



CSREES New England Region Water Quality Program

Applying knowledge to improve water quality



Cooperative Extension
in New England

- Research
- Education
- Extension

Agricultural Research to Action in Extension

New England's patchwork of farms and villages, coupled with winter rains and major snowmelt events, pose unique challenges to agricultural management. These challenges represent an opportunity for forming partnerships between farmers, researchers and Extension Educators. By using researched-based information to create best management practices (BMPs), Extension Educators and agricultural service providers help to ensure maximum farm productivity while reducing adverse effects on water quality.

Situation

Various types of agricultural activities can be a major source of nonpoint source pollution in the United States. Agricultural sources of pollution include pathogens associated with livestock production, elevated nutrients from agricultural operations, and pesticides in ground and surface waters. In New England, water quality risks from agricultural activities can be substantial due to the occurrence of agriculture in compact, rural landscapes that serve as critical contributing areas to drinking water supplies and shellfishing grounds. New England Cooperative Extension and its collective partners work with farmers and other agricultural service providers to implement accepted BMPs and apply research-based knowledge to protect water quality. Among the keys to successful water quality protection are improved utilization of on-farm resources, careful management of insect, disease and weed pressure, effective use of cover crops, and improving the level of farm management through nutrient and pesticide management plans.

Actions

Many agricultural research projects and research-based Extension projects focus on decreasing the pathogens, nutrients, and pesticides entering New England ground and surface waters, including:

- The New England In-Service Training for Agricultural Service Providers Program (http://www.umaine.edu/waterquality/Agriculture/crop_advisor.htm) holds a two-day regional collaborative workshop annually in New Hampshire. This program provides New England agricultural service providers with Certified Crop Advisor (CCA) recertification credits and encourages these providers to use agricultural BMPs. Extension educators and affiliates from various organizations such as the Natural Resource Conservation Service (NRCS) present subject matter that is integrated across all CCA competency areas: Nutrient Management, Crop Management, Soil-Water Management, and Integrated Pest Management.
- Maine Cooperative Extension agricultural programs provide growers with research-based methods for nutrient budgeting, in-season plant tissue and soil testing, and other means of maximizing nutrient management program efficiency. They also conduct applied research projects for soil quality improvement methods including: the use of different materials to mulch potato soils, the encouragement of barley regrowth after harvest, and alternative cover cropping methods in rotation crops for potatoes.
- Since 1993, the University of New Hampshire Extension program and Agricultural Experiment Station have researched the land application of biosolids, with an emphasis on managing nutrients in the biosolids to minimize movement out of the root zone and into the water.

"As we look to the future, integrated research and Extension programs will continue to be an essential component of sustainable agriculture in New England."

John Jemison, Water
Quality Coordinator,
UMaine Cooperative
Extension.

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Agricultural Research to Action in Extension relates to CSREES

National Themes: Animal Waste Management, 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.

"For me, personally, this annual two day event has done more to connect me to more people and more ideas than anything else that I do. It is invaluable to my business and the resulting services that I in turn provide to my clients."

Agricultural service provider, talking about the New England In-Service Training for Agricultural Service Providers Program.



- Applied research is being conducted at the Universities of Connecticut, New Hampshire, Rhode Island, and Vermont to determine the effectiveness of buffer areas on agricultural lands for water quality improvement.
- Extensive research on the Phosphorus (P) Index, an assessment tool used to predict the potential phosphorus runoff from a field, has been conducted at the University of Vermont as well as other New England Land Grant Universities in the last four years (<http://pss.uvm.edu/vtcrops/?Page=nutrientmanure.html#Phosphorus>). The P-Index provides information that can be used by farmers to determine where excess manure can be applied with minimal effects on water quality.

Impacts

- Participants from all over New England have attained CCA recertification credits through the New England In-Service Training Program. There has been extensive cooperation with a diverse group of people outside the New England region to provide a broader perspective to the content of the program. Participation in the program has increased in recent years from an average of 25 to over 70 participants annually. These participants are using their knowledge to minimize pollution risks to water quality in their respective states.
- A publication developed by University of New Hampshire Cooperative Extension has been referenced by the New Hampshire Department of Environmental Service's rules pertaining to land application of biosolids. UNH research and Extension continue to fine-tune nutrient management methods and evaluate other public concerns to ensure the reduction of nutrients and pathogen movement to ground and surface waters.
- The results of P-Index research at the University of Vermont are being implemented by Vermont NRCS and the Vermont Department of Agriculture to develop nutrient management plans for Vermont farms. In the last few years, the next generation of P-Indices has been developed using quantitative research results, and the new indices are being tested by conservation professionals, who will in turn provide feedback to the researchers. UVM Extension workshops were conducted in fall of 2003 that taught the use of the P-Index to agricultural professionals. By using P-Indices, farmers are better able to manage nutrients on their farms thereby contributing less phosphorus to waterways.

Partners

These research-based New England Extension programs are conducted in collaboration with various partners, including USDA-NRCS, the American Society of Agronomy, state environmental organizations, University Plant and Soil Science departments, individual farmers and other agricultural service providers.



Applied research is demonstrated to growers at U Maine Extension's annual Sustainable Agriculture Field Day in Stillwater, Maine.

Information gained through research about the application of nitrogen to crops is shared with agricultural service providers at the In-Service Training Workshop in Portsmouth, New Hampshire.

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