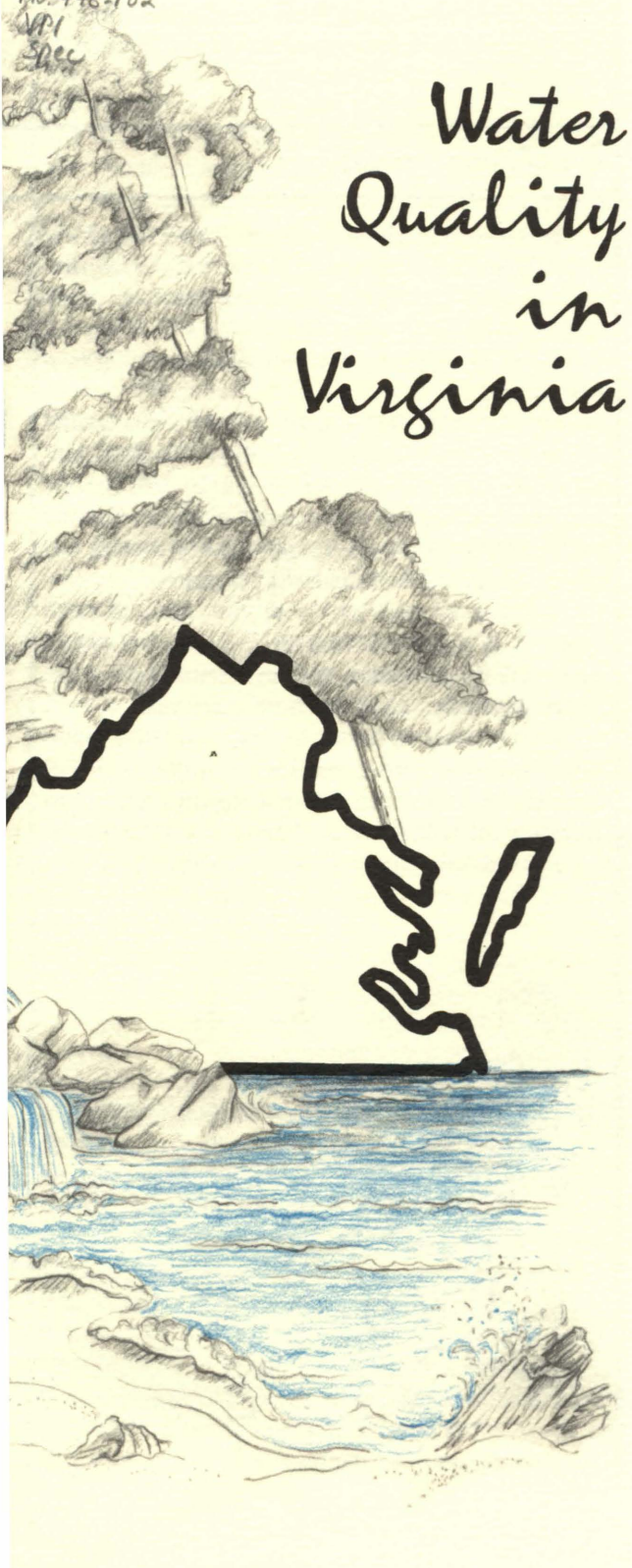
Water Quality in Virginia



Water quality is one of those rare issues that draws together everyone in Extension and involves almost every university discipline.

From agricultural economists, to engineers, to horticulturists, to local Extension agents, water quality programming has been — and will be for a long time to come — one of Extension's essential services to the people of Virginia.

Extension's educational goals are designed to reduce pollution of both surface and groundwater.

With that in mind, a number of existing programs are being expanded or redirected. New efforts also are underway.

The following is a brief description of Virginia Cooperative Extension's accomplishments in water quality education, its ongoing activities and its plans for the future.

Reaching farmers and other agribusinessmen

Extension's Chesapeake Bay non-point source pollution education coordinator has been in charge of promoting "best management practices" across the state, and the results have been impressive. Through this cost-share program with the Virginia Division of Soil and Water Conservation, BMPs have been implemented on 143,000 acres since 1985, resulting in a soil-loss reduction of 1,025,000 tons — equivalent to approximately 1,010,000 pounds of phosphorous and 5,575,000 pounds of nitrogen no longer running into nearby waters. Those numbers add up to a 5.5 percent reduction in nitrogen and a 6.6 percent reduction in phosphorous loads.

The importance of BMPs also has been emphasized through the more than 25 demonstrations, cosponsored by Extension, of a rainfall simulator. The simulator paints a vivid picture of the reductions in non-point source pollution possible when farmers practice best management practices, or BMPs.

Reduction of non-point source pollution also has been the focus of Extension's lead educational role for conservation provisions of the latest Farm Bill. Right now, 100 percent of the land targeted for conservation (1,030,000 acres) in Virginia has conservation compliance plans. The results have led to a 10 percent reduction of nitrogen, phosphorous, and sediments

into the Chesapeake Bay and, upon completion, will greatly reduce non-point source pollution from farms.

In addition, Extension agents and specialists have visited more than 10,600 farmers — more than one-quarter of the state's total — to deliver water quality education. And a manure testing lab, located at Virginia Tech, gives farmers a free analysis of this natural fertilizer — preventing overapplication and saving farmers money on commercial fertilizer.

One of the most exciting Extension efforts affecting water quality is the recent work on sustainable agriculture. Many Extension specialists — from entomologists to livestock specialists — are out in the field working with test plots using environmentally sound, economically sustainable agricultural methods. Their applied research has shown that the use of mulch and cover crops greatly reduces the need for chemical herbicide and commercial nitrogen applications. Crop rotation and no-till methods can save a farmer from having to apply commercial fertilizer, again reducing the potential for water-quality-threatening runoff.

Reaching the Virginia homeowner

From the spacious countryside, to the suburbs, to the city, Virginia homeowners need water quality education. With funding from a USDA grant, Extension has developed a pilot program for homeowner water quality education. Recently, water was sampled from approximately 400 individual water systems in Warren County in a program to educate homeowners on preventing and correcting problems in their wells. Duplicate studies are planned, and Extension hopes to use this model to help other homeowners and communities.

Extension housing specialists and home economists are helping with water quality education from a waste management standpoint. By training leaders in Extension's 648 Homemakers Clubs, Extension plans to reach school, civic and other community groups across the state with important information on water quality, including waste recycling, household waste in landfills and other such issues.

Extension's 1,400 Master Gardeners across the state also are doing their part to reach homeowners with water quality education. Many are now ready to teach homeowners such important skills as how to fertilize gardens and lawns in environmentally safe ways, how to safely interpret pesticide labels and how to dispose of lawn and garden chemicals so as to avoid polluting ground and surface water.

Finally, many Extension agents are actively involved in water quality education for homeowners. At the Newport News Extension Office, for instance, agents recently developed a brochure on water quality to be distributed to all that city's residents by the local government's Clean Community Commission. Fairfax County received a grant from USDA and is in the process of developing a model for educating urban homeowners about the importance of water quality and how to protect it.

Reaching government and industry

Point-source pollution — pollution that can be traced to specific sources and much of which flows into the Chesapeake Bay — has been substantially reduced, and Extension has been an integral part of those water-quality improving efforts.

Virginia Tech civil engineers have worked in an Extension capacity to develop new practices for wastewater treatment facilities in both Virginia and Maryland. At the York River Plant in Yorktown, for instance, phosphorous discharge was reduced by 70 percent, and nitrogen removal was increased by 65 percent after the plant adopted Extension's modifications.

Extension also has developed a way for operators of landfills (sites not usually thought of as water-quality threats) to reduce leachates going into groundwater by approximately 85 percent.

Extension soil scientists have worked with government and industry on new uses for solid wastes, or sludge, from sewage treatment plants. Virginia Beach, Roanoke, Richmond and other major Virginia cities now have successful land application programs for their sludge, often offering it without cost to local farmers as a fertilizer.

Extension has reached many pesticide applicators with a teleconference offering important groundwater protection training. "Protecting Water Quality Through Proper Pesticide Use" was broadcast in 1989 via satellite to 56 Extension sites in Virginia and other locations nationwide. Extension agents throughout the state have used the teleconference to help those licensed to apply pesticides to be well-versed in safeguarding water supplies.

Over the decade of the '80s, Extension personnel also helped establish water quality policies and strategies for the state. Many of these policies and strategies are now being put into action.

And Extension specialists continue to serve on a variety of state committees dealing with water quality—from the Governor's scientific and advisory committees on the Chesapeake Bay to the state's Groundwater Protection Steering Committee.

Extension is also involved with local government. Because many groundwater protection measures are land-use related, locally elected or appointed officials are some of the most critical people to reach. Extension has provided educational programs to get these officials actively involved in groundwater protection. For instance, a recent series of groundwater protection educational seminars attracted more than 1,000 such officials. The seminars provided a forum for a joint educational effort by nine state agencies.

On the horizon are many other continued efforts to help government and industry. For example, Exten-

sion urban affairs and planning specialists are putting together a model to help local governments develop the resources and know-how to start water-quality programming in their areas.

Reaching youth

Extension has a long tradition of providing educational programs to our youth. That tradition continues with water quality education. An Extension youth program based at Virginia State University carries out water quality programs for thousands of young men and women.

More than 15,000 youth received water quality education of some kind in the summer of 1989, including 5,300 who participated in special 4-H marine projects. Another 500 participated in special camping programs that emphasized water quality, such as 4-H Marine Camp and 4-H Conservation Camp.

And the list goes on. In all these areas in 1989, Extension specialists and agents devoted 5,922 days to water quality education and programming — the annual equivalent of 23 full-time employees.

The numbers continue to grow, and as they do, everyone involved with Extension in Virginia can feel confident that the organization is playing a key role in educating all of Virginia's citizens about the importance of water quality and how to improve it.

Some facts and figures on Virginia Cooperative Extension's efforts to improve water quality in Virginia:

As a result of the cost-share program (between the Division of Soil and Water Conservation and Extension) that encourages nutrient management and other conservation practices, between 1984 and 1989, 143,000 acres have benefited, resulting in a soil loss reduction of 1,025,000 tons of soil. That adds up to about 1,010,000 pounds of phosphorous and 5,575,000 pounds of nitrogen reduction.

Over the past three years, Extension agents and specialists have visited more than 10,600 farmers — nearly one in four of Virginia's 44,799 farmers — in their water quality education efforts.

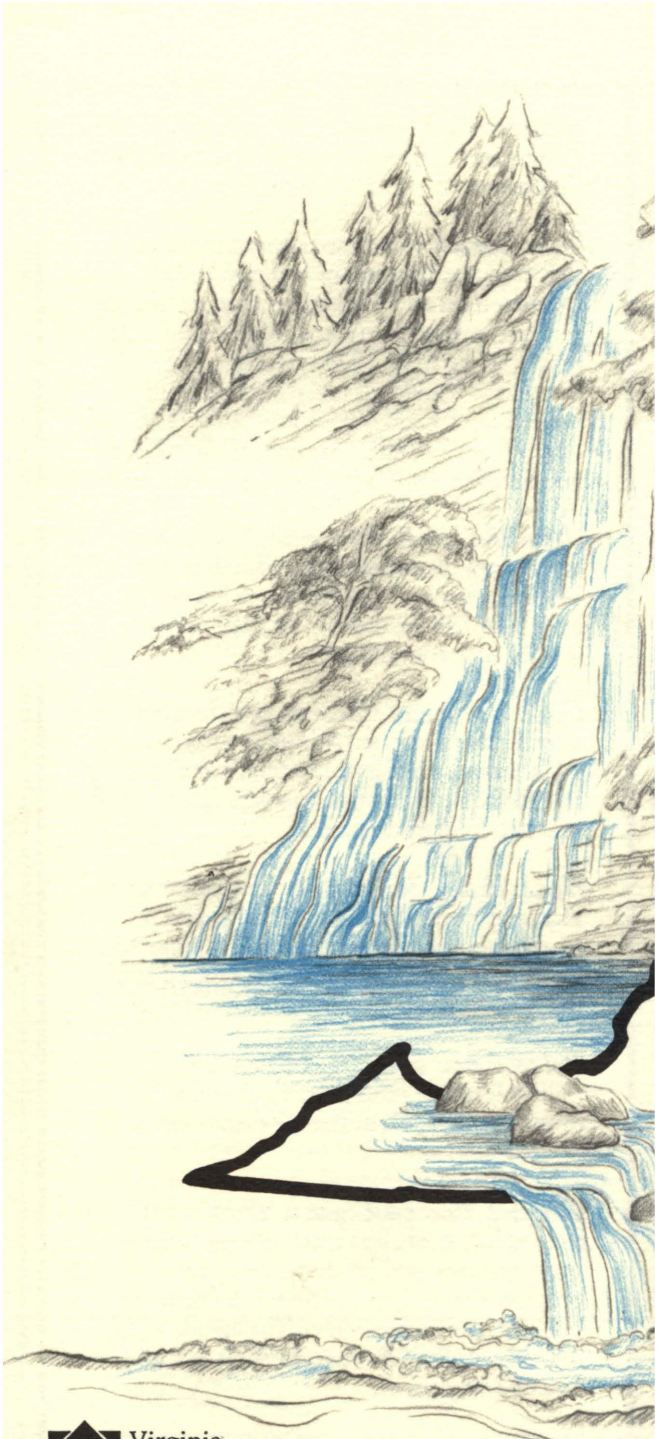
Over the past three years, Extension agents have produced 898 news articles, 1,100 newsletters, and 195 television programs dealing with best management practices and water quality.

More than 30 wastewater treatment plants in North Carolina, Virginia, and Maryland have made water-quality-improving modifications to their plants patterned after the modifications developed by Extension.

Extension has developed a way to reduce leachate pollution, a potential groundwater contaminant, by approximately 80 percent.

During the last year, Virginia Extension agents made 28 presentations, wrote 18 press releases, and produced two radio programs on proper nutrient management practices for homeowners. The agents estimate their efforts have reached more than 100,000 Virginians.

More than 200 Extension-certified Master Gardeners have been trained in home and garden nutrient management and are ready to make presentations to Virginia civic groups and garden clubs.



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