



CSREES New England Region Water Quality Program

Applying knowledge to improve water quality



Cooperative Extension
in New England

- Research
- Education
- Extension

Nutrient Management for Livestock Farms

Through the CSREES New England Water Quality Program, farmers are learning how to improve their soil quality while improving the use of on-farm residuals. In addition, they are implementing nutrient management plans that improve farm management and protect water quality.

Situation

For most of us, the image of a small dairy farm is synonymous with rural New England. Small livestock farms are unique and integral parts of the New England landscape, economy and character, as well as important components of the national agricultural economy. New Englanders take pride in their farms and farmers, making it important to ensure that the small livestock farm remains a sustainable enterprise in New England.

New England agriculture is often a major nonpoint source of pollution that impacts water quality. Increasing numbers of animals on dairy farms have increased the amount of manure produced by livestock farms. In addition, high protein feeds have increased the concentration of nutrients in manure. This increase in intensity of livestock agriculture has had significant effects on water quality. The nitrogen demand of plants is far greater than their need for phosphorus (P), but manure contains about equal amounts of both nutrients. Thus, when farmers use manure to provide mineral nutrition to their crops, the result is an excess amount of P that can be carried by runoff into surrounding water bodies, leading to eutrophic conditions and adverse effects such as algal blooms and fish kills.

Actions

Through the CSREES New England Water Quality Program nutrient management plans are being tested and implemented with agricultural producers to determine appropriate manure and fertilizer applications to reduce excess nutrients entering surface water bodies. For example:

- In Maine, nutrient management plans have been created along with a training program to certify nutrient management planners to help minimize P runoff from dairy farms.
- In Connecticut, a project to evaluate nutrient management plans has been implemented through the Federal EQIP cost-sharing program. This program encourages cooperation by paying farmers to implement nutrient management plans before regulations and strict P standards are adopted.
- In Vermont, nutrient management software (CropMD; <http://pss.uvm.edu/cropmd/>) has been updated and reviewed by consultants and farmers.
- A multi-agency work group involving UVM Extension, researchers, the Natural Resource Conservation Service (NRCS) and the Vermont Department of Agriculture has been created to address P management.



With the help of New England Extension programs, farmers are applying the appropriate amount of manure and fertilizer to their soil preventing nutrient contamination of our waterways.

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www.usawaterquality.org/newengland

Nutrient Management for Livestock Farms relates to CSREES National Themes:

Animal Waste Management and Nutrient and Pesticide Management

For contacts go to: http://www.usawaterquality.org/newengland/newq_contacts.html

The CSREES New England Regional Water Quality Program works to improve water quality management through educational knowledge and extension programming that emerges from a research base. The program builds on the strengths of the Extension Water Quality Programs at the Land Grant Universities throughout New England. Partners in this regional program are equal opportunity providers and employers.

CSREES is the Cooperative States Research, Education and Extension Service, a sub-agency of the United States Department of Agriculture, and is the federal partner in this water quality program.

Impacts

- Maine nutrient management plans have been completed for 411 dairy farms involving 92,005 acres of cropland and 61,736 animal units. As these plans are implemented, water quality in these agricultural watersheds is improving.
- Nutrient management plans in Connecticut were written for over 7,600 acres of farmland. The plans are helping farmers make manure spreading and fertilizer decisions based on the existing nutrient content of the soil and potential impacts to water quality rather than by only considering crop yield goals and economic analysis. Data collection from the project is helping to establish baseline figures for each farm. Farmers maintain field-by-field records of soil test data, fertilizer, manure, and yields.
- Connecticut Extension tracked farmers' implementation of Nutrient Management Plans. They are studying what factors have the most influence on the farmers' ability or willingness to follow plans to protect water quality.
- 82% of survey respondents wish to continue using the Vermont CropMD software for livestock nutrient management planning and field crop record keeping. Users of CropMD are learning how to best manage nutrients on their farms to minimize impacts to water quality.
- In Vermont, the P-Index, an assessment tool used to predict the potential P runoff from a field, work group has developed a database of over 200 farm fields on which to evaluate current and revised versions of the P-Index. A revised P-Index has been developed for Vermont based on current Vermont research and P-Index data from other states. Farmers who use this index will contribute less P to surface waters.

Partners

In addition to the support of CSREES, New England programs addressing nutrient management on small livestock farms have been facilitated through collaborations with numerous partners, including USDA, NRCS, various state agencies, and local farmers.



Nutrient management plans, the P-Index and the protection of water quality are becoming as common to New England farms as tractors and manure spreaders.



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