Excess irrigation and water use can increase runoff as well as reduce efficiency;
- Minimizing the use of chemical application;

⁹⁰ This table includes all water withdrawn from Morris County aquifers.

- Implementing water conservation techniques such as drip irrigation and water re-use in smaller-scale vegetable and fruit operations; and,
- Practicing organic farming methods when possible.

The United States Department of Agriculture, National Resource Conservation Service (USDA-NRCS), assists farmers in irrigation and water quality enhancement projects. As previously mentioned, NRCS assists in the development of conservation plans for both preserved and non-preserved farm owners. These plans take into consideration water sources, use and delivery methods. The NJDEP Division of Water Supply also allocates water permits to farmers who extract more than 100,000 gallons per day, above 30 days in a year.

Waste Management Planning

Agriculture inherently produces an abundance of waste such as animal waste, plastic mulch, tires, or greenhouse wrapping. Left uncontrolled, animal waste can spread harmful microorganisms into the soil, as well as ground- and surface-water sources. In an unmanaged environment, farm animals can be exposed to diverse disease outbreaks. The state's agricultural community bears a responsibility to help protect and restore the natural resources for which they are the stewards.

Animal Waste

Animal Feeding Operations (AFOs) have the potential to cause water pollution through the collection of large amounts of animal waste in relatively small areas. Mismanagement of the animal waste can cause large amounts of soil and groundwater contamination via introduction of the bacteria, fecal coliform, a known contaminant from animal farming operations. Concentrated Animal Feeding Operations (CAFOs) are defined by the USDA as operations with 1,000 animal units confined on site for more than 45 days during the year. An animal unit is defined as an animal equivalent of 1,000 pounds live weight and equates to 1,000 head of beef cattle, 700 dairy cows, 2,500 swine weighing more than 55 pounds, 125 thousand broiler chickens, or 82 thousand laying hens or pullets. Often times, manure and wastewater from these operations are discharged into natural or man-made ditches, streams, or other waterways, regardless of the size.

The NJDEP has outlined a statewide strategy to manage and regulate these operations. The strategy is closely coordinated between the NJDEP and the New Jersey Department of Agriculture (NJDA). Within NJDEP, the Division of Water Quality, Water Compliance and Enforcement Program, the Division of Watershed Management and the Bureau of Nonpoint Pollution are involved in the management and regulation of AFO/CAFO operations. NJDEP administers CAFO permits and NJDA administers the appropriate measures for AFOs. The permits and measures require development and implementation of comprehensive waste management plans, utilizing "animal waste standards." The NJDA has implemented the following five general animal waste management requirements for all livestock farms:

1. Animals in confinement areas shall only have controlled access to waters of the State;
2. Manure storage areas must be 100 feet from waters of the State, and on slopes less than five percent;
3. Land application of manure must follow Best Management Practices;
4. Livestock contagious disease must be reported to the State Vet; and
5. State Officials must follow bio-security protocols.

Recycling Programs

Through the years, the practice of reuse has expanded to include both man-made and natural resources. Recycling efforts not only help to conserve natural resources but can also provide cost-saving benefits to farmers that creatively reuse the waste generated on their farms. This performs a necessary function on the farm, while saving on solid waste disposal costs. One example of this opportunity is the utilization of leaves and grass clippings to mulch

fields and/or compost. In general, recycling saves natural resources and precious space in landfills. Various recycling programs are available to area farmers, such as:

Nursery and Greenhouse Film Collection

The nursery and greenhouse film recycling program is administered by the New Jersey Department of Agriculture. The Cumberland County Improvement Authority offers a number of opportunities to farmers in the region for recycling standard farm waste. The Authority runs a nursery and greenhouse film collection site, available to any farm in New Jersey, where shrink wrap for shipping and plastic film coverings from greenhouses, which have to be replaced often, are collected for proper recycling. Since this program was so successful the Authority has expanded to offer the free recycling of pesticide containers. Agricultural Recycling Services, Inc. in Atlantic County and Allied Recycling in Burlington County also offer nursery and greenhouse film collection to farmers across the state. These programs help the agriculture community become better stewards of the environment. For further information, visit: <https://www.nj.gov/agriculture/divisions/anr/nrc/filmsites.html>.

Agricultural Plastics – Drip Irrigation Tape

In 2005, the NJDA initiated a pilot program to collect and recycle other agricultural plastics generated by New Jersey farmers with the help of a grant from the New Jersey Department of Environmental Protection. Farmers utilizing this service can realize savings of almost 50 percent over landfill tipping fees. For more information about this service, visit: <https://www.nj.gov/agriculture/divisions/anr/nrc/dirtyplastics.html>.

Nursery Pot/Plug Trays/Flat Recycling

Farmers can also recycle nursery pots, plastic flats, trays, and cell packs. The NJDA maintains a list of recycling vendors through its website: <https://www.nj.gov/agriculture/divisions/anr/nrc/plasticpotvendors.html>.

However, it may be most economically feasible if farmers, who sell their products directly to consumers, to inform customers as to whether nursery pots, plastic flats, trays, etc. can be returned to the farm for the farmer to reuse. Often times, the consumer throws away the packaging after a single use, which contributes to plastic pollution. Returning this packaging to the farmer would reduce the need to purchase more “new” single-use plastic for the next cycle.

Pesticide Containers

The New Jersey Department of Agriculture has partnered with Helena Chemical for free recycling of empty plastic pesticide containers. As with other recycling programs, only certain products are accepted and participants must follow strict guidelines. The program is open to agricultural, professional and commercial pesticide applicators, along with Helena Chemical customers who hold NJDEP pesticide licenses, as well as State, County and Municipal government agencies. Morris County farmers are encouraged to utilize the site in Monmouth County located at 283 Route 539, Cream Ridge. For further information, visit: <https://www.nj.gov/agriculture/divisions/anr/nrc/pesticidecontsched.html#4>.

Energy Conservation Planning

Energy conservation has become an important objective for the agricultural industry due to of its positive effects on the sustainability and growth of agricultural operations. With ever-changing technological advancements comes a corresponding increase in energy costs, which can negatively affect a farm business's bottom line. Additionally, energy conservation measures and alternative energy sources can facilitate responsible environmental stewardship and present new business opportunities for farmers.

The New Jersey Department of Agriculture highlighted the significance of energy conservation and alternative energy use in its 2006 Agricultural Smart Growth Plan. The Plan states that it is important to “...promote the use of innovative technologies, recycling, energy conservation and renewable energy systems on New Jersey’s farms” and to “...promote, provide technical assistance for and inform the agricultural community about new and existing energy conservation and renewable energy programs by promoting the financial and environmental benefits of implementing these programs.” With energy prices continuing to rise and traditional energy sources becoming

scarce people in all sectors are increasingly embracing energy conservation techniques and the move to alternative sources of energy.

Solar power is one technology that has proven to be a viable option for local farmers. Solar panels installed on farm buildings and on areas that are not in active agricultural production can provide power and heat to operate the farm. Programs are available to farmers to assist in the costs to implement solar opportunities. The Environmental Quality Incentives Program (EQIP) includes cost sharing for conservation practices in addition to solar energy. The U.S. Department of Energy's Solar Energy Technology Program and the New Jersey Board of Utilities' Solar Energy for New Jersey Agriculture program provide grants and technical assistance. Farmers interested in using alternative energy sources can contact their local NRCS office for more information.

The SADC adopted an Agricultural Management Practice (AMP) for the construction, installation, operation or maintenance of solar energy generation facilities, structures and equipment on commercial farms. The AMP sets limitations and restrictions to the scope of the solar project allowable on a commercial farm, as well as the amount of energy that is generated, to ensure that the primary use of the land continues to be agricultural production. Commercial farms must be in compliance to retain Right-to-Farm protections for these activities. While the amount of energy generated is limited by the AMP, farmers can take advantage of the savings realized by generating energy on-site to support their agricultural operations.

An inherently beneficial use is defined at Section 40:55D-4 of the Municipal Land Use Law (MLUL) as "a use which is universally considered of value to the community because it fundamentally serves the public good and promotes the general welfare. Such uses include, but are not limited to, a hospital, school, child care center, group home, or a wind, solar or photovoltaic energy facility or structure." New Jersey has seen a growing interest in larger solar farm systems, which continues to threaten the viability of the farming industry. The practice of dedicating large swaths of farmland to ground-mounted solar arrays should be avoided in the interest of stability in the agricultural market.

Outreach and Incentives

The NJDA's Agriculture Development Initiative encourages the production of alternative fuel sources such as ethanol, bio-diesel, biogas, and biomass. To refine these fuels from agricultural products such as soybeans, corn and waste stream products, local facilities would need to be established.

Through a partnership with the local Rutgers Agricultural Extension Service, the USDA and other farm community organizations, Morris County has the opportunity to encourage farmers to embrace energy conservation and alternative energy measures through new and emerging technologies. It is important for Morris County farmers to gain an understanding of the benefits possible through the use of these programs.

Efforts to support and promote Morris County's agricultural industry are needed for continued growth and success into the future. The acquisition of farmland preservation easements results in a variety of opportunities not only for the current landowner, but also for future prospective farmers. However, the availability of land is only one consideration. Many factors influence the degree of success in any agricultural operation. Continued long-term viability of the local industry is dependent upon further exploration and implementation of the various initiatives discussed within this Plan and is largely dependent upon education as well as public policies, laws and programs that support agriculture. Therefore, agriculture should be a priority in present and future decisions regarding taxation, regulations, financial incentives and educational opportunities.

The retention of farmland helps to improve aquifer recharge, provides wildlife habitat and provides scenic open space vistas. A Farmland Preservation Program at the county level helps to protect farmland from being developed with more intense land uses, reduce the rate of stormwater runoff and potential traffic generation, and eliminate the costs of services that are associated with other types of development.

Sustainability

New Jersey's Global Warming Response Act 80x50 Report - Evaluating Our Progress and Identifying Pathways to Reduce Emissions by 80% by 2050

In 2020, the NJDEP in partnership with numerous agencies including the Board of Public Utilities, Economic Development Authority, Division of Community Affairs, NJ Transit, Department of Labor, Department of Transportation, and the Department of Agriculture, issued New Jersey's Global Warming Response Act 80x50 Report for Evaluating Our Progress and Identifying Pathways to Reduce Emissions by 80% by 2050. As noted in the Report, agricultural activities make up very little of the state's overall greenhouse gas emissions (0.4 MMT CO₂). However, studies have shown that effective agricultural land management practices and enhanced waste management practices can be successful in off-setting emissions, as the land and soil can be used to sequester carbon. The Report outlines the following strategies:

- Adopt regulations to implement requirements of the Food Waste Recycling and Waste-to-Energy Production Act (P.L.2020, c.24)
- Promote the development of food waste processing facilities and the development of markets and best practices for sectors of the economy generating food waste
- Expand education and outreach efforts about climate friendly agricultural practices

For more information regarding the New Jersey's Global Warming Response Act 80x50 Report and the discussion regarding agriculture, visit the following:

<https://www.nj.gov/dep/climatechange/docs/nj-gwra-80x50-report-2020.pdf#page=114>

2020 New Jersey Scientific Report on Climate Change

In June 2020, NJDEP released the 2020 New Jersey Scientific Report on Climate Change. This report evaluated climate change and its effects, as well as its effects on resources and ecosystems, including the agriculture sector.

Key findings of the report include:

- The productivity of crops and livestock are expected to change due to climate-induced changes in temperature and precipitation
- New Jersey may become unsuitable for specialty crops like blueberries and cranberries in the future as higher temperatures reduce necessary winter-chills.

The report also notes that these changes may limit the use of water supplies, especially if the growing season is extended as a result of increases in temperatures. A likely scenario also involves wetter conditions early in the season, delayed spring plantings, warmer and drier conditions mid-season, and increased need for irrigation to sustain crops, pastureland and livestock. Crops and livestock may also see a decrease in growth and productivity due to increased dry spells, heat waves, and sustained droughts. It may also be likely that farmers will need to increase the use of pesticides as agricultural pests and weeds move northward, resulting in additional environmental concerns.

While some crops and plant species may benefit from the increase of CO₂ in the atmosphere, invasive weed species can also benefit from same, which will lead to an increase in the number of weeds that crops will need to compete against for resources, negatively impacting harvests and profits. This will likely result in an increase in the application of pesticides, increasing costs for the farmer and also contributing to environmental degradation.

Increased precipitation is a particular concern for run-off, as the stormwater run-off will mobilize nutrients, leading to an increase in surface water nutrient loading, which can have detrimental effects on local freshwater ecosystems by creating eutrophic conditions. Surface waters in proximity to agricultural practices are at particular risk for nutrient loading. In addition, pending the severity of a storm, high winds and flooding can also damage crops, structures, and livestock.

For more information regarding the 2020 New Jersey Scientific Report on Climate change, visit:

<https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf>

2021 New Jersey Climate Change Resiliency Strategy

The State of New Jersey issued a Climate Change Resiliency Strategy in April of 2021. This report outlines six priorities including:

- Build Resilient and Healthy Communities
- Strengthen the Resiliency of New Jersey’s Ecosystems
- Promote Coordinated Governance
- Invest in Information and Increase Public Understanding
- Promote Climate-Informed Investments and Innovative Financing
- Coastal Resilience Plan

The report notes that the effects of climate change include rising temperatures, increasing precipitation, sea-level rise, ocean acidification, decreased water quality, extreme weather, drought, and decreased air quality. As it relates to agriculture, the productivity of crops and livestock are expected to change due to climate-induced changes in temperature and precipitation patterns. The Resilience Strategy further includes recommendations that ensure state investments minimize future climate resilience needs by continuing to invest in renewable energy and regenerative agriculture, which includes farming practices that improve the entire ecosystem of the farm such as low- or no-till practices, crop diversity and rotation, and crop cover.

For more information regarding the 2021 climate Change Resiliency Strategy, visit:

<https://www.nj.gov/dep/climatechange/docs/nj-climate-resilience-strategy-2021.pdf>