DEVELOPMENT OF PUBLIC EDUCATIONAL PROGRAMS ON WATER QUALITY

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INTRODUCTION

Water quality has been a public concern for several decades. Public law 95-200 set the national goals of "fishable-swimmable" surface water by 1983. More recently, the Safe Drinking Water Act of 1986 and the Water Quality Act of 1987 have focused increased attention on the necessity for maintaining high water quality standards.

Operating under the Smith-Lever Act of 1914, as amended, the Cooperative Extension Service (CES) is a unique partnership of federal, state and local organizations. It is the educational arm of the United States Department of Agriculture (USDA), a part of the land-grant university and a part of local government. CES has county agents located in each of Georgia's 159 counties. These agents serve as the delivery point for numerous educational programs.

The basic mission of the UGA Cooperative Extension Service is education. Development of educational programs on water quality for delivery to all citizens of Georgia offers a significant challenge to CES. This paper will outline the current and projected educational programs on water quality that CES has developed and designed.

OBJECTIVES

Quality water is an integral part of the agricultural and industrial growth of our country. We must find ways to improve water quality to continue our growth and development and to protect the health of our citizens. The CES has, for some time, been aware of, and gearing up to meet, the challenge of water quality. In 1984, Extension Service (ES) and the Extension Committee on Organization and Policy (ECOP) appointed a national task force to assess the groundwater quality situation. That task force report identified opportunities for the Cooperative Extension Service, and recommended increased programming.

This work led to the identification of "Water Quality" as a national priority initiative for the Cooperative Extension System. ES and ECOP endorsed a statement on water quality programming that committed the Cooperative Extension System to increased effort and to the reporting of quantifiable impacts.

The Georgia CES has been advancing the timing and intensity of water quality programming. This effort has included the signing of a memorandum of understanding between ES and the Soil Conservation Service (SCS), which articulates the roles of these two agencies.

The Department of Agriculture (USDA) has greatly increased its involvement in water quality. In 1987, policy statements on nonpoint source pollution and on groundwater quality were adopted. USDA has also developed a coordinated water quality effort which include coordination with both the Environmental Protection Agency and the Department of the Interior. CES educational programs are designed to address these issues.

PROCEDURES AND METHODS

Groundwater quality and management is a national issue with broad implications for all citizens. A major groundwater program effort will allow the Cooperative Extension Service to meet its responsibilities in a timely manner and to place agricultural impacts in the context of the entire problem. Such programs will be of value to a wide-range of audiences. To meet these responsibilities and opportunities, the CES will:

- *Develop and implement coordinated, interdisciplinary educational programs about the nature of water resources;* their importance to human health and nutrition, the importance of safe drinking water, the importance of testing for quality, the meaning of contaminant micronumbers, and the options for keeping water safe or making it safe for use.
- *Develop and implement educational programs about the impacts of agricultural and nonagricultural (industrial, domestic) chemicals on groundwater quality;* the use and fate of such chemicals, their proper handling and disposal, the importance of soils variability to groundwater impacts, and the health effects of drinking water with small concentrations of chemicals.
- *Develop and implement educational programs to increase local government officials' awareness* and understanding of the interactions of land use, chemical use, and groundwater quality, and their options for addressing such issues.
- *Develop or expand programs to educate the public about the need to conserve water resources through programs for domestic, agricultural, and municipal conservation.* Such programs can assist in the development of public strategies to address the problems of decreasing water supplies.
- *Implement procedures to develop and maintain formal linkages with research organizations and agencies.* Such linkages will facilitate technology transfer and Extension education, and assure their integration into groundwater research programs. Linkages have been developed with the USDA-Agricultural Research Service, the U. S. Geological Survey, the U.S. Environmental Protection Agency, the Soil Conservation Service, and their associated organizations. Additionally, cooperative education activities have been coordinated with state agencies such as the

Department of Natural Resources and the Department of Agriculture.

Develop and implement interdisciplinary groundwater education programs on multi-state or regional bases, to assure efficient program development and delivery. Such coordinated efforts are crucial to the rapid and efficient development of timely programs.

In March, 1988, CES formed a groundwater protection committee to develop educational programs to address these opportunities outlined above. The committee, composed of 17 specialists and county agents, has developed a coordinated plan for conducting water quality programs. The first phase was to complete county agent training. Over 430 agents attended a one-day session on Protection of Georgia's Ground and Surface Waters. Extension specialists were assisted by representatives from the Georgia Department of Natural Resources, Department of Agriculture and the UGA Institute of Government in the training program.

The base outline for county agent training is being used in the second phase of our programming efforts - education of public policy makers. These programs, focusing on groundwater, are outlined below:

Groundwater as a resource
- The nature of groundwater
- Groundwater occurrence in the state

The importance of groundwater
- To municipal supplies
- To industry
- To agriculture
- To domestic supplies

Groundwater protection strategies
- Aquifer classification
- Land-use impacts

Groundwater and stream flow
- The nature of groundwater
- Importance to agriculture
- Areas of highly vulnerable groundwater
- Safe use of agricultural chemicals
- Irrigation management
- Animal waste disposal

Groundwater and community issues
- Drinking water supply and quality
- Drinking water testing
- Community options to protect groundwater
- Treatment technology to remove contaminants
- Solid and hazardous waste disposal

Groundwater and Human Health
- The nature of groundwater
- Importance to human health
- Well testing and interpretation
- Risk management
- Safety factors in health standards

In January 1989, the Georgia CES signed a memorandum of understanding (MOU) with the state Soil Conservation Service (SCS). This MOU outlines water quality programming to be mutually conducted by the respective agencies. Training programs will begin in mid-1989. A portion of this MOU is given below to illustrate the development of a water quality educational program:

The Georgia Cooperative Extension Service Agrees To:

A. Provide leadership in developing and delivering education programs which emphasize the adoption of best management practices (BMP's) to protect or enhance water quality.
B. Integrate water quality concepts and management techniques into all programs to address nonpoint sources of pollution.
C. Provide assistance to SCS in support of the development and use of site specific information to address water quality issues.

The Soil Conservation Service Agrees To:

A. Integrate water quality concepts and management techniques into all programs to address nonpoint sources of pollution.
B. Provide technical assistance to the Georgia CES in support of the development and use of educational materials.
C. Encourage the State Soil and Water Conservation Commission, Georgia Association of Conservation Districts and the local Conservation Districts to cooperate in addressing the water quality priorities of the USDA National Conservation Program.

The Georgia Cooperative Extension Service And The Soil Conservation Service Mutually Agree To:

A. Jointly implement the USDA National Conservation Program for water quality and water conservation issues.
B. Designate representatives who will provide interagency liaison on water quality issues, programs, and policies.
C. Cooperate in the joint development, update, and use of the SCS Field Office Technical Guides.
D. Cooperate in developing guidelines and appropriate pesticide and nutrient management techniques for use in landowners'/operators' conservation plan.
E. Cooperate in jointly identifying water quality training needs and develop training materials and programs to address these needs with initial emphasis on pesticide and nutrient management techniques.
F. Cooperate in developing an appropriate program to reach and inform targeted farmers, including special efforts to reach minority and limited resource farmers.
G. Cooperate in developing a mechanism for identifying research needs specifically concerning pesticides and nutrients.

SUMMARY AND CONCLUSIONS

The CES is rapidly moving to address water quality issues in a positive way. We have demonstrated that our county delivery system can reach large numbers of citizens via mass-media and public education programs. CES will continue to coordinate with local, state, and federal regulatory agencies to insure that information distributed on water quality is sound and accurate.

Few areas of Extension programming present as extensive an array of scientific discipline expertise needs as that of water quality. The use of an interdisciplinary team to coordinate and develop programming appears to be the most effective method.

The level of public and Congressional concern suggests that many opportunities exist for CES to play an important role in public education about water quality. We are now obtaining funding from the Federal Government that is earmarked specifically for educational programs on water quality. This funding will likely continue during the next decade. As Extension responds to local water quality needs, we will, in concert with many other public agencies, impact how people practice good stewardship of our nation's water resources.

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