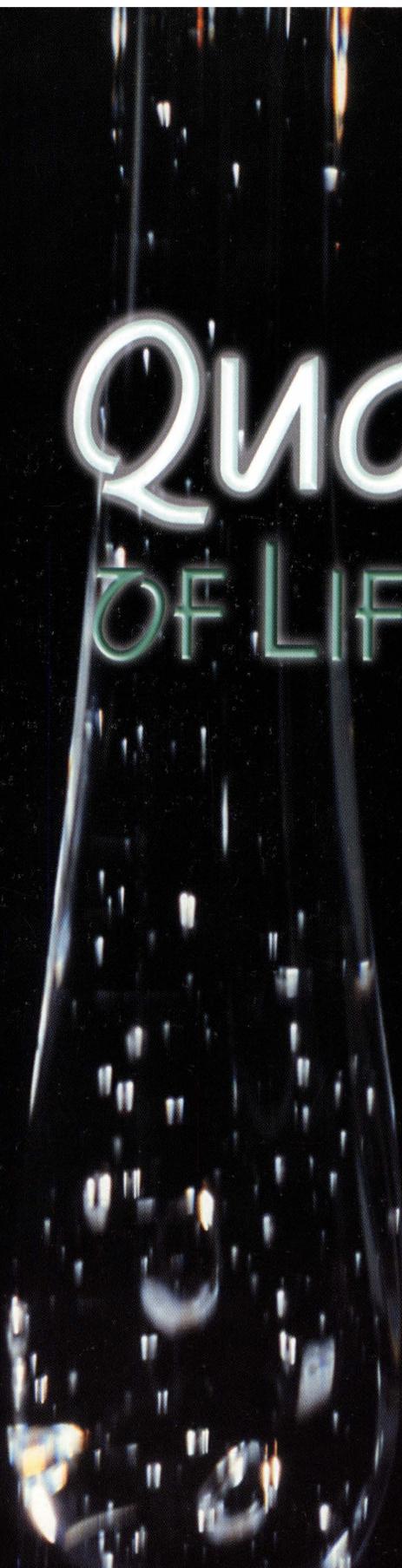


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WATER



# Quality OF LIFE

Virginia Cooperative Extension



VIRGINIA POLYTECHNIC INSTITUTE  
AND STATE UNIVERSITY



VIRGINIA STATE UNIVERSITY



## Introduction

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Since its inception, Virginia Cooperative Extension has played a major role in conducting educational programs on the conservation, protection, and stewardship of Virginia's land and water resources. Educational programs are delivered at the local level through a network of 107 county and city offices located throughout the Commonwealth. These programs are products of research generated at Virginia Tech, Virginia State University, 12 Agricultural Research and Extension Centers, and from leading research institutions around the world.

Water quality, particularly as it relates to contamination of groundwater, streams and the Chesapeake Bay by sediment, nutrients, bacteria, and chemicals, is a high priority concern at both the State and national levels. Virginia Cooperative Extension works with The Department of Agriculture and Consumer Services, the Department of Conservation and Recreation, the Natural Resources Conservation Service, Department of Forestry, Department of Environmental Quality, Department of Health, Soil and Water Conservation Districts and other State and Federal partner agencies to conduct educational programs, increase public awareness, and provide information on funding opportunities to enhance and protect the State's land and water resources.

Virginia Cooperative Extension's water quality educational programs focus primarily on non-point source pollution in agricultural, urban and residential environments. Extension Agents and Specialists deliver educational programs that help Virginia's citizens assess and prevent contamination of the State's groundwater and surface waters. Examples of programs that are available to Virginia residents are presented in this booklet.

## Urban Water Quality Education

Extension Agents in urban localities conduct residential lawn care educational programs designed to help homeowners establish and maintain environmentally sound lawns and landscapes. Master Gardener volunteers support these programs through on-site visits and by providing personalized advice to homeowners. Extension Agents conduct workshops on water quality protection techniques for employees of retail garden centers, who then share this information with their customers.



## Urban Integrated Pest Management

Extension Agents and volunteer Master Gardeners teach citizens Integrated Pest Management techniques to reduce pesticide usage in the home landscape. Insect and disease identification clinics are offered by Master Gardeners at retail garden centers. Plant and pest identification, development of landscape plans for pest monitoring, “bug clubs” to identify insects and learn about life cycles, and workshops to instruct citizens about beneficial insects and cultural needs of plants are offered on an ongoing basis.



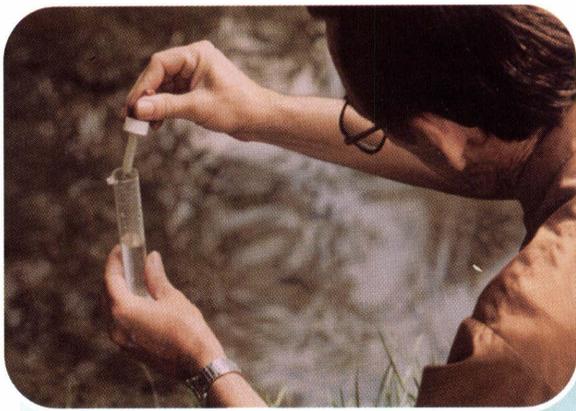
## Agricultural Integrated Pest Management

Extension Agents and Specialists conduct educational programs that demonstrate Integrated Pest Management (IPM) strategies for the control of insects, diseases, and weeds, which reduces reliance on chemical pest controls, increases farm profitability, and minimizes environmental risks.

## Public Policy Education for Water Quality

To assist local government in making decisions that impact the protection and improvement of water quality, Extension Specialists provide information and conduct educational programs on policies dealing with land use, development and growth management, and community sustainability.





## Nutrient Management

Extension Agents educate producers on the importance of having livestock, dairy, and poultry manure tested for nutrient content to prevent over application of phosphorus and nitrogen when the manure is applied to the land. Extension Agents conduct in-field soil nitrate tests for producers to prevent over application of nitrogen to field crops.

## Nutrient Management Training

Extension Specialists provide technical assistance and training to State and Federal agency field staff responsible for Virginia's nutrient management program, and serve as instructors in nutrient management certification classes.



## Waste Management

Extension Agents and Specialists provide technical assistance on composting as a waste management tool, and make recommendations for direct land application of residential, municipal, industrial, and agricultural wastes to urban clientele, local governments, commercial companies, and agricultural producers.

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## Implementation of Best Management Practices

Extension Agents and Specialists work with dairy and livestock producers to demonstrate the benefits of best management practices that improve waste management and reduce soil erosion.

Examples include:

- 1) all weather travel lanes and feeding pads
- 2) riparian buffer strips
- 3) development of off-stream watering systems
- 4) dairy rotational loafing lot systems





## Soil Testing Laboratory

Soil fertility recommendations generated from over 50,000 soil samples tested annually are used as a tool for farmers and homeowners to make economical and environmentally sound fertilizer and lime applications, which prevent unnecessary and costly over-fertilization that could damage the environment.

## Pesticide Applicator Certification Training

Extension Agents and Specialists teach classes and conduct workshops that are designed to help pesticide applicators meet the competency requirements of State and Federal pesticide laws.

## Pesticide Safety Education

Extension Agents and Specialists train pesticide applicators on proper methods of handling, mixing, application, disposal, and storage of pesticides. In addition, pesticide applicators receive training on calibration of pesticide application equipment, selection of reduced risk pesticides, pesticide container rinsing and recycling, selection of non-chemical alternatives to pesticides, and pesticide spill cleanup and prevention.



## Pesticide Disposal

Extension Agents use producer meetings, radio, and newspaper articles to increase agricultural producers' awareness of the importance of proper disposal of unused pesticides. After polling producers on the types and quantities of unused pesticides, Extension Agents serve as a liaison with the Virginia Department of Agriculture and Consumer Services in coordinating the collection and disposal of the pesticides.



## Rural Household Water Testing

Through countywide Extension educational programs on household water quality, county residents who rely upon private, individual water supplies are provided the opportunity to have their household water tested and evaluated for a number of nuisance and health related contaminants. By learning more about their water supply, residents are able to identify and implement changes to improve the quality of their drinking water.

## Home\*A\*Syst

Through the Extension Home\*A\*Syst guidebook, household residents learn about environmental risks and concerns in and around the home. By learning more about home and property management, homeowners develop a plan to safeguard their health and the environment.



## Farm\*A\*Syst

Extension Agents and Specialists use a series of fact sheets and worksheets to help farmers and other rural landowners evaluate site-specific water quality risk factors in developing an action plan to identify and establish corrective measures that help reduce or eliminate the potential for groundwater pollution. When implemented, improvements help maintain or improve drinking water quality and family health, enhance property values, and protect producers from liability due to groundwater contamination.

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## Forestry Best Management Practices

Extension Specialists conduct a statewide logger education and training program designed to promote forest water quality protection through enhanced planning and implementation of forestry best management practices. Loggers learn about best management practices for forest water quality through a videotape entitled "BMP's for Logging."



## Continuous No-Till Seeding

In collaboration with Soil and Water Conservation Districts, Virginia Cooperative Extension demonstrates the benefits of improved soil and water quality through the use of continuous no-till seeding practices for small grains, corn and soybeans.



## Youth Education

With funding support from the Chesapeake Bay Program, The Department of Conservation and Recreation, and others, Extension Agents and 4-H volunteers work with 4-H youth to conduct stream and pond studies, establish riparian habitat, see firsthand a farm's best management practices in action, and conduct stream monitoring programs.



## Water Wizard Van

The Water Wizard Van, which travels to each of Virginia's six 4-H Educational Centers, is used to educate youth and their families on the importance of conserving and protecting our water resources. Instructional modules, contained in the van, address topics dealing with water use, groundwater, watersheds, water pollution, aquatic insects, and many more water quality issues.

## Clean Water for the Frog

Clean Water for the Frog is an interactive educational program designed to teach children in grades K-3 about the structure, function, and importance of wetlands. The program is available to the general public on CD. To order, complete the form at:

[www.ext.vt.edu/resources/4h/lillyfrog](http://www.ext.vt.edu/resources/4h/lillyfrog)



## Do You Know?

80 percent of the earth's surface is water.

97 percent of the earth's water is saltwater.

Of the 3 percent of the earth's water that is freshwater, two-thirds is frozen in the polar ice caps, leaving only 1 percent of the earth's water potentially available for drinking.

The Chesapeake Bay is the largest estuary in the United States with over 100,000 streams and rivers in the 64,000 square mile watershed. More than 15.1 million people and 3600 species of plants and animals inhabit the Bay watershed.

Virginia Cooperative Extension conducts educational programs on soil and water quality that are partially funded by and delivered in cooperation with the following State and Federal Agencies:

Virginia Department of Conservation and Recreation  
Virginia Department of Agriculture and Consumer Services  
USDA Natural Resources Conservation Service  
Virginia Department of Forestry  
Virginia Department of Environmental Quality  
Virginia Department of Health  
Local Soil and Water Conservation Districts