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PERCEPTIONS OF SELECTED TENNESSEE COUNTY LEADERS REGARDING THE LEVEL OF SEVERITY AND PROGRAM PRIORITY OF 14 WATER QUALITY ISSUES

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Beth A. Bell

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DEDICATION

This thesis is dedicated to my parents, Norbert P. and Mary Ann Stumpe who as teachers and parents stressed the importance of learning. This thesis is further dedicated to my husband, Roger, who encouraged me to pursue further education.

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ABSTRACT

The major purpose of this study was to identify selected county leaders' perceptions of the level of severity of 14 water quality issues and the importance of these issues as program priorities for the Agricultural Extension Service. Through this study, statewide as well as specific needs are identified. Analysis included the ranking of these issues as to their level of severity and program priority for Extension. The study further analyzed the relationship between the selected county leaders' perceptions of the 14 water quality issues and their geographic region, audience classification, and place of residence.

A total of 3,257 community leaders in 95 counties responded to the survey. The questionnaires were mailed by Extension agents to community leaders representing 12 different audience groups. The chi square test (X^2) was used to determine the strengths of relationships between the independent and dependent variables. The .05 level of probability was accepted as being statistically significant. Data were analyzed using the University of Tennessee Computing Center.

The major findings include:

1. The water quality issues rated by county leaders statewide as the top five in level of severity and as a program priority were: understanding the effects of current practices on future supplies of water; lack of citizens awareness of the nature and importance of water resources; lack of knowledge and use of water conservation methods;

improper disposal of leftover chemicals, empty containers, used motor oil, etc; and soil erosion on farms.

2. The county leaders' geographic regions of the state were significantly related to their perceptions of 11 of the 14 water quality issues. West Tennessee county leaders tended to perceive soil erosion on farms; soil erosion from road banks, parks, and public property; and misuse of agriculture chemicals as more severe problems than did county leaders from Middle and East Tennessee.

3. Middle Tennessee county leaders tended to perceive improper disposal of leftover chemicals, empty containers, and used motor oil; and misuse of household chemicals as more severe problems than did county leaders in West or East Tennessee.

4. East Tennessee county leaders tended to perceive soil erosion from construction sites; farm livestock wastes contaminating water; inadequate supplies of safe water; lack of information about water testing; and understanding effects of current practices on future water supplies as more severe problems than did county leaders in West and Middle Tennessee.

5. The county leaders' audience classification (Extension-related/non-Extension-related) was significantly related to their perceptions of the severity of 12 of the 14 water quality issues and 5 of the 14 program priority issues. County leaders from Extension-related audiences tended to perceive the water quality issues as more severe and higher program priorities than did county leaders from non-Extension-related audiences.

6. County leaders' place of residence (rural/urban) was significantly related to their perceptions of 6 of the 14 water quality issues in level of severity and 7 of the 14 water quality issues in program priority. County leaders from urban counties tended to perceive many of the issues as more severe and higher program priorities than did rural county leaders.

Implications and recommendations for future studies are also presented.

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CHAPTER I

THE PROBLEM AND ITS SETTING

I. INTRODUCTION

Water, our most abundant resource, is in jeopardy. Many experts perceive water quality as the most critical environmental problem of the next decade (19:339).* An adequate, potable water supply is essential not only to industry, agriculture, and energy but to the very well being of the population. The Cooperative Extension Service, the education branch of the United States Department of Agriculture, faces the challenge of educating the public about water quality in an effort to improve the future of our water supplies (15:3).

Community resource education efforts are not new to the Extension Service. The 1914 Smith-Lever Act, which established the Extension Service, clearly defines the mission of the organization:

> The theory of the bill is to extend this system to the entire country by providing for at least one trained demonstrator. . .to assume leadership in every movement, whatever it may be, the aim of which is better farming, better living, more happiness, more education, and better citizenship (10:1623).

The recent call for program accountability has caused Extension to make careful assessment of program planning and evaluation. The need for proactive rather than reactive program planning has lead to

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*Numbers in parentheses refer to alphabetically listed sources in the Bibliography.

a process known as the National Initiatives. Water quality is one of the nine issues targeted by the plan for specific action by the Extension Service.

The National Initiatives process outlines Extension's commitment to water quality education. Additionally, a unique document referred to as the Memorandum of Understanding Between the Extension Service and the Soil Conservation Service, signed June 3, 1988, specifically identifies the roles of the Extension Service in water quality education: The Extension Service agrees to:

1. Provide leadership for the Cooperative Extension System in developing and delivering educational programs which emphasize the adoption of proactive management to protect or enhance water quality.

2. Integrate water quality concepts and management techniques into all programs to address nonpoint sources of pollution.

3. Provide assistance to the Soil Conservation Service in support of the development and use of site specific information to address water quality (18:3).

The complexity of the water quality issue is best illustrated by the lack of a clear definition for the term itself. Because each use for water has an individual set of constraints, an absolute definition cannot be made. Physical, chemical, and biological attributes of water are used to establish purity of water based on the intended use.

Significant progress has been made in reducing point source water contamination under Public Law 92-500 known as the Clean Water Act

(25:1). Point source pollution, like industrial and municipal waste sites, are within reach for monitoring. Nonpoint source pollution has been identified as a major problem in twenty-nine states. Nonpoint pollution sources are diverse in nature and include concerns from agricultural pesticides to septic tank leakage. Because of the wide array of contaminants and the infinite number of sources, enforcement of laws controlling nonpoint pollution would require enormous funding (25:1).

The most viable solution to nonpoint contamination is public education. The Extension Committee on Organization and Policy (ECOP) endorses the theory that "programs (on water quality) when planned and delivered in a coordinated manner, provide a synergism that cannot be achieved by unilateral efforts" (25:1). One example of a successful educational effort is the Save Our Soil (SOS) program in Gibson County, Tennessee. These demonstrations on erosion control practices resulted in reducing the average soil erosion rate in Tennessee from about fourteen tons/acre/year in 1977 to about eleven tons/acre/year in 1982 (1:2).

In an effort to develop better water quality programs, the University of Tennessee Agricultural Extension Service, Agricultural Economics Community and Resource Development Department developed a base line survey of leaders' perceptions of community problems. According to Boyle, involving citizens in the program planning process offers three advantages. First, clientele involvement is effective in selection programs to address community needs (issue based

programming). Secondly, involving the clientele speeds the process of change. Clients involved in the planning process help diffuse and legitimize the educational process. Finally, as a result of involvement in program development, participants are better informed. This information helps prepare the individual for leadership in the process for change (5:96). Brunner further substantiates the use of clients in program planning and says that it "produces the best results" (6:133).

There are many methods for assessing community needs. This study used information collected via mail surveys sent to community leaders. The cost and time saving effectiveness of the leader survey is obvious. Additionally, Smith, et. al. cites the specific use of leaders in assessing community needs in Tennessee. A statistical evaluation of the results of Smith's study, showed no significant difference in the leaders' impressions and the random sample (21:4). The results of this study imply that leaders, when asked how they think the community will respond, have a fairly accurate feel for the view of the local population. Subsequently, these leaders can be a useful source of information for issue based programming.

II. NEED FOR THE STUDY

This study was directed toward gathering leader opinions on 14 water quality issues. The results of the survey will be used by state and county staff to develop and deliver effective, proactive, issue based programs to improve the purity of our water resources.

Change agents can develop better programs for meeting community needs on water quality issues if they understand and include the views of the clientele in their counties. Through an effective survey, statewide as well as specific area and county needs can be detected. Successful Extension programming requires active participation of the people (1:xi). Community decisions should be based upon public opinion (24:3-4).

III. PURPOSE OF THE STUDY

The purpose of the study was to identify county leaders' perceptions of the severity of 14 water quality issues and their importance as program priorities for Extension. Through this study, statewide as well as specific area needs were identified. This information may be useful to the Extension staff to develop proactive, issue-based water quality programs. More specific objectives include:

1. To compare Tennessee county leaders' perceptions of the level of severity and program priority of 14 water quality issues.

2. To determine the rank of 14 water quality issues regarding their level of severity and program priority as perceived by Tennessee county leaders.

3. To determine if county leaders from Tennessee's three major geographic regions differ in their ratings of 14 water quality issues.

4. To determine if county leaders from Tennessee Extension-related audiences differ from non-Extension-related audiences in their rating of 14 water quality issues.

5. To determine if county leaders living in rural communities differ from leaders in urban communities (Standard Metropolitan Statistical Areas or SMSA) in their rating of 14 water quality issues.

The survey was designed to provide county level information for local program planning and development, but the results will also provide statewide insight to the issues (15:3).

IV. LIMITATIONS OF THE STUDY

This study was limited to the data available in the 1988 University of Tennessee, Knoxville Agricultural Extension Service Community Resource Development Survey. The data were obtained through a mail survey of 3,257 community leaders in 95 counties. These surveys were mailed by the Extension Agents to community leaders representing 12 different audiences.

The number of leaders surveyed varied by county depending upon the size of each of the different leader groups. The study was additionally limited to 14 specific water quality issues listed on the survey. Room for individual comments was added to the survey; however, this information is not included in the study.

V. METHOD OF INVESTIGATION

The population of the study includes county leaders belonging to 12 leader groups in 95 Tennessee counties.

County Extension Agents collected the data through a mail survey and returned the completed surveys to the Agricultural and Extension

Education Office. The agents in each county were instructed to select their sample using the following criteria: (1) County Rural Development Committee (all members), (2) County Government Officials (county executive and four officials), (3) Extension Homemaker Club Presidents (home demonstration clubs), (4) Community Club Presidents, (5) Senior 4-H Club Presidents, (6) Service Club Presidents (ten selected representatives), (7) County Agricultural Committee (all members), (8) Ministers (five representatives), (9) Merchants (five representatives), (10) Agricultural Lenders (five representatives), (11) Schools (all principals up to ten and superintendents), (12) Newspapers (each editor), and (13) Other (examples include farm bureau, commodity association presidents, etc.).

The audiences were identified on the survey by a numerical code corresponding to the list above.

The survey instrument (see appendix) was developed by the University of Tennessee, Agricultural Extension Specialist Staff. The survey form was designed to gather information regarding the rating of 14 different water quality issues by community leaders.

The data from the surveys were coded and processed for computer analysis. Computations were conducted by the University of Tennessee, Knoxville Computing Center. The chi square test was used to determine the strength of the relationship between the independent and the dependent variables. The 0.05 probability level was accepted as being significant. Statistical tests were not applied to identify groups which were significantly different. Therefore, care should be taken in

analyzing these findings. The independent variables in this study were selected Tennessee county leaders' geographic region (west, middle and east), audience classification (Extension-related/non-Extension-related), and place of residence (rural/urban). The dependent variables in this study were selected Tennessee county leaders' perceptions of the level of severity and program priority of 14 water quality issues.

VI. DEFINITION OF TERMS

So the author and the reader may have a common understanding of the terms used in the study, certain terms are identified as follows:

1. Accountability. The capability and the responsibility to account for the commitment of resources in terms of program results. This accounting involves both the stewardship of resources and the evaluation of achievements in relation to specific objectives.

2. All Audiences. A term used to describe all twelve groups of county leaders surveyed.

3. Audience Classification. A term used to describe the county leaders as either Extension-related or non-Extension-related.

4. Change Agent. A professional or lay leader who relates to a learner or learner group an awareness of a need in an effort to instigate change. Persons whose behavior and objectives focus upon promoting and stimulating social action, primarily Extension Agents.

5. Community Resource Groups (CRD). A term used to describe the group action process of people in the community evaluating the

current situation, determining goals or change, and planning action to reach the goals.

6. Community Extension Advisory Committee. A seven member body of rural representatives that are appointed by the court to work with the Agricultural Extension Program in each county. The membership includes three court members, two farmers, and two farm women. Their job responsibilities include employment and/or removal of personnel receiving funds from county appropriations; formulating the county Extension budget; serving as a liaison between the Extension Service and the court on financial and other matters; serving in an advisory capacity on county Extension programs.

7. County Rural Development Committee. A term used to describe a countywide organization made up of members of city government agencies, local, state, and federal private sector. The group's main purpose is program development for the improvement of the social and economic situation of all residents of that county. This organization is interested in countywide development and serves as a medium of expressing the attitudes of the entire county.

8. Extension Related Audiences. A term used to describe five groups of county leaders that are in some way Extension related. County leader groups making up the five groups include: County Rural Development Committee, Extension Homemaker Club Presidents (Home Demonstration), Community Club Presidents, Senior 4-H Club Presidents, and the County Extension Advisory Committee.

9. Geographic Region of the State. A term used to describe the county leaders' location based upon the three political subdivisions of the state known as the "grand divisions". These divisions are entitled West Tennessee, Middle Tennessee, and East Tennessee. (See Appendix, Figure 1).

10. Issues. A point of discussion, debate, or dispute of public concern. Element of wide public concern on the topic of water quality, specifically those related to the 14 items listed on the survey.

11. National Initiatives. A set of nine topics cited by ECOP as priority issues to be addressed by the Agricultural Extension Service on a nationwide basis.

12. Non-Extension Related Audiences. A term used to describe audiences surveyed that are not formally tied to the Extension Service. County leader groups making up the seven groups include county officials, service club presidents, ministers, merchants, agricultural lenders, schools, newspapers, and others.

13. Programming. A comprehensive, systematic, and proactive process designed to facilitate behavioral changes in learner and/or their environment. Specifically, Extension's method of developing programs to meet the needs of clientele.

14. Rural. Includes all counties in the state of Tennessee which are not located in a Standard Metropolitan Statistical Area (SMSA) but did participate in the survey.

15. SMSA. An acronym for Standard Metropolitan Statistical Area as designated by the office of Federal Statistical Policy and

Standards. Each SMSA must include a minimum of (1) a single city with a population of at least 50,000 or larger, or (2) a city with a population of at least 25,000 people together with adjacent places having 25,000 people together with adjacent places having population densities of at least 1,000 people per square mile and a combined population of at least 50,000 that constitutes one community for both economic and social purposes provided that the county and/or counties adjacent areas are situated has a total population of 75,000. In addition to the central city or cities, the SMSA must include the county in which the central city is located, and the contiguous counties that are metropolitan in character and are both socially and economically integrated with the county of the central city, according to specific guidelines. Based on the 1980 census, Tennessee has six SMSA's including the following counties: Anderson, Blount, Carter, Cheatham, Davidson, Dickson, Hamilton, Hawkins, Knox, Marion, Montgomery, Robertson, Rutherford, Sequachie, Shelby, Sullivan, Sumner, Tipton, Unicoi, Washington, Williamson, and Wilson. (See Appendix, Figure 2).

16. Urban. A term used to describe all counties in the State of Tennessee which are located in a Standard Metropolitan Area and were included in the survey.

17. Water Quality. A term widely used to describe the issue under consideration for this study. An absolute definition of the term cannot be made. Standards for water are based upon the physical, chemical, and biological characteristics for the intended use.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to present a summary of previously completed investigations and literature related to water quality issues, involvement of leaders, and issue based programming. Included in this review were research studies, books, professional magazines, periodicals, and reports pertinent to this study. It is not the intent to summarize all literature in these related areas, therefore, selections have been made only from information which helped establish the need for this study or helped to support its findings. The review of literature has been organized into the four following sections: (1) Leader Roles in Program Planning, (2) Issue Based Programming, (3) The National Initiatives; and (4) Related Studies.

I. LEADER ROLES IN PROGRAM PLANNING

Early Extension agents learned the value of involving the local people in program planning. Even if the leaders just suggested the time of day and the meeting place, the agent found a higher rate of program success based on leader advice.

Extension's role is to identify opportunities and to solve problems. Cole, et. al. states:

> A necessary ingredient for success in Extension programming is the active participation of a cross section of people in developing and supporting its programs (8:xi).

When these leaders are involved in analyzing the specific local problems, they are better informed and prepared for active leadership in the process of change (20:65).

Extension uses many methods for involving leaders in program planning. This process usually begins with a needs assessment. The key informant, the public forum, the social indicators approach, and the survey method have all been useful to Extension in assessing needs. All these methods offer advantages and disadvantages.

Both the key informant and the public forum methods are direct, inexpensive and offer a good return for agent time to collect the data. However, the small number of leaders involved in these processes may mean the results are biased and impressionistic. Those surveyed may not be representative of the community.

The social indicator approach is based upon descriptive statistics found in public records and reports. Since these records represent a large percentage of the population, analyzing the figures can indicate social need. For example, an increase in the number of rural home wells tested with an unacceptable amount of contamination could indicate a groundwater problem.

The survey method of needs assessment may involve the entire population or a sample. Surveys are referred to as the telephone survey, the mailed questionnaire, and the household interview. Disadvantages of the survey include the cost and time factor in conducting the assessment. However, Cole, et. al. finds:

- Surveys offer the most scientifically valid and reliable information upon which to base an appraisal of the needs and services of a community (7:143). By combining several assessment methods, the change agent can better address the needs of the entire community.

Involving leaders in program planning is a complex process. Boyle found three basic premises for leader involvement in program planning.

1. When clients are involved, they will identify their most critical needs.

2. Involving leaders speeds the process of change. Leaders can aid in diffusing and legitimizing educational programs.

3. Program planning is a learning experience. Leaders involved in the planning process are better prepared for active leadership in the process of change (5:96).

Individuals who are involved in the planning process can become key leaders in the adoption process.

New program ideas are better accepted if the idea or program originates with someone already accepted and trusted in the community (5:110). A local leader is able to explain, interpret, and relate the changes to other's lives.

Involving leaders in the program planning process offers two distinct advantages. Community leaders are good barometers of the community and their acceptance of a practice or idea can speed the adoption process.

II. ISSUE BASED PROGRAMMING

Jacquelyn Cole, et. al. found that the value of Extension's programs lies in both content and the process of developing them (7:30). Until recently, most Extension programs were considered disciplinary in nature (11:2). Programs which originated within the Extension system, were designed for specific Extension audiences, and were delivered in an institutionalized mode. By contrast, issue programming extends beyond the traditional subject matter, audiences, and methods of programs delivery.

Issues can be defined as matters of wide public concern. An issue statement has three basic principles: (1) who is involved or affected, (2) what the problem situation involves, and (3) what are the consequences of the situation. Issue statements are simple without mention of program response, problem-solving strategies, goals, or results (11:6). The issue statement is designed to create a "brain-storming" type approach to problem solving. By contrast, disciplinary objective statements include the problem, the audience, and the delivery style with no opportunity to adapt the learning situation or include nontraditional audiences. Issue based programming then allows for more creativity and latitude in problem solving efforts.

Issues can be classified as current, emerging, or potential. Current issues are those easily identified by the general public. Current issues affect many people and call for immediate attention. Emerging issues are less likely to be identified by the average public.

However, lay and professional leaders clearly perceive the emerging issues as a problem of heightening public concern. Issues classified as potential may be detected only by adept leaders with keen social insight (11:6).

Using a process called environmental scanning, Extension can construct broad based, proactive issue programs. Working with Our Public: In-Service Education for Cooperative Extension suggests three principles which will aid in issue identification:

1. Involve the broad public and the Extension organization,

2. Involve all Extension staff members including agents, specialists, and administrators, and

3. Do not couch the issues by traditional Extension audiences or program delivery (11:6).

Integration of issue based programming in Extension will not be simple or immediate. Because Extension's resources are already limited, the adoption of issue based programming must be gradual. Additionally, the need to demonstrate success in issues programming suggests a step by step approach (11:7). Team work, resource allocation and coordination will be necessary. These changes will be time consuming and may not be popular with traditional Extension audiences. Limiting the number of specific issues to be addressed will be necessary.

Developing programs that are issue based involves identifying needs, setting priorities, designing and implementing, and evaluating (8:237).

III. THE NATIONAL INITIATIVES

In an effort to limit the issues to be addressed, the Cooperative Extension Service, United States Department of Agriculture, and the Extension Committee on Organization and Policy (ECOP) set into action the National Initiatives process. This process, started in 1986, is intended to emphasize efficiency, accountability and clarity of Extension's mission. Through identification of national initiatives, the Cooperative Extension Service will begin to focus its resources on issues critical to the economic, social, and environmental progress of the nation (11:1).

The Initiatives process will move Extension into a more proactive role for change. Proactive programming anticipates public concern. Extension's commitment to proactive programming will necessitate the involvement of community leaders to assess needs (11:iii).

Nine issues have been targeted for the focus of Extension programming nationally. These national issues are wide in scope, where state and county issues may be more specific and closely related to local needs. Currently identified National Initiatives include: (1) Alternative Agricultural Opportunities, (2) Building Human Capital, (3) Competitiveness and Profitability of American Agriculture, (4) Conservation and Management of Natural Resources, (5) Children at Risk, (6) Family and Economic Well-Being, (7) Improving Nutrition, Diet and Health, (8) Revitalizing Rural American, and (9) Water Quality (15:1).

Each of the nine National Initiatives outlines a strategic plan of action with more specific problems in each category. Under the national process umbrella, states and counties have the latitude to pinpoint specific local needs.

Early identification of water quality as a national initiative began in 1984, when the Extension Service and ECOP appointed a national task force on water quality. This task force published a report in 1986 that identified opportunities for the Cooperative Extension Service and recommended increased programming in the area of water quality (13:2).

Four critical water quality issues were identified by the task force. These issues include public understanding, chemical impacts, water conservation, and community control strategies development. The work of the task force led to the identification of water quality as a National Initiative. Since that time, the committee has further identified Extension's goal and role in each of the four identified critical issues.

The first identified issue involves public understanding of water resources, the attributes of the hydrolic situation and the danger of water contamination. Extension's objective is to improve public and private understanding by delivering appropriate educational programs to key audiences, notably rural residents and local government officials (19:4).

The second issue, the impacts of agricultural, industrial, and household chemicals on water quality, addresses water quality and subsequent uses and users of water. Providing appropriate programs

to chemical users and government policy makers will help create awareness in audiences. By understanding the effects of these chemicals on water quality, appropriate action to minimize contamination can begin (13:4).

The third issue targets water conservation strategies for domestic, agricultural, and municipal water consumers including drought induced shortages, declining water tables, increased pumping, production and treatment costs. Water quality and quantity are closely tied and frequently related. For example, an abundance of water is moot if the quality of the supply is not adequate for the need (25:2). Educational programs to meet private and public concerns is Extension's goal (19:4).

Issue four focuses upon public officials developing appropriate policies to protect community water resources and public well-being. The Extension Service can serve as a liaison to help communities with interrelated water systems work together to improve the availability and quality of water in their geographic region (20:4).

Extension will need a considerable increase in funding to meet these program needs. Policy makers have begun work on financial appropriations to aid Extension in this effort. In 1988, an estimated twenty million dollars was invested in Extension's water quality programming. The 1989 budget called for the first specific appropriation for 1.5 million dollars, with an increase to 6.5 million dollars by 1990. If implemented, proposed programs would cost fifteen million dollars annually (26:22). The additional water quality funds are directed toward specific programs for the Corn Belt project, database

development, pesticide applicator training, demonstration projects, support to the Soil Conservation Service technology, development effort for the update of field office guidelines, and for non-point source hydrologic units (20:2).

IV. RELATED STUDIES

Water quality problems are not new. Past studies show Tennessee's water quality problems are complex and diverse. As early as 1956, a study entitled "Water Policy in Tennessee" cited serious water problems for the state including hazardous waste, urban run-off, sediment, surface mining, and flooding (11:5). In 1982, the University of Tennessee Planning Research Center surveyed 95 persons familiar with the state's water situation. This study found that many of the state's water problems are related to economics and topography (4:2).

Tennessee topography is the most varied in any U.S. state. This topography is closely related to the climate and the geology of the state. Fluctuations in the climate and elevation produce a variety of precipitation. The geologic structure of the state also affects the drinking water source. To the east, the primary source is surface water; while in the west, groundwater is the major source.

The 1982 study further identified twenty-four major problems. Most of these problems were physical such as agricultural, chemicals, erosion, hazardous waste dumps, and industrial discharge. Other problems cited include economic and political circumstances.

Governor Alexander appointed a select committee on clean water known as the Safe Growth Team. This committee examined the affects of population growth on the state. Twenty-two specific water quality issues found by the committee were consolidated into five urgent needs areas. These areas include: (1) providing adequate supplies of clean water, (2) enforcing existing statutes and regulations, (3) protecting and utilizing groundwater, (4) preserving and managing our wetlands, and (5) soil erosion.

More recently, "Water Quality Management and Planning in Tennessee", a Delphi analysis of the Growth's Team issues was conducted. A Delphi study is a survey tool for aggregating judgments through sequential questionnaires by summarizing feedback from earlier responses (12:10). Three questionnaires sent to state water experts identified and prioritized the state's ten most serious water problems and feasible solutions. Again, most of the problems were found to be economic and land use oriented (14:80).

Obviously, Tennessee's water quality problems are diverse and complex. Solutions are not simple. Through identification of specific area needs, leader involvement and issue based programming, Extension can influence the future of the state's water resource.

CHAPTER III

FINDINGS REGARDING PERCEPTIONS OF SELECTED TENNESSEE COUNTY LEADERS REGARDING THE LEVEL OF SEVERITY AND EXTENSION PROGRAM PRIORITY OF 14 WATER QUALITY ISSUES

The purpose of this chapter is to present study findings regarding county leaders' perceptions of 14 water quality issues as to their level of severity and priority for Extension programs. These findings are summarized in four tables, with each table constituting a section.

Section I presents findings regarding Tennessee county leaders' ratings of the level of severity and the Extension programming priority of 14 water quality issues.

Section II presents findings regarding relationships between selected Tennessee county leaders' geographic region and their perceptions of the severity and program priority of 14 water quality issues.

Section III presents findings regarding relationships between selected Tennessee county leaders' audience classification and their perceptions of the severity and program priority of 14 water quality issues.

Section IV presents findings regarding relationships between selected Tennessee county leaders' place of residence and their perceptions of the level of severity and program priority of 14 water quality issues.

I. SELECTED TENNESSEE LEADERS' RATINGS OF THE LEVEL OF SEVERITY AND PROGRAM PRIORITY OF 14 WATER QUALITY ISSUES AS PERCEIVED BY COUNTY LEADERS THROUGHOUT TENNESSEE

Findings in Table I summarize the number and percent of Tennessee leaders responding to the 14 water quality issues. Each issue was divided into two categories: (1) the level of severity of the issue, and (2) program priority for Extension work. The mean score and the rank of each issue in both severity and program priority are also illustrated in this table.

The mean rank score in the category of level of severity was calculated by assigning numerical values to the survey responses as follows: "critical" = 3; "major" = 2; "minor" = 1; "no problem" = 0. Based on the mean scores, the water quality issues were ranked greatest to least with the highest mean rank score representing the issue perceived as the most "critical" in level of severity.

The mean rank score of the category of program priority was calculated by assigning the following numerical values: "high" = 3; "average" = 2; "low" = 1. Issues were ranked from greatest to least with the highest score representing the issue perceived as the "highest" Extension program priority.

Soil Erosion on Farms

Approximately 3 percent of the leaders regarded soil erosion on farms as "no problem" compared to 53.3 percent of respondents rating the issue either "major" or "critical". Almost 44 percent of the

TABLE I. Selected Tennessee Leaders' Ratings of the Level of Severity and Program Priority of 14 Water Quality Issues

Water Quality Issue	Number of* Leaders Responding	Percent of Leaders	Level of Severity Mean	Level of Severity Rank	Program Priority Mean	Program Priority Rank
Soil Erosion on Farms						
Level of Severity						
No Problem	88	3.2				
Minor	1,216	43.5				
Major	1,204	43.1				
Critical	285	10.2				
TOTAL	2,793	100.0	1.60	5		
Program Priority						
Low	346	13.0				
Average	1,195	44.8				
High	1,125	42.2				
TOTAL	2,666	100.0			2.29	3
Soil Erosion From Construction Sites						
Level of Severity						
No Problem	276	10.0				
Minor	1,180	50.3				
Major	853	31.0				
Critical	240	8.7				
TOTAL	2,749	100.0	1.38	10		
Program Priority						
Low	756	29.4				
Average	1,144	44.4				
High	476	26.2				
TOTAL	2,474	100.0			1.96	11
Soil Erosion From Road Banks, Parks, and Public Property						
Level of Severity						
No Problem	293	10.3				
Minor	1,616	56.7				
Major	759	26.7				
Critical	179	6.3				
TOTAL	2,847	100.0	1.28	12		
Program Priority						
Low	802	30.3				
Average	1,267	47.8				
High	581	21.9				
TOTAL	2,650	100.0			1.91	12
Misuse of Agricultural Chemicals						
Level of Severity						
No Problem	294	11.0				
Minor	1,273	47.5				
Major	815	30.5				
Critical	293	11.0				
TOTAL	2,675	100.0	1.41	8		
Program Priority						
Low	640	25.1				
Average	1,010	39.6				
High	901	35.3				
TOTAL	2,551	100.0			2.10	6

TABLE I (Continued)

Water Quality Issue	Number of* Leaders Responding	Percent of Leaders	Level of Severity Mean	Level of Severity Rank	Program Priority Mean	Program Priority Rank
Misuse of Household Chemicals						
Level of Severity						
No Problem	488	18.4				
Minor	1,478	55.8				
Major	536	20.3				
Critical	145	5.5				
TOTAL	2,647	100.0	1.12	13		
Program Priority						
Low	915	36.9				
Average	1,071	43.1				
High	497	20.0				
TOTAL	2,438	100.0			1.83	13
Misuse of Chemicals by Local Businesses						
Level of Severity						
No Problem	302	12.2				
Minor	1,131	45.6				
Major	749	30.2				
Critical	297	12.0				
TOTAL	2,479	100.0	1.42	7		
Program Priority						
Low	619	26.0				
Average	954	40.1				
High	807	33.9				
TOTAL	2,380	100.0			2.00	10
Improper Disposal of Leftover Chemicals, Empty Containers, Used Motor Oil, etc.						
Level of Severity						
No Problem	207	7.4				
Minor	939	33.4				
Major	1,140	40.6				
Critical	524	18.6				
TOTAL	2,810	100.0	1.70	4		
Program Priority						
Low	513	19.4				
Average	872	32.8				
High	1,266	47.8				
TOTAL	2,651	100.0			2.28	4
Farm Livestock Wastes Contaminating Water						
Level of Severity						
No Problem	576	21.4				
Minor	1,529	56.9				
Major	480	17.8				
Critical	105	3.9				
TOTAL	2,690	100.0	1.04	14		
Program Priority						
Low	1,080	43.5				
Average	1,016	40.8				
High	389	15.7				
TOTAL	2,485	100.0			1.72	14

TABLE I (Continued)

Water Quality Issue	Number of* Leaders Responding	Percent of Leaders	Level of Severity Mean	Level of Severity Rank	Program Priority Mean	Program Priority Rank
Farmer's Lack of Knowledge and Use of Best Management Practices						
Level of Severity						
No Problem	294	10.8				
Minor	1,307	47.8				
Major	972	35.6				
Critical	159	5.8				
TOTAL	2,732	100.0	1.36	11		
Program Priority						
Low	653	25.5				
Average	1,209	47.2				
High	697	27.3				
TOTAL	2,541	100.0			2.01	9
Lack of Citizen Awareness of the Nature and Importance of Water Resources						
Level of Severity						
No Problem	105	3.4				
Minor	682	22.3				
Major	1,595	52.0				
Critical	684	22.3				
TOTAL	3,066	100.0	1.93	2		
Program Priority						
Low	314	11.0				
Average	1,072	37.7				
High	1,457	51.3				
TOTAL	2,843	100.0			2.40	2
Lack of Knowledge and Use of Water Conservation Methods						
Level of Severity						
No Problem	175	5.8				
Minor	907	30.0				
Major	1,458	48.2				
Critical	483	16.0				
TOTAL	3,023	100.0	1.74	3		
Program Priority						
Low	430	15.5				
Average	1,180	42.4				
High	1,172	42.1				
TOTAL	2,782	100.0			2.26	5
Inadequate Supplies of Safe Water						
Level of Severity						
No Problem	529	18.4				
Minor	1,069	37.2				
Major	870	30.2				
Critical	409	14.2				
TOTAL	2,877	100.0	1.40	9		
Program Priority						
Low	704	26.5				
Average	1,017	38.3				
High	935	35.2				
TOTAL	2,256	100.0			2.08	7

TABLE I (Continued)

Water Quality Issue	Number of* Leaders Responding	Percent of Leaders	Level of Severity Mean	Level of Severity Rank	Program Priority Mean	Program Priority Rank
Lack of Information About Water Testing						
Level of Severity						
No Problem	284	10.3				
Minor	1,046	37.9				
Major	1,071	38.8				
Critical	356	12.9				
TOTAL	2,757	100.0	1.54	6		
Program Priority						
Low	630	10.4				
Average	1,096	37.9				
High	830	32.5				
TOTAL	2,556	100.0			2.07	8
Understanding Effects of Current Practices on Future Supplies of Safe Water						
Level of Severity						
No Problem	99	3.4				
Minor	630	21.6				
Major	1,405	48.1				
Critical	786	26.9				
TOTAL	2,920	100.0	1.98	1		
Program Priority						
Low	270	9.8				
Average	912	33.2				
High	1,567	57.0				
TOTAL	2,749	100.0			2.47	1

*Totals vary due to non-responses or "uncertain" responses. These responses were not used in the study.

leaders rated soil erosion on farms as a "minor" problem. The level of severity of soil erosion on farms had a mean score of 1.60. Overall, leaders perceived farm soil erosion on farms as the fifth most severe of the 14 water quality issues.

Findings presented in Table I indicate that 13 percent of the leaders surveyed felt that soil erosion on farms was a "low" program priority for Extension compared to a larger percent of leaders (42.2 percent) who rated this issue as a "high" program priority. Soil erosion on farms had a mean score of 2.29 placing it third highest among the 14 issues considered as a program priority.

Soil Erosion From Construction Sites

Findings show that just over 60 percent of the county leaders surveyed rated soil erosion from construction sites as either "minor" or "no problem" as a water quality issue while only 8.7 percent perceived soil erosion from construction sites as "critical". According to the mean score of 1.38, construction site erosion ranked number 10 in level of severity among the 14 water quality issues evaluated.

Data indicate that 44.4 percent of the county leaders perceived construction site soil erosion as an "average" Extension programming priority compared to 26.2 percent rating the issue as a "high" priority. The mean score for construction soil erosion was 1.96 ranking the issue eleventh as a program priority among the 14 water quality issues.

Soil Erosion From Road Banks, Parks, and Public Property

Sixty-seven percent of the county leaders rated soil erosion from road banks, parks, and public property as either "no problem" or a "minor" problem while only 6.3 percent rated this issue as "critical". Among the 14 water quality issues included in the study, soil erosion from roads, parks and public property ranked twelfth in level of severity with a mean score of 1.28.

Slightly over 78 percent of leaders rated soil erosion from road banks, parks, and public property as either "low" or "average" as a priority for Extension programs compared to 21.9 percent of leaders who rated this issue as a "high" program priority. The mean score for soil erosion of road banks, parks, and public property was 1.91 ranking this issue twelfth in program priority among the 14 water quality issues.

Misuse of Agricultural Chemicals

Forty-seven percent of the county leaders surveyed rated the level of severity of misuse of agricultural chemicals as a "minor" problem compared to 11 percent who perceived this issue as "critical". Data showed the mean score of misuse of agricultural chemicals as 1.41 which ranked it eighth in level of severity among the 14 water quality issues.

As a program priority, 39.6 percent of the county leaders rated misuse of agricultural chemicals as an "average" program priority while 35.3 percent perceived the issue as a "high" Extension program priority. The mean score for this issue was 2.10 ranking misuse of agricultural chemicals sixth as a program priority among the 14 water quality issues.

Misuse of Household Chemicals

Over half (55.8 percent) of the leaders surveyed rated misuse of household chemicals as a "minor" problem compared to only 5.5 percent rating the issue as "critical". The mean score for this issue was 1.2 ranking misuse of household chemicals as the thirteenth in level of severity among the 14 water quality issues.

As a program priority, 36.9 percent of county leaders surveyed rated misuse of household chemicals as a "low" programming priority compared to 20 percent who perceived the issue as a "high" program priority. The mean score for this issue was 1.83 ranking misuse of household chemicals thirteenth as a program priority among the 14 water quality issues.

Misuse of Chemicals by Local Businesses

Thirty percent of the county leaders surveyed rated the level of severity of misuse of chemicals by local businesses as "major" while 12.0 percent indicated this issue was a "critical" problem. Local businesses misuse of chemicals as an issue had a mean score of 1.42 ranking the issue seventh in level of severity among the 14 water quality issues.

As a programming priority 40.1 percent of the county leaders rated misuse of chemicals by local businesses as "average" compared to 26 percent who perceived this issue as a "low" program priority. The mean score for misuse of chemicals by local businesses was 2.0 which ranked the issue tenth in programming priorities for Extension.

Improper Disposal of Leftover Chemicals, Empty Containers, Used Motor Oil, etc.

Data showed that 59.2 percent of the county leaders rated improper disposal of leftover chemicals, empty containers and used motor oil as a "major" or "critical" issue in the level of severity compared to only 7.4 percent who perceived the issue as "no problem". The mean score for improper disposal of these items was 1.70 placing this issue as fourth in level of severity among the 14 water quality issues.

As an Extension program priority, 47.8 percent of the county leaders rated improper disposal of leftover chemicals, empty containers, and used motor oil as a "high" program priority compared to 19.4 percent rating the issue a "low" program priority. This issue received a mean score of 2.28 in the program priority category which ranked it fourth in program priority among the 14 water quality issues.

Farm Livestock Wastes Contaminating Water

Of the county leaders surveyed 56.9 percent rated the level of severity of farm livestock wastes contaminating water as a "minor" problem compared to 3.9 percent rating this issue as "critical". Water contamination from livestock wastes received a mean score of 1.04 ranking it fourteenth or the lowest in level of severity among the 14 water quality issues.

As a program priority, 43.5 percent of the leaders perceived farm livestock wastes contaminating water as a "low" program priority while 15.7 percent rated the issue as a "high" priority. The mean score

for this issue was 1.72 percent placing it last (fourteenth) as a program priority among the 14 water quality issues surveyed.

Farmers' Lack of Knowledge and Use of Best Management Practices

Over 47 percent of the leaders rated farmers' lack of knowledge and use of best management practices as a "minor" problem compared to 5.8 percent rating the issue as "critical". The mean score for the issue was 1.36 ranking the level of severity of this issue as eleventh among the 14 water quality issues reviewed.

Responses indicated that 27.3 percent of the county leaders rated the farmers' lack of knowledge and use of best management practices as a "high" program priority compared to 25.5 percent rating this issue as a "low" program priority. The mean score for this issue was 2.01 placing it ninth among the 14 water quality issues in program priorities.

Lack of Citizens Awareness of the Nature and Importance of Water Resources

Fifty-two percent of the county leaders surveyed rated lack of citizens awareness of the nature and importance of water resources as a "major" problem compared to 3.4 percent rating the issue "no problem" in the level of severity category. The mean score for this issue was 1.93 ranking the lack of citizens awareness of the nature and importance of water resources second in level of severity among the 14 water quality issues evaluated.

As a program priority, 51.3 percent of the county leaders rated lack of citizen awareness of the nature and importance of water resources as a "high" program priority for Extension compared to 11.0 percent rating this issue as a "low" program priority. The mean score for this issue was 2.40 ranking it as second highest in program priority among the 14 water quality issues.

Lack of Knowledge and Use of Water Conservation Methods

Sixty-four percent of the county leaders rated the level of severity for lack of knowledge and use of water conservation methods as "major" or "critical" compared to only 5.8 percent rating the issue as "no problem". The mean score for this issue was 1.74 ranking the level of severity of this issue third highest among the 14 water quality issues surveyed.

As a program priority, 42.1 percent of the leaders rated lack of knowledge and use of water conservation methods as a "high" program priority compared to 15.5 percent rating the issue as a "low" programming priority. The mean score for the issue was 2.26 ranking lack of knowledge and use of water conservation methods the fifth highest program priority issue.

Inadequate Supplies of Safe Water

Responses indicated that 30.2 percent of the county leaders rated inadequate supplies of safe water as a "major" level of severity problem compared to 18.4 percent rating this issue as "no problem". The mean

score for the inadequate supplies of safe water issue was 1.40 ranking the issue ninth among the 14 water quality issues in level of severity.

As a program priority, 35.2 percent of the county leaders rated inadequate supplies of safe water as a "high" program priority compared to 26.5 percent rating the issue as a "low" program priority. The mean score was 2.08 for the issue ranking it seventh in program priority among the 14 water quality issues studied.

Lack of Information About Water Testing

Nearly 39 percent (38.8) of the county leaders surveyed rated lack of information about water testing as a "major" problem in level of severity compared to 10.3 percent rating the issue as "no problem". The mean score for the issue was 1.54 placing the issue sixth among 14 water quality issues in level of severity.

As a program priority, lack of information about water testing was rated as "high" by 32.5 percent of the leaders compared to 10.4 percent rating the issue as a "low" program priority. The mean score for this issue was 2.07 placing lack of information about water testing eighth among the 14 water quality issues in the survey.

Understanding Effects of Current Practices on Future Supplies of Safe Water

Seventy-five percent of the leaders surveyed rated understanding effects of current practices on future supplies of safe water as either a "critical" or "major" problem compared to only 3.4 percent of leaders rating the level of severity of this issue as "no problem". The mean

score for this issue was 1.98 ranking it first in level of severity among the 14 water quality issues.

Fifty-seven percent of county leaders rated understanding effects of current practices on future supplies of safe water as a "high" program priority compared to 9.8 percent rating the issue as a "low" program priority. The mean score for this issue was 2.47 ranking understanding effects of current practices on future supplies of safe water as the highest program priority among the 14 water quality issues.

Table Summary

Data presented in Table I ranked the level of severity and program priority of the 14 water quality issues based upon mean scores. A table comparing the means for the level of severity and program priority of all 14 issues is included in the figures. The five water quality issues ranked by county leaders as most severe were:

1. Understanding effects of current practices on future water supplies,
2. Lack of citizen awareness of the nature and importance of water resources,
3. Lack of knowledge and use of water conservation methods,
4. Improper disposal of leftover chemicals, empty containers, used motor oil, etc., and
5. Soil erosion on farms.

Statewide, county leaders rated the following three issues as the least severe among the 14 water quality issues:

1. Soil erosion from road banks, parks, and public property,
2. Misuse of household chemicals, and
3. Farm livestock wastes contaminating water.

Data presented in Table I identified the five water quality issues rated by county leaders as those of highest priority for Extension programs as:

1. Understanding effects of current practices on future safe water supplies,
2. Lack of citizen awareness of the nature and importance of water resources,
3. Soil erosion on farms,
4. Improper disposal of leftover chemicals, empty containers, and used motor oil, etc., and
5. Lack of knowledge and use of water conservation methods.

The three issues rated by county leaders as the least important as program priorities were:

1. Soil erosion from road banks, parks, and public property,
2. Misuse of household chemicals, and
3. Farm livestock wastes contaminating water.

II. RELATIONSHIPS BETWEEN SELECTED TENNESSEE COUNTY LEADERS' GEOGRAPHIC REGION AND THEIR PERCEPTIONS OF THE SEVERITY AND PROGRAM PRIORITY OF 14 WATER QUALITY ISSUES

Section II presents findings regarding the relationships between selected Tennessee county leaders' geographic region of the state and

their perceptions of the level of severity and program priority of 14 water quality issues. Based upon the three grand divisions of the state (see definitions Chapter I), the state was divided into three geographic regions (west, middle and east). Each of the 14 water quality issues was divided into two categories: (1) the level of severity, and (2) program priority for Extension work. The number and percent of leaders responding to each issue are presented in Table II.

The chi square test was used to determine the strength of the relationships between the independent (county leaders' geographic region) and dependent (county leaders' perceptions) variables. The 0.05 probability level was used to determine significant relationships. Statistical tests were not used to identify groups which were significantly different. Therefore, care should be taken when interpreting these findings. Table totals vary due to non-responses and/or the "uncertain" responses indicated by the respondent. Missing and "uncertain" responses were not included in this study.

Soil Erosion of Farms

Data in Table II indicate that 23.9 percent of county leaders in west Tennessee perceived the level of severity of soil erosion on farms as a "critical" problem compared to only 5.9 percent of middle Tennessee leaders and 6.1 percent of east Tennessee leaders. According to the chi square test, the county leaders' region of the state and their perceptions of the severity of soil erosion on farms were significantly related at the .05 probability level. County leaders in west Tennessee

TABLE II. Relationships Between Selected Tennessee County Leaders' Geographic Region and Their Perceptions of the Severity and Program Priority of 14 Water Quality Issues

Water Quality Issue	Leaders Geographic Region of the State					
	West TN		Middle TN		East TN	
	Number*	Percent	Number*	Percent	Number*	Percent
Soil Erosion on Farms						
Level of Severity						
No Problem	12	1.8	27	2.3	48	5.3
Minor	128	19.5	587	49.0	485	53.4
Major	361	54.8	515	43.0	320	35.2
Critical	157	23.9	69	5.7	55	6.1
TOTAL	658	100.0	1,198	100.0	908	100.0
$X^2 = 329.75161$; $p < 0.001$						
Program Priority						
Low	33	5.1	162	14.3	147	17.1
Average	176	27.5	588	51.7	417	48.3
High	432	67.4	388	34.1	298	34.6
TOTAL	641	100.0	1,138	100.0	862	100.0
$X^2 = 225.99264$; $p < 0.001$						
Soil Erosion From Construction Sites						
Level of Severity						
No Problem	73	12.0	119	10.0	80	8.7
Minor	320	52.5	604	50.9	443	47.8
Major	167	27.4	367	30.9	311	33.5
Critical	50	8.1	96	8.2	93	10.0
TOTAL	610	100.0	1,186	100.0	927	100.0
$X^2 = 12.97452$; $p = 0.043$						
Program Priority						
Low	202	34.6	332	30.3	215	24.8
Average	254	43.6	495	45.0	381	43.9
High	127	21.8	272	24.7	271	31.3
TOTAL	583	100.0	1,099	100.0	867	100.0
$X^2 = 25.82308$; $p < 0.001$						
Soil Erosion From Road Banks, Parks, and Public Property						
Level of Severity						
No Problem	52	7.9	140	11.6	99	10.4
Minor	345	52.8	706	58.3	549	57.5
Major	202	30.8	300	24.8	249	26.0
Critical	56	8.5	64	5.3	58	6.1
TOTAL	655	100.0	1,210	100.0	955	100.0
$X^2 = 21.27834$; $p < 0.001$						
Program Priority						
Low	188	29.8	376	33.4	230	26.5
Average	282	44.8	541	48.0	431	49.7
High	160	25.4	210	18.6	497	23.8
TOTAL	630	100.0	1,127	100.0	1,158	100.0
$X^2 = 20.00280$; $p < 0.001$						
Misuse of Agricultural Chemicals						
Level of Severity						
No Problem	51	8.0	115	9.8	125	14.7
Minor	300	47.8	565	48.3	349	46.2
Major	212	33.8	354	30.3	245	28.8
Critical	65	10.4	136	11.6	88	10.3
TOTAL	628	100.0	1,170	100.0	807	100.0
$X^2 = 21.13402$; $p < 0.001$						

TABLE II (Continued)

Water Quality Issue	Leaders Geographic Region of the State: West TN Number*	West TN Percent	Middle TN Number*	Middle TN Percent	East TN Number*	East TN Percent
Program Priority						
Low	144	23.8	289	26.2	199	24.4
Average	246	40.7	422	38.2	332	40.6
High	215	35.5	393	35.6	286	35.0
TOTAL	605	100.0	724	100.0	817	100.0
$X^2 = 2.06593$; $p = 0.7236$						
Misuse of Household Chemicals						
Level of Severity						
No Problem	143	23.6	170	15.1	170	19.1
Minor	338	55.9	638	56.6	485	54.0
Major	104	17.2	253	22.4	177	20.0
Critical	20	3.3	67	5.9	55	6.2
TOTAL	605	100.0	1,128	100.0	887	100.0
$X^2 = 28.34893$; $p < 0.001$						
Program Priority						
Low	261	45.0	369	35.1	275	33.2
Average	229	39.6	448	42.6	383	46.3
High	89	15.4	235	22.3	170	20.5
TOTAL	579	100.0	1,052	100.0	828	100.0
$X^2 = 27.33909$; $p < 0.001$						
Misuse of Chemicals by Local Businesses						
Level of Severity						
No Problem	74	13.1	111	10.5	116	13.9
Minor	295	52.3	460	43.3	367	44.0
Major	151	26.8	348	32.8	246	29.5
Critical	44	7.8	142	13.4	106	12.6
TOTAL	564	100.0	1,061	100.0	835	100.0
$X^2 = 27.28075$; $p < 0.001$						
Program Priority						
Low	176	32.2	255	25.2	184	23.0
Average	233	42.6	376	37.1	335	41.9
High	138	25.2	382	37.7	281	35.1
TOTAL	547	100.0	1,013	100.0	800	100.0
$X^2 = 32.89876$; $p < 0.001$						
Improper Disposal of Leftover Chemicals, Empty Containers, Used Motor Oil, etc.						
Level of Severity						
No Problem	47	7.3	77	6.4	81	8.6
Minor	238	36.8	395	32.9	301	32.0
Major	270	41.8	488	40.6	374	39.8
Critical	91	14.1	242	20.1	184	19.6
TOTAL	646	100.0	1,202	100.0	940	100.0
$X^2 = 15.90412$; $p = 0.014$						
Program Priority						
Low	144	23.6	206	18.2	160	18.0
Average	220	35.9	360	31.9	284	32.0
High	248	40.9	563	49.9	444	50.0
TOTAL	612	100.0	1,129	100.0	888	100.0
$X^2 = 18.03563$; $p = 0.0012$						

TABLE II (Continued)

Water Quality Issue	Leaders Geographic Region of the State: West TN Number*	West TN Percent	Middle TN Number*	Middle TN Percent	East TN Number*	East TN Percent
Farm Livestock Wastes Contaminating Water						
Level of Severity						
No Problem	188	31.4	220	18.8	162	18.0
Minor	338	56.5	703	60.2	473	52.6
Major	61	10.3	197	16.9	220	24.4
Critical	11	1.8	48	4.1	45	5.0
TOTAL	598	100.0	968	100.0	700	100.0
$X^2 = 93.26284$; $p < 0.001$						
Program Priority						
Low	315	56.4	478	44.3	278	33.7
Average	188	33.6	456	42.3	363	44.0
High	56	10.0	145	13.4	184	22.3
TOTAL	559	100.0	1,079	100.0	825	100.0
$X^2 = 87.35300$; $p < 0.001$						
Farmers' Lack of Knowledge and Use of Best Management Practices						
Level of Severity						
No Problem	63	10.1	117	10.0	112	12.3
Minor	282	45.0	593	50.0	419	46.3
Major	247	39.5	393	33.5	325	35.8
Critical	34	5.4	71	6.0	51	5.6
TOTAL	626	100.0	1,174	100.0	907	100.0
$X^2 = 10.79847$; $p = 0.095$						
Program Priority						
Low	155	25.9	288	26.2	206	24.7
Average	272	45.4	525	47.7	400	47.8
High	172	28.7	288	26.1	230	27.5
TOTAL	599	100.0	1,101	100.0	836	100.0
$X^2 = 1.96209$; $p = 0.743$						
Lack of Citizen Awareness of the Nature and Importance of Water Resources						
Level of Severity						
No Problem	31	4.5	37	2.8	36	3.5
Minor	178	25.8	288	21.8	209	20.4
Major	341	49.3	699	53.0	541	52.7
Critical	141	20.4	296	22.4	240	23.4
TOTAL	691	100.0	1,060	100.0	1,026	100.0
$X^2 = 12.29291$; $p = 0.055$						
Program Priority						
Low	99	15.0	132	10.8	78	8.3
Average	260	39.5	457	37.3	347	37.2
High	299	45.5	635	51.9	509	54.5
TOTAL	658	100.0	1,224	100.0	934	100.0
$X^2 = 22.87048$; $p < 0.001$						
Lack of Knowledge and Use of Water Conservation Methods						
Level of Severity						
No Problem	48	7.1	69	5.3	57	5.6
Minor	224	33.1	395	30.2	279	27.7
Major	295	43.6	644	49.2	503	50.0
Critical	110	16.2	200	15.3	168	16.7
TOTAL	677	100.0	1,128	100.0	1,007	100.0
$X^2 = 11.18952$; $p = 0.082$						

TABLE II (Continued)

Water Quality Issue	Leaders Geographic Region of the State					
	West TN		Middle TN		East TN	
	Number*	Percent	Number*	Percent	Number*	Percent
Program Priority						
Low	127	19.7	177	14.8	124	13.6
Average	264	41.0	525	43.9	376	41.0
High	253	39.0	493	41.3	416	45.4
TOTAL	644	100.0	1,195	100.0	916	100.0
$X^2 = 15.16470$; $p = 0.004$						
Inadequate Supplies of Safe Water						
Level of Severity						
No Problem	201	31.7	188	15.0	137	14.3
Minor	259	40.9	479	38.1	322	33.6
Major	130	20.5	405	32.2	326	34.0
Critical	44	6.9	185	14.7	173	18.1
TOTAL	634	100.0	1,257	100.0	958	100.0
$X^2 = 143.50473$; $p < 0.001$						
Program Priority						
Low	242	41.2	279	24.2	177	19.9
Average	213	36.2	449	38.9	345	38.9
High	133	22.6	425	36.9	366	41.2
TOTAL	588	100.0	1,153	100.0	888	100.0
$X^2 = 101.68307$; $p < 0.001$						
Lack of Information About Water Testing						
Level of Severity						
No Problem	90	14.7	111	9.2	83	9.0
Minor	246	40.3	450	37.4	338	36.9
Major	199	32.6	496	41.2	368	40.1
Critical	76	12.4	147	12.2	128	14.0
TOTAL	611	100.0	1,204	100.0	917	100.0
$X^2 = 25.11107$; $p < 0.001$						
Program Priority						
Low	180	31.9	246	23.6	182	21.4
Average	216	38.3	484	43.4	382	44.9
High	168	29.8	368	33.0	287	33.7
TOTAL	564	100.0	1,098	100.0	851	100.0
$X^2 = 21.51007$; $p = 0.001$						
Understanding Effects of Current Practices on Future Supplies of Safe Water						
Level of Severity						
No Problem	33	5.2	34	2.6	32	3.3
Minor	170	26.2	273	21.4	179	18.4
Major	310	47.8	614	48.2	471	48.5
Critical	135	20.8	354	27.8	290	29.8
TOTAL	648	100.0	1,275	100.0	972	100.0
$X^2 = 30.89342$; $p < 0.001$						
Program Priority						
Low	77	12.4	125	10.5	66	7.3
Average	249	40.1	375	31.4	277	30.5
High	295	47.5	694	58.1	565	62.2
TOTAL	621	100.0	1,194	100.0	908	100.0
$X^2 = 21.51007$; $p < 0.001$						

*Totals vary due to non-responses of "uncertain" responses. These responses were not used in the study.

tended to perceive soil erosion on farms as a more severe problem than leaders in middle or east Tennessee

Sixty-seven percent of county leaders from west Tennessee perceived soil erosion on farms as a "high" priority for Extension programming compared to 34.1 percent of middle Tennessee leaders and 34.8 percent of east Tennessee leaders. The chi square test showed that the county leaders' regions of the state and their perceptions of soil erosion on farms as an Extension program priority were significantly related at the .05 probability level. Leaders in west Tennessee tended to rate soil erosion on farms as a higher program priority than leaders in middle or east Tennessee.

Soil Erosion From Construction Sites

Table II data indicate that 43.5 percent of county leaders in east Tennessee perceived the level of severity of soil erosion from construction sites as either "major" or "critical" compared to 39.1 percent of county leaders in middle Tennessee and 35.5 percent of west Tennessee county leaders. According to the chi square test the leaders' region of the state and their perceptions of the level of the severity of soil erosion from construction sites were significantly related. County leaders in east Tennessee tended to rate soil erosion from construction sites as a more severe problem than county leaders in middle or west Tennessee.

Thirty-one percent of county leaders from east Tennessee indicated that soil erosion from construction sites was a "high" program priority compared to 24.7 percent of middle Tennessee leaders and 21.8 percent

of west Tennessee leaders. The chi square test showed that the county leaders' region of the state and their perceptions of soil erosion from construction sites were significantly related. County leaders in the eastern region of the state tended to perceive soil erosion from construction sites as a "higher" program priority than did county leaders from middle or western regions of the state.

Soil Erosion From Road Banks, Parks, and Public Property

Data in Table II indicate that 30.8 percent of county leaders from west Tennessee perceived the level of severity of soil erosion from road banks, parks and public property as a "major" problem compared to 24.8 percent of middle Tennessee leaders and 26.0 percent of east Tennessee leaders. The chi square test indicated the county leaders' region of the state and their perception of the severity of soil erosion from road banks, parks and public property were significantly related. County leaders in west Tennessee tended to rate soil erosion from road banks, parks and public property as a more severe problem than county leaders in middle or east Tennessee.

Twenty-five percent of county leaders from west Tennessee perceived soil erosion from road banks, parks and public property as a "high" priority for Extension programming compared to 18.6 percent of leaders in middle Tennessee and 23.8 percent of east Tennessee leaders. The chi square test indicated that the county leaders' region of the state and their perceptions of soil erosion from road banks, parks and public property as an Extension program priority were significantly related.

Leaders in west Tennessee tended to perceive soil erosion from road banks, parks and public property as a higher program priority than leaders in middle or east Tennessee.

Misuse of Agricultural Chemicals

Table II data indicate that 44.2 percent of west Tennessee leaders perceived the severity of misuse of agricultural chemicals as either "major" or "critical" compared to 41.9 percent of middle Tennessee leaders and 39.1 percent of east Tennessee leaders. According to the chi square test, the leaders' region of the state and their perceptions of the severity of misuse of agricultural chemicals were significantly related. Leaders in west Tennessee tended to rate misuse of agricultural chemicals as a more severe problem than leaders in middle or east Tennessee.

Findings presented in Table II show that 35.5 percent of county leaders in west Tennessee and 35.6 percent of county leaders in middle Tennessee and 35.0 percent of the county leaders in east Tennessee perceived misuse of agricultural chemicals as a "high" program priority. According to the chi square test, the county leaders' region of the state and their perceptions of misuse of agricultural chemicals as a program priority were not significantly related. County leaders from the western region of the state were no more or less likely to rate the misuse of agricultural chemicals as a program priority than leaders in middle or east Tennessee.

Misuse of Household Chemicals

Findings in Table II indicate that 26.2 percent of the county leaders in east Tennessee and 28.3 percent of middle Tennessee leaders perceived the severity of misuse of household chemicals as "major" or "critical" compared to 20.5 percent of west Tennessee leaders. According to the chi square test, the leaders' region of the state and their perceptions of the severity of misuse of household chemicals were significantly related. Leaders in middle and east Tennessee tended to rate the misuse of household chemicals as a more critical problem than leaders in the western region of the state.

Data in Table II indicate that 15.4 percent of leaders from west Tennessee perceived misuse of household chemicals as a "high" program priority compared to 22.3 percent in middle Tennessee and 20.5 percent of county leaders in east Tennessee. The chi square test showed that the leaders' region of the state and their perceptions of misuse of household chemicals as a program priority were significantly related. Middle and east Tennessee county leaders tended to rate misuse of household chemicals as a higher program priority than did leaders from west Tennessee.

Misuse of Chemicals by Local Businesses

Findings indicate that 46.2 percent of county leaders in middle Tennessee perceived the level of severity of misuse of chemicals by local businesses as a "major" or "critical" problem compared to 42.1 percent of county leaders in east Tennessee and 34.6 percent of county leaders in west Tennessee. Results of the chi square test indicated

that the county leaders' region of the state and their perceptions of the level of severity of misuse of chemicals by local businesses were significantly related at the .05 probability level. County leaders in middle Tennessee tended to rate misuse of chemicals by local businesses as a greater problem than did leaders in west or east Tennessee.

Table II results further indicate that 37.7 percent of county leaders in middle Tennessee perceived misuse of chemicals by local businesses as a "high" program priority as compared to 35.1 percent of east Tennessee leaders and 25.2 percent of west Tennessee leaders. The chi square test showed that the leaders' region of the state and their perceptions of misuse of chemicals by local businesses as an Extension program priority were significantly related. Leaders in middle and east Tennessee tended to rate misuse of chemicals by local businesses as a higher program priority than did county leaders in west Tennessee.

Improper Disposal of Leftover Chemicals, Empty Containers, and Used Motor Oil, etc.

Data indicate that 20.1 percent of leaders in middle Tennessee and 19.6 percent of leaders in east Tennessee perceived the level of severity of improper disposal of leftover chemicals, empty containers and motor oil as "critical" compared to 14.1 percent of west Tennessee leaders. The chi square test indicated that the leaders' region of the state and their perceptions of the severity of improper disposal of leftover chemicals, empty containers, used motor oil, etc. were

significantly related. County leaders in middle and east Tennessee tended to rate improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a more severe problem than leaders in west Tennessee.

Data showed that 50 percent of east Tennessee county leaders and 49.9 percent of middle Tennessee leaders perceived improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a "high" program priority compared to 40.9 percent of county leaders in west Tennessee. The chi square test showed that the county leaders' regions of the state and their perceptions of improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a program priority were significantly related. County leaders in east and middle Tennessee tended to rate improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a higher program priority than west Tennessee county leaders.

Farm Livestock Wastes Contaminating Water

Data in Table II indicate that 24.4 percent of county leaders in east Tennessee perceived the level of severity of farm livestock wastes contaminating water as "major" compared to 16.9 percent of middle Tennessee county leaders and 10.3 percent of west Tennessee county leaders. The chi square test indicated the county leaders' region of the state and their perceptions of the severity of farm livestock wastes contaminating water were significantly related. County leaders in east Tennessee tended to perceive farm livestock contamination of water as a more severe problem than county leaders in west Tennessee.

Findings show that 22.3 percent of county leaders from east Tennessee rated farm livestock waste contaminating water as a "high" program priority compared to 13.4 percent of middle Tennessee leaders and 10.0 percent of west Tennessee leaders. According to the chi square test the county leaders' regions of the state and their perceptions of farm livestock waste contaminating water as an Extension program priority were significantly related at the 0.5 probability level. Leaders in east Tennessee tended to rate farm livestock waste contaminating water as a higher program priority than leaders in middle and west Tennessee.

Farmers' Lack of Knowledge and Use of Best Management Practices

Approximately 40 percent of county leaders in west Tennessee perceived the level of severity of farmer's lack of knowledge and use of best management practices as a "major" problem compared to 35.8 percent of county leaders in east Tennessee and 33.5 percent of middle Tennessee county leaders. The chi square test showed that the county leader's region of the state and their perceptions of the level of severity of farmer's lack of knowledge and use of best management practices were not significantly related at the .05 probability level. County leaders from west Tennessee were no more or less likely to rate farmers lack of knowledge and use of best management practices as a "major" problem than leaders in middle or east Tennessee.

Data in Table II further indicate that 28.7 percent of west Tennessee county leaders perceived farmer's lack of knowledge and use of best

management practices as a "high" program priority compared to 27.5 percent of east Tennessee leaders and 26.1 percent of middle Tennessee leaders. The chi square test indicated that the county leaders' region of the state and their perceptions of the farmer's lack of knowledge and use of best management practices as a program priority were not significantly related. County leaders from west Tennessee were no more or less likely to rate the farmer's lack of knowledge and use of best management practices as a "high" program priority than leaders in middle and east Tennessee.

Lack of Citizen Awareness of the Nature and Importance of Water Resources

Data in Table II indicate that 76.1 percent of east Tennessee leaders and 75.4 percent of middle Tennessee leaders perceived the level of severity of lack of citizens awareness of the nature and importance of water resources as either "major" or "critical" compared to 69.1 percent of west Tennessee leaders. The chi square test indicated the county leaders' region of the state and their perceptions of the level of severity of lack of citizen awareness of the nature and importance of water resources were not significantly related at the .05 level. County leaders in east and middle Tennessee were no more or less likely to rate lack of citizen awareness of the nature and importance of water resources as a "major" problem than west Tennessee county leaders.

Approximately 55 percent of east Tennessee leaders and 51.9 percent of middle Tennessee leaders perceived lack of citizen awareness of

the nature and importance of water resources as a "high" program priority compared to 45.5 percent of west Tennessee leaders. The chi square test indicated the county leaders' region of the state and their perceptions of the lack of citizen awareness of the nature and importance of water resources as a program priority were significantly related at the .05 level of probability. County leaders in east and middle Tennessee tended to rate awareness of the nature and importance of water resources as a higher program priority than leaders in west Tennessee.

Lack of Knowledge and Use of Water Conservation Methods

Data in Table II indicate that 66.7 percent of east Tennessee leaders and 64.5 percent of middle Tennessee leaders perceived the level of severity of the lack of knowledge and use of water conservation methods as either "major" or "critical" compared to 59.8 percent of county leaders in west Tennessee. The chi square test indicated that the county leaders' region of the state and their perceptions of the severity of lack of knowledge and use of water conservation methods were not significantly related at the .05 probability level. County leaders in east and middle Tennessee were no more or less likely to rate the lack of knowledge and use of water conservation methods as "major" than west Tennessee county leaders.

Findings show that 45.4 percent of county leaders in east Tennessee perceived lack of knowledge and use of water conservation methods as a "high" program priority compared to 41.3 percent of middle Tennessee

leaders and 39.0 percent of west Tennessee leaders. The chi square test indicated that the county leaders' region of the state and their perceptions of lack of knowledge and use of water conservation as a program priority were significantly related at the .05 probability level. County leaders in east Tennessee tended to rate lack of knowledge and use of water conservation methods as a higher program priority than did middle and west Tennessee county leaders.

Inadequate Supplies of Safe Water

Fifty-two percent of county leaders in east Tennessee and 46.9 percent of leaders in middle Tennessee perceived the level of severity of inadequate supplies of safe water as either a "major" or "critical" problem compared to 27.4 percent of west Tennessee leaders. Results of the chi square test indicated the county leaders' region of the state and their perceptions of the severity of inadequate supplies of water were significantly related. East and middle Tennessee county leaders tended to rate inadequate supplies of safe water as a more severe problem than west Tennessee leaders.

Findings show that 41.2 percent of east Tennessee leaders and 36.9 percent of middle Tennessee leaders perceived inadequate supplies of safe water as a "high" program priority compared to 22.6 percent of west Tennessee leaders. The chi square test indicated that the leaders' region of the state and their perceptions of inadequate supplies of safe water as a program priority were significantly related. County leaders in east and middle Tennessee tended to rate inadequate supplies

of safe water as a higher program priority than did west Tennessee leaders.

Lack of Information About Water Testing

Table II data indicate that 54.1 percent of east Tennessee leaders and 53.4 percent of middle Tennessee county leaders perceived lack of information about water testing as either a "major" or "critical" problem compared to 45.0 percent of west Tennessee county leaders. The chi square test showed that the county leaders' region of the state and their perceptions of the level of severity of lack of information about water testing were significantly related. Leaders in eastern and middle regions of the state tended to rate lack of information about water testing as a more severe problem than county leaders in west Tennessee.

Seventy-nine percent of leaders in east Tennessee and 76.4 percent of county leaders in middle Tennessee perceived the lack of information about water testing as an "average" or "high" program priority compared to 68.1 percent of county leaders in west Tennessee. The chi square test indicated the county leaders' region of the state and their perceptions of the lack of information about water testing as an Extension program priority were significantly related. Leaders in east and middle Tennessee tended to rate lack of information about water testing as a higher program priority than county leaders in west Tennessee.

Understanding the Effects of Current Practices on Future Supplies of Safe Water

Data indicate that 78.3 percent of east Tennessee county leaders and 76.0 percent of middle Tennessee leaders perceived the severity of understanding efforts of current practices on future supplies of safe water as either a "major" or "critical" problem compared to 68.6 percent of west Tennessee leaders. The chi square test indicated that the leaders' region of the state and their perceptions of the level of severity of understanding effects of current practices on future supplies of safe water were significant at the .05 probability level. County leaders in east and middle Tennessee tended to rate understanding the effects of current practices on future supplies of safe water as a more severe problem than leaders in west Tennessee.

Data in Table II indicate that 62.2 percent of county leaders in east Tennessee and 58.1 percent of county leaders in middle Tennessee perceived understanding effects of current practices on future supplies of safe water as a "high" program priority compared to 47.5 percent of west Tennessee county leaders. The chi square test showed that the county leaders' region of the state and their perceptions of understanding effects of current practices on future supplies of safe water were significantly related. County leaders in east and middle Tennessee tended to rate understanding effects of current practices on future supplies of safe water as a higher program priority than did leaders from west Tennessee.

Table Summary

Data presented in Table II show that the county leaders' geographic region of the state was significantly related to their perception of the level of severity of 11 of the 14 water quality issues. The directions of these relationships were determined by analyzing the percent of leaders' responses from each of the three geographic regions (west, middle, east). Due to the closeness of some of these percentages, care should be taken when interpreting these findings.

West Tennessee county leaders tended to rate soil erosion on farms, misuse of agriculture chemicals, soil erosion from road banks, parks, and public property as more severe problem than leaders from middle and eastern geographic regions of the state.

Middle Tennessee county leaders tended to rate misuse of household chemicals, misuse of chemicals by local businesses, and improper disposal of leftover chemicals, empty containers, used motor oil, etc. as more severe problems than leaders from western and eastern regions of the state.

East Tennessee county leaders tended to rate soil erosion from construction sites, farm livestock wastes contaminating water, inadequate supplies of safe water, lack of information about water testing, and understanding effects of current practices on future supplies of safe water as more severe problems than county leaders from the western and middle regions of the state.

Data presented in Table II show that county leaders' geographic region of the state was significantly related to their perception of each issue as a program priority for 11 of the 14 water quality issues.

West Tennessee county leaders tended to rate soil erosion on farms, and soil erosion from road banks, parks and public property as higher program priorities than county leaders from middle and eastern regions of the state.

Middle Tennessee county leaders tended to rate misuse of chemicals by local businesses, and improper disposal of leftover chemicals, empty containers, used motor oil, etc. as higher program priorities than county leaders from the western and eastern regions of the state.

East Tennessee county leaders tended to rate soil erosion from construction sites, inadequate supplies of safe water, farm livestock wastes contaminating water, lack of knowledge and use of conservation methods, lack of information about water testing, lack of citizens awareness of the nature and importance of water quality, and understanding effects of current practices on future water supplies as higher program priorities than county leaders from western and middle regions of the state.

III. RELATIONSHIPS BETWEEN SELECTED TENNESSEE COUNTY LEADERS' AUDIENCE CLASSIFICATION AND THEIR PERCEPTIONS OF THE SEVERITY AND PROGRAM PRIORITY OF 14 WATER QUALITY ISSUES

Section III presents findings regarding the relationships between selected Tennessee county leaders' audience classification and their perceptions of the level of severity and program priority of 14 water quality issues. County leaders were classified as either Extension-related or non-Extension-related (see definitions, Chapter I). Each

of the 14 water quality issues was divided into two categories: (1) the level of severity, and (2) program priority for Extension work. The number and percent of leaders responding to each issue are presented in Table III.

The chi square test was used to determine the strength of relationships between selected independent variables (county leaders' audience classification) and the dependent variable (county leaders' perceptions). Table totals vary due to non-responses and/or the "uncertain" responses indicated by the respondents. Missing and "uncertain" responses were not included in the study. Statistical tests were not used to identify groups which were significantly different. Therefore, care should be taken when interpreting these findings.

Soil Erosion on Farms

Data in Table III indicate that 11.6 percent of the county leaders in Extension-related audiences perceived the level of severity of soil erosion on farms as a "critical" problem compared to 9.5 percent of the county leaders in non-Extension-related audiences. According to the chi square test, the leaders' audience classification (as Extension or non-Extension) and their perceptions of the level of severity of soil erosion on farms were not significant at the .05 probability level. County leaders from Extension-related audiences were no more or less likely to rate soil erosion on the farms as a critical problem than leaders from non-Extension-related audiences.

Findings presented in Table III indicate that 44.3 percent of the leaders in Extension-related audiences perceived soil erosion on

TABLE III. Relationships Between Selected Tennessee County Leaders' Audience Classification and Their Perceptions of the Severity and Program Priority of 14 Water Quality Issues

Water Quality Issue	Leaders' Audience Classification: Extension Related Audience Number*	Extension Related Audience Percent	Non-Extension Related Audience Number*	Non-Extension Related Audience Percent
Soil Erosion on Farms				
Level of Severity				
No Problem	37	3.3	45	3.1
Minor	466	40.8	664	45.3
Major	506	44.3	618	42.1
Critical	133	11.6	140	9.5
TOTAL	722	100.0	1,467	100.0
$X^2 = 6.41880$; $p = 0.092$				
Program Priority				
Low	134	12.4	183	12.9
Average	466	43.3	638	45.1
High	478	44.3	595	42.0
TOTAL	1,078	100.0	1,416	100.0
$X^2 = 1.34612$; $p = 0.510$				
Soil Erosion From Construction Sites				
Level of Severity				
No Problem	112	10.1	145	10.0
Minor	517	46.6	763	52.5
Major	361	32.5	443	30.5
Critical	120	10.8	101	7.0
TOTAL	1,110	100.0	1,452	100.0
$X^2 = 16.14647$; $p = 0.001$				
Program Priority				
Low	296	28.7	410	29.9
Average	411	39.8	648	47.2
High	325	31.5	315	22.9
TOTAL	1,032	100.0	1,373	100.0
$X^2 = 23.73126$; $p < 0.001$				
Soil Erosion From Road Banks, Parks, and Public Property				
Level of Severity				
No Problem	129	11.3	147	9.7
Minor	594	52.0	899	59.3
Major	238	28.7	391	25.7
Critical	92	8.0	80	5.3
TOTAL	1,053	100.0	1,517	100.0
$X^2 = 17,60171$; $p < 0.001$				
Program Priority				
Low	312	29.6	435	30.5
Average	476	45.2	701	49.2
High	265	25.2	289	20.3
TOTAL	1,053	100.0	1,425	100.0
$X^2 = 8.65460$; $p = 0.013$				
Misuse of Agricultural Chemicals				
Level of Severity				
No Problem	121	11.2	152	10.8
Minor	500	46.1	686	48.7
Major	329	30.3	430	30.5
Critical	135	12.4	142	10.0
TOTAL	1,005	100.0	1,410	100.0
$X^2 = 4.04131$; $p = 0.257$				

TABLE III (Continued)

Water Quality Issue	Leaders' Audience Classification: Extension Related Audience Number*	Extension Related Audience Percent	Non-Extension Related Audience Number*	Non-Extension Related Audience Percent
Program Priority				
Low	244	23.4	356	26.5
Average	413	39.6	526	39.3
High	386	37.0	459	34.2
TOTAL	1,043	100.0	1,342	100.0
$X^2 = 3.61076$; $p = 0.164$				
Misuse of Household Chemicals				
Level of Severity				
No Problem	212	19.7	249	17.9
Minor	574	53.2	804	57.9
Major	218	20.2	271	19.5
Critical	74	6.9	65	4.7
TOTAL	1,078	100.0	1,389	100.0
$X^2 = 8.6173$; $p = 0.035$				
Program Priority				
Low	364	36.2	496	37.8
Average	434	43.2	568	43.4
High	207	20.6	247	18.8
TOTAL	1,003	100.0	1,311	100.0
$X^2 = 1.29746$; $p = 0.523$				
Misuse of Chemicals by Local Businesses				
Level of Severity				
No Problem	122	12.4	157	11.9
Minor	420	42.8	637	48.1
Major	291	29.6	397	30.0
Critical	149	15.2	132	10.0
TOTAL	982	100.0	1,323	100.0
$X^2 = 16.20764$; $p = 0.001$				
Program Priority				
Low	242	25.8	338	26.4
Average	356	38.0	532	41.6
High	339	36.2	409	32.0
TOTAL	937	100.0	1,279	100.0
$X^2 = 6.01595$; $p = 0.112$				
Improper Disposal of Leftover Chemicals, Empty Containers, Used Motor Oil, etc.				
Level of Severity				
No Problem	81	7.1	102	6.8
Minor	350	30.7	534	35.9
Major	441	38.7	628	42.2
Critical	268	23.5	224	15.0
TOTAL	1,140	100.0	1,488	100.0
$X^2 = 31.83125$; $p < 0.001$				
Program Priority				
Low	183	17.2	293	20.8
Average	348	32.6	464	32.9
High	536	50.2	655	46.3
TOTAL	1,067	100.0	1,412	100.0
$X^2 = 5.98422$; $p = 0.050$				

TABLE III (Continued)

Water Quality Issue	Leaders' Audience Classification: Extension Related Audience Number*	Extension Related Audience Percent	Non-Extension Related Audience Number*	Non-Extension Related Audience Percent
Farm Livestock Wastes Contaminating Water				
Level of Severity				
No Problem	197	18.0	341	24.1
Minor	592	54.0	839	59.4
Major	243	22.1	198	14.0
Critical	65	5.9	35	2.5
TOTAL	1,097	100.0	1,413	100.0
$X^2 = 55.87070$; $p < 0.001$				
Program Priority				
Low	393	39.0	625	47.7
Average	407	40.4	527	40.3
High	208	20.6	157	12.0
TOTAL	1,008	100.0	1,309	100.0
$X^2 = 36.93650$; $p < 0.001$				
Farmer's Lack of Knowledge and Use of Best Management Practices				
Level of Severity				
No Problem	104	9.4	169	11.8
Minor	502	45.0	718	50.2
Major	424	38.0	482	33.7
Critical	85	7.6	62	4.3
TOTAL	1,115	100.0	891	100.0
$X^2 = 22.15101$; $p < 0.001$				
Program Priority				
Low	245	23.6	364	27.1
Average	484	46.5	645	48.0
High	311	29.9	335	24.9
TOTAL	1,042	100.0	1,344	100.0
$X^2 = 9.47645$; $p = 0.014$				
Lack of Citizen Awareness of the Nature and Importance of Water Resources				
Level of Severity				
No Problem	34	2.8	63	3.9
Minor	272	22.2	362	22.1
Major	605	49.4	880	53.8
Critical	314	25.6	331	20.2
TOTAL	1,225	100.0	1,636	100.0
$X^2 = 14.06774$; $p = 0.002$				
Program Priority				
Low	116	10.2	178	11.7
Average	412	36.9	577	38.1
High	604	52.9	760	50.2
TOTAL	1,141	100.0	1,515	100.0
$X^2 = 2.69042$; $p = 0.261$				
Lack of Knowledge and Use of Water Conservation Methods				
Level of Severity				
No Problem	61	5.0	103	6.4
Minor	364	29.9	484	30.0
Major	571	47.0	793	49.2
Critical	220	18.1	231	14.4
TOTAL	1,216	100.0	1,611	100.0
$X^2 = 9.12456$; $p = 0.027$				

TABLE III (Continued)

Water Quality Issue	Leaders' Audience Classification: Extension Related Audience Number*	Extension Related Audience Percent	Non-Extension Related Audience Number*	Non-Extension Related Audience Percent
Program Priority				
Low	155	13.9	249	16.7
Average	470	42.3	632	42.4
High	487	43.8	610	40.9
TOTAL	1,112	100.0	1,491	100.0
$X^2 = 4.38756$; $p = 0.111$				
Inadequate Supplies of Safe Water				
Level of Severity				
No Problem	211	18.2	294	19.2
Minor	400	34.5	604	39.5
Major	359	30.9	438	28.6
Critical	190	16.4	194	12.7
TOTAL	1,160	100.0	1,530	100.0
$X^2 = 12.30471$; $p = 0.006$				
Program Priority				
Low	272	25.6	399	28.2
Average	398	37.4	537	38.0
High	394	37.0	478	33.8
TOTAL	1,064	100.0	1,414	100.0
$X^2 = 3.42648$; $p = 0.180$				
Lack of Information About Water Testing				
Level of Severity				
No Problem	115	10.2	155	10.8
Minor	388	34.4	596	41.4
Major	443	39.2	535	37.2
Critical	183	16.2	152	10.6
TOTAL	1,129	100.0	1,438	100.0
$X^2 = 24.57701$; $p < 0.001$				
Program Priority				
Low	239	23.1	356	26.4
Average	426	41.2	582	43.1
High	369	35.7	411	30.5
TOTAL	1,034	100.0	1,349	100.0
$X^2 = 7.91066$; $p = 0.019$				
Understanding Effects of Current Practices on Future Supplies of Safe Water				
Level of Severity				
No Problem	44	3.7	50	3.2
Minor	249	21.2	341	22.1
Major	527	44.8	772	50.0
Critical	356	30.3	381	24.7
TOTAL	1,185	100.0	1,544	100.0
$X^2 = 12.22087$; $p = 0.006$				
Program Priority				
Low	105	9.5	145	9.9
Average	353	32.0	497	33.9
High	644	58.5	823	56.2
TOTAL	1,102	100.0	1,465	100.0
$X^2 = 1.33120$; $p = 0.514$				

*Totals may vary due to non-responses or "uncertain" responses. These responses were not used in the study.

farms as a "high" program priority compared to 42 percent of the leaders in non-Extension-related audiences. The chi square test results revealed that the leaders' audience classification and their perceptions of soil erosion on farms as a program priority were not significantly related at the .05 probability level. County leaders from Extension-related audience were no more or less likely to rate soil erosion on farms as a high program priority than county leaders from non-Extension-related audiences.

Soil Erosion From Construction Sites

Findings in Table III show that 10.8 percent of county leaders in Extension-related audiences perceived the level of severity of soil erosion from construction sites as a "critical" problem while only 7 percent of non-Extension-related audiences rated soil erosion from construction sites as "critical". The chi square test indicated that the leaders' audience classification and their perceptions of the level of severity of soil erosion from construction sites were significantly related at the .05 probability level. Leaders from Extension-related audiences tended to rate the level of severity of soil erosion from construction sites as a more critical problem than leaders from non-Extension-related audiences.

Data in Table III indicate that 31.5 percent of the leaders from Extension-related audiences perceived soil erosion from construction sites as a "high" Extension program priority compared to 22.9 percent of non-Extension related leaders. According to the chi square test, the leaders' audience classification was significantly related to their

perception of soil erosion from construction sites as a program priority. Leaders from Extension-related audience were more likely than those from non-Extension-related audiences to rate soil erosion from construction sites as a "high" program priority.

Soil Erosion From Road Banks, Parks and Public Property

Data in Table III indicate that 36.7 percent of Extension-related county leaders perceived the level of severity of soil erosion from road banks, parks and public property to be either a "major" or "critical" problem compared to 31 percent of non-Extension-related county leaders. The chi square test indicated that the leaders' audience classification and their perceptions of soil erosion from road banks, parks and public property were significantly related at the .05 probability level. Leaders from Extension-related audiences tended to rate the level of severity of soil erosion from road banks, parks and public property as a more severe problem than leaders in non-Extension-related audiences.

Data presented in Table III show that 25.2 percent of county leaders from Extension-related audiences perceived soil erosion from road banks, parks and public property as a "high" Extension program priority compared to 20.3 percent of county leaders in non-Extension-related audiences. The chi square test indicated that the leaders' audience classification and their perceptions of soil erosion from road banks, parks and public property were significantly related at the .05 probability level. County leaders from Extension-related audiences tended to perceive soil erosion from road banks, parks and

public property to be a higher Extension program priority than county leaders from non-Extension-related audiences.

Misuse of Agricultural Chemicals

Data in Table III indicate that 42.7 percent of county leaders from Extension-related audiences perceived the level of severity of misuse of agricultural chemicals to be either a "major" or "critical" problem compared to 40.5 percent of county leaders from non-Extension-related audiences. The chi square test indicated that the leaders' audience classification and their perceptions of the severity of misuse of agriculture chemicals were not significantly related at the .05 probability level. County leaders from Extension-related audiences were no more or less likely to rate misuse of agriculture chemicals as a "major" or "critical" problem than those from non-Extension-related audiences.

Findings in Table III indicate that 37 percent of county leaders from Extension-related audiences perceived misuse of agricultural chemicals as a "high" program priority compared to 34.2 percent of county leaders from non-Extension-related audiences. The chi square test showed that the leaders' audience classification and their perception of the misuse of agricultural chemicals as a program priority was not significantly related at the .05 probability level. County leaders from Extension-related audiences were no more or less likely to rate misuse of agricultural chemicals as a high program priority than those from non-Extension-related audiences.

Misuse of Household Chemicals

Table III data indicate that 27.1 percent of county leaders in Extension-related audiences perceived the level of severity of misuse of household chemicals as either a "major" or "critical" problem compared to 24.2 percent of county leaders in non-Extension-related audiences. According to the chi square test the county leaders' audience classification and their perceptions of the level of severity of misuse of household chemicals were significantly related. County leaders in Extension related audiences tended to rate the misuse of household chemicals as a more severe problem than county leaders in non-Extension-related audiences.

Findings show that 20.6 percent of county leaders in Extension-related audiences perceived misuse of household chemicals as a "high" program priority compared to 18.8 percent of county leaders in non-Extension-related audiences. According to the chi square test, the leaders' audience classification and their perceptions of misuse of household chemicals as a program priority were not significantly related at the .05 probability level. County leaders from Extension-related audiences were no more or less likely to rate misuse of household chemicals as a high program priority than those from non-Extension-related audiences.

Misuse of Chemicals by Local Businesses

Data in Table III showed that 44.8 percent of county leaders in Extension-related audiences perceived the level of severity of misuse of chemicals by local businesses as either "major" or "critical"

compared to 40 percent of county leaders in non-Extension-related audiences. According to the chi square test the county leaders' audience classification and their perceptions of misuse of chemicals by local businesses was significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive misuse of chemicals by local businesses as a more severe problem than county leaders in non-Extension-related audiences.

Findings indicate that 36.2 percent of county leaders in Extension-related audiences perceived misuse of chemicals by local businesses as a "high" program priority compared to 32.0 percent of county leaders in non-Extension-related audiences. According to the chi square test the county leaders' audience classification and their perception of misuse of chemicals by local businesses as a program priority were not significant at the .05 probability level. County leaders in Extension-related audiences were no more or less likely to perceive misuse of chemicals by local businesses as a higher program priority than did county leaders in non-Extension-related audiences.

Improper Disposal of Leftover Chemicals, Empty Containers, Used Motor Oil, etc.

Data in Table III indicate that 23.5 percent of county leaders in Extension-related audiences perceived the level of severity of improper disposal of leftover chemicals, empty containers, used motor oil, etc. to be "critical" compared to 15.0 percent of county leaders in non-Extension-related audiences. According to the chi square test the county leaders' audience classification and their perceptions of the

level of severity of improper disposal of leftover chemicals, empty containers, used motor oil, etc. were significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive improper disposal of chemicals, empty containers, used motor oil, etc. as a more critical problem than county leaders in non-Extension-related audiences.

Findings indicate that 50.2 percent of county leaders in Extension-related audiences perceived improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a "high" program priority compared to 46.3 percent of county leaders in non-Extension-related audiences. According to the chi square test, the leaders' audience classification and their perception of improper disposal of leftover chemicals, empty containers, used motor oil, etc. were not significant at the .05 probability level. County leaders in Extension-related audiences were no more or less likely to perceive improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a higher program priority than county leaders in non-Extension-related audiences.

Farm Livestock Wastes Contaminating Water

Data in Table III indicate that 28.0 percent of county leaders in Extension-related audiences perceived the level of severity of livestock wastes contaminating water as either a "major" or "critical" problem compared to 16.5 percent of county leaders in non-Extension-related audiences. According to the chi square test the leaders'

audience classification and their perceptions of the level of severity of livestock waste contaminating water were significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive farm livestock wastes contaminating water as a more severe problem than county leaders in non-Extension-related audiences.

Data show that 20.6 percent of county leaders classified as Extension-related perceived livestock wastes contaminating water as a "high" program priority compared to 12.0 percent of county leaders in non-Extension-related audiences. According to the chi square test the leaders' audience classification and their perceptions of livestock wastes contaminating water as a program priority were significantly related at the .05 probability level. County leaders from Extension-related audiences tended to perceive livestock wastes contaminating water as a higher program priority than county leaders in non-Extension-related audiences.

Farmers' Lack of Knowledge and Use of Best Management Practices

Findings in Table III indicate that 45.6 percent of county leaders in Extension-related audiences perceived the level of severity of the farmers' lack of knowledge and use of best management practices as either "major" or "critical" compared to 38.0 percent of county leaders in non-Extension-related audiences. The chi square test indicate that the county leaders' audience classification and their perceptions of the farmers' lack of knowledge and use of the best management practices were significantly related at the .05 probability level. County leaders

from Extension-related audiences tended to perceive the farmers' knowledge and use of best management practices as a more severe problem than county leaders in non-Extension-related audiences.

Data show that 29.9 percent of county leaders in Extension-related audiences perceived the farmers' lack of knowledge and use of best management practices as a "high" program priority compared to 24.9 percent of county leaders in non-Extension-related audiences. The chi square test indicate that the county leaders' audience classification and their perceptions of the farmers' lack of knowledge and use of best management practices were significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive the farmers' lack of knowledge and use of best management practices as a higher program priority than county leaders in non-Extension-related audiences.

Lack of Citizen Awareness of the Nature and Importance of Water Resources

Data in Table III indicate that 75.0 percent of county leaders in Extension-related audiences perceived the level of severity of lack of citizen awareness of the nature and importance of water resources as either "major" or "critical" compared to 74.0 percent of county leaders in non-Extension-related audiences. According to the chi square test the leaders' audience classification and their perception of the lack of citizen awareness of the nature and importance of water resources were significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive the

lack of citizen awareness of the nature and importance of water resources as a more severe problem than county leaders in non-Extension-related audiences.

Data revealed that 52.9 percent of county leaders in Extension-related audiences perceived the citizens awareness of the nature and importance of water resources as a "high" program priority compared to 40.9 percent of county leaders in non-Extension-related audiences. The chi square test indicates that the county leaders' audience classification and their perceptions of the lack of citizens awareness of the nature and importance of water resources were not significantly related at the .05 probability level. County leaders from Extension-related audiences were no more or less likely to rate lack of citizens awareness of the nature and importance of water resources as a "high" program priority than county leaders from non-Extension-related audiences.

Lack of Knowledge and Use of Water Conservation Methods

Data in Table III indicate that 65.1 percent of county leaders in Extension-related audiences perceived the level of severity of lack of knowledge and use of water conservation methods as either "major" or "critical" compared to 63.6 percent of county leaders in non-Extension-related audiences. According to the chi square test, the leaders' audience classification and their perception of the lack of knowledge and use of water conservation methods were significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive the lack of knowledge and use

of water conservation methods as a more severe problem than county leaders in non-Extension-related audiences.

Data show that 43.8 percent of county leaders in Extension-related audiences perceived the lack of knowledge and use of conservation methods as a "high" program priority compared to 40.9 percent of county leaders in non-Extension-related audiences. The chi square test indicated that the county leaders' audience classification and their perceptions of the lack of knowledge and use of water conservation methods were not significant at the .05 probability level. County leaders from Extension-related audiences were no more or less likely to rate the lack of knowledge and use of water conservation methods as a "high" program priority than county leaders from non-Extension-related audiences.

Inadequate Supplies of Safe Water

Findings in Table III show that 47.3 percent of the county leaders in Extension-related audiences perceived the level of severity of inadequate supplies of safe water to be either a "major" or "critical" problem compared to 41.3 percent of county leaders in non-Extension-related audiences. The chi square test indicated that the county leaders' audience classification and their perceptions of the level of severity of inadequate supplies of safe water were significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive inadequate supplies of safe water as a more severe problem than county leaders in non-Extension-related audiences.

Findings revealed that 37.0 percent of the county leaders in Extension-related audiences perceived inadequate supplies of safe water as a "high" program priority compared to 33.8 percent of county leaders in non-Extension-related audiences. When tested by chi square test the county leaders' audience classification and their perceptions of inadequate supplies of safe water as a program priority were not significantly related at the .05 probability level. County leaders from Extension-related audience were no more or less likely to perceive inadequate supplies of safe water as a high program priority than county leaders in non-Extension-related audiences.

Lack of Information About Water Testing

Data in Table III indicate that 55.4 percent of county leaders in Extension-related audiences perceived the level of severity of lack of information about water testing as either "major" or "critical" compared to 47.8 percent of county leaders in non-Extension-related audiences. According to the chi square test the county leaders' audience classification and their perceptions of the level of severity of the lack of information about water testing were significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive the lack of information about water testing as a more severe problem than county leaders from non-Extension-related audiences.

Table III data show that 35.7 percent of county leaders in Extension-related audiences perceived lack of information about water testing

as a "high" program priority compared to 30.5 percent of county leaders in non-Extension-related audiences. The chi square test indicated that the county leaders' audience classification and their perceptions of lack of information about water testing were significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive the lack of information about water testing was a higher program priority than county leaders in non-Extension-related audiences.

Understanding Effects of Current Practices on Future Supplies of Safe Water

Data in Table III indicate that 30.3 percent of county leaders in Extension-related audiences perceived the level of severity of understanding effects of current practices on future supplies of safe water as a "critical" problem compared to 24.7 percent of county leaders in non-Extension-related audiences. According to the chi square test the county leaders' audience classification and their perceptions of the level of severity of understanding effects of current practices on future supplies of safe water were significantly related at the .05 probability level. County leaders in Extension-related audiences tended to perceive understanding effects of current practices on future supplies of safe water as a more severe problem than county leaders in non-Extension-related audiences.

Data in Table III show that 58.5 percent of county leaders in Extension-related audiences perceived understanding effects of current practices on future supplies of safe water as a "high" program priority

compared to 56.2 percent of county leaders in non-Extension-related audiences. According to the chi square test the county leaders' audience classification and their perceptions of understanding effects of current practices on future water supplies as a program priority were not significantly related at the .05 probability level. County leaders in Extension-related audiences were no more or less likely than leaders in non-Extension-related audiences to rate understanding effects of current practices on future supplies of safe water as a high program priority.

Table Summary

Table III data presents findings regarding relationships between the leaders' audience classification and their perceptions of the level of severity and program priority of 14 water quality issues. County leaders' audience classification were identified as Extension-related and non-Extension-related. Specific definitions of these audience classifications may be found in Chapter I. Data in this table indicate that the county leaders' audience classification was significantly related to their perceptions of the level of severity of 12 of the 14 water quality issues. Since no statistical test was used to identify groups which were significantly different, care should be taken in analyzing these findings.

Extension-related county leaders rated the issues of soil erosion from construction sites, soil erosion from road banks, parks, and public property, misuse of household chemicals, misuse of chemicals

by local businesses, improper disposal of leftover chemicals, empty containers, used motor oil, etc., farm livestock wastes contaminating water, farmers' lack of knowledge and use of best management practices, lack of citizen awareness of the nature and importance of water resources, lack of knowledge and use of water conservation methods, inadequate supplies of safe water, lack of information about water testing, and understanding effects of current practices on future supplies of safe water as more severe problems than county leaders from non-Extension-related audiences.

Data in Table III indicate that the county leaders' audience classification was also significantly related to their perceptions of the program priority of 5 of the 14 water quality issues.

County leaders classified as Extension-related rated the issues of soil erosion from construction sites, soil erosion from road banks, parks, and public property, farm livestock wastes contaminating water, farmers' lack of knowledge and use of best management practices, and lack of information about water testing to be of higher program priority than county leaders classified as non-Extension related.

IV. RELATIONSHIPS BETWEEN SELECTED TENNESSEE COUNTY LEADERS' PLACE OF RESIDENCE AND THEIR PERCEPTIONS OF THE SEVERITY AND PROGRAM PRIORITY OF 14 WATER QUALITY ISSUES

Section IV presents findings regarding the relationships between selected Tennessee county leaders' place of residence and their perceptions of the level of severity and program priority of 14 water

quality issues. County leaders were classified as either rural or urban (see definitions, Chapter I). Each of the 14 water quality issues was divided into two categories: (1) the level of severity, and (2) program priority for Extension work. The number and percent of leaders responding to each issue is presented in Table IV.

The chi square test was used to determine the strength of relationship between selected independent (county leaders' place of residence) and the dependent (county leaders' perceptions) variables. Table totals vary due to non-responses and/or the "uncertain" responses indicated by the respondents. Missing and "uncertain" responses were not included in the study.

Soil Erosion on Farms

Data in Table IV indicate that 55.2 percent of rural county leaders perceived the level of severity of soil erosion on farms as either "major" or "critical" compared to 47.1 percent of urban county leaders. The chi square test indicated that county leaders' place of residence and their perceptions of the level of severity of soil erosion on farms were significantly related at the .05 probability level. County leaders living in rural regions tended to perceive the soil erosion on farms as a more severe problem than did county leaders in urban regions.

Table IV data indicate that 44.1 percent of rural county leaders perceived soil erosion on farms as a "high" program priority compared to 36.4 percent of urban county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of

TABLE IV. Relationships Between Selected Tennessee County Leaders' Place of Residence and Their Perceptions of the Severity and Program Priority of 14 Water Quality Issues

Water Quality Issue	Leaders' Place of Residence			
	Rural		Urban	
	Number*	Percent	Number*	Percent
Soil Erosion on Farms				
Level of Severity				
No Problem	65	3.0	23	3.8
Minor	897	41.8	299	49.1
Major	949	44.2	240	39.4
Critical	237	11.0	47	7.7
TOTAL	2,148	100.0	609	100.0
$X^2 = 14.29535$; $p = 0.002$				
Program Priority				
Low	248	12.1	93	16.0
Average	897	43.8	277	47.6
High	903	44.1	212	36.4
TOTAL	2,048	100.0	582	100.0
$X^2 = 12.97951$; $p = 0.001$				
Soil Erosion From Construction Sites				
Level of Severity				
No Problem	239	11.4	36	5.8
Minor	1,072	51.3	280	44.9
Major	608	29.1	239	38.0
Critical	170	8.2	70	11.3
TOTAL	2,089	100.0	623	100.0
$X^2 = 36.58878$; $p < 0.001$				
Program Priority				
Low	617	31.6	126	21.5
Average	874	44.7	255	43.5
High	463	23.7	205	35.0
TOTAL	1,954	100.0	586	100.0
$X^2 = 37.63223$; $p < 0.001$				
Soil Erosion From Road Banks, Parks, and Public Property				
Level of Severity				
No Problem	224	10.3	68	10.6
Minor	1,222	56.3	367	57.3
Major	577	26.6	174	27.3
Critical	147	6.8	31	4.8
TOTAL	2,170	100.0	640	100.0
$X^2 = 3.10994$; $p = 0.375$				
Program Priority				
Low	612	30.4	174	29.0
Av Average	956	47.5	295	49.3
High	446	22.1	130	21.7
TOTAL	2,014	100.0	599	100.0
$X^2 = 0.62198$; $p = 0.7327$				
Misuse of Agricultural Chemicals				
Level of Severity				
No Problem	213	10.4	78	13.3
Minor	985	48.0	271	46.0
Major	632	30.8	172	29.2
Critical	222	10.8	68	11.5
TOTAL	2,052	100.0	589	100.0
$X^2 = 4.38869$; $p = 0.222$				

TABLE IV (Continued)

Water Quality Issue	Leaders' Place of Residence: Rural Number*	Rural Percent	Urban Number*	Urban Percent
Program Priority				
Low	509	26.1	124	21.8
Average	770	39.5	225	39.6
High	672	34.4	219	38.6
TOTAL	1,951	100.0	568	100.0
$X^2 = 5.28015$; $p = 0.071$				
Misuse of Household Chemicals				
Level of Severity				
No Problem	390	19.3	95	16.0
Minor	1,128	55.6	331	55.9
Major	411	20.3	119	20.2
Critical	98	4.8	47	7.9
TOTAL	2,027	100.0	592	100.0
$X^2 = 10.51096$; $p = 0.014$				
Program Priority				
Low	723	38.1	177	31.6
Average	807	42.6	256	45.7
High	365	19.3	127	22.7
TOTAL	1,895	100.0	560	100.0
$X^2 = 8.54835$; $p = 0.013$				
Misuse of Chemicals by Local Businesses				
Level of Severity				
No Problem	235	12.6	65	11.2
Minor	889	47.6	229	39.3
Major	533	28.5	203	34.9
Critical	210	11.3	85	14.6
TOTAL	1,867	100.0	582	100.0
$X^2 = 17.44358$; $p < 0.00$				
Program Priority				
Low	496	27.7	114	20.6
Average	741	41.3	204	36.5
High	556	31.0	240	42.9
TOTAL	1,292	100.0	558	100.0
$X^2 = 32.20880$; $p < 0.001$				
Improper Disposal of Leftover Chemicals, Empty Containers, Used Motor Oil, etc.				
Level of Severity				
No Problem	172	8.1	33	5.2
Minor	765	35.8	162	25.4
Major	827	38.7	298	46.6
Critical	372	17.4	146	22.8
TOTAL	1,764	100.0	639	100.0
$X^2 = 37.05386$; $p < 0.001$				
Program Priority				
Low	423	21.0	84	14.0
Average	684	33.9	176	29.3
High	909	45.1	340	56.7
TOTAL	2,016	100.0	600	100.0
$X^2 = 27.58165$; $p < 0.001$				

TABLE IV (Continued)

Water Quality Issue	Leaders' Place of Residence: Rural Number*	Rural Percent	Urban Number*	Urban Percent
Farm Livestock Wastes Contaminating Water				
Level of Severity				
No Problem	444	21.6	131	22.0
Minor	1,196	57.9	310	52.3
Major	350	16.9	125	21.1
Critical	75	3.6	27	4.6
TOTAL	2,056	100.0	593	100.0
$X^2 = 8.07772$; $p = 0.0444$				
Program Priority				
Low	851	44.6	216	39.7
Average	774	40.5	231	42.5
High	285	14.9	97	17.8
TOTAL	1,910	100.0	544	100.0
$X^2 = 4.98113$; $p = 0.082$				
Farmers' Lack of Knowledge and Use of Best Management Practices				
Level of Severity				
No Problem	217	10.4	75	12.3
Minor	983	47.1	306	50.3
Major	767	36.8	189	31.0
Critical	120	5.7	39	6.4
TOTAL	2,087	100.0	609	100.0
$X^2 = 7.26293$; $p = 0.064$				
Program Priority				
Low	484	24.8	163	28.5
Average	924	47.3	267	46.8
High	546	27.9	141	24.7
TOTAL	1,954	100.0	571	100.0
$X^2 = 4.20032$; $p = 0.122$				
Lack of Citizen Awareness of the Nature and Importance of Water Resources				
Level of Severity				
No Problem	88	3.8	16	2.3
Minor	524	22.5	146	20.8
Major	1,206	51.9	372	52.9
Critical	506	21.8	168	24.0
TOTAL	2,324	100.0	703	100.0
$X^2 = 5.70896$; $p = 0.126$				
Program Priority				
Low	249	11.5	59	9.1
Average	836	38.7	224	34.6
High	1,073	49.8	364	56.3
TOTAL	2,158	100.0	647	100.0
$X^2 = 9.04049$; $p = 0.010$				
Lack of Knowledge and Use of Water Conservation Methods				
Level of Severity				
No Problem	135	5.9	40	5.7
Minor	699	30.6	191	27.3
Major	1,095	47.9	344	49.3
Critical	359	15.6	124	17.7
TOTAL	2,286	100.0	699	100.0
$X^2 = 3.61857$; $p = 0.306$				

TABLE IV (Continued)

Water Quality Issue	Leaders' Place of Residence: Rural Number*	Rural Percent	Urban Number*	Urban Percent
Program Priority				
Low	323	15.4	100	15.7
Average	904	42.9	255	39.9
High	878	41.7	284	44.4
TOTAL	2,105	100.0	409	100.0
$X^2 = 1.96700$; $p = 0.374$				
Inadequate Supplies of Safe Water				
Level of Severity				
No Problem	418	19.1	105	16.0
Minor	836	38.3	219	33.4
Major	634	29.0	223	34.0
Critical	297	13.6	109	16.6
TOTAL	2,185	100.0	656	100.0
$X^2 = 13.27756$; $p = 0.004$				
Program Priority				
Low	563	27.9	136	22.5
Average	772	38.3	229	37.9
High	682	33.8	239	39.6
TOTAL	1,317	100.0	604	100.0
$X^2 = 9.47483$; $p = 0.009$				
Lack of Information About Water Testing				
Level of Severity				
No Problem	224	10.7	57	9.1
Minor	799	38.0	236	37.9
Major	811	38.6	243	39.0
Critical	267	12.7	87	14.0
TOTAL	2,101	100.0	623	100.0
$X^2 = 1.67212$; $p = 0.643$				
Program Priority				
Low	486	24.8	142	25.0
Average	846	43.2	232	40.8
High	626	32.0	194	32.2
TOTAL	1,958	100.0	568	100.0
$X^2 = 1.22801$; $p = 0.541$				
Understanding Effects of Current Practices On Future Supplies of Water				
Level of Severity				
No Problem	80	3.6	19	2.8
Minor	489	22.2	132	19.6
Major	1,071	48.5	311	46.0
Critical	566	25.7	213	31.6
TOTAL	2,206	100.0	675	100.0
$X^2 = 9.93603$; $p = 0.019$				
Program Priority				
Low	222	10.7	45	7.2
Average	711	34.1	187	29.8
High	1,150	55.2	386	63.0
TOTAL	2,083	100.0	628	100.0
$X^2 = 13.95132$; $p < 0.001$				

*Totals vary due to non-responses or "uncertain" responses. These responses were not used in the study.

soil erosion on farms as a program priority were significantly related at the .05 probability level. Rural county leaders tended to perceive soil erosion on farms as a higher program priority than did urban county leaders.

Soil Erosion From Construction Sites

Table IV data indicate that 49.3 percent of urban county leaders perceived the level of severity of soil erosion from construction sites as either "major" or "critical" compared to 37.3 percent of rural county leaders. According to the chi square test the county leaders' place of residence and their perceptions of the level of severity of soil erosion from construction sites were significantly related at the .05 probability level. Urban county leaders tended to perceive soil erosion from construction sites as a more severe problem than rural county leaders.

Findings presented in Table IV show that 35.0 percent of urban county leaders perceived soil erosion from construction sites as a "high" program priority compared to 23.7 percent of rural county leaders. When tested by the chi square test the county leaders' place of residence and their perceptions of soil erosion from construction sites as a program priority were significantly related at the .05 probability level. Urban county leaders tended to perceive soil erosion from construction sites as a higher program priority than did rural county leaders.

Soil Erosion From Road Banks, Parks and Public Property

Table IV data indicate that 33.4 percent rural county leaders perceived the level of severity of soil erosion from road banks, parks, and public property as either a "major" or "critical" problem compared to 32.1 percent of urban county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of the level of severity of soil erosion from road banks, parks, and public property were not significantly related at the .05 probability level. Urban county leaders were no more or less likely to rate the level of severity of soil erosion from road banks, parks, and public property as either "major" or "critical" problems than county leaders from rural areas.

Data show that 22.1 percent of rural county leaders perceived soil erosion from road banks, parks, and public property as a "high" program priority compared to 21.7 percent of urban county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of soil erosion from road banks, parks, and public property were not significantly related at the .05 probability level. Rural county leaders were no more or less likely to rate soil erosion from road banks, parks, and public property as a "high" program priority than did county leaders from urban areas.

Misuse of Agricultural Chemicals

Findings in Table IV indicate that 41.6 percent of rural county leaders perceived the level of severity of misuse of agricultural

chemicals as either "major" or "critical" compared to 40.7 percent of urban county leaders. According to the chi square test county leaders' place of residence and their perceptions of the level of severity of misuse of agricultural chemicals were not significantly related at the .05 probability level. Rural county leaders were no more or less likely to rate the level of severity of misuse of agricultural chemicals as either "major" or "critical" problems than urban county leaders.

Additionally, findings show that 34.4 percent of rural county leaders perceived misuse of agricultural chemicals as a "high" program priority compared to 38.6 percent of urban county leaders. According to the chi square test the county leaders' place of residence and their perceptions of misuse of agricultural chemicals as a program priority were not significantly related at the .05 probability level. Rural county leaders were no more or less likely to rate misuse of agriculture chemicals as a "high" program priority than urban county leaders.

Misuse of Household Chemicals

Table IV findings reveal that 28.1 percent of urban leaders perceived the level of severity of misuse of household chemicals as either a "major" or "critical" problem compared to 25.1 percent of rural county leaders. According to the chi square test county leaders' place of residence and their perceptions of misuse of household chemicals were significantly related at the .05 probability level. Urban county leaders tended to perceive misuse of household chemicals as a more severe problem than did rural county leaders.

Data in Table IV show that 22.7 percent of urban county leaders rated misuse of household chemicals as a "high" program priority compared to 19.3 percent of rural county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of misuse of household chemicals were significantly related at the .05 probability level. Urban leaders tended to rate misuse of household chemicals as a higher program priority than did rural county leaders.

Misuse of Chemicals by Local Businesses

Data in Table IV indicate that 49.5 percent of urban county leaders perceived the level of severity of misuse of chemicals by local businesses as either "major" or "critical" compared to 39.8 percent of rural county leaders. According to the chi square test the county leaders' place of residence and their perceptions of the level of severity of misuse of chemicals by local businesses were significantly related at the .05 probability level. Urban county leaders tended to perceive misuse of chemicals by local businesses as a more severe problem than rural county leaders.

Table IV data indicate that 42.9 percent of urban county leaders perceived misuse of chemicals by local businesses to be a "high" program priority compared to 31 percent of rural county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of the misuse of chemicals by local businesses as a program priority were significantly related at the .05 probability level. Urban county leaders tended to perceive misuse of chemicals by local businesses as a higher program priority than did rural county leaders.

Improper Disposal of Leftover Chemicals, Empty Containers, Used Motor Oil, etc.

Findings in Table IV indicate that 69.4 percent of urban county leaders perceived the severity of improper disposal of leftover chemicals, empty containers, used motor oil, etc. as either "major" or "critical" compared to 56.1 percent of rural county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of improper disposal of leftover chemicals, empty containers, used motor oil, etc. were significantly related at the .05 probability level. Urban county leaders tended to perceive the improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a more severe problem than rural county leaders.

Data in Table IV indicate that 56.7 percent of urban county leaders perceived improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a "high" program priority compared to 45.1 percent of rural county leaders. According to the chi square test the county leaders' place of residence and their perceptions of improper disposal of leftover chemicals, empty containers, used motor oil, etc. were significantly related at the .05 probability level. Urban county leaders tended to perceive improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a higher program priority than did rural county leaders.

Farm Livestock Wastes Contaminating Water

Data presented in Table IV revealed that 25.7 percent of urban county leaders perceived the level of severity of farm livestock wastes

contaminating water as either a "major" or "critical" problem compared to 20.5 percent of rural county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of the level of severity of farm livestock wastes contaminating water were significantly related at the .05 probability level. Urban county leaders tended to perceive farm livestock wastes contaminating water as a more severe problem than did rural county leaders.

Findings in Table IV indicate that 17.8 percent of urban county leaders perceived the farm livestock wastes contaminating water as a "high" program priority compared to 14.9 percent of county leaders in rural counties. According to the chi square test the county leaders' place of residence and their perceptions of farm livestock wastes contaminating water as a program priority were not significantly related. Urban county leaders were no more or less likely to rate farm livestock wastes contaminating water as a high program priority than rural county leaders.

Farmers' Lack of Knowledge and Use of Best Management Practices

Data in Table IV indicate that 42.5 percent of rural county leaders perceived the level of severity of the farmers' lack of knowledge and use of best management practices as either "major" or "critical" compared to 37.4 percent of urban county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of the level of severity of the farmers' lack of knowledge and use of best management practices were not significantly related

at the .05 probability level. Rural county leaders were no more or less likely to rate the level of severity of the issue farmers' lack of knowledge and use of best management practices as either "major" or "critical" than urban county leaders.

Data presented in Table IV indicate that 27.9 percent or rural county leaders perceived the farmers' lack of knowledge and use of best management practices as a "high" program priority compared to 24.7 percent of urban county leaders. According to the chi square test the county leaders' place of residence and their perceptions of the farmers' lack of knowledge and use of best management practices as a program priority were not significantly related at the .05 probability level. Rural county leaders were no more or less likely to rate the farmers' lack of knowledge and use of best management practices as a "high" program priority than urban county leaders.

Lack of Citizen Awareness of the Nature and Importance of Water Resources

Data in Table IV show that 76.9 percent of urban county leaders perceived the level of severity of lack of citizen awareness of the nature and importance of water resources as either "major" or "critical" compared to 73.7 percent of rural county leaders. According to the chi square test the county leaders' place of residence and their perceptions of the level of severity of lack of citizen awareness of the nature and importance of water resources were not significantly related at the .05 probability level. County leaders from urban areas were no more or less likely to rate lack of citizen awareness of the

nature and importance of water resources as either a "major" or "critical" problem than county leaders from rural areas.

Data in Table IV indicate that 56.3 percent of urban leaders perceived the lack of citizen awareness of the nature and importance of water resources as a "high" program priority compared to 49.8 percent of rural county leaders. The chi square test indicated the county leaders' place of residence and their perceptions of lack of citizen awareness of the nature and importance of water resources as a program priority were significantly related at the .05 probability level. Urban county leaders tended to perceive the lack of citizen awareness of the nature and importance of water resources as a higher program priority than did rural county leaders.

Lack of Knowledge and Use of Water Conservation Methods

Findings in Table IV indicate that 67.0 percent of urban county leaders perceived the level of severity of lack of knowledge and use of water conservation methods as either "major" or "critical" problems compared to 63.5 percent of rural county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of the level of severity of lack of knowledge and use of water conservation methods were not significantly related at the .05 probability level. Urban county leaders were no more or less likely to rate lack of knowledge and use of water conservation methods as either a "major" or "critical" problem than rural county leaders.

Data in Table IV show that 44.4 percent of urban county leaders rated lack of knowledge and use of water conservation methods as a

"high" program priority compared to 41.7 percent of rural county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of the lack of knowledge and use of water conservation methods were not significantly related at the .05 probability level. County leaders from urban areas were no more or less likely to rate lack of knowledge and use of water conservation methods as a "high" program priority than rural county leaders.

Inadequate Supplies of Safe Water

Data in Table IV indicate that 50.6 percent of urban county leaders perceived the level of severity of inadequate supplies of safe water as either "major" or "critical" compared to 41.6 percent of rural county leaders. According to the chi square test the county leaders' place of residence and their perceptions of the severity of inadequate supplies of safe water were significantly related at the .05 probability level. Urban county leaders tended to perceive inadequate supplies of safe water as a more severe problem than rural county leaders.

Table IV data indicate that 39.6 percent of urban county leaders perceived inadequate supplies of safe water as a "high" program priority compared to 33.8 percent of rural county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of inadequate supplies of safe water were significantly related at the .05 probability level. Urban leaders tended to perceive inadequate supplies of safe water as a higher program priority than rural county leaders.

Lack of Information About Water Testing

Data in Table IV show that 53.0 percent of urban county leaders perceived the severity of lack of information about water testing as either a "major" or "critical" problem compared to 51.3 percent of rural county leaders. The chi square test indicated that the county leaders' place of residence and their perceptions of the severity of lack of information about water testing were not significantly related at the .05 probability level. Urban county leaders were no more or less likely to rate lack of information about water testing as a "high" program priority than rural county leaders.

Data show that 32.2 percent of the county leaders from urban areas perceived the program priority of lack of information about water testing to be a "high" program priority compared to 32.0 percent of leaders from rural areas. The chi square test indicated that the county leaders' place of residence and their perception of lack of information about water testing as a program priority were not significantly related at the .05 probability level. Urban county leaders were no more or less likely to rate lack of information about water testing "high" program priority than county leaders from rural areas.

Understanding Effects of Current Practices on Future Water Supplies

Table IV data indicate that 77.6 percent of urban leaders perceived the level of severity of understanding effects of current practices on future supplies of water as either "major" or "critical" compared to 74.2 percent of rural county leaders. The chi square test

indicated that the county leaders' place of residence and their perceptions of the level of severity of understanding effects of current practices on future supplies of water were significantly related at the .05 probability level. Urban county leaders tended to perceive understanding effects of current practices on future supplies of water as a more severe problem than rural county leaders.

Data in Table IV indicate that 63.0 percent of urban county leaders perceived understanding effects of current practices on future supplies of water as a "high" program priority compared to 55.2 percent of rural county leaders. The chi square test indicated that the leaders' place of residence and their perception of understanding effects of current practices on future water supplies were significantly related at the .05 probability level. Urban county leaders tended to perceive understanding effects of current practices on future supplies of water as a higher program priority than rural county leaders.

Table Summary

Table IV data presents findings regarding relationships between county leaders' place of residence and their perceptions of the level of severity and program priority of 14 water quality issues. The county leaders' place of residence was identified as either rural or urban. More specific information about the county leaders' place of residence may be found in Chapter I. Data in this table indicated that the county leaders' place of residence was significantly related to their perceptions of the level of severity of 8 of the 14 water quality issues.

Rural county leaders rated the issue soil erosion on farms as a more severe problem than county leaders from urban areas.

Urban county leaders rated the issues of soil erosion from construction sites, misuse of household chemicals, misuse of chemicals by local businesses, improper disposal of leftover chemicals, empty containers, used motor oil, etc., farm live stock wastes contaminating water, inadequate supplies of safe water, and understanding the effects of current practices on future supplies of water as more severe problems than county leaders from rural areas.

Rural county leaders rated the issue soil erosion on farms as a higher program priority than county leaders from urban areas. Urban county leaders rated the issue of soil erosion from construction sites, misuse of household chemicals, misuse of household chemicals, misuse of chemicals by local businesses, improper disposal of leftover chemicals, empty containers, used motor oil, etc., lack of citizen awareness of the nature and importance of water resources, inadequate supplies of safe water, and understanding effects of current practices on future supplies of safe water as higher program priority than county leaders from rural areas.

CHAPTER IV

SUMMARY OF MAJOR FINDINGS

This chapter presents a summary of the major findings of the study. The chapter is divided into five sections relating to the purposes and objectives, methods of investigation, major findings, implications and recommendations, and recommendations for further study.

I. PURPOSE AND SPECIFIC OBJECTIVES

Purpose

The purpose of the study was to identify county leaders' perceptions of the severity of 14 water quality issues and the importance of these issues as program priorities for Extension. Through this study, statewide as well as specific area needs are identified. This information may be useful to the Extension staff to develop proactive, issue-based water quality programs.

Specific Objectives

The specific objectives of this study were:

1. To compare Tennessee county leaders' perceptions of the level of severity and program priority of 14 water quality issues.

2. To determine the rank of 14 water quality issues regarding their level of severity and program priority as perceived by Tennessee county leaders.

3. To determine if county leaders from Tennessee's three major geographic regions differ in their ratings of the 14 water quality issues.

4. To determine if county leaders from Tennessee Extension-related audiences differ from non-Extension related audiences in their ratings of 14 water quality issues.

5. To determine if county leaders living in rural communities differ from leaders in urban communities (Standard Metropolitan Statistical Areas or SMSA) in their rating of 14 water quality issues.

II. METHODS OF INVESTIGATION

A total of 3,257 selected county leaders belonging to 12 leader groups in 95 Tennessee counties comprised the population of the study.

County Extension Agents collected the data through a mail survey. Completed surveys were returned to the Agricultural and Extension Education Office. The suggested sample size for each county was as follows: (1) County Rural Development Committee (all members), (2) County Government Officials (county executive and four officials), (3) Extension Homemaker Club Presidents (home demonstration clubs), (4) Community Club Presidents, (5) Senior 4-H Club Presidents, (6) Service Club Presidents (ten selected representatives), (7) County Agricultural Committee (all members), (8) Ministers (five

representatives), (9) Merchants (five representatives), (10) Schools (all principals up to ten and superintendents), (11) Newspapers (each editor), and (12) Other (examples include farm bureau, commodity association presidents, etc.).

The survey instrument was developed by the University of Tennessee Agricultural Extension Service Specialist Staff. The instrument was designed to gather information regarding the perceptions of Tennessee county leaders as to the level of severity and program priority of 14 water quality issues.

Data from the survey were coded and processed for computer analysis. Computations were conducted by the University of Tennessee Computing Center. The chi square test was used to determine the strengths of relationships between the independent and the dependent variables. The 0.05 probability level was accepted as being significant.

III. MAJOR FINDINGS

The major findings of the study are presented under four subsections which relate to the specific findings in each of the four tables. These subsections are entitled: Selected Tennessee Leaders' Perceptions of the Level of Severity and Program Priority of 14 Water Quality Issues, Relationships Between Selected Tennessee County Leaders' Geographic Region and Their Perceptions of the Severity and Program Priority of 14 Water Quality Issues, Relationships Between Selected Tennessee County

Leaders' Audience Classification and Their Perceptions of the Severity and Program Priority of 14 Water Quality Issues, and Relationships Between Selected Tennessee County Leaders' Place of Residence and Their Perceptions of the Severity and Program Priority of 14 Water Quality Issues.

Selected Tennessee Leaders' Ratings of the Level of Severity and Program Priority of the 14 Water Quality Issues

Table I presents data ranking the level of severity and program priority of the 14 water quality issues based upon mean scores. By rank order, the top five water quality issues identified by county leaders as most severe were:

1. Understanding the effects of current practices on future supplies of water. Three-fourths (75 percent) of the county leaders responding to this issue indicated its level of severity of this issue to be either "major" or "critical".

2. Lack of citizens awareness of the nature and importance of water resources. Almost three-fourths (74.3 percent) of the county leaders responding indicated this issue to be either a "major" or "critical" problem.

3. Lack of knowledge and use of water conservation methods. Sixty-four percent of the county leaders responding indicated this issue as either a "major" or "critical" problem.

4. Improper disposal of leftover chemicals, empty containers, used motor oil, etc. Nearly 60 percent (59.2) of the county leaders responding indicated this issue as either a "major" or "critical" problem.

5. Soil erosion on farms. Fifty-three percent of the county leaders responding indicated this issue to be either a "major" or "critical" problem.

Statewide, county leaders perceived the following three issues as least severe among the 14 water quality issues:

1. Soil erosion from road banks, parks, and public property. Only one-third (33 percent) of the county leaders responding to the severity of this issue rated it as either "major" or "critical".

2. Misuse of household chemicals. Only one-fourth (25.8 percent) of the county leaders responding to the severity of this issue rated it as either "major" or "critical".

3. Farm livestock wastes contaminating water. Only 21.7 percent of the county leaders responding to the severity of this issue rated it either "major" or "critical".

Table I additionally ranks the importance of each of the 14 water quality issues as program priorities for Extension. When ranked according to mean score, the top five water quality issues identified by county leaders as program priorities were:

1. Understanding effects of current practices on future supplies of water. Fifty-seven percent of county leaders responding indicated this issue as a "high" program priority.

2. Lack of citizen's awareness of the nature and importance of water resources. Over half (51.3 percent) of the county leaders responding to this issue indicated it as a "high" program priority.

3. Soil erosion on farms. Forty-two percent of the county leaders responding indicated that this issue is a "high" program priority.

4. Improper disposal of leftover chemicals, empty containers, used motor oil, etc. Forty-seven percent of the county leaders responding indicated that this issue is a "high" program priority.

5. Lack of knowledge and use of water conservation methods. Just over 40 percent (42.1) of county leaders responding indicated this issue as a "high" program priority.

Relationships Between Selected Tennessee County Leaders' Geographic Region and Their Perceptions of the Severity and Program Priority of 14 Water Quality Issues

Table II presents findings regarding relationships between Tennessee county leaders' geographic region of the state and their perceptions of the severity and program priority of 14 water quality issues.

Leaders from West Tennessee were more likely than Middle or East Tennessee county leaders to rate the level of severity of the following issues as either "major" or "critical".

1. Soil erosion on farms. Three-fourths (78.7 percent) of county leaders in West Tennessee were more likely than county leaders in Middle or East Tennessee to rate this issue as "major" or "critical".

2. Soil erosion from road banks, parks, and public property. Thirty percent of the county leaders from West Tennessee were more likely than county leaders from Middle or East Tennessee to rate this issue as "major" or "critical".

3. Misuse of agricultural chemicals. Forty-four percent of county leaders from West Tennessee were more likely than county leaders from Middle or East Tennessee to rank this issue as "major" or "critical".

County leaders in the western geographic region of the state were more likely than county leaders in the middle or eastern regions of the state to rate the importance of the following issues as "high" in program priority for Extension.

1. Soil erosion on farms. Sixty-seven percent of West Tennessee county leaders were more likely than Middle or East Tennessee leaders to rate soil erosion on farms as a "high" program priority.

2. Soil erosion from road banks. Thirty-eight percent of West Tennessee county leaders were more likely than county leaders in Middle or East Tennessee to rate this issue as a "high" program priority.

County leaders in the Middle Tennessee geographic region were more likely than county leaders in Western or Eastern regions of the state to rate the following issues as either "major" or "critical".

1. Misuse of household chemicals. Twenty-eight percent of Middle Tennessee county leaders were more likely than county leaders in West or East Tennessee to rate misuse of household chemicals as a "major" or "critical" problem.

2. Misuse of chemicals by local businesses. Forty-six percent of county leaders from Middle Tennessee were more likely than county leaders

in West or East Tennessee to rate misuse of chemicals by local businesses as a "major" or "critical" problem.

3. Improper disposal of leftover chemicals, empty containers, used motor oil, etc. Almost two-thirds (60.7 percent) of Middle Tennessee leaders were more likely than county leaders in West or East Tennessee to rate improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a "major" or "critical" problem.

County leaders in the Middle geographic region of the state were more likely than East or West Tennessee county leaders to perceive the following issues as "high" program priorities.

1. Misuse of household chemicals. Twenty-two percent of Middle Tennessee county leaders responding perceived this issue as a "high" program priority.

2. Misuse of chemicals by local businesses. Thirty-eight percent of Middle Tennessee county leaders responding perceived misuse of chemicals by local businesses as a "high" program priority.

County leaders from the Eastern geographic region of the state were more likely than Middle or West Tennessee county leaders to rate the severity of the following issues as either "major" or "critical".

1. Soil erosion from construction sites. Forty-three percent of East Tennessee county leaders were more likely than county leaders from Middle or West Tennessee to rate soil erosion from construction sites as either "major" or "critical".

2. Farm livestock wastes contaminating water. Twenty-nine percent of East Tennessee county leaders were more likely than county leaders from

Middle or West Tennessee to rate farm livestock wastes contaminating water as either "major" or "critical".

3. Inadequate supplies of safe water. Over half (52.1 percent) of East Tennessee county leaders were more likely than county leaders from Middle or West Tennessee to rate this issue as either a "major" or "critical" problem.

4. Lack of information about water testing. Fifty-four percent of East Tennessee county leaders were more likely than county leaders from Middle or West Tennessee to rate lack of information about water testing as either a "major" or "critical" problem.

5. Understanding effects of current practices on future water supplies. Seventy-eight percent of East Tennessee county leaders were more likely than Middle or West Tennessee county leaders to rate understanding effects of current practices on future water supplies as either a "major" or "critical" problem.

County leaders in East Tennessee were more likely than county leaders in Middle and West Tennessee to rate the importance of the following issues as "high" program priorities.

1. Soil erosion from construction sites. Thirty-one percent of county leaders in East Tennessee responding perceived soil erosion from construction sites as a "high" program priority.

2. Farm livestock wastes contaminating water. Over one-fifth (22.3 percent) of county leaders in East Tennessee responding perceived farm livestock wastes contaminating water as a "high" program priority.

3. Lack of citizen's awareness of the nature and importance of water resources. Over half (54.5 percent) of county leaders in East

Tennessee responding perceived lack of citizen's awareness of the nature and importance of water resources as a "high" program priority.

4. Lack of knowledge and use of water conservation methods. Forty-five percent of county leaders in East Tennessee responding perceived lack of knowledge and use of water conservation methods as a "high" program priority.

5. Inadequate supplies of safe water. Forty-one percent of county leaders in East Tennessee responding perceived inadequate supplies of safe water as a "high" program priority.

6. Lack of information about water testing. Over one-third (33.7 percent) of county leaders in East Tennessee responding perceived lack of information about water testing as a "high" program priority.

Relationships Between Selected Tennessee County Leaders' Audience Classification and Their Perceptions of the Severity and Program Priority of 14 Water Quality Issues

Table III presents findings regarding relationships between the county leaders' audience classification and their perceptions of the 14 water quality issues. County leaders' classifications were distinguished as either Extension-related or non-Extension-related as defined in Chapter I. The county leaders' audience classification was significantly related to their perceptions of the level of severity of 12 of the 14 water quality issues. County leaders from Extension-related audiences were more likely than leaders from non-Extension-

related audiences to rate the level of severity of the following issues as either "major" or "critical".

1. Soil erosion from construction sites. Forty-three percent of the county leaders classified as Extension-related compared to 37 percent of non-Extension-related perceived this issue as either a "major" or "critical" problem.

2. Soil erosion from road banks, parks, and public property. Thirty-seven percent of Extension-related county leaders as compared to 31 percent of non-Extension-related county leaders perceived soil erosion from road banks, parks, and public property as either "major" or "critical".

3. Misuse of household chemicals. Twenty-seven percent of Extension-related county leaders as compared to 24.2 percent of non-Extension-related audiences perceived misuse of household chemicals as either a "major" or "critical" problem.

4. Misuse of chemicals by local businesses. A greater percentage of Extension-related county leaders (44.8 percent) than non-Extension-related county leaders (40.0 percent) perceived misuse of chemicals by local businesses as either a "major" or "critical" problem.

5. Improper disposal of leftover chemicals, empty containers, used motor oil, etc. A larger percentage of county leaders classified as Extension-related (62.2 percent) perceived this issue as either "major" or "critical" than did non-Extension-related county leaders (57.2 percent).

6. Farm livestock wastes contaminating water. Twenty-eight percent of Extension-related county leaders compared to 16.5 percent of non-Extension-related county leaders perceived this issue as either "major" or "critical".

7. Farmers' lack of knowledge and use of best management practices. Sixty-five percent of Extension-related county leaders perceived this issue as "major" or "critical" compared to 38 percent of leaders classified as non-Extension-related.

8. Lack of citizen's awareness of the nature and importance of water resources. Seventy-five percent of Extension-related county leaders compared to 74 percent of non-Extension-related county leaders perceived this issue as either "major" or "critical".

9. Lack of knowledge and use of water conservation methods. Sixty-five percent of Extension-related county leaders compared to 63.3 percent of non-Extension-related county leaders perceived this issue as either a "major" or "critical" problem.

10. Inadequate supplies of safe water. Forty-seven percent of Extension-related county leaders compared to 41.3 percent of non-Extension-related county leaders perceived inadequate supplies of safe water as either a "major" or "critical" problem.

11. Lack of information about water testing. Fifty-five percent of Extension-related county leaders compared to 47.8 percent of non-Extension-related county leaders perceived this issue as either "major" or "critical".

12. Understanding the effects of current practices on future water supplies. Seventy-five percent of Extension-related county leaders compared to 74.7 percent of non-Extension-related county leaders perceived this issue as either "major" or "critical".

County leaders from Extension-related audiences were more likely than those from non-Extension-related audiences to rate the following water quality issues as a "high" program priority.

1. Soil erosion from construction sites.
2. Soil erosion from road banks, parks, and public property.
3. Farm livestock wastes contaminating water.
4. Farmers' lack of knowledge and use of best management practices.
5. Lack of information about water testing.

Relationships Between Selected Tennessee County Leaders' Place of Residence and Their Perceptions of the Severity and Program Priority of 14 Water Quality Issues

Table IV presents findings regarding relationships between the county leaders' place of residence and their perceptions of the 14 water quality issues. The county leaders' place of residence were classified as either rural or urban as defined in Chapter I (see Figure 2). The county leaders' audience classification was significantly related to their perceptions of the level of severity of 8 of the 14 water quality issues.

County leaders from rural regions were more likely than county leaders from urban areas to perceive the following issue as "major" or "critical".

1. Soil erosion on farms. Fifty-five percent of rural county leaders perceived soil erosion on farms as a "major" or "critical" problem.

County leaders from urban areas were significantly more likely than county leaders from rural areas to perceive the level of severity for the following issues as "major" or "critical".

1. Soil erosion from construction sites. Forty-nine percent urban county leaders perceived soil erosion from construction sites as a "major" or "critical" problem.

2. Misuse of household chemicals. Twenty-eight percent of urban county leaders perceived misuse of household chemicals as a "major" or "critical" problem.

3. Misuse of chemicals by local businesses. Forty-nine percent of urban county leaders perceived misuse of chemicals by local businesses as a "major" or "critical" problem.

4. Improper disposal of leftover chemicals, empty containers, used motor oil, etc. Seventy-nine percent of urban county leaders perceived improper disposal of leftover chemicals, empty containers, used motor oil, etc. as a "major" or "critical" problem.

5. Farm livestock wastes contaminating water. Twenty-five percent of urban county leaders perceived farm livestock contamination of water as a "major" or "critical" problem.

6. Inadequate supplies of safe water. Fifty percent of urban county leaders perceived inadequate supplies of safe water as a "major" or "critical" problem.

County leaders from urban areas were more likely than leaders from rural areas to rate the following water quality issues as a "high" program priority.

1. Soil erosion from construction sites.
2. Misuse of household chemicals.
3. Misuse of chemicals by local businesses.
4. Improper disposal of leftover chemicals, empty containers, used motor oil, etc.
5. Lack of citizen awareness of the nature and importance of water resources.
6. Inadequate supplies of safe water.
7. Understand effects of current practices on future supplies of water.

IV. IMPLICATIONS AND RECOMMENDATIONS

Based upon the findings of this study, implications and recommendations are stated as follows:

1. Study findings indicate that 75 percent of county leaders perceive understanding effects of current practices on future water supplies as a "major" or "critical" problem statewide. Additionally, 74.3 percent of county leaders perceived lack of citizen awareness of the nature and importance of water resources, and 64.2 percent of county leaders perceived lack of knowledge and use of conservation methods as either "major" or "critical" problems. This is further supported by the fact that three of the top five water quality program priorities were related

to the need for awareness, understanding and knowledge concerning water quality issues. This would tend to imply there is a lack of awareness, knowledge and understanding of water quality issues. Therefore, it is recommended that Extension develop educational programs, mass media presentations, publications and exhibits which provide information regarding the importance of water quality.

2. The study found that west Tennessee county leaders were more likely to perceive soil erosion on farms, soil erosion from road banks, parks, and public property, and misuse of agriculture chemicals as "major" or "critical" problems than leaders in middle or east Tennessee. The study further found that soil erosion on farms was perceived as the fifth most severe water quality issue and number three as a program priority statewide. This would seem to indicate that soil erosion on farms should receive priority for development of a statewide educational program. Therefore, it is recommended that county Extension agents place additional emphasis on the implementation of educational programs addressing soil conservation methods statewide and more specifically in the western region of the state.

3. The study findings indicated that 60.7 percent of middle Tennessee county leaders tended to perceive improper disposal of leftover chemicals, empty containers, and used motor oil as either a "major" or "critical problem. Middle Tennessee county leaders were more likely than west or east Tennessee county leaders to perceive misuse of chemicals by businesses (46.2 percent) and misuse of household chemicals (28.3 percent) as either "major" or "critical" problems. This would

tend to imply that improper disposal and misuse of chemicals are problems linked to the central geographic region of the state. It is recommended that Extension agents in the central region of the state increase educational efforts concerning these water quality issues. It is further recommended that agents implement the elements of the Family Community Leadership Curriculum (particularly public policy) to empower clients to take action to reduce improper disposal and chemical misuse.

4. Study findings indicated that Extension-related audiences were more likely than non-Extension-related audiences to perceive these water quality issues as problems. County leaders from Extension-related audiences perceived 12 of the 14 water quality issues as more severe problems than non-Extension-related audiences. This would seem to imply that Extension-related audiences are better aware of water quality issues. It is recommended that Extension agents increase efforts to reach non-traditional audiences to increase awareness of water quality issues. It is further recommended that current programs about water quality issues with Extension-related audiences continue.

5. Study findings indicated that county leaders in urban counties tended to be more concerned about several of the water quality issues than county leaders in rural counties. The county leaders' place of residence was significantly related to their perception of the level of severity of 7 of the 14 water quality issues. This seems to imply that urban county leaders have specific water quality concerns related to the nature of living in an urban setting. Therefore, it is recommended

that Extension agents develop educational programs to address specific water quality concerns in urban areas. These programs should be designed to create awareness and assist urban audiences in actively pursuing improvement of water quality in their areas. It is further recommended that Extension agents design programs directed to the specific needs and concerns of rural audiences. These programs should feature water systems and the rural link to urban water quality concerns.

V. RECOMMENDATIONS FOR FURTHER STUDY

1. A follow-up study should be conducted in five years to evaluate the effectiveness of Extension programs and determine needs for additional water quality programs.

2. A similar study of a random sample of the statewide population should be conducted for comparison to the leader survey to test the accuracy of leader opinions in gauging community needs.

3. A follow-up study evaluating the effectiveness of various methods of reaching clientele should be conducted in an effort to improve program effectiveness and allow Extension to reach more non-traditional audiences.

BIBLIOGRAPHY

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1. "Agricultural Plan to Reduce NPS Water Pollution." Draft, Knoxville, TN, 1989.

2. Amonette, David Kelly. "A Comparison of Community Resources Development Problem Areas Perceived by Leaders in Rural and Urban Communities in Tennessee." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1984.

3. Boone, Edgar J. Developing Programs in Adult Education. New Jersey: Prentice-Hall, Inc., 1985.

4. Bowen, George. "Problems, Issues, Constraints, and Barriers to Water Quality Planning and Management in Urban and Uranizing Areas (SMSA's) in Tennessee," Graduate School of Planning and Research Center, The University of Tennessee, Knoxville, June 1982.

5. Boyle, Patrick G. Adult Education Association Professional Development Series: Planning Better Programs. New York: McGraw-Hill Book Company, 1981.

6. Brunner, E. "Methods of Resolving Superior-Subordinate Conflict; The Constructive Use of Subordinate Differences and Disagreements," Organizational Behavior and Human Performance, 1970.

7. Cole, Jacquelyn M., and Maurice F. Cole. Advisory Councils. New Jersey: Prentice-Hall, Inc., 1983.

8. Cole, Maurice F. "Identifying Community Power Structures." Paper presented at the Southeast Virginia Extension District New Agents Seminar, Suffolk, VA, July 1977.

9. Christenson, James A., and Jerry W. Robinson, Jr. Community Development in America. Ames: The Iowa State University Press, 1980.

10. Cooperative Agriculture Extension Work, House of Representatives (to comply H.R. 7951), Report Number 100.63 Congress, 2nd Session.

11. Cooperative Extension System National Initiatives. Focus on the Issues, USDA, 1988.

12. Delbecq, Andre L. Group Techniques for Program Planning: A Guide to Nominal Group and Delphi Processes. Scott Foresman and Company, Glenview, IL, 1975.

13. Extension Review. "Water Quality." Fall 1988, USDA, 1988.

14. Fergeson, Gary. "Water Quality Management and Planning In Tennessee: Constraints, Problems and Solutions." Unpublished Master's Thesis, The University of Tennessee, Knoxville, 1984.

15. "Focus on Issues." United States Department of Agriculture, Washington, DC, 1987.

16. Little, Augustus. An Overview to Community Need/Resource Assessment, Gainesville: Florida Center for Community Education, 1978.

17. McMurty, Gene, ed. Strategy for Community and Area Development. Raleigh: Agricultural Policy Institute, School of Agriculture and Life Sciences, North Carolina State University, 1970.

18. "Memorandum of Understanding (MOU) Between the Extension Service and the Soil Conservation Service (USDA) Relating to Implementation of USDA Water Quality Policies." United States Department of Agriculture, June 1988.

19. Michigan, "Leaders on Groundwater." Michigan State University, 1987.

20. Sanders, H. C. ed. "The Cooperative Extension Service." Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1966.

21. Smith, George F. "Tennessee Leaders Look at Their Communities." Knoxville: University of Tennessee Publication EC982, 1984.

22. Tait, John L., Janet Bokemeier, and Joe M. Bohlen. "Identifying the Community Power Actors: A Guide for Change Agents." Missouri (no year listed).

23. VandenBerg, G. L. "Guidelines to Planning." Journal of Cooperative Extension, Vol. 3, No. 2, Summer 1965.

24. "The Community Attitude Self Survey." Department of Regional and Community Affairs. Missouri: University of Missouri, 1969.

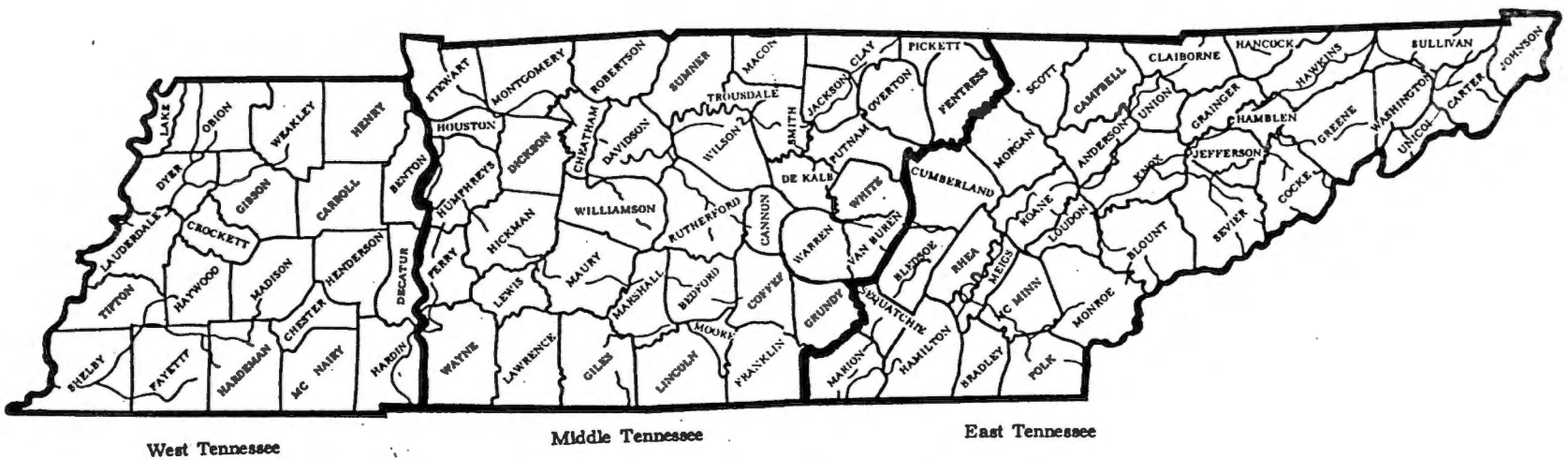
25. Water Quality Education--Challenge for the Cooperative Extension System-Endorsed by the Extension Committee on Organization and Policy, Feb. 1988.

26. Zin, Jeffery A. "CRS Report for Congress Groundwater Issue and the U.S. Department of Agriculture--An Institutional Perspective: Congressional Research Service, The Library of Congress, Washington, DC, April 21, 1988.

APPENDIXES

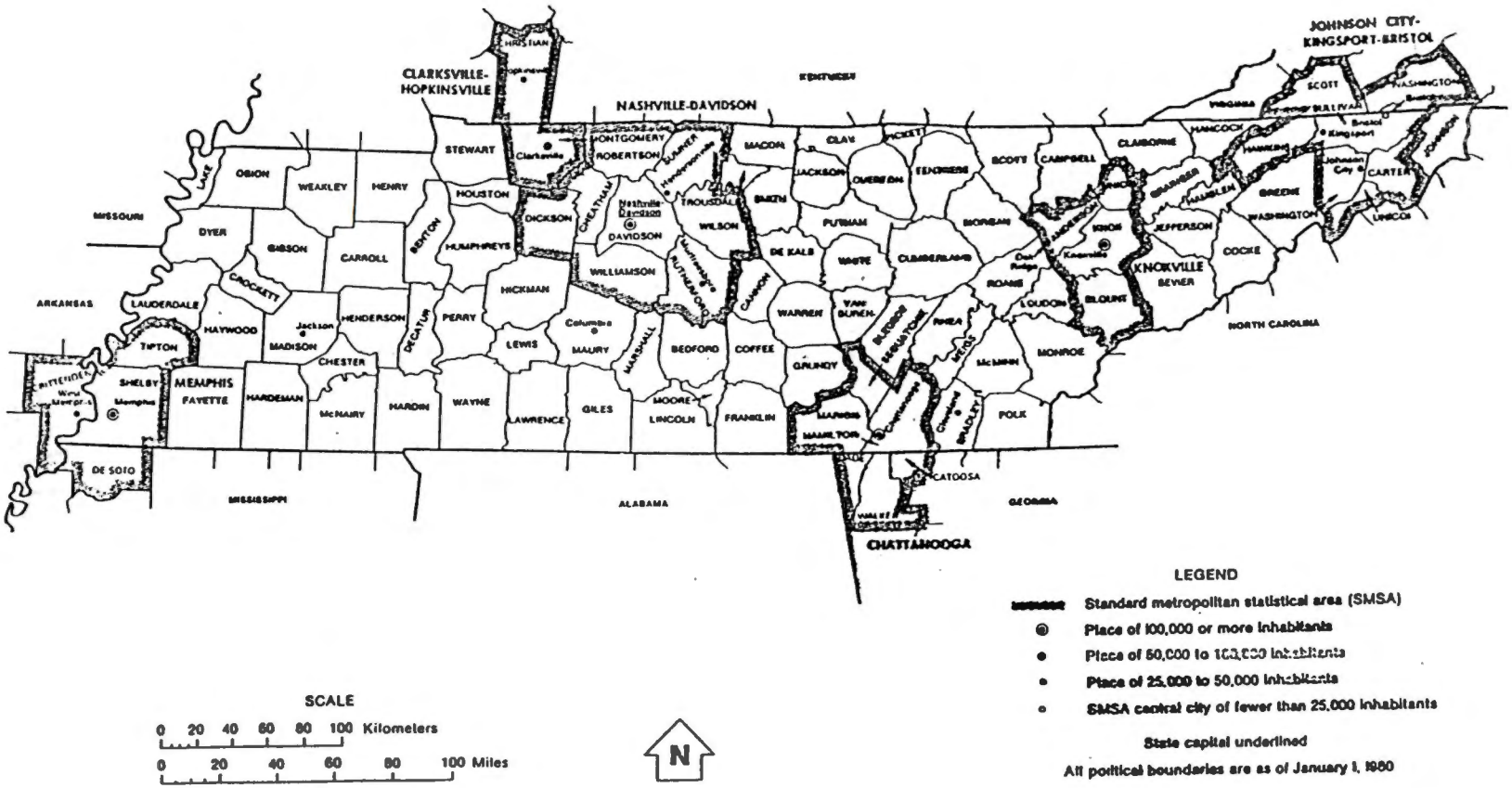
APPENDIX A

FIGURES



Source: Fomsbee, Stanley F. Corlew, Robert E., Micthell, Enoch E.,. Tennessee - A Short History. Knoxville: The University of Tennessee Press, 1976.

Figure 1. The Three Grand Divisions of Tennessee



Source: 1980 Census of Population

Figure 2. Standard Metropolitan Statistical Areas of Tennessee

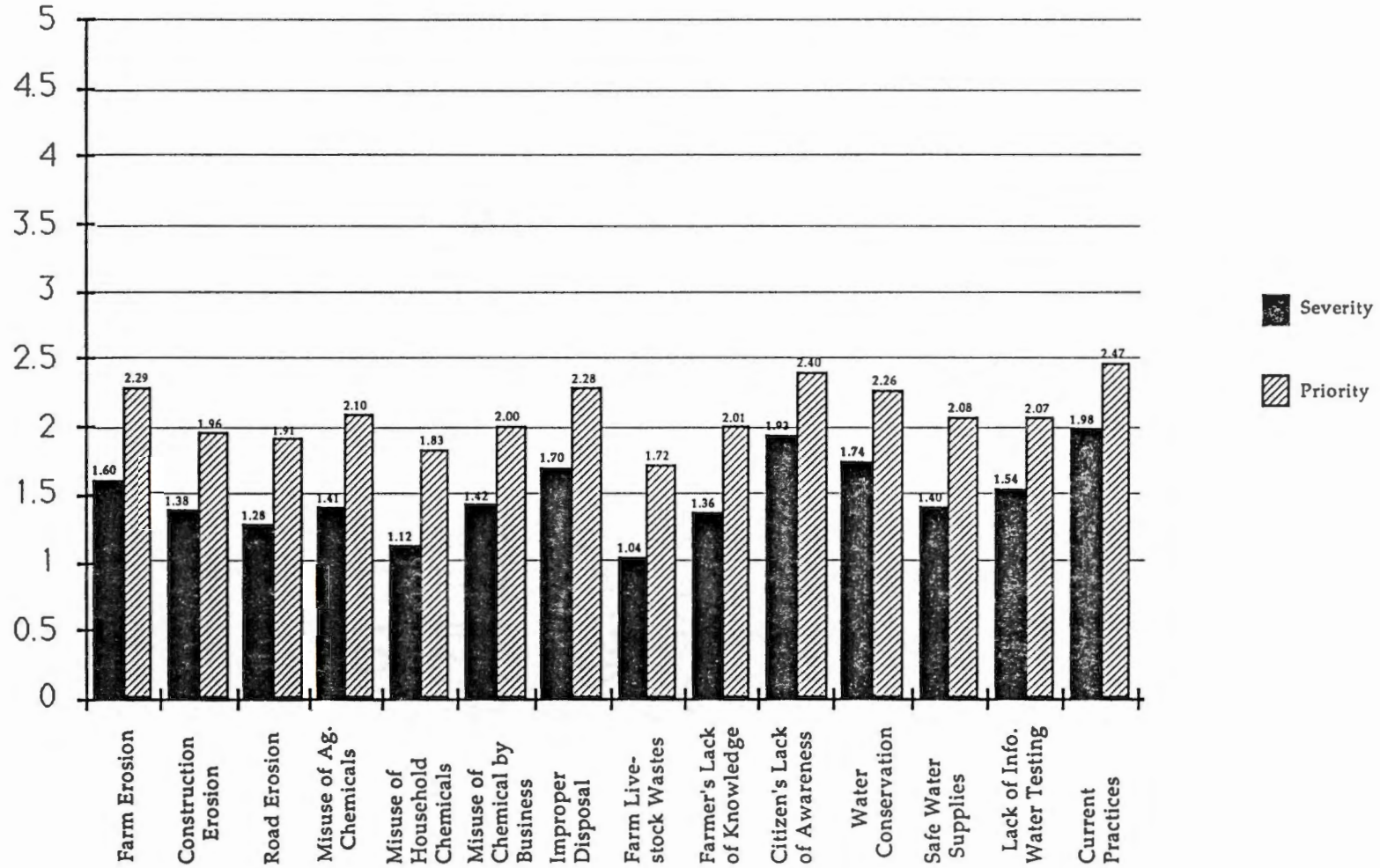


Figure 3. Selected Tennessee Leaders' Ratings of the Level of Severity and Program Priorities of 14 Water Quality Issues

APPENDIX B

1988 COMMUNITY RESOURCE DEVELOPMENT SURVEY

University of Tennessee Agricultural Extension Service

1988 Community Resource Development Survey

County: ___ ___ ___ (1) (2) (3) Audience: ___ ___ (4) (5)

As a community leader, you are being asked to help us determine the major areas of concern about water resources and revitalization in our county. Your opinion will help us develop programs to make our county a better place to live, work and enjoy life.

We have listed items that can affect water quality and the economic vitality of a community. Please rate each item for our county. First circle the number that best represents how severe a problem the item is in the county. Then please circle the number that best represents how important work on the item is.

Please list your top priorities in each area on the back of this form. Also, please add any items we may have overlooked or make any comments you wish on the back. Thank you.

For Office Use Only	ITEMS	HOW SEVERE IS IT?					WHAT PRIORITY SHOULD WORK ON IT RECEIVE?			
		Critical	Major	Minor	No Problem	Uncertain	High	Average	Low	Uncertain
	WATER QUALITY									
(6,7)	• Soil erosion on farms.	1	2	3	4	5	1	2	3	4
(8,9)	• Soil erosion from construction sites.	1	2	3	4	5	1	2	3	4
(10,11)	• Soil erosion from road banks, parks and public property.	1	2	3	4	5	1	2	3	4
(12,13)	• Misuse of agricultural chemicals.	1	2	3	4	5	1	2	3	4
(14,15)	• Misuse of household chemicals.	1	2	3	4	5	1	2	3	4
(16,17)	• Misuse of chemicals by local businesses.	1	2	3	4	5	1	2	3	4
(18,19)	• Improper disposal of leftover chemicals, empty containers, used motor oil, etc.	1	2	3	4	5	1	2	3	4
(20,21)	• Farm livestock wastes contaminating water.	1	2	3	4	5	1	2	3	4
(22,23)	• Farmer's lack of knowledge and use of best management practices.	1	2	3	4	5	1	2	3	4
(24,25)	• Lack of citizen awareness of the nature and importance of water resources.	1	2	3	4	5	1	2	3	4
(26,27)	• Lack of knowledge and use of water conservation methods.	1	2	3	4	5	1	2	3	4
(28,29)	• Inadequate supplies of safe water.	1	2	3	4	5	1	2	3	4
(30,31)	• Lack of information about water testing.	1	2	3	4	5	1	2	3	4
(32,33)	• Understanding effects of current practices on future supplies of safe water.	1	2	3	4	5	1	2	3	4
	REVITALIZING RURAL TENNESSEE									
(34,35)	• Jobs available	1	2	3	4	5	1	2	3	4
(36,37)	• Job training	1	2	3	4	5	1	2	3	4
(38,39)	• Low levels of family income.	1	2	3	4	5	1	2	3	4
(40,41)	• Programs to attract "outside" businesses.	1	2	3	4	5	1	2	3	4
(42,43)	• Support for start of new local businesses.	1	2	3	4	5	1	2	3	4
(44,45)	• Community support for existing business.	1	2	3	4	5	1	2	3	4
(46,47)	• Programs to help business expansion and retention.	1	2	3	4	5	1	2	3	4
(48,49)	• Productivity of local agriculture.	1	2	3	4	5	1	2	3	4
(50,51)	• Quality of businesses and facilities to attract tourists.	1	2	3	4	5	1	2	3	4
(52,53)	• Quality of retail shopping and service businesses.	1	2	3	4	5	1	2	3	4
(54,55)	• Productivity of local manufacturing businesses.	1	2	3	4	5	1	2	3	4
(56,57)	• Levels of local business management skills.	1	2	3	4	5	1	2	3	4
(58,59)	• Knowledge of local problems, opportunities and resources.	1	2	3	4	5	1	2	3	4
(60,61)	• Strategic economic development planning.	1	2	3	4	5	1	2	3	4
(62,63)	• Sense of community pride.	1	2	3	4	5	1	2	3	4

(Please complete other side.)

Resources are limited. In your opinion, what three water-quality items should Extension target?

(64) 1. _____

(65) 2. _____

(66) 3. _____

In your opinion, what three economic revitalization items should Extension target?

(67) 1. _____

(68) 2. _____

(69) 3. _____

Additional Comments:

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COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture, and county governments cooperating in furtherance of Acts of May 8 and June 30, 1914
Agricultural Extension Service M. Lloyd Downen, Dean

VITA

Beth A. Bell was born September 20, 1956 to Norbert and Mary Ann Carlton Stumpe in St. Charles, Missouri. She grew up in Randolph County, Illinois where she attended St. Mary's School and graduated from Chester High School in 1974. She attended Murray State University where she completed the requirements for a Bachelor of Science degree in Home Economics in 1978.

In July of 1978, she was employed as an Assistant Extension Agent in Dyer County, Tennessee responsible for the Expanded Food and Nutrition Education Program. She assumed responsibilities for Adult Home Economics in 1984 and was promoted to Associate Extension Agent.

She is married to Roger Bell and has two step-children, Roger Glynn and Xanne.

She is a Certified Home Economist, a member of the American Home Economics Association, National Association of Extension Home Economists, Phi Kappa Phi, Epsilon Sigma Phi, Dyer County Lifeline Blood Board, Dyer County Fair Association Board, and the Dyersburg/ Dyer County Chamber of Commerce.

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