

AGRICULTURE

BACKGROUND

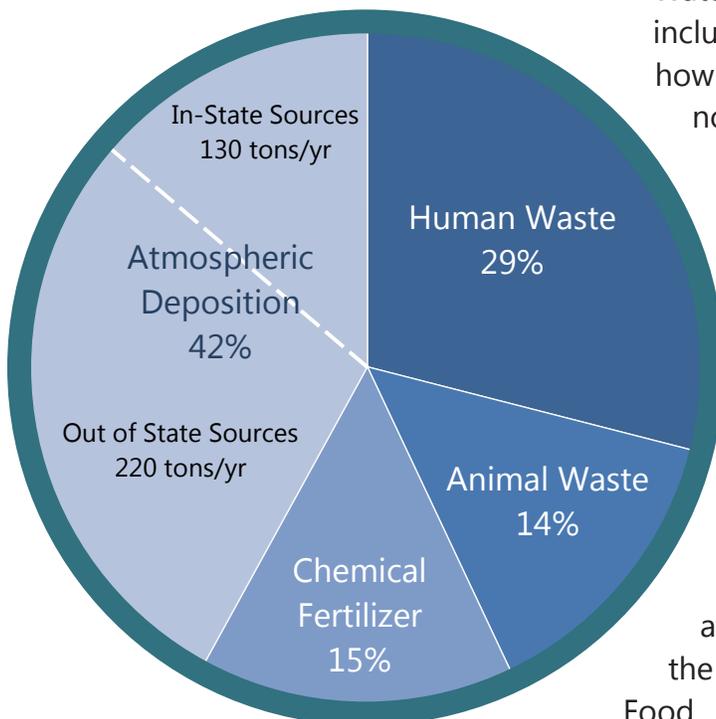
Well-managed agricultural operations are an important part of New Hampshire’s working landscape and are integral to maintaining good water quality. Good soil health, use of cover crops, and beneficial use of the nutrients contained in animal manure are all key components to both healthy water and a healthy agricultural sector.

According to the 2012 New Hampshire Cropland Data Layer published by the US Department of Agriculture (<http://nassgeodata.gmu.edu/CropScape/>), only 3% of New Hampshire’s land area, or about 184,000 acres, is used for crops or pasture, producing revenue in excess of \$37,000,000.

The most recent Census of Agriculture data available, from 2007, counted 51,029 acres of New Hampshire cropland treated with fertilizer, including 30,110 acres treated with manure. Reflecting trends in the nature of New Hampshire agriculture, this was a reduction of over 20% from 10 years earlier.

While the number of fertilized acres has declined, the acreage in farmland use has increased slightly and the number of farms has increased by about 20% over the same period. These

Figure 3. NPS Nitrogen Delivered to Estuary. Total Load by Source Type and Land Use Type for the Great Bay Estuary Watershed. (Source DES 2014 Great Bay Nitrogen Pollution Source Study)



data are reflective of a continuing transition from predominantly dairy agriculture to increasing numbers of vegetable and smaller non-dairy livestock operations.

Water quality concerns relative to agriculture include nutrients and bacteria. To understand how agriculture can fit in proportionally with other nonpoint sources, it is instructive to review the

Great Bay Nitrogen Nonpoint Source Study (June 16, 2014). The study researched the categories of sources contributing nitrogen to the impaired Great Bay estuary and determined the contributions of each source category. For agriculture, the study determined fertilizer loading from data available through the US Department of Agriculture, National Agricultural Statistics Service and several other sources.

For animal waste, the study analyzed data available from US Census of Agriculture and the NH Department of Agriculture Markets and Food. Figure 3 summarizes the total NPS nitrogen

load to the Great Bay estuary.

The study found that chemical fertilizer on agricultural lands accounts for 23% of the chemical fertilizer load or 3.5% of the total NPS load. Animal waste from agricultural operations was found to contribute 58% of the animal waste load or about 8% of the total NPS load.

Other significant contributors of nonpoint source nitrogen loading to the Great Bay estuary include:

- Atmospheric deposition 42%
- Septic systems 29%
- Lawn and turf fertilizer 12%
- Non-agricultural animal waste 6%

The conservation title of the federal Farm Bill is implemented by the Natural Resources Conservation Service (NRCS). Primarily through the Environmental Quality Incentives Program, NRCS can provide financial assistance toward the cost of approved conservation practices. Many practices require development of nutrient management plans or engineering designs. These services are provided by NRCS, but are limited by available staff resources. The Farm Bill allows for third party Technical Service Providers (TSPs) to provide conservation planning and engineering assistance to eligible cooperators, but there are currently no TSPs certified in New Hampshire. Detailed information on specific agricultural BMPs can be found in the USDA Natural Resources Conservation Service's Field Office Technical Guide, available electronically at http://efotg.sc.egov.usda.gov/efotg_locator.aspx?map.

In June 2011 the New Hampshire Department of Agriculture, Markets and Food (DAMF) updated the *Manual of Best Management Practices (BMPs) for Agriculture in New Hampshire* (<http://agriculture.nh.gov/publications-forms/documents/bmp-manual.pdf>). The BMPs are agronomic/vegetative and structural practices that permit economically viable production while achieving the least possible adverse impact upon the environment, including water quality. They also minimize possible adverse impacts on human, animal, and plant health.

State law also requires DAMF to investigate complaints of improper handling of manure, agricultural compost, and chemical fertilizer. Where improper management is found, DAMF is required to provide to the operator, in writing, with the specific practices that need to be implemented to comply with the BMP manual. If compliance with the manual is not attained, the complaint is transferred to DES with respect to enforcement of water quality standards. To assist operators with BMP compliance, DAMF manages the Agricultural Nutrient Management Grant Program. Information on this grant program is included in the Funding section of this Plan on page 17.

While there are currently no permitted Confined Animal Feeding Operations (CAFOs) in the state, EPA is the permitting authority for CAFOs in New Hampshire. Once permitted, a CAFO is legally no longer designated as a nonpoint source and becomes regulated under the NPDES program.

The Division of Pesticide Control (Division) works to ensure the safe and proper use of pesticides by enforcing state pesticide laws affecting sale, storage and application of all registered pesticides, examining and licensing pesticide dealers and users, and registering pesticides sold and used within the state. The Division conducts regulatory programs in cooperation with federal agencies and carries out the policies established by the New Hampshire Pesticide Control Board (Board). Through cooperative agreement between EPA and DAMF, New Hampshire is a delegated state, with primary enforcement responsibility, in carrying out certain provisions of the federal pesticide law. DAMF maintains a federally approved state plan for certification of commercial and private pesticide applicators. The Rules of the Board require licensing of all commercial and private pesticide applicators as well as pesticide dealers. Through this process, only persons demonstrating satisfactory competence in the safe and legal use of pesticides within New Hampshire may apply pesticides. The Rules also require re-certification whereby every five years each licensed individual attends educational seminars to ensure they remain up to date in pesticide knowledge.

Integrated Pest Management (IPM) combines the use of biological, cultural, physical and chemical tactics in ways that minimize health and environmental risks and economic loss when controlling pests. The IPM Program is an instrument to promote, through education and training, a sustainable approach to managing pests and “to bring about the broadest possible application of the principles of integrated pest management to agriculture, horticulture, arboriculture, landscape and building maintenance, and any other areas in which economic poisons are employed.”(RSA 430:50) Ten percent of pesticide registration fees are deposited into the integrated pest management fund, and disbursed through grants to explore and encourage IPM.

Agricultural easements are an important tool for the long term sustainability of agriculture in New Hampshire. There are many programs and land trusts that develop and fund conservation easements that result in protection of farmland in perpetuity. Given the diversity of land protection programs, it can be challenging to achieve consistency in the specific terms governing conservation easements to ensure the viability of agricultural operations. While it is not essential, nor even desirable, to use the exact same language in every conservation easement, many easements share a common goal of promoting agricultural land uses. Toward this end, further engagement of land conservation partners is needed to provide guidance on easement language in pursuit of this common goal.

MEASURES TO CONTROL NPS POLLUTION

- *Best Management Practices* RSA 431:34: Requires the DAMF to publish best management practices for handling manure, agricultural compost, and chemical fertilizer.
- *Manual of Best Management Practices (BMPs) for Agriculture in New Hampshire*. New Hampshire Department of Agriculture, Markets and Food. 2011. <http://agriculture.nh.gov/publications-forms/documents/bmp-manual.pdf>
- New Hampshire Pesticide Laws and Administrative Rules (RSA 430 and Pes 100 – 1100)

TABLE 10. AGRICULTURE GOALS, OBJECTIVES, AND MILESTONES

Agriculture (A) Goal. Agricultural land is well managed and demonstrated to be a water quality asset with local agricultural commissions, conservation commissions, regional planning commissions, and others working on land use issues.							
Objective	Milestone	Measure of Success	Schedule				
			2015	2016	2017	2018	2019
Objective A-1 Foster good agricultural management through education, training, and certification programs.	Milestone A-1.1 Determine the feasibility of establishing and funding an agricultural outreach position at DAMF, which strives to review farm management and provide technical assistance. Specifically target new farmers and small operations to increase participation in existing programs and resources. Allocate \$25,000 of \$319 funds (as federal match) to leverage state funds. <i>Partners: NH Dept. of Agriculture, Markets, and Food, UNH Cooperative Extension, conservation districts, Natural Resources Conservation Services</i>	Measure A-1.1 Position established.					
	Milestone A-1.2 Promote nutrient management planning by funding NH Association of Conservation Districts to enroll Natural Resources Conservation Service (NRCS) - certified technical service providers. <i>Partners: Natural Resources Conservation Services</i>	Measure A-1.2 Three NRCS-certified technical service providers.					
Objective A-2 Implementation of agricultural best management practices are promoted.	Milestone A-2.1 Determine barriers to composting horse manure by interviewing those offering manure brokerage services on Dept. of Agriculture, Markets, and Food website and randomly selected horse owners. <i>Partners: Conservation Districts, NH Dept. of Agriculture, Markets, and Food, Natural Resources Conservation Service, UNH Cooperative Extension</i>	Measure A-2.1 Report of identified barriers and lessons learned from manure composting program.					

TABLE 10 (CONT). AGRICULTURE GOALS, OBJECTIVES, AND MILESTONES

Objective	Milestone	Measure of Success	Schedule				
			2015	2016	2017	2018	2019
Objective A-2 (cont.)	Milestone A-2.2 Work with Dept. of Agriculture, Markets, and Food to update 1) <i>The Manual of BMPs for Agriculture in New Hampshire</i> to include land clearing BMPs, working buffers, and other adjustments determined by partners; and 2) the 1993 <i>Best Management of Wetlands Practices for Agriculture</i> . <i>Partners: NH Association of Conservation Districts, NH Dept. of Agriculture, Markets, and Food, UNH Cooperative Extension, NH Farm Bureau, Natural Resource Conservation Service</i>	Measure A-2.2 Updated BMP manuals.					
	Milestone A-2.3 Promote the working buffers BMP available through NRCS whereby farmers can raise cash crops in buffer areas to improve water quality without sacrificing income. <i>Partners: Conservation Districts, Natural Resource Conservation Service, UNH Cooperative Extension</i>	Measure A-2.3 Partnership agreement with Natural Resources Conservation Service and NH Association of Conservation Districts is executed.					
	Milestone A-2.4 Increase the number of farms or farmland parcels under agricultural easements. <i>Partners: Dept. of Agriculture, Markets, and Food, Land and Community Heritage Investment Program (LCHIP), NH Farm Bureau, Natural Resources Conservation Service</i>	Measure A-2.4 Five new farms or farmland parcels under agricultural easement each year.					
	Milestone A-2.5 Provide guidance on easement language to ensure long term viability of agricultural operations. <i>Partners: Dept. of Agriculture, Markets, and Food, NH Land Trust Coalition, Natural Resource Conservation Service, NH Office of Energy and Planning, Land Conservation and Heritage Investment Program</i>	Measure A-2.5 Published guidance.					

TABLE 10 (CONT). AGRICULTURE GOALS, OBJECTIVES, AND MILESTONES

Objective	Milestone	Measure of Success	Schedule				
			2015	2016	2017	2018	2019
Objective A-2 (cont.)	Milestone A-2.6 Increase the number of small farms with nutrient management plans. <i>Partners: Conservation Districts, NH Dept. of Agriculture, Markets, and Food, UNH Cooperative Extension</i>	Measure A-2.6 Report on the number of small farms with new nutrient management plans.					
	Milestone A-2.7 Address phosphorus and soil pH in the BMP manual for land spreading of biosolids. <i>Partners: UNH Cooperative Extension, DES Residuals Program</i>	Measure A-2.7 Updated BMP manual.					
Objective A-3 Adequate funding is available to support agricultural programs.	Milestone A-3.1 Seek an increase in either the pesticide registration fee or the percentage of the fee deposited into the Integrated Pest Management (IPM) fund from 10% to 50%, and expand the IPM program to an Integrated Crop Management program to address both pesticides and fertilizers. <i>Partners: NH Dept. of Agriculture, Markets, and Food, UNH Cooperative Extension</i>	Measure A-3.1 Increase in fee or percentage determined.					