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Attitudes of Kaw Valley Residents toward Surface Water Quality

Prepared for

The Kaw Valley Heritage Alliance

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ABSTRACT

This report is based on an investigation of attitudes toward surface water quality in the Kansas (Kaw) River Valley. The purpose of the study is to help determine what actions Kaw Valley residents and farmers are willing to take to help improve surface water quality in the Kaw Valley. Specifically, the report uses results from focus groups and telephone surveys to address five questions:

1) *What beliefs do residents have about the current state of surface water quality in the Kaw Valley?*

2) *How concerned are residents about the current state of surface water quality in the Kaw Valley?*

3) *What beliefs do people have about the impact of their personal actions on surface water quality in the Kaw Valley?*

4) *What behaviors would people be willing to change to improve the surface water quality in the Kaw Valley?*

5) *What would motivate people to make these changes?*

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EXECUTIVE SUMMARY

Purpose

- This report assesses the attitudes and opinions of Kaw Valley residents toward surface water quality in the Kaw Valley. A particular effort is made to distinguish between farm and non-farm household members. This report is concerned purely with attitudes and beliefs and takes no position on the actual facts of surface water pollution.
- The Kaw Valley was defined as 12 counties in the Kansas River watershed, ranging from Wyandotte and Johnson in the east, to Riley, Geary, and Morris in the west.
- This research was funded by the Environmental Protection Agency (EPA) based on a grant to the Kaw Valley Heritage Alliance (KVHA). KVHA is a Community-Based Environmental Coalition recognized by the EPA.

Methods

- Two focus groups were conducted with Kaw Valley farm household members, and two more with non-farm household members.
- Separate surveys were conducted with 252 Kaw Valley farm household members and 395 non-farm household members.
- Results were analyzed using descriptive statistics and modeling.

Findings

- Kaw Valley residents are moderately concerned with the current state of surface water quality in the Kaw Valley.
- The residents of the central Kaw Valley counties of Douglas, Leavenworth, and Shawnee show a higher level of concern than the residents of the eastern and western Kaw Valley counties.
- Agricultural producers are more aware of surface water quality issues, but, in general, awareness is limited.
- Trusted sources of information about surface water quality include the Agricultural Extension Service, public Universities, the Kansas Department of Agriculture, the Natural Resources Conservation Service, and the Kansas Department of Health and Environment.
- Most people accept some measure of personal responsibility for safeguarding surface water quality.
- Many people are not aware of what actions impact surface water quality.
- Most people would be willing to take small actions to safeguard surface water quality.
- Educational efforts, voluntary programs, and incentives were the most popular methods for encouraging action to improve surface water quality.
- A majority of residents are not in favor of new taxes to pay for such programs.
- Agricultural producers are sensitive to being unfairly blamed for water quality problems.

Policy Implications

- More effective educational efforts are needed. People are not aware of what actions affect water quality nor what actions they could take that would help improve water quality.
- Educational efforts, voluntary programs, and incentives have the broadest public support for motivating actions to improve surface water quality.
- Many residents believe that Kaw Valley surface waters can be improved without increasing taxes. If policymakers believe that increased taxes are needed, they will need to persuade voters that taxes are necessary.

CHAPTER 1
INTRODUCTION

Kaw Valley water quality

The Kaw Valley, also called Kansas River Valley, is roughly a twelve-county area of northeast Kansas along the Kansas River bounded by Junction City, Kansas to the west and Kansas City, Kansas to the east. According to the 1990 census, over 1 million people, or roughly forty percent of the state's population, live in this area, the fastest-growing region of the state. The Kaw Valley includes the cities of Kansas City, Lawrence, Topeka, Manhattan, and Junction City.

Surface water is the primary resource for drinking water for residents of the Kaw Valley and provides recreational opportunities for residents of the Kaw Valley. Surface water is also an important resource for agriculture, industry, and wildlife. The Kansas River itself provides drinking water for over 500,000 people in 10 counties, is a primary source for high quality sand for construction in the area, and is used for hydroelectric power generation (Brady *et al.*, 1998). Ecologically, the river is host to 60 fish species, provides crucial staging grounds for 110 species of migratory birds, and serves as winter habitat for the bald eagle (American Rivers, 1998).

As a result of a large and growing population and a large agricultural economy, a diversity of demands has been placed on surface water in the Kaw Valley. Point and non-point source pollution has affected surface water quality in the Kaw Valley. Sources of point source pollution include pollution from sewage treatment plants, feedlots, and sand and gravel mining. Sources of non-point source pollution include urban runoff and chemical runoff from agricultural fields (American Rivers, 1998).

The EPA monitors water quality in the Kansas River and, on a scale of 1 to 6, with 1 meaning better water quality and 6 meaning more serious water quality problems, the lower portion of the Kansas River Basin (from Lawrence to the Missouri River) has been rated 6 by the EPA. A rating of 6 means that the watershed has "aquatic conditions well below State or Tribal water quality goals and … data suggest significant pollution and other stressors [which give the watershed] a higher vulnerability to declines in aquatic health." The EPA designates such watersheds as having "the greatest need for actions to protect quality and prevent decline" (United States Environmental Protection Agency, 2000). Additionally, major reservoirs in the Kaw Valley such as Clinton Lake, Perry Lake, and Tuttle Creek, are subject to high concentrations of agricultural chemicals in the spring.

Policy responses

Until this study, there has been little research into the attitudes of Kaw Valley residents toward surface water quality. The primary water quality policy for the Kaw Valley has been the Governor's Water Quality Initiative. The Initiative is an incentive-based, voluntary program to provide enhanced public awareness, technical and financial assistance, and monitoring and evaluation of programs, practices, participation and pollutants in the Kaw Valley region. The Initiative focuses on controlling and reducing the amounts of the three major pollutants in the

Kansas River Valley: sediments, the crop herbicide, atrazine, and fecal coliform bacteria found in human and animal waste.

This research was funded by the Kaw Valley Heritage Alliance through a grant from the EPA. The purpose of the study is to help determine what actions Kaw Valley residents and farmers are willing to take to help improve the quality of the surface water in the Kaw Valley. The study addresses five primary questions:

What beliefs do residents have about the current state of surface water quality in the Kaw Valley?

How concerned are residents about the current state of surface water quality in the Kaw Valley?

What beliefs do residents have about the impact of their personal actions on surface water quality in the Kaw Valley?

What behaviors would people be willing to change to improve the surface water quality in the Kaw Valley?

What would motivate people to make these changes?

Roadmap for this report

- Chapter one provides background information on surface water quality in the Kaw Valley and explains the motivation for this research.
- Chapter two explains the methodology used. Chapter three reports findings from the focus groups.
- Chapter four reports findings from the surveys.
- Chapter five discusses willingness to pay for improving surface water quality in the Kaw Valley.
- Chapter six presents our conclusions, policy implications, and recommendations for further research.
- Appendix 1 provides protocols used in the focus groups.
- Appendix 2 provides the survey instruments, as well as the response frequencies for each question.
- An index is provided at the end of the report.

CHAPTER 2
METHODOLOGY

Approach

Two data gathering methods were used for this study: focus groups and surveys. Focus groups were conducted prior to writing the survey instrument and were used to explore a range of issues and to inform the construction of questions for the survey.

Focus Groups

Separate focus groups were conducted for non-farm households and farm households in order to be sensitive to potential differences between the groups. Two focus groups were conducted with non-farm households – one each in Manhattan and Topeka. Two more focus groups were conducted for farm households – one each in Westmoreland and Lawrence.

Selection and recruitment

Non-farm household focus group participants were selected by random digit dialed telephone calls. Potential participants were screened to ensure they were at least 22 years of age and met certain educational criteria. Participants in the Manhattan non-farm household focus groups were screened to have had at least some college or technical training while participants in the Topeka non-farm household focus group were screened to have had no college or technical training. Grouping by education level has been shown to facilitate more free discussion within the groups.

Farm household members are much more difficult to recruit for focus groups than non-farm household members are. There are several reasons for this, such as:

- they are more spread out and travel time is a larger impediment
- they typically have less free time
- farm families are hard to identify (see the discussion below concerning the sampling frame for farm households).

For that reason, farm focus group members were identified and recruited by means of contacts available to members of the KVHA Steering Committee. While this is not a scientific random sample, it is not especially important that focus group members be sampled randomly. The focus group serves as a tool to explore the range of issues on a subject. The results were not scientifically evaluated and were simply used to raise issues and inform the surveys.

Protocol

The purpose of the focus groups was to explore:

- what Kaw Valley residents currently believe about surface water quality in the Kaw Valley

- what actions Kaw Valley residents believe most impact the quality of surface water; and
- what incentives and disincentives exist for residents to change their behavior as related to the quality of surface water in the Kaw Valley.

The non-farm household focus group discussion centered on issues dealing with perceptions of surface water quality, blame for perceived problems, possible remedies, and degree of support for those remedies. The farm household survey centered on many of the same issues and served to amplify the farm household perspective. Copies of both protocol documents are included in Appendix 1 of this report.

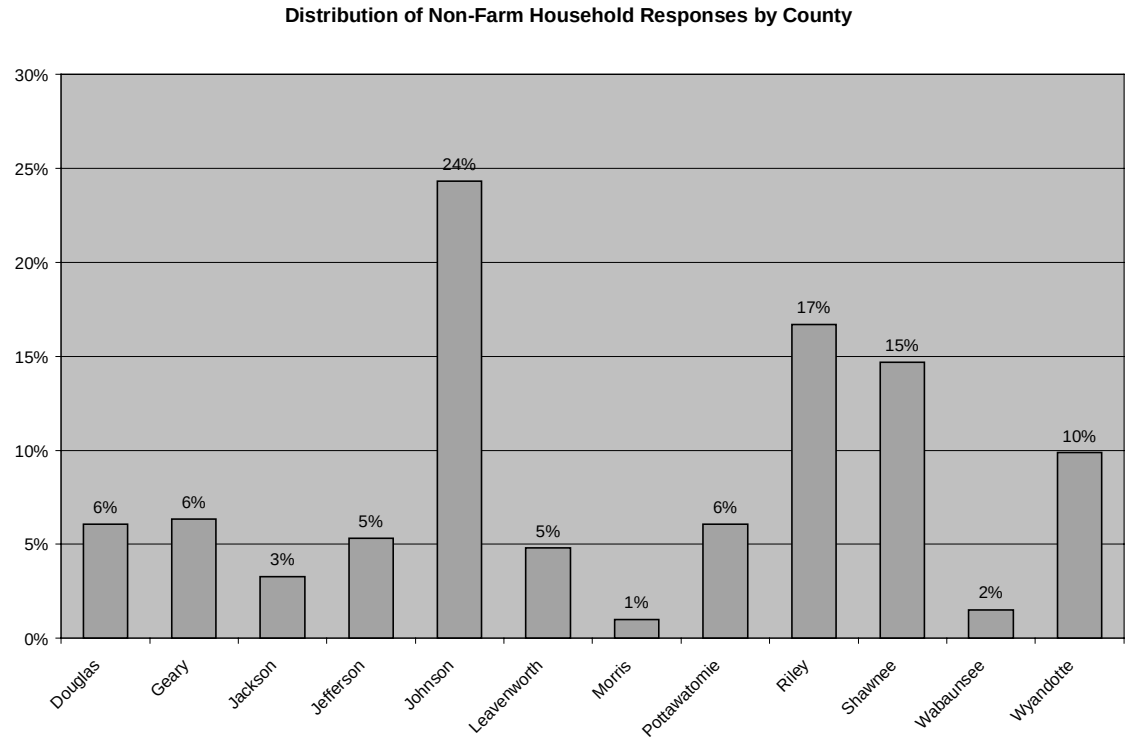
Household surveys

Two household surveys were conducted: one for non-farm households and one for farm households. Most questions on the surveys were the same. However, farm households were asked some additional questions on issues specific to farmers. The counties included in the surveys were Douglas, Geary, Jackson, Jefferson, Johnson, Leavenworth, Morris, Pottawatomie, Riley, Shawnee, Wabaunsee, and Wyandotte.

Both survey instruments are included in Appendix 2 of this report.

Sample selection – non-farm households

Three hundred ninety-five non-farm households were surveyed by random digit dialed telephone calls. Non-farm household respondents were screened to ensure that only households that did not derive more than 10 percent of their income from farming were surveyed. The response rate was 35 percent.



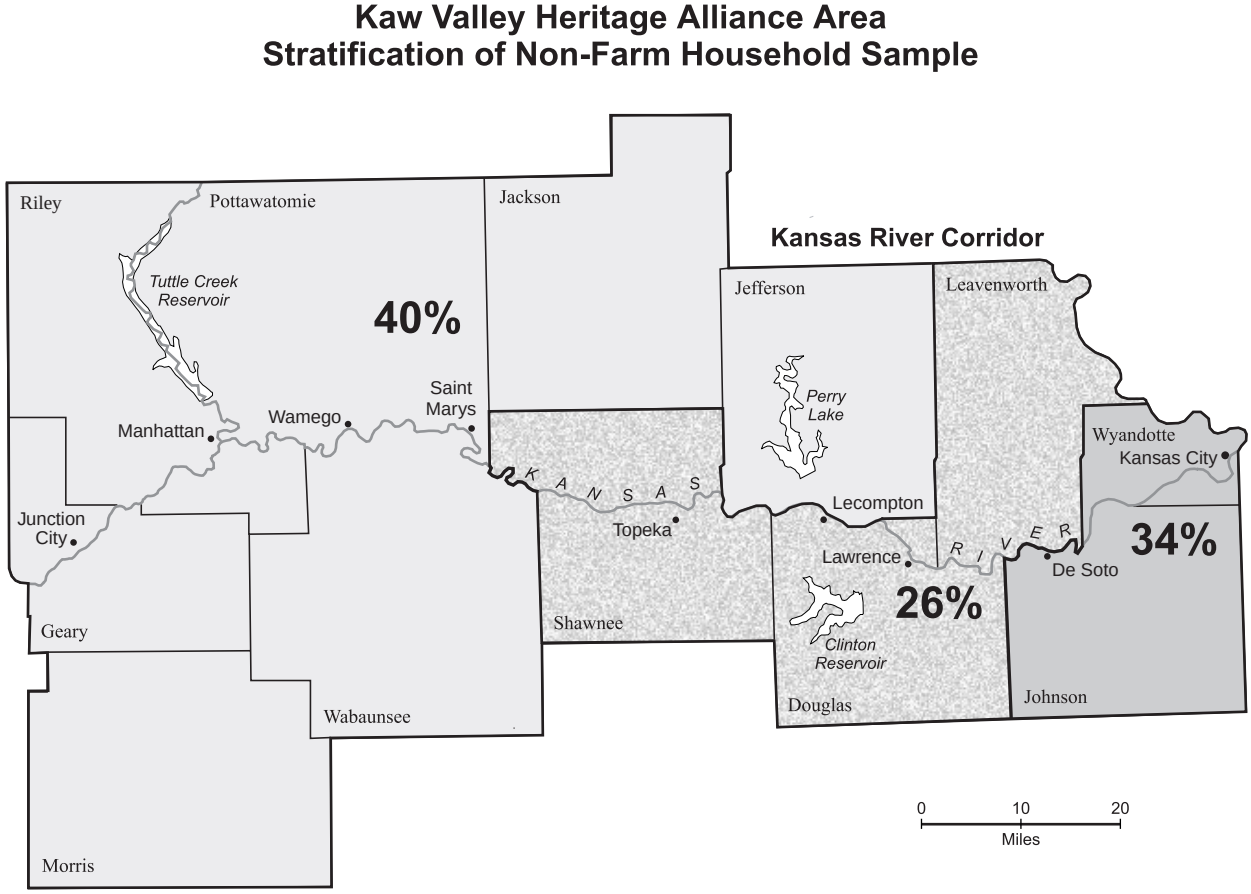
The non-farm household sample was stratified into three geographical areas, with different sampling rates by area:

- Western rural: Geary, Jackson, Jefferson, Morris, Pottawatomie, Riley, and Wabaunsee counties;
- Central Kaw: Leavenworth, Douglas, and Shawnee counties; and
- Eastern urban: Johnson and Wyandotte counties.

Stratification was important because counties in the upper regions of the Kaw Valley have more potential to impact surface water quality than counties downstream. Also, a major portion of the population of the region lives in the lower Kansas River Valley. Without stratification most of the responses would have come from the people of the middle and lower regions of the Kansas River Valley who have less potential to impact water quality in the region as a whole.

Forty percent of the responses from the non-farm household survey came from the western rural counties. Twenty-six percent of the responses came from the central Kaw counties. Thirty-four percent of the responses came from the eastern urban counties.

Figure 2.1
Kaw Valley Stratification (Non-farm Survey)

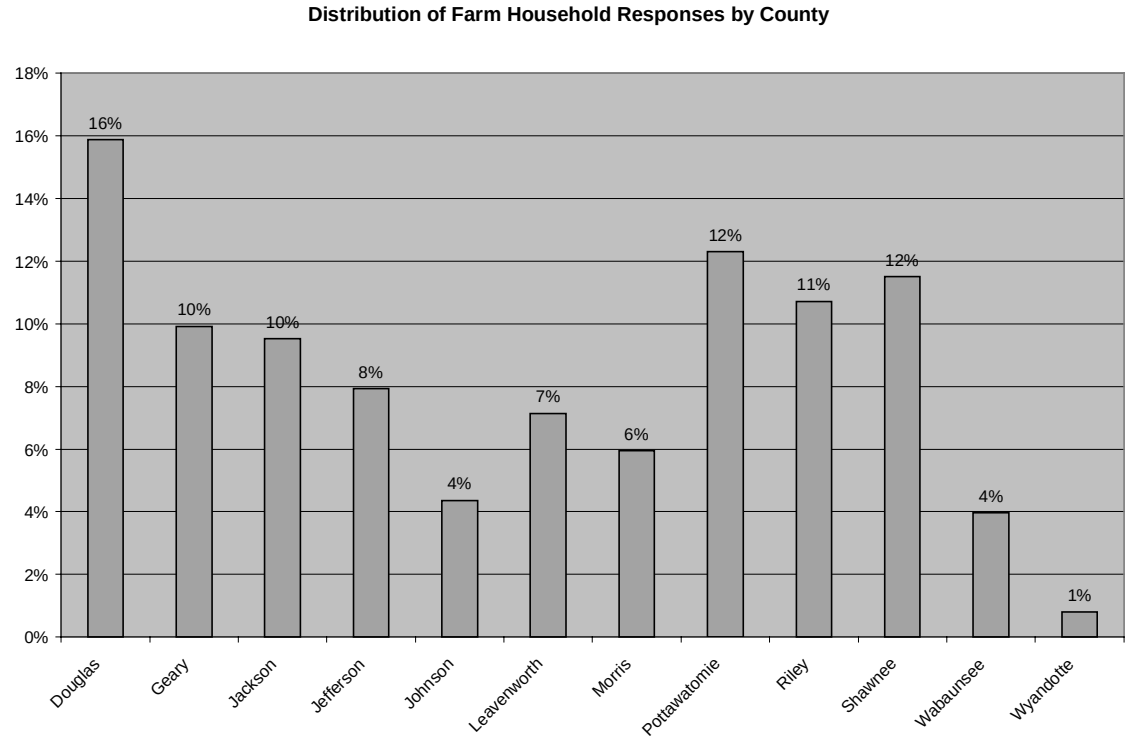


Sample selection—farm households

Two hundred fifty-two farm households were successfully surveyed. Sample households were selected using a complex process. First, names and addresses were randomly selected from a list provided by the Farm Service Agency (FSA) of 8000 individuals in the targeted counties who had received farm support payments in 1999. The programs from which these names and addresses were drawn included FSA loans, production flexibility payments, commodity loans, the Conservation Reserve Program, and natural disaster assistance programs such as The Emergency Conservation Program (ECP), the Noninsured Crop Disaster Assistance Program (NAP), Emergency Loan (EM) Assistance, and Emergency Haying and Grazing Assistance.

These names and addresses were then matched to phone numbers (where possible) using a national phone number database. Contacted households were screened to select only those reporting that they derived significant household income from farming. The percent of farm households contacted who agreed to be interviewed was 40 percent. Of this amount, five percent of the responses were unusable. Of the useable responses, 56 percent derived 20 percent or more of their annual household income from farming or ranching.

The farm household responses were not stratified. Random sampling from the list provided by the FSA produced a fairly even distribution across the Kaw Valley. The highest share of farm responses, 16 percent, came from Douglas County, and the lowest shares, four percent and one percent, came from Johnson and Wyandotte counties.



Data analysis

To analyze the survey data, frequencies were calculated and means were compared. Where differences appeared among the strata in the non-farm household survey, chi-squared statistics were used to determine if the differences were significant.

Aggregate willingness-to-pay figures were calculated using weights -- 1990 U.S. Census data were used to estimate the number of households in each stratum. This would produce a conservative estimate of aggregate willingness to pay since the number of households in the Kaw Valley has increased since 1990.

CHAPTER 3
FOCUS GROUP FINDINGS

This Chapter highlights key issues that emerged from the focus group discussions.

The University of Kansas Policy Research Institute conducted focus groups to explore:

- what Kaw Valley residents currently believe about surface water quality in the Kaw Valley;
- what actions Kaw Valley residents believe most impact the quality of surface water; and
- what incentives and disincentives exist for residents to change their behavior as related to the quality of surface water in the Kaw Valley.

This chapter describes the results of 1) non-farm household focus groups and 2) the farm household focus groups and summarizes the overall findings for each group, organizing the results by topic areas. The report includes many verbatim quotes illustrating the various topics. Care should be taken in generalizing any focus group findings, since the groups are too small to be representative of the general population.

METHODS

Four focus groups were held in October and November, 1999 in Westmoreland, Topeka, Manhattan, and Lawrence. Focus groups were held separately for farm households and non-farm households. The two non-farm household focus groups were held in Topeka and Manhattan, and the two farm household focus groups were held in Westmoreland and Lawrence. Each focus group included 6-10 participants and lasted approximately one and a half hours. Table 1 provides a breakout of participation in each group.

Table 3.1
Focus Group Meetings

Date	Location	Composition/ Participants
14-Oct.	Westmoreland	farm 6
2-Nov.	Manhattan	non-farm 10
4-Nov.	Topeka	non-farm 8
10-Nov.	Lawrence	farm 7
Total	Participants	31

Focus group locations were chosen to obtain a varied sample of both farm and non-farm households from throughout the Kaw Valley region. Decisions about where to hold the focus groups were made jointly by PRI and the Kaw Valley Heritage Alliance.

Participants were recruited as follows:

- *Non-Farm Households*. PRI recruited participants for the non-farm household focus groups using random digit dialing techniques in Manhattan and Topeka. Potential respondents were screened by age and education level. All participants were 18 years of age or older and participants in the Manhattan non-farm household focus group were required to have had a formal educational level of "some college" or higher while participants in the Topeka non-farm household focus group were required to have had an educational level of "some college" or less. To encourage attendance and participation, participants were paid $50 for attending and were assured all personal information would be kept confidential.

- *Farm Households*. PRI recruited participants for the farm household focus groups through referrals from Kaw Valley Heritage Alliance Steering Committee members. Farmers were then called until eight to twelve individuals agreed to participate. To encourage attendance and participation, farmer participants were each paid $50 for attending and assured all personal information would be kept confidential.

Each focus group lasted approximately one and a half hours. Separate questionnaires, or focus group protocols, were developed for the non-farm household and farm household groups. Two focus group facilitators from PRI were present at each meeting. In addition to leading the discussions, the facilitators took notes, tape recorded each session, and analyzed the results.

NON-FARM HOUSEHOLD FOCUS GROUPS

Key Issues

Need expressed for education and awareness of water quality issues

Non-farming household focus group participants stressed the need for education and awareness of water quality issues as a motivating factor in making changes to safeguard surface water quality. In response to the question, "What would it take to motivate people to make changes for the sake of improving water quality?" one rather typical group member answered: "Have discussions like this to educate people… not just the media educating, but a trusted ordinary person doing the educating."

Need expressed to know what personal actions can be taken

Participants were not sure what personal actions they could take that would have an appreciable effect on surface water quality. One asked: "What is it that we do that has such a dramatic impact that would make a difference if we changed our behavior?"

Contact with water improves awareness

Those who reported more contact with impaired surface water resources were more keenly aware of surface water quality issues. "I used to swim in Lake Shawnee, but I got ear infections so often I quit." "We used to catch good fish on Shunganunga Creek, but the water just stopped flowing. There are no floods anymore either." "They covered the whole creek bed with concrete, and it just ruined everything."

Concerns expressed about agricultural chemicals

Participants were extremely concerned about agricultural fertilizers and chemicals affecting surface water quality. When asked to rank their top two surface water quality concerns, pesticides were first and fertilizers were second. Most people felt no amount of pesticides in surface waters was tolerable.

Voluntary approaches, incentives, and new technologies favored

Focus group participants preferred voluntary approaches, education in the schools, and incentives rather than taxes, mandates, or new technologies as approaches to safeguard surface water quality. Participants believed people would be willing to do the right thing if they first understood why it is important. Participants felt people would be even more likely to do the right thing if they understand why it is important *and* if there would also be some incentive to do so. As for the development of new pesticides, some were skeptical because they believed, "All chemicals have side effects." Participants were not in favor of taxes or pricing schemes.

Topic 1
What do you think about the water you use?

Participants gave many uses of water such as laundry, dishes, bathing, cooking, and drinking. Participants unanimously chose drinking and cleaning as their primary and most important uses of water. Opinions varied widely as to whether they worried about the water they used.

- "It's just there. I don't give a second thought about it."
- "I drink water right out of the tap."
- "I don't worry about it."
- "There's been a lot of stuff in the paper lately, but it's been exaggerated. If you know all the treatments it goes through, you wouldn't worry about it."

Those who had cause to think about water were more likely to be concerned.

- "I've been thinking about that lately. A creek has dried up near where I live. The water table is shrinking. It's being depleted faster than it can be replenished."
- "I think you've got to think about it. You see reports in the news about water safety."
- "My husband was diagnosed with bladder displasia and was told by the urologist not to drink the water because of atrazine."
- "We're going to have to stop eating meat because livestock are going to ruin all the water in the world. Livestock contaminate the water table. there's an article in Time magazine this week about that."
- "I think a lot about whether I should eat fish from Tuttle Creek Reservoir."

Topic 2

Where do you get the water you use? Do you have different sources of water depending on the use?

While many participants said they regularly consumed straight tap water, many others said they consumed bottled or filtered water. Of those who consumed bottled or filtered water, some said they did so because bottled or filtered water tasted better than tap water while some said they had concerns about the safety of municipal drinking water. Those with safety concerns were primarily concerned with chemicals and pollutants stemming from drinking-water sources while a few were concerned with water distribution systems. Filtered water treatment systems included home water treatment and softening systems, faucet mounted filters, and filtration pitchers. Unfiltered tap water was unanimously considered fine for uses other than consumption.

- "We buy bottled water for consumption and use tap water for everything else."
- "We use a Britta filter and tap water."
- "I try to drink bottled water as much as possible."
- "I buy bottled water for drinking."
- "We use well water and have it checked. We have a water softener."
- "(We use) tap water, which is treated by the city and comes from the Kansas River."
- "It's all the same water. We use it for everything."
- "We use straight tap water."

Topic 3

Where do you get information on water quality issues? Do you consider those sources reliable?

Participants said they received local water quality information from television and newspapers. Some said they got information from posted advisories, personal contacts, and county water testing agencies. For national or general water quality information, participants used television, newspaper, magazines, and the Internet.

- "The county tests our wells, and I consider their tests to be reliable."
- "If I see it on the news, I believe it."
- "I don't think the media is very reliable. They don't have any idea what they're doing most of the time."
- "My own observations are my best source of information."
- "Topeka emergency management is my best source of information. They are in touch with the EPA (Environmental Protection Agency), KDHE (Kansas Department of Health and Environment), and everyone who monitors water. I work with them and know about any spills. Often those emergencies are not reported because if they were it would cause mass panic. If it is serious, it is reported, but if the contaminated water would at worst, say, just cause a 24-hour flu, it probably isn't reported."

Topic 4

How do you feel about the quality of the surface water in the Kaw Valley? Do you think action is needed to improve the quality of the surface water in the Kaw Valley?

Participants had mixed opinions about surface water quality in the Kaw Valley. Generally, participants felt water quality in the reservoirs was good while water quality in the rivers, streams, and creeks was not as good. The one exception to the generally favorable opinion of water quality in the reservoirs was Tuttle Creek Reservoir. Several people in the Manhattan focus group were concerned about the quality of water in Tuttle Creek Reservoir due to agricultural chemicals. Several said they would avoid eating fish caught from the lake.

Participants generally had a lower opinion of water quality in the rivers, streams, and creeks in the Kaw Valley. The Kansas River in particular was thought to have poor water quality. Still, several people thought surface water quality had improved over the years.

Despite participants' concerns, most were ambivalent about actions to improve surface water quality. Participants either thought the status quo was good enough or were pessimistic about the effectiveness of individuals or government to implement changes that would actually lead to improvements.

- "Things used to be a lot worse. People would dump everything into the river."
- "(Surface water) isn't too bad although there's probably farm chemicals."
- "I don't find it that bad, except Tuttle (Creek Reservoir)."
- "Milford (Lake) seems to be cleaner because it's coming off grassland. Tuttle is bad because it comes off farmland. Generally, the water quality is very good."
- "I wouldn't eat anything that comes out of Tuttle (Creek Reservoir)."
- "The water quality seems to be pretty good in the reservoirs."
- "I don't think there's much they could do."
- "Enforcement of regulations should be strengthened, but it's hard to enforce. Big money talks. It's like David and Goliath. The big corporations vs. one person doing the enforcement. Even if the corporation gets a fine, it's too small to be effective. They can expense the fine and deduct it from their taxes anyway."
- "Keep hog farms out!"
- "Keep pollution from Nebraska out."
- "Cut back irrigation, so we don't deplete the water table."

Topic 5

Is there too much atrazine in the water?

Participants were largely unfamiliar with atrazine. Those who were familiar were divided on their opinions. Those who felt levels of atrazine were fine tended not to have contact with surface water and felt that municipal water purification systems adequately removed atrazine from drinking water. Those who felt atrazine levels were not acceptable had more direct contact with surface water and/or had concerns for wildlife. A few also were not confident that municipal water purification systems adequately removed atrazine from drinking water.

- "Oh, yes."
- "No. What is it?"
- "The water department says atrazine levels are ok, but that came from a government source. So, you have to be the judge of whether that information is valid."
- "There shouldn't be any atrazine in the water. Any amount is too much."
- "Each expert tells you something different."
- "Yes, most definitely. Stricter enforcement is necessary to reduce atrazine."
- "I've heard of atrazine. isn't it a fertilizer used on crops? But, they said it is only present in small traces. It won't hurt."
- "They say there isn't too much atrazine in the water, but maybe in a few years they'll find out there has been too much. Who's to say 20 parts per billion or 30 parts per billion is safe?"
- "You'll know when someone gets sick...when they find it in someone's body."
- "How do you know what's too much. All people are different."
- "They need to find a chemical that's better and stop using atrazine."
- "If atrazine is a problem, it should be eliminated."
- "I haven't heard of it."

Topic 6
What would motivate people to make changes to safeguard surface water quality?

Participants felt education and awareness were the most important factors to motivate people to make changes to safeguard water quality. Water quality is not an issue that comes up in most people's daily life. Most did not have well formed opinions on what they thought about the state of current water quality. Education may take place in the schools or through media campaigns. Some felt the more grass roots the educational effort is, the more credibility they would give the effort.

- "Education."
- "Not just the media, but an ordinary person doing the education."
- "Educate in the schools."
- "Young people interested in water quality can have an impact. Change is a slow process. Change is hard. Educate the people."
- "Awareness, possibly through recreation."
- "Boycott companies that pollute."
- "Boycotts don't work. You've got to be educated."

Topic 7
In order to safeguard water quality in the Kaw Valley, what would you be willing to do?

The answers given in this section seem to indicate participants' lack of awareness of what they could do to protect surface water quality and their general lack of concern with water quality. Participants who felt surface water quality was a concern in the Kaw Valley were generally willing to do something to help improve it. However, they were not sure what they could do. Educational efforts to raise awareness should also raise awareness of actions that individuals could take. Actions must be perceived as making a difference and not be too costly.

- "I don't think we're doing much here to pollute."
- "Learn how to recycle."
- "Take shorter showers."
- "Save water outside in the garden by using soaker hoses and watering at the right time of the day."
- "I'd be willing to pay a tiny bit more in taxes - as long as you know where the money went (i.e. toward water quality)."
- "I'd be willing to take stuff to hazardous waste facilities."
- "People as a whole are a lot more aware than they were 20 years ago."

Topic 8

How would you react to the following policy approaches to safeguarding surface water quality?

Focus group participants preferred voluntary approaches, education, and incentives as approaches to safeguarding surface water quality. Participants generally believed people would do the "right things" if they perceived there was a problem and that actions could be taken to make a difference. Participants mostly opposed the use of new taxes, mandates, pesticides or technologies as approaches to safeguarding surface water quality. Participants were skeptical of new technologies and pesticides as some believed, "All chemicals have side effects."

Voluntary programs

- "That's a good step."
- "I would encourage it."

Public awareness programs

- "These are key. Give people the information and let them run with it."
- "Good. Especially in the schools."

Develop new pesticides

- "I'm skeptical about the ability to get something better. There needs to be a regulatory agency watching chemical companies."

Develop new technologies

- "Technology is what got us in trouble in the first place. Bad idea."
- "Technology needs to slow down. We need to get back to basics."

Incentives

- "Good idea. Apply incentives to corporations."
- "Give people pride, not monetary incentives."

- "Until the government mandates, say, recycling, it isn't going to happen."
- Changes in zoning and building codes
- "Using native plants for landscaping would be great. All chemicals have side effects. This is really the ideal solution. It's the real solution to most problems we have today."

Other Comments

- **"**We need alternatives to pesticides"
- "Make alternatives available cheaply. Until you do that, you won't have clean water."

FARM HOUSEHOLD FOCUS GROUPS

Key Issues

High awareness expressed for water quality issues

Farming household focus group participants, on the whole, knew more about surface water quality issues in the Kaw Valley and were more concerned about surface water quality than non-farming household focus group participants.

Local agriculture unfairly targeted for water quality problems

Farming household focus group participants felt the agricultural community had been unfairly targeted for surface water quality concerns. "Most of us have wells on our farms, and we're concerned about water quality. We love our families, too, and we don't want to poison them." Participants saw increased urban development, loss of farmland, and urban sprawl as an equally important problem that is largely overlooked or not given the emphasis that it should have in water quality issues. Participants from the northwest Kaw Valley were also concerned that much of the water quality problem has to do with agricultural chemicals washing downstream from Nebraska and into Tuttle Creek Reservoir.

K-State Agricultural Extension service believed a trusted source of information

Farming household focus group participants tended not to trust newspapers. "Reporters get it wrong a lot," said one participant. Trusted sources of water quality information include university studies and Kansas State University's Extension Service. However, several participants said the source of funding for university studies needs to be considered when evaluating the results.

Stopping soil erosion believed key

Participants felt the key to solving surface water quality problems was stopping erosion since many pesticides enter surface waters attached to soil particles. Most felt the Kaw, in particular, was much cleaner than it used to be. However, one participant stated: "The Kaw will never be

how 'they' want it," implying that the water in the Kaw would never be clear no matter what changes were made to safeguard water quality.

Dangers of farm atrazine questioned

Participants were not highly concerned with the possible dangers of atrazine in surface water. Conflicting studies reported in the press led participants to believe atrazine might not be as dangerous as it was initially thought. "(Atrazine) gives the best kill with the least money spent. I don't want to give it up unless it's absolutely necessary, or I have something better to go to." "Railroads use six times the amount (ratio) of atrazine that farmers use." "Why is it ok for (urban residents) to use chemicals on (their) yard, golf course, etc., but it's not ok for me to use them on my farm?" "Everyone can't afford organic."

Voluntary approaches, incentives, and new technologies favored

Farmers favored voluntary approaches, incentives, and new pesticides and production technologies as approaches to improving water quality rather than taxes, mandates, or pricing systems. "If taxes are to be used, there has to be some kind of fair compensation. Pay me for not being able to farm that 2 acres. Pay me to put in fences or waterers, etc. Otherwise, I'm out of business." "Programs like the Conservation Reserve Program have done wonders for water quality."

Topic 1
What do you think about the water you use?

Participants in the farm focus groups were generally comfortable with the water they used. Most used either well water or water from a rural water district for household purposes and water from ponds or wells for production purposes. With a few exceptions, most participants seemed to think there was not much to be concerned about regarding the quality of their wells or rural water.

- "I don't think there are any major pollutants. My kids play in the creek. I'm more worried about dry creeks and ponds."
- "We live just down from Farmland Industries and our water is fine."
- "We have to go deeper for water, which means it has more iron."
- "We have a well, and I'm concerned about nitrates."
- "There's a bad rap on the agricultural community when urban groups are doing plenty of damage. Golf course chemicals, football fields, lawns, and so on. Sandy fields cause run-off or if you get tons of rain following application of a pesticide."

Topic 2
Where do you get the water you use? Do you have different sources of water depending on the use?

Participants used either well water or rural water for home consumption and well water, spring water, creeks, and ponds for livestock. For reasons of cost, farmers used well water, surface

water, or spring water for farm operations. Most said their home drinking water did not undergo additional treatments or filtering once it reached their house.

- "We have watering ponds for livestock."
- "We have a spring, which we get water from."
- "We're on rural water at the house and we have a well and ponds for the farm."
- "We've got wells for irrigation."

Topic 3

Where do you get information on water quality issues? Do you consider those sources reliable?

In general, farmers in the Westmoreland focus group were skeptical of state water quality testing. Farmers in the Lawrence focus group got their information from newspapers, radio, and television. However, they least trust newspapers, radio, and TV. They said they do tend to trust water quality meetings hosted by state agricultural and water agencies, and university sources.

- "Reporters get it wrong a lot."
- "It's a concern, what is factual and what is hype."
- "It's a problem: how to make sure what you're reading is based on sound, scientific research, not just someone's opinion."
- "Lots of in-depth info doesn't get out."
- "The Extension Service is the most unbiased, but not always the most complete. They have a newsletter occasionally and also have literature available."
- "As for universities, it depends on where the money is coming from. But, universities are about all we have in terms of unbiased information. But, you can't always take what they say as Gospel."

Topic 4

How do you feel about the quality of the surface water in the Kaw Valley? Do you think action is needed to improve the quality of the surface water in the Kaw Valley?

In general, participants felt actions could be taken to improve surface water quality in the Kaw Valley, but overall, they were comfortable with the quality of the surface water in the Kaw Valley. (Soil erosion, waste runoff, and proper application of fertilizers and pesticides were all areas mentioned as improving, but more could be done.) The most popular ideas for actions that could be taken to improve water quality were incentives and cost sharing to help farmers implement best management practices. Reducing soil erosion was thought to be the key to improving water quality, as most herbicides and pesticides enter surface water attached to soil particles. To this end, programs that would compensate farmers for making soil conservation efforts were extremely popular.

- "Soil erosion is the biggest problem."
- "The quality is a lot better than it used to be, especially in the Kaw, because there's not as much stuff going into the river. It used to smell rotten, dead."
- "Livestock industries are doing better at controlling waste run-off."

- "Less amounts of chemicals are being used on crops. we're using more contact chemicals."
- "People are using different chemicals, genetic engineering, stuff that goes away in the sun. The public and farmers have asked for it."
- "The public is doing a better job of disposing of hazardous wastes such as oil and antifreeze."
- "There are some conservation efforts going on – native grasses, etc., taking land out of production, buffer programs up to 15 years. It looks very attractive at this point."
- "Some nice programs are available for preservation."
- "A lot more funds used to be available for building terraces and so forth."

Topic 5
Is there too much atrazine in the water?

Participants were concerned about atrazine, but some said they were not as concerned as they once were. Conflicting reports have changed participants opinions about the actual level of danger to human health and the environment that atrazine poses. Atrazine is a cost-effective chemical which farmers said they would be reluctant to give up without a compelling reason.

- "Atrazine gives the best kill with the least money spent. I don't want to give it up unless it's absolutely necessary, or I have something better to go to."
- "Railroads use six times the amount (ratio) of atrazine that farmers use."
- "Why is it ok for (urban residents) to use chemicals on (their) yard, golf course, etc., but it's not ok for me to use them on my farm?"
- "Atrazine is not as much of a problem as it used to be."
- "Three to five years ago we heard a lot about atrazine. Now we don't hear much. Apparently it's not newsworthy or we'd be hearing about it."
- "Atrazine is used less now."
- "I'm glad atrazine use levels were never mandated. Farmers have regulated themselves. We drink our water, too."
- "I'm not sure atrazine is really a carcinogen."
- "Some chemicals are taking the place of atrazine. It's being used differently now. We can use less and it's working better to control weeds. Application rates have dropped by ½."
- "Everyone can't afford organic."

Topic 6
What would motivate people to make changes for the sake of safeguarding water quality?

Financial incentives are powerful motivators. One farmer pointed out, "Farming is a business. We have to make a profit." Thus, the most powerful motivators are financial incentives. Farmers said they are taking steps on their own to safeguard water quality such as using rotational grazing of livestock and fencing off creeks. In any case, programs that provide cost sharing, payments, or reimbursement are always thought to be most effective in motivating changes in farming practices.

- "CRP has done wonders for water quality -- soil conservation and cleaner run-off."
- "Government incentive programs would help motivate people."

Topic 7
In order to safeguard water quality in the Kaw Valley, what would *you* be willing to do?

Farmers generally felt they are concerned about water quality, have taken proper steps to safeguard water quality, and would continue to integrate water quality-minded steps into their operations. All said they wanted to protect water quality and have integrated best management practices to the extent it was economically viable. Participants said they would continue to be cautious with their application of chemicals and would take advantage of opportunities to undertake additional water-safeguarding activities when it made economic sense to do so.

- "I think we're already doing what we should be."
- "We have to be smart and not do dumb things with our chemicals."

Topic 8
How would you react to the following policy approaches to safeguarding surface water quality?

Farmers favored voluntary approaches, incentives, new pesticides, and new production technologies as approaches to improving water quality. Participants were generally opposed to taxes, mandates, and pricing systems.

Develop new pesticides

- "Yes, I'd like to see better, more effective pesticides. However, the current pesticides available are better and more targeted."

Develop new technologies

- "It has to pay for itself."

Changes in zoning and building codes

- "I think limiting urban sprawl is a good idea."

Mandates

- **"**No, bad idea."
- "We're not in favor of mandates."
- "I think there are a lot of things that can be done instead of mandates. With atrazine education, it's working. We knew we would have to give it up if we didn't fix it on our own."
- "Rather than lawsuits, I'd rather see them come in and help people make changes and provide education."
- "Use mandates as a last resort."

Taxes

- "An up-front tax is better than an after use tax."
- **"**There has to be some kind of fair compensation. Pay me for not being able to farm that two acres. Pay me to put in fences. Pay me to put in waterers. Or, I'm out of business."
- **"**That really bothers me, unless it was a sales tax that would distribute it."
- **"**It seems like taxes don't ever get back where they need to be."

Other Comments

Participants in the Lawrence Farm Household Focus Groups were very cautious and skeptical about their participation in the focus group. After the discussion, one farmer spoke for all the participants' sentiments when he said:

- "I don't know how this study is ever going to benefit us. Some group is just going to use it as ammunition against us."

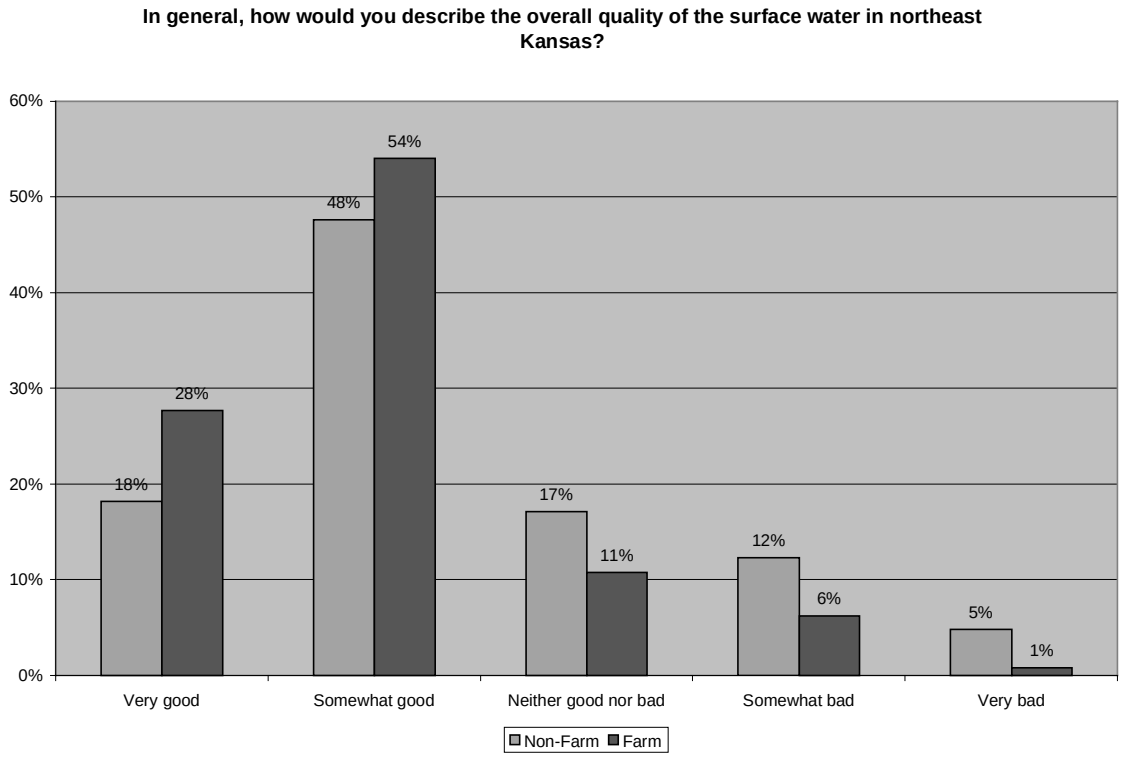
Others wanted to remind us:

- "Remember, farming is a business. It's money, conservation, and topsoil preservation. I want my kids to farm. They can't farm on rock and clay."
- "The farmer is just as concerned about water quality as anyone. we're not going to do something to hurt ourselves."
- "The economy is the basis of decision making for agriculturists."
- "People who are doing things wrong are getting the government assistance, but the ones who are doing it right get zero."
- "Or, the person who buys it after the one who messes it up gets nothing."

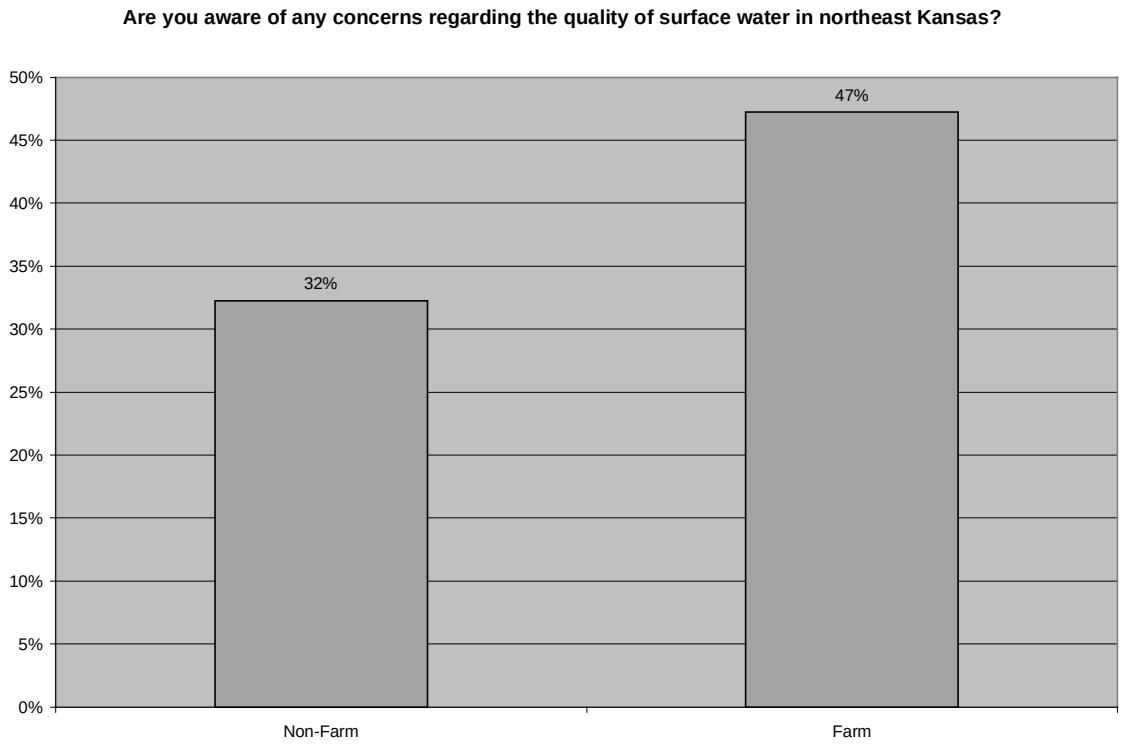
CHAPTER 4
SURVEY FINDINGS

Are there perceived water quality problems in the Kaw Valley?

Respondents generally felt the quality of surface water in the Kaw Valley was good. 66 percent of non-farm and 82 percent of farm survey respondents said water quality was “good” or “very good”.



Most respondents had not heard of water quality concerns in the Kaw Valley. Only 32 percent of non-farm respondents and 47 percent of farm respondents said they were aware of water quality concerns.



Awareness of surface water quality issues depends on the respondent's recreational use of water. Both non-farm and farm respondents who had interacted with surface water in the past year were more likely to have heard of surface water quality concerns.

Table 4.1
Recreation and water quality concerns

		Are you aware of any concerns regarding the quality of surface water in northeast Kansas?
Non-farm households		Yes
Have you visited any lakes, rivers, streams, or ponds in northeast Kansas in the past year?	Yes	37%
	No	23%
Farm households		
Have you visited any lakes, rivers, streams, or ponds in northeast Kansas in the past year?	Yes	51%
	No	37%

SOURCE: KU-PRI

However, personal judgments about water quality were affected very little by interactions with surface water.

Table 4.2
Recreation and water quality judgments

		How would you describe the overall quality of surface water in northeast Kansas?				
		Very Good	Somewhat Good	Neither Good nor Bad	Somewhat Bad	Very Bad
Non-farm households						
Have you visited any lakes, rivers, streams, or ponds in northeast Kansas in the past year?	Yes	17%	48%	15%	14%	6%
	No	22%	45%	22%	9%	2%
Farm households						
Have you visited any lakes, rivers, streams, or ponds in northeast Kansas in the past year?	Yes	32%	53%	11%	4%	1%
	No	28%	55%	11%	6%	1%

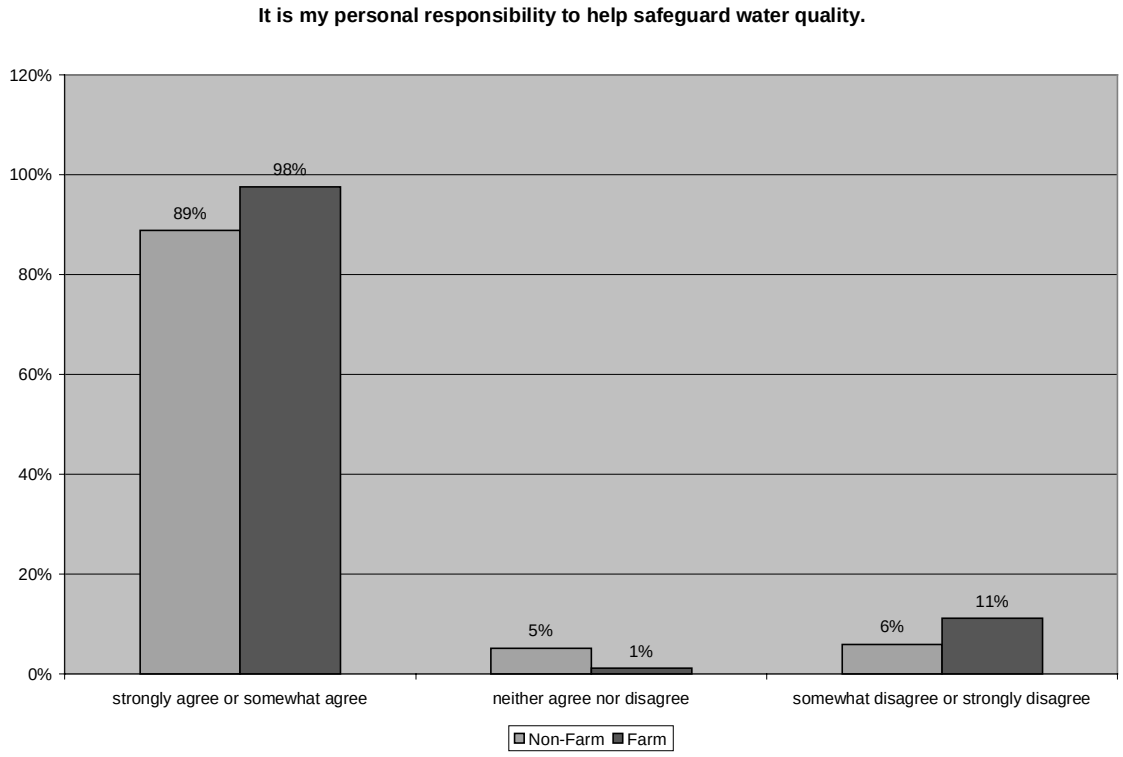
SOURCE: KU-PRI

Interestingly, the effects of interactions with surface water on water quality judgments appears to be in opposite directions for non-farm and farm respondents. Non-farmers who had interacted with surface water were slightly *more* likely to think surface water quality was poor, while farmers who interacted with surface waters were slightly *less* likely.

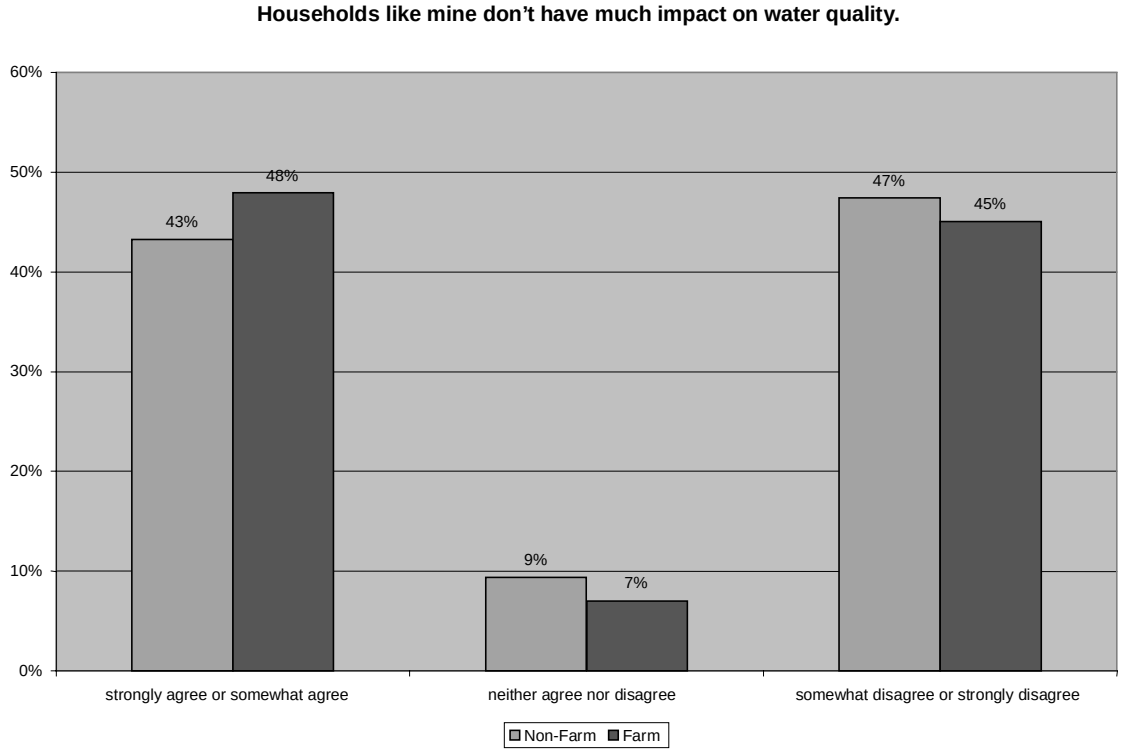
Who is responsible?

Most people accept responsibility in the abstract for surface water quality and agree that their behavior *could* affect water quality. But, fewer respondents *actually* believe their households affect water quality now or will affect water quality in the future.

Almost all respondents believed they had a personal responsibility to safeguard surface water quality. 89 percent of non-farm respondents agreed they had a personal responsibility to safeguard surface water quality and 98 percent of farm respondents agreed they had a personal responsibility to safeguard surface water quality.

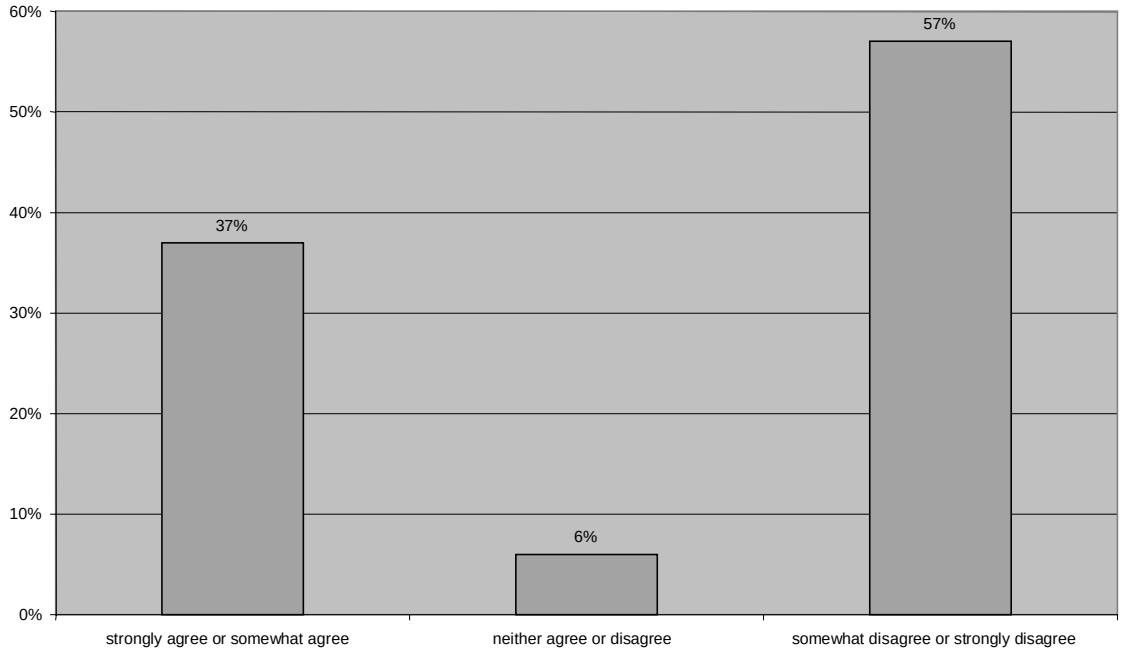


Similarly, almost all respondents said personal lifestyle choices could impact surface water quality. 86 percent of non-farm and 92 percent of farm respondents said personal lifestyle choices could impact surface water quality. (Graph not shown.) However, 43 percent of non-farm and 48 percent of farm households believed that households like theirs have little impact on water quality.

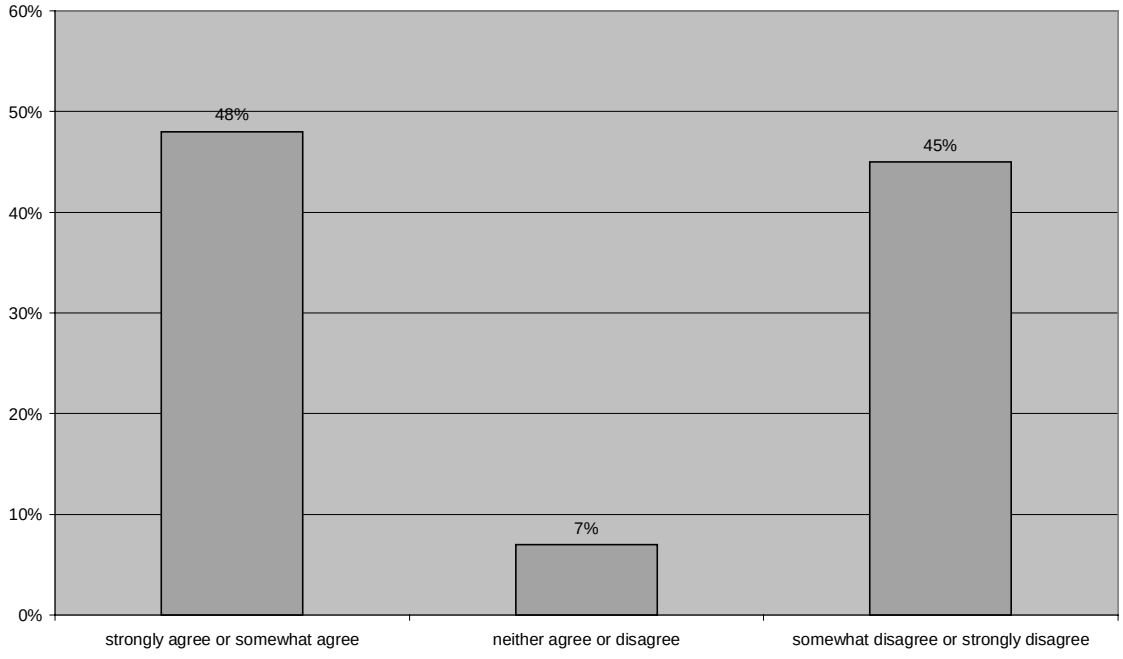


Non-farm households in the central Kaw Valley region of Leavenworth, Douglas, and Shawnee counties disagreed more strongly than other households with the statement “households like mine don’t have much impact on water quality.” Fifty-seven percent of non-farm households in Leavenworth, Douglas, and Shawnee counties disagreed that households like theirs had little impact on water quality versus 45 percent in the western counties and 44 percent in the eastern counties.

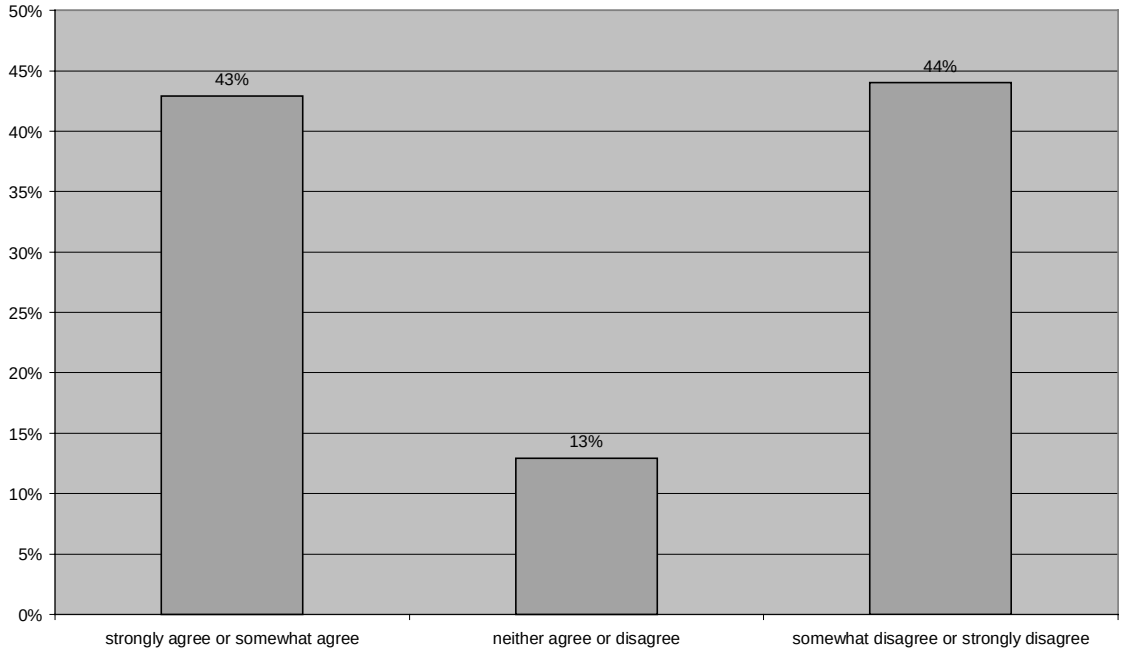
Households like mine don’t have much impact on water quality.
(Leavenworth, Douglas, and Shawnee counties)



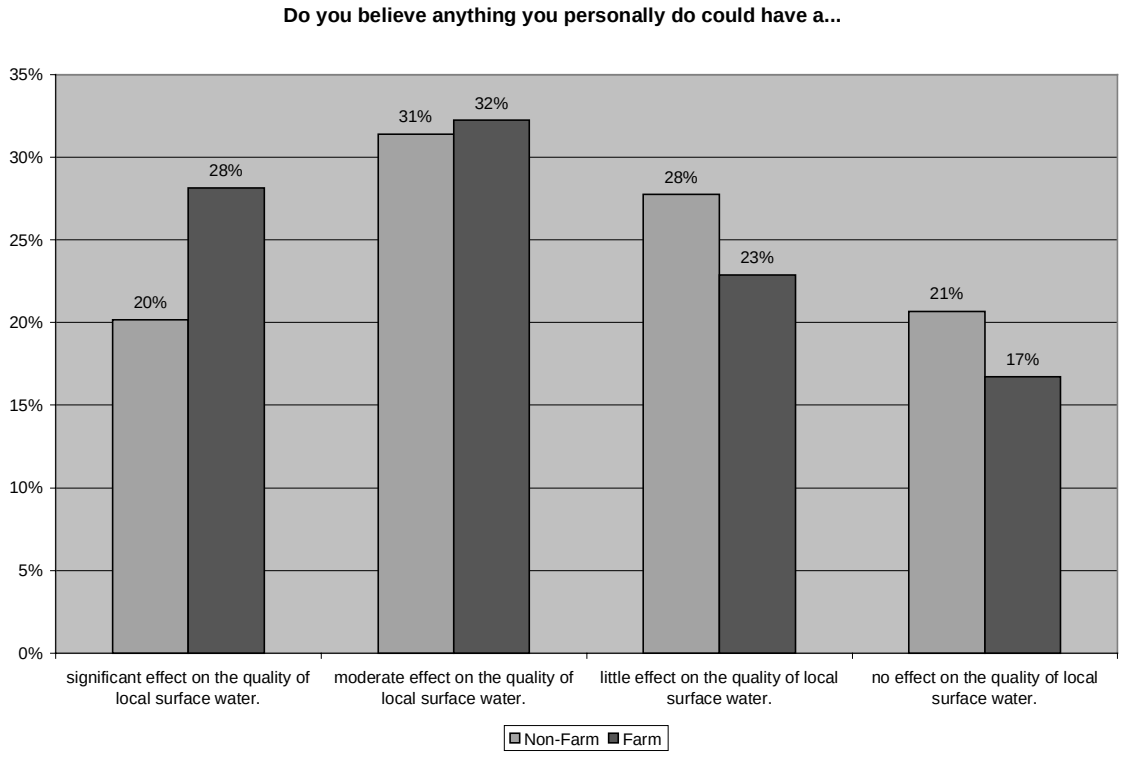
Households like mine don't have much impact on water quality.
(Western Kaw Valley counties)



Households like mine don't have much impact on water quality.
(Johnson and Wyandotte counties)

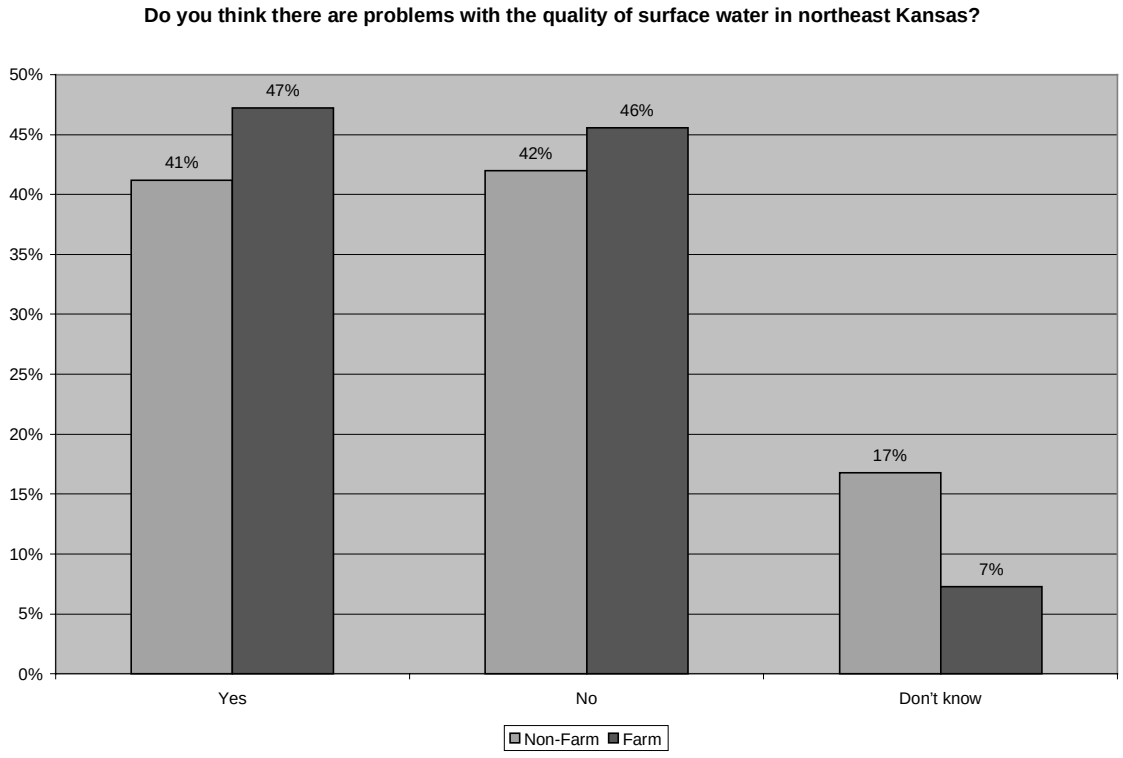


While most respondents agree that that household lifestyle could affect water quality *in principle*, only a bare majority (51 percent) of non-farm respondents thought they could do anything *in practice* to have a significant or moderate impact on surface water quality. Farm respondents displayed a similar but greater of sense of responsibility – 60 percent of farm respondents believed their personal actions could have a significant or moderate impact on surface water quality.

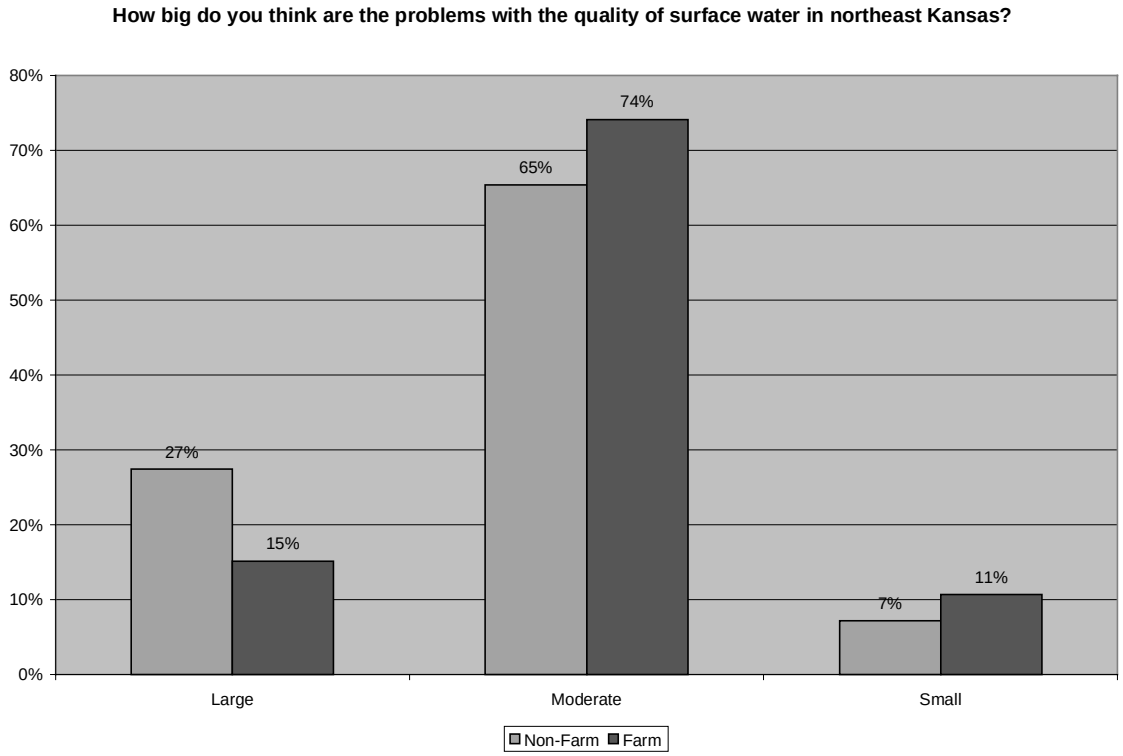


How well informed are individuals about possible problems?

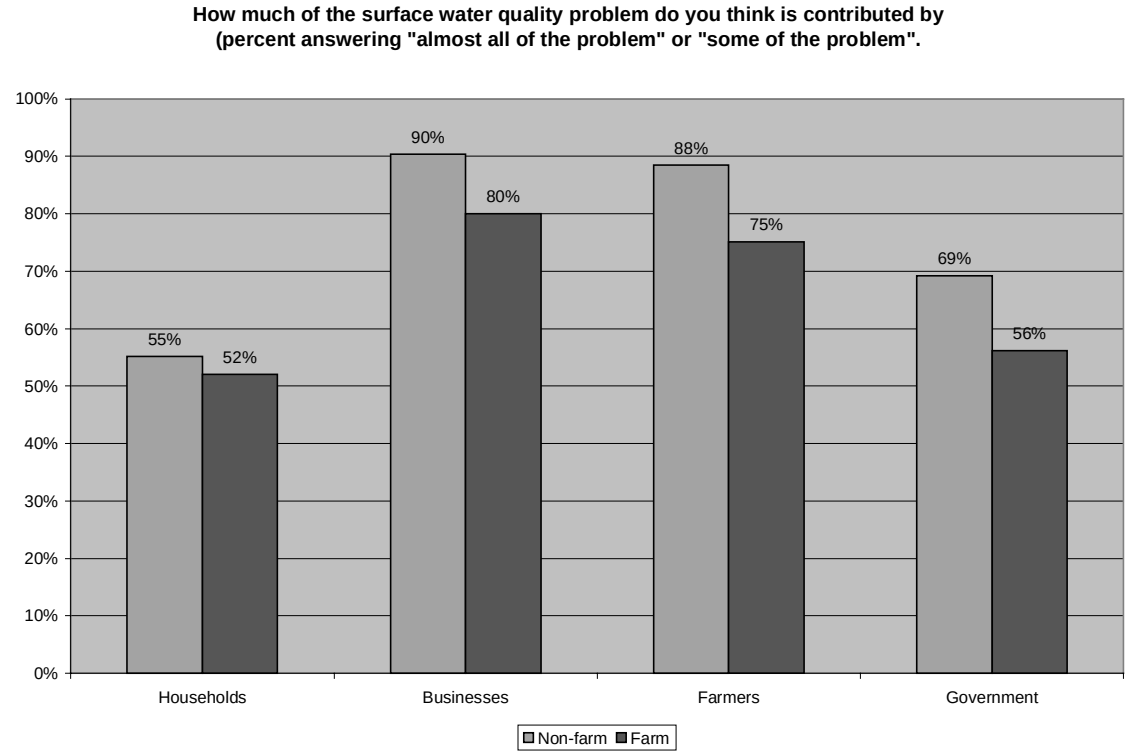
Both farm and non-farm respondents were split on whether they think there are surface water quality problems in the Kaw Valley. 41 percent of non-farm respondents thought there were problems with surface water quality in the Kaw Valley vs. 42 percent who did not. 47 percent of farm respondents thought there were problems with surface water quality in the Kaw Valley vs. 46 percent who did not.



Of those who think there are problems, most think the problems are moderate. 65 percent of non-farm respondents and 74 percent of farm respondents who thought there were surface water quality problems thought that the problems were moderate.

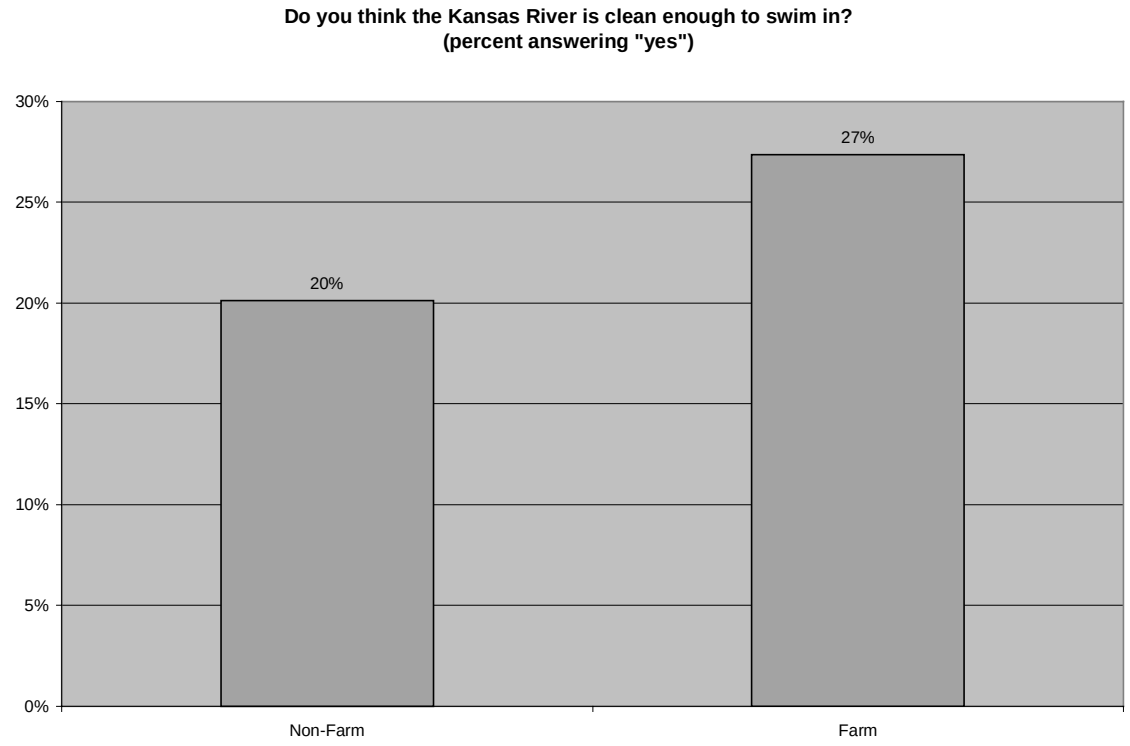


Blame for surface water quality problems is distributed widely. Among those who thought there were problems, industry, agriculture, government, and households are all perceived to be responsible. However, households were perceived as being somewhat less responsible than other institutions. Interestingly, non-farm and farm respondents agree on the rank ordering of responsibility to that should be assigned to farmers. Farmers are viewed as less responsible than businesses, but more responsible than households or government.

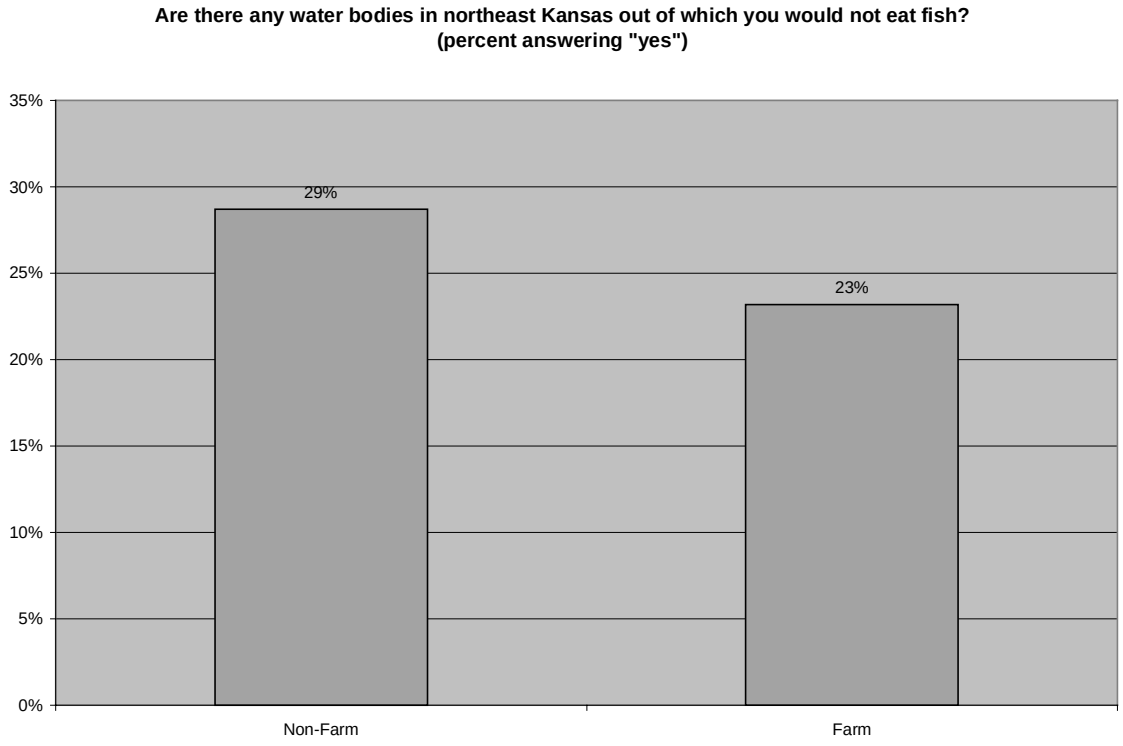


There is a degree of ambiguity in the idea that government bears a share of responsibility for water quality problems. Respondents might believe that government itself is acting as a polluter, or they might believe that government is not doing enough to regulate private pollution. They were not asked about the former possibility, but as we shall see below, both non-farm and farm majorities do believe that stronger government regulatory action is needed to help clean up Kaw Valley surface waters.

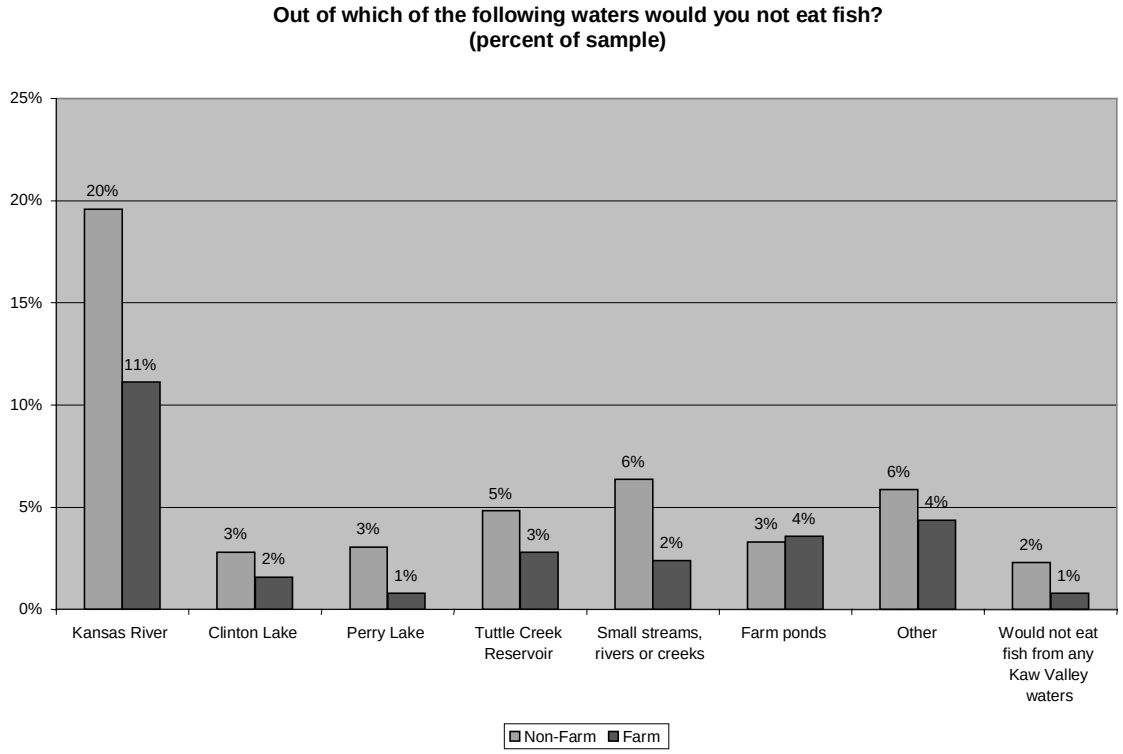
Respondents are rather negative about Kaw River swimability and yet not highly worried about fishability. Most did not think the Kansas River was clean enough to swim in. 20 percent of non-farm respondents and 27 percent of farm respondents thought the Kansas River was clean enough to swim in.



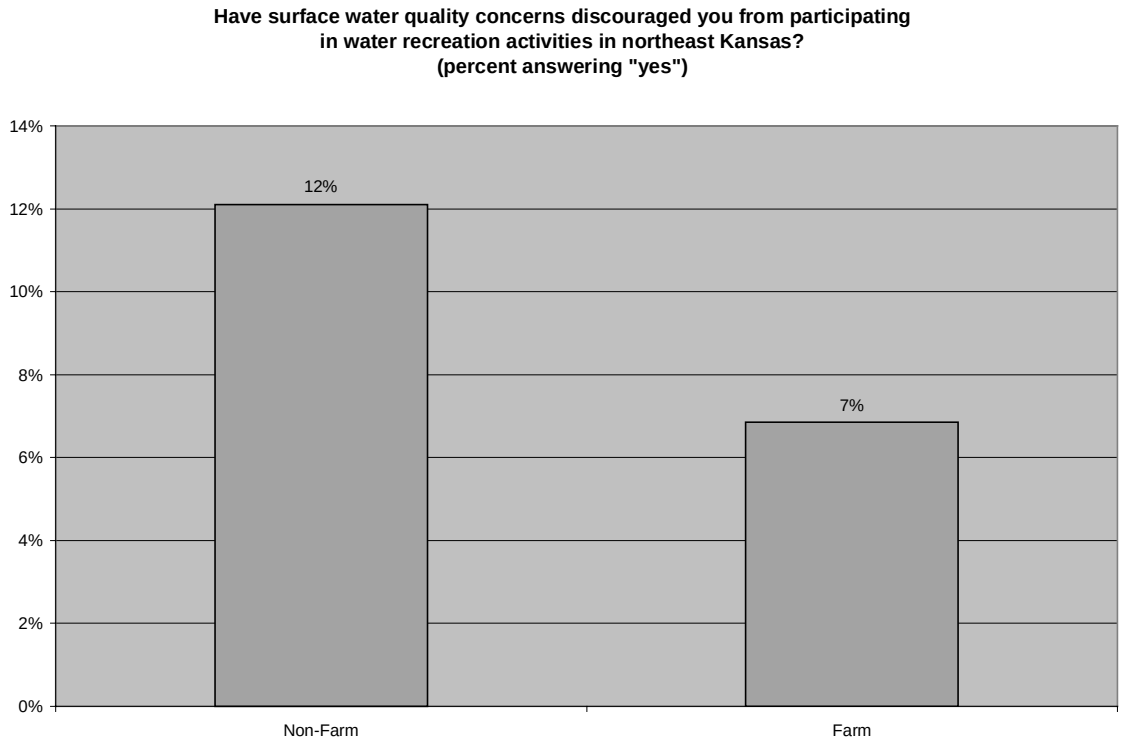
Roughly a fourth of respondents said there were bodies of water in northeast Kansas out of which they would not eat fish. 29 percent of non-farm respondents and 23 percent of farm respondents said there were bodies of water out of which they would not eat fish.



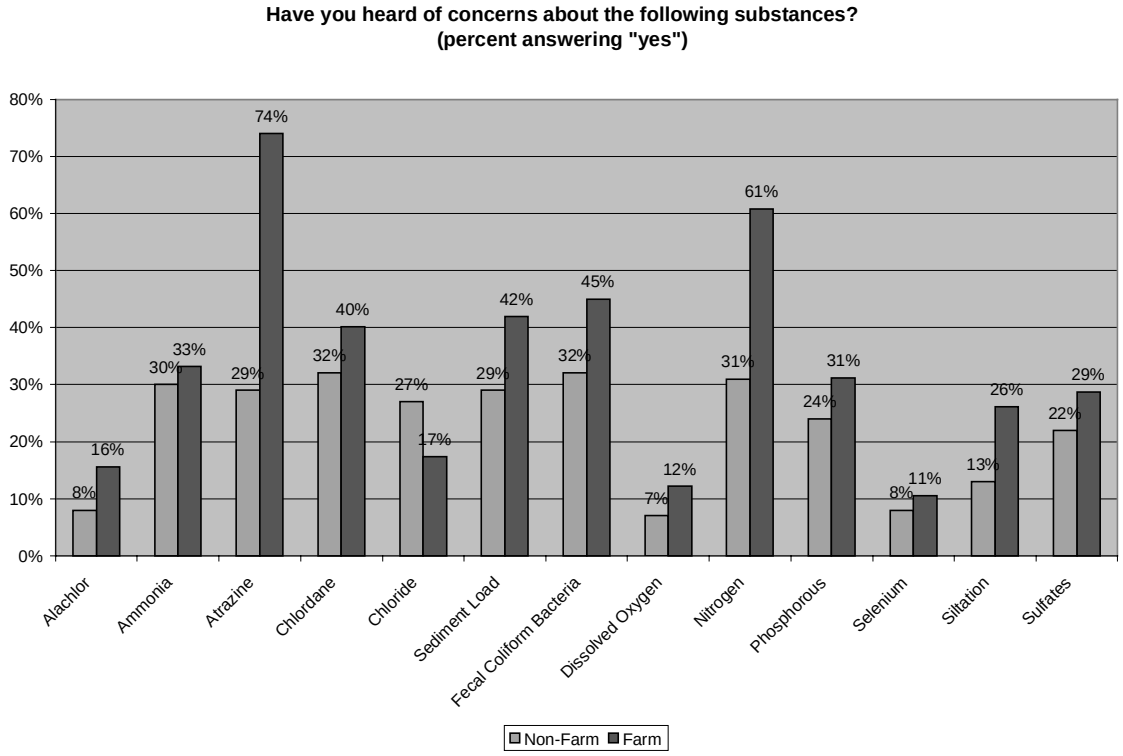
The Kansas River was mentioned most often as the body of water out of which respondents would not eat fish. 20 percent of all non-farm respondents and 11 percent of all farm respondents said they would not eat fish out of the Kansas River. However, this result may reflect nothing more than the geographical fact that the river extends more widely than its tributaries. Nearly all respondents may have some degree of familiarity with the Kaw, while only a fraction have familiarity with any given reservoir or creek



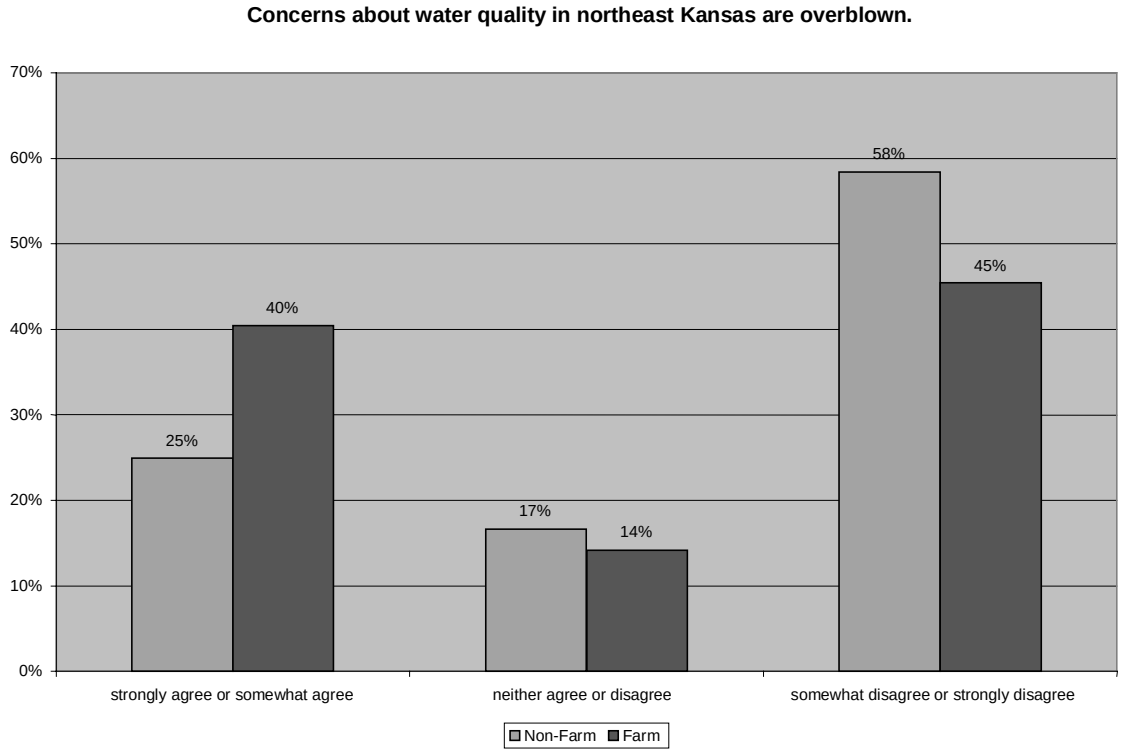
Most respondents did not appear to feel water recreational activities are being limited by water quality. Only12 percent of non-farm respondents and 7 percent of farm respondents said water quality concerns had discouraged them from participating in water recreational activities in northeast Kansas.



There are significant variations in awareness of particular types of pollution. Non-farmers tended to be unaware of concerns about any specific substances. Farmers were very aware of possible problems with Atrazine and nitrogen and less aware of other substances, though generally more aware than non-farmers.

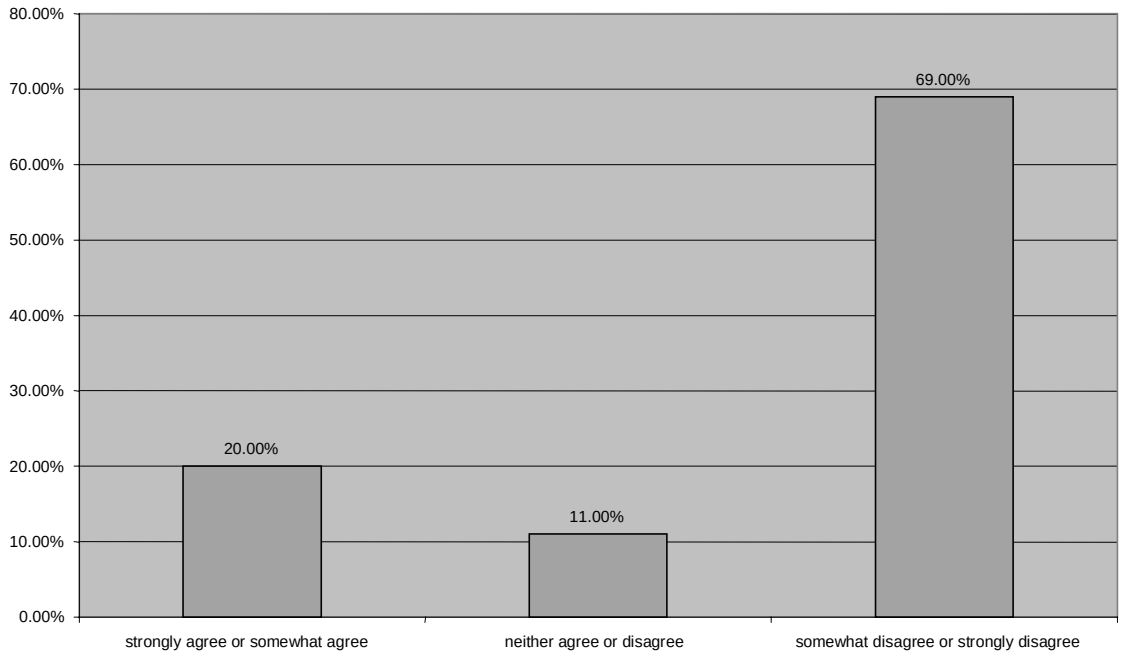


Most non-farmers do not think water quality concerns they have heard about are overblown (58 percent, versus 25 percent who do). Farmers are split. 45 percent of farm respondents do not think water quality concerns are overblown, versus 40 percent who do.

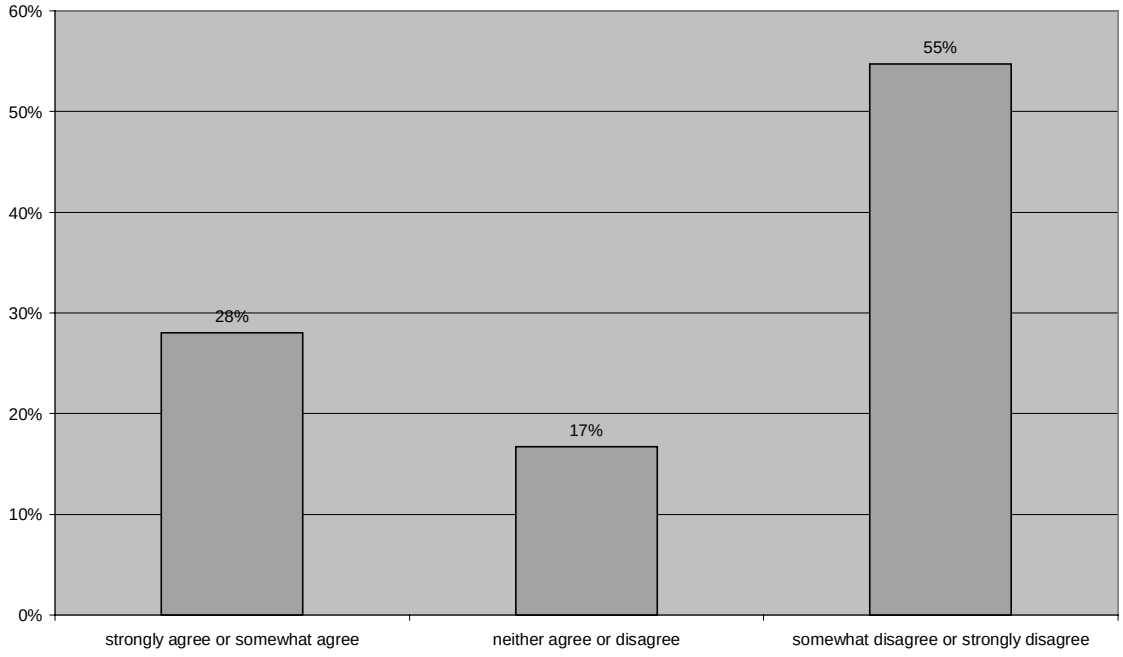


However, among non-farm households, there are differences between regions as to whether surface water quality concerns are believed to be overblown. Non-farm households in Leavenworth, Douglas, and Shawnee counties were significantly less likely to think water quality concerns were overblown than non-farm household households in the western rural and eastern urban counties. 69 percent disagreed with the statement: “Concerns about surface water quality in northeast Kansas are overblown” versus 55 and 54 percent in the western rural and eastern urban counties.

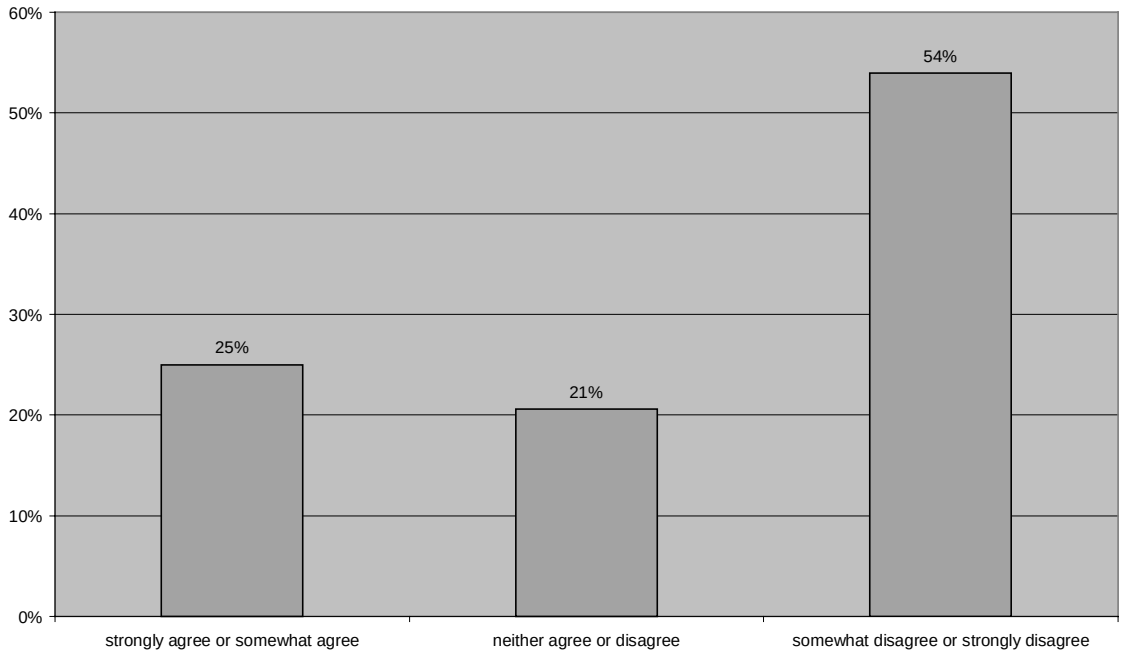
Concerns about surface water quality in northeast Kansas are overblown.
(Leavenworth, Douglas, and Shawnee counties)



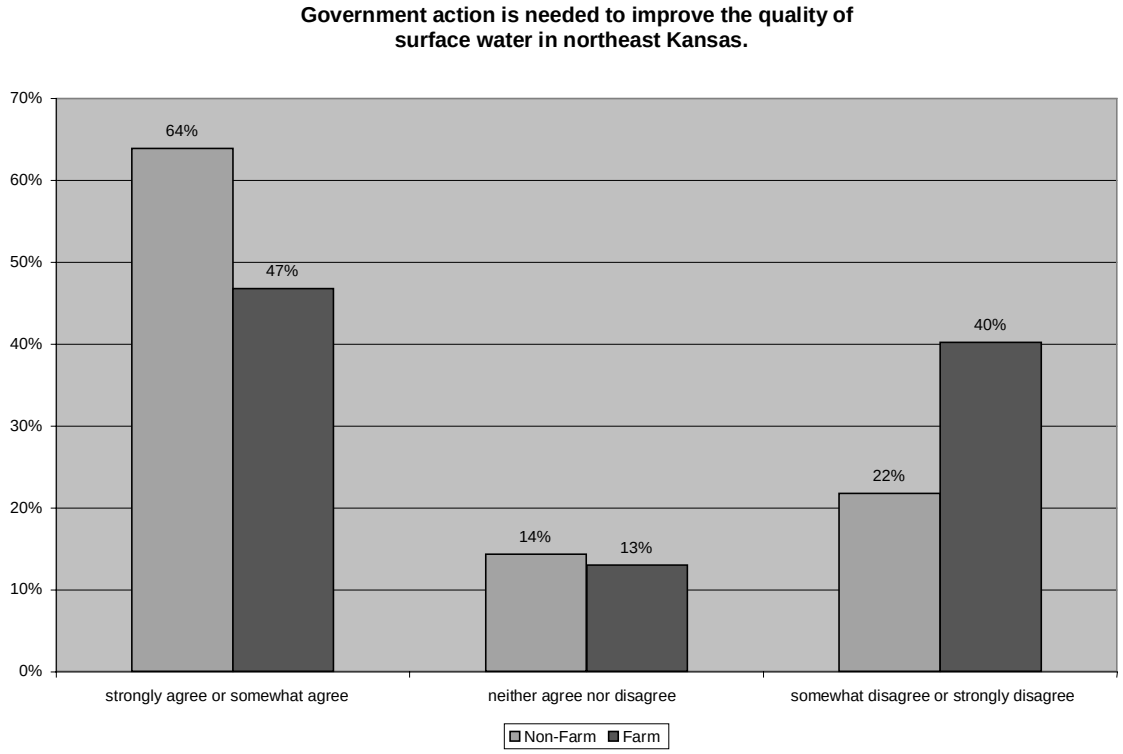
Concerns about surface water quality in northeast Kansas are overblown.
(Western Kaw Valley counties)



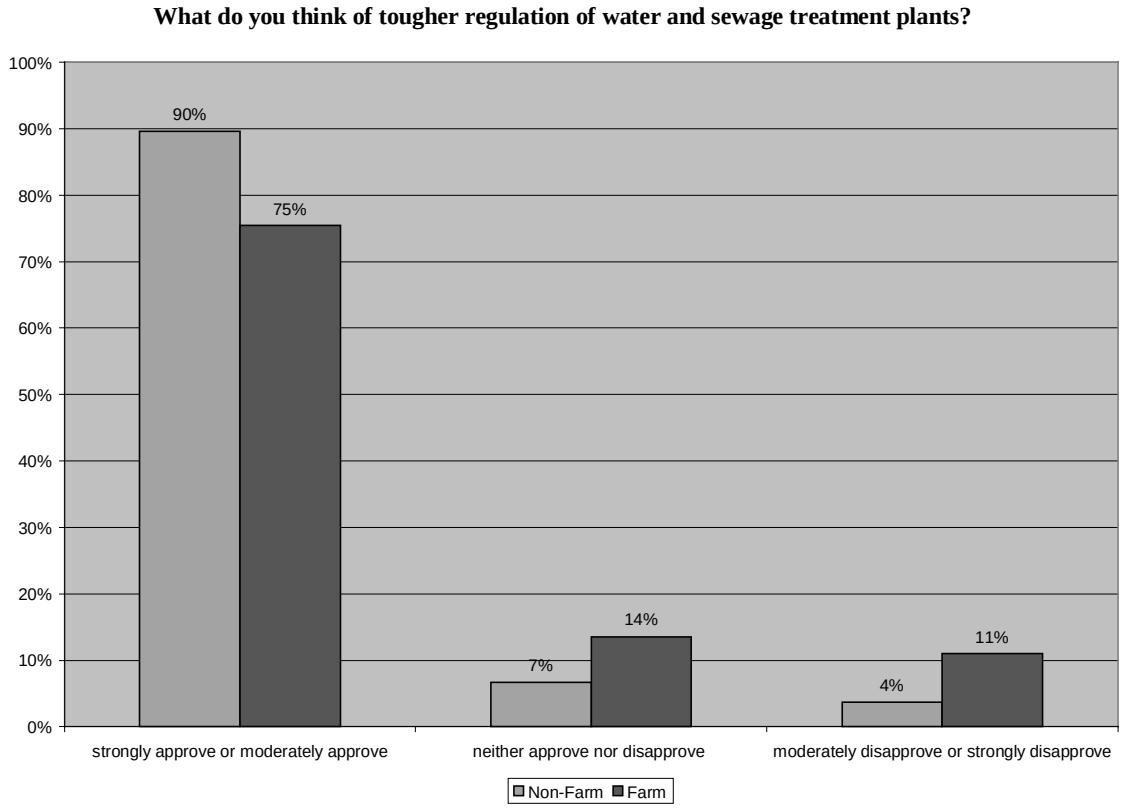
Concerns about water quality in northeast Kansas are overblown.
(Johnson and Wyandotte counties)



Most non-farm respondents think government action is needed to improve the quality of surface water in northeast Kansas - 64 percent of non-farm respondents agree strongly or somewhat. Farmers are more likely than not to agree that action is needed -- 47 percent of farm respondents agree strongly or somewhat strongly, versus 40 percent who disagree strongly or somewhat strongly.

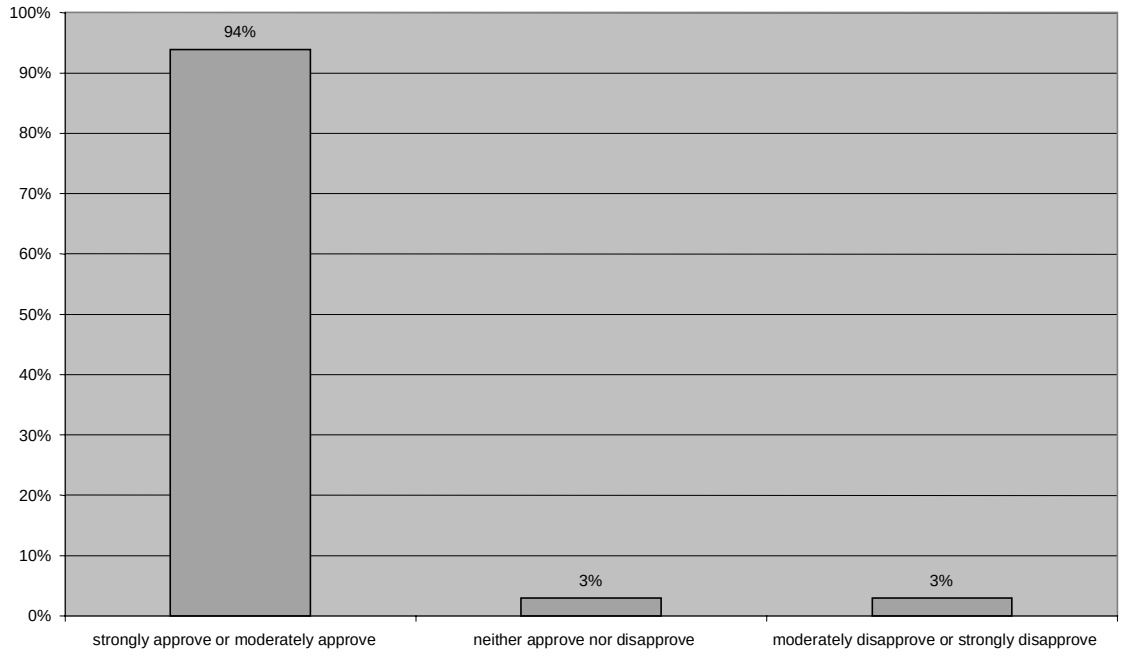


Specific actions the public would support include tougher regulation of water and sewage treatment plants. 90 percent of non-farm respondents and 75 percent of farm respondents said they would support tougher regulation of water and sewage treatment plants.

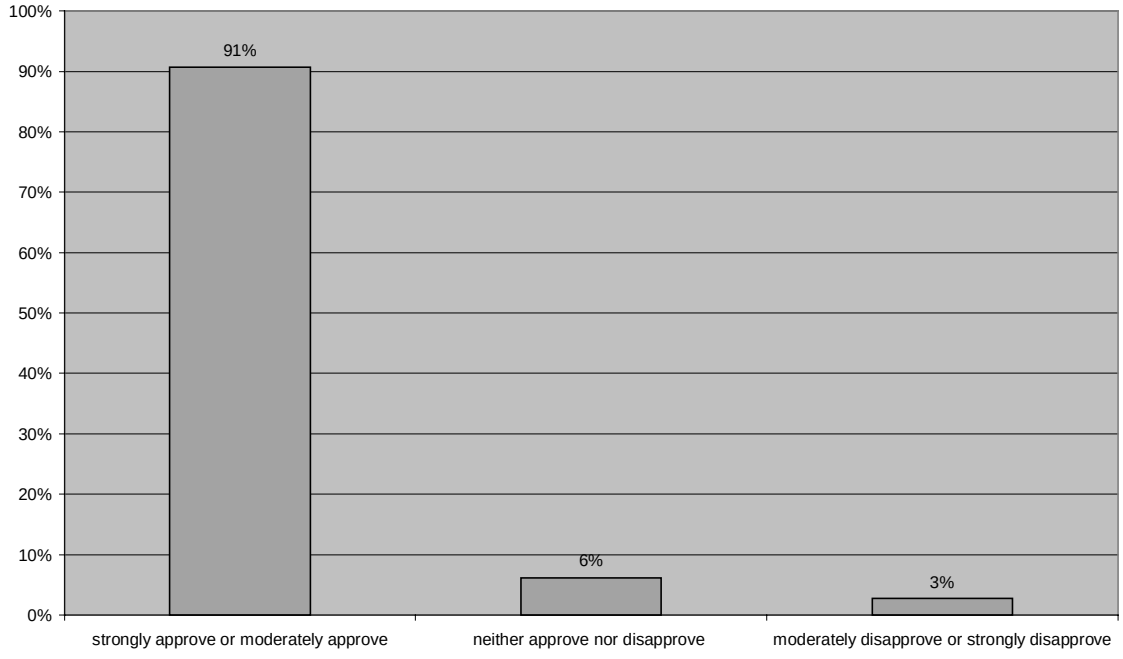


Among non-farm respondents, although support for this measure was high throughout the region, support was significantly higher in the central and eastern urban counties of Douglas, Shawnee, Johnson and Wyandotte. 94 and 91 percent of these households support tougher regulation of water and sewage treatment plants versus 85 percent in the western rural counties.

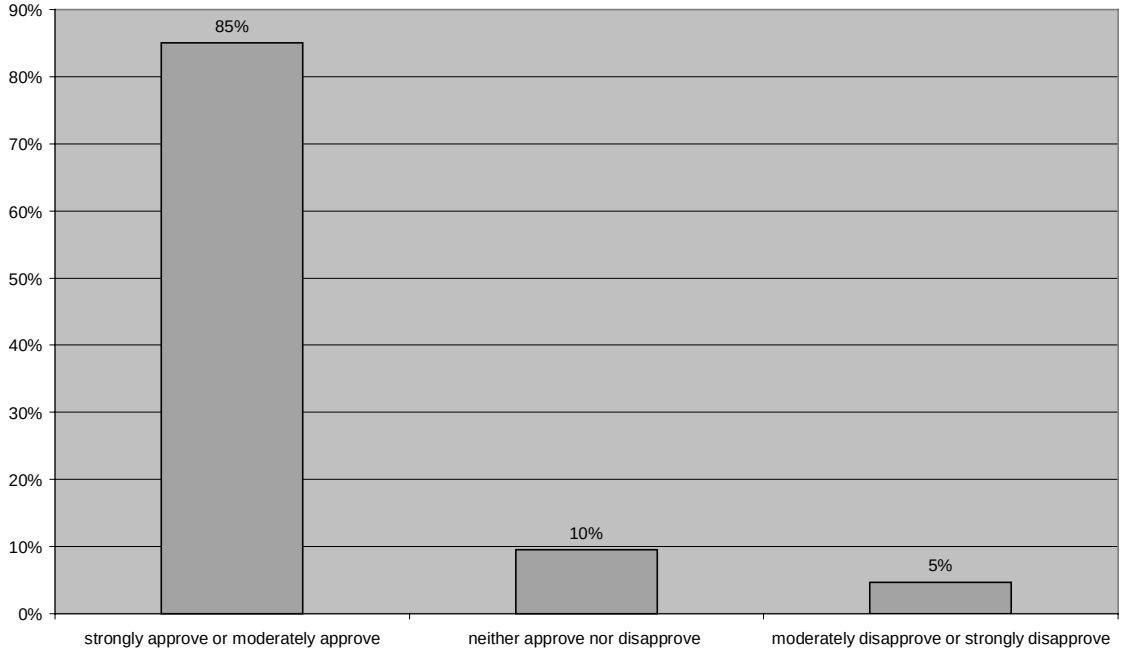
What do you think of tougher regulation of water and sewage treatment plants?
(Leavenworth, Douglas, and Shawnee counties)



What do you think of tougher regulation of water and sewage treatment plants?
(Johnson and Wyandotte counties)

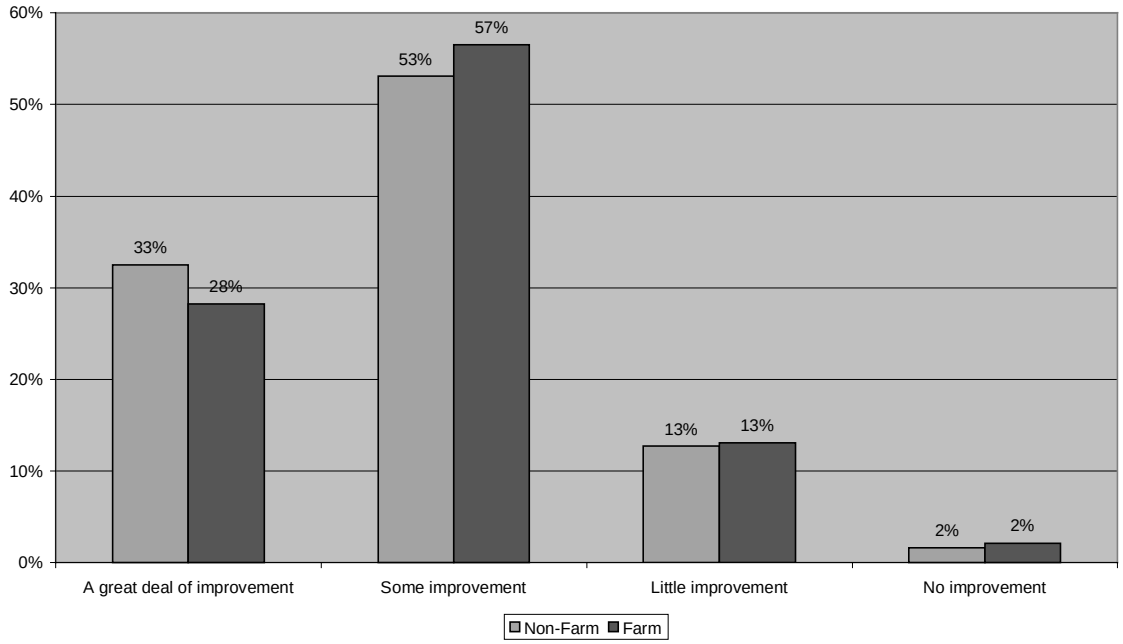


What do you think of tougher regulation of water and sewage treatment plants?
(Western Kaw Valley counties)



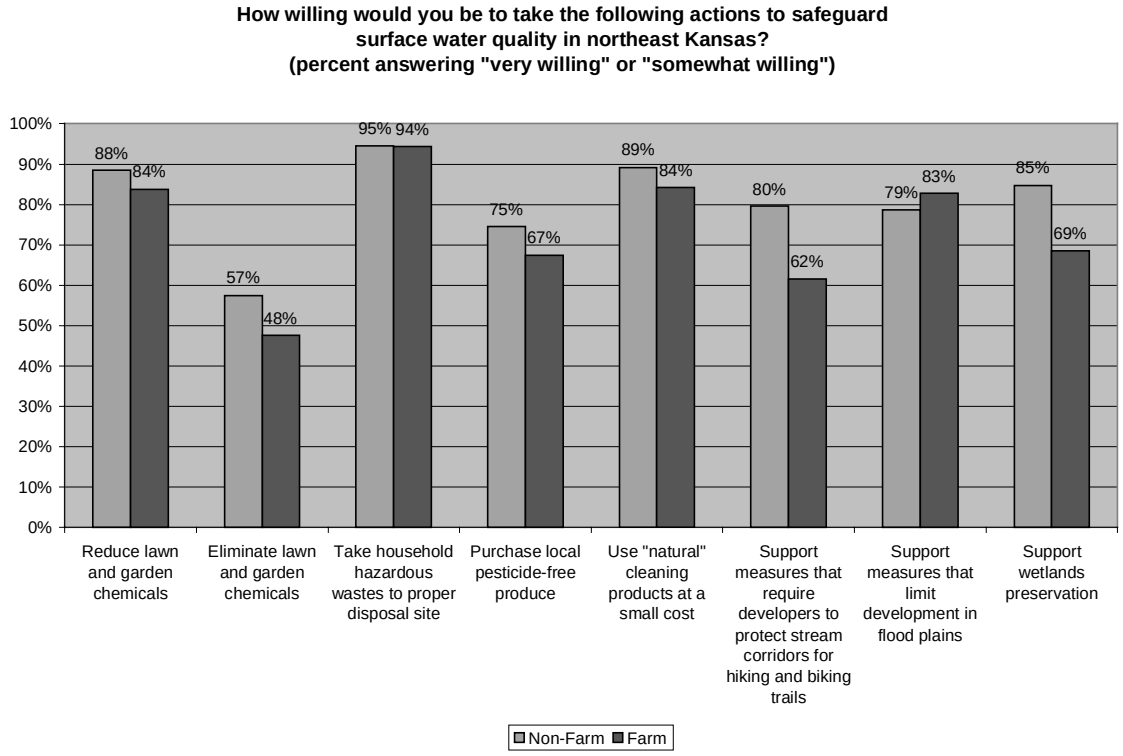
Respondents do think there would be some improvement if everyone took steps to improve surface water quality. 86 percent of non-farm respondents and 85 percent of farm respondents think there would be improvement.

If every household/farmer/rancher in northeast Kansas took steps to try to improve water quality, how much of an improvement in water quality do you think there would be?



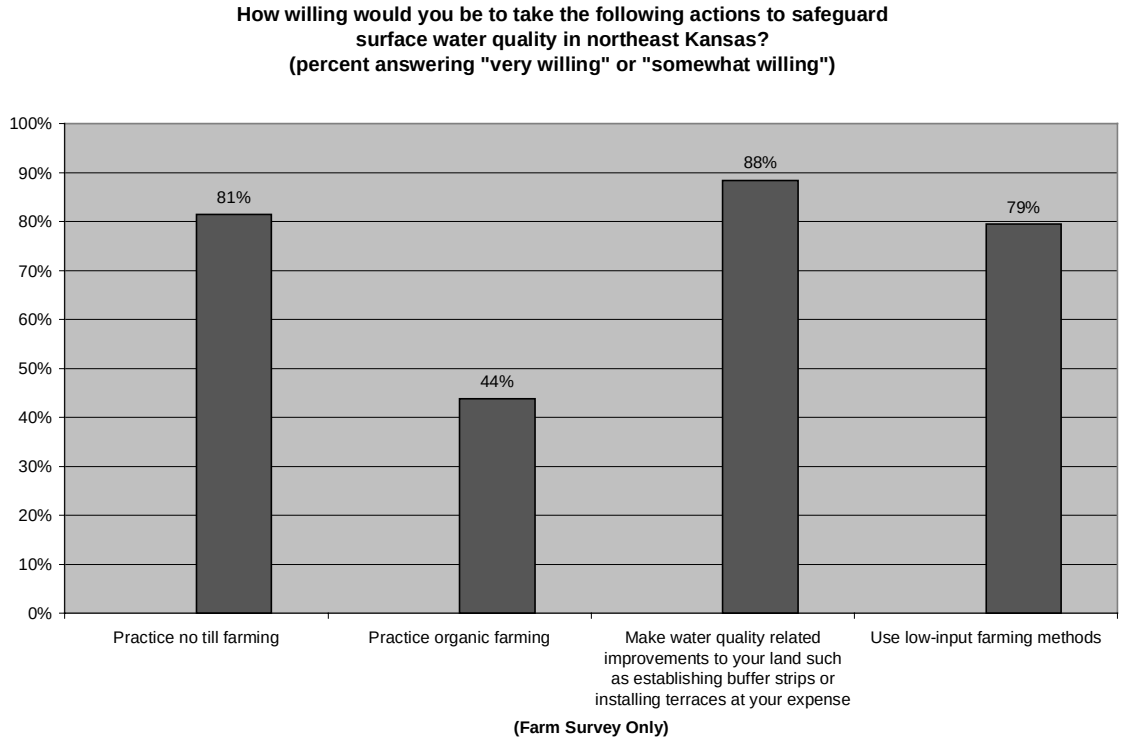
What actions will the public support?

Majorities of voters appear to support every off-farm action we asked about, even when personal action is required. Voluntary actions and educational programs were most favored. Majorities of farm respondents support every off-farm action except eliminating lawn and garden chemicals, and even in that case positive votes outweigh negative votes.



What steps will farmers support on the farm? Majorities of farmers support low-impact farming methods. A large minority of farmers (44 percent) stated that they would be willing to practice organic farming.

We did not ask what steps Kaw Valley farmers have actually taken, but information from other sources implies that the actual water-conservation practices of farmers lag behind their stated willingness to act. Presumably the willingness to act is tempered by economic reality – the farmer must try to make a living and stay in business. Nevertheless, there does seem to be strong interest among Kaw Valley farmers in, for example, switching to organic production methods.[1]



[1] As a result of newspaper accounts of a study of demands for organic produce, we received approximately 8 unsolicited inquiries about entering organic farming. That is considerably more interest than newspaper accounts of our work usually stir up. Our contacts at Kansas Rural Center, KSU Extension, and elsewhere also report that they are receiving inquiries on entering organic production.

What sources of information are viewed as credible?

Respondents felt the most reliable sources of information about water quality were:

- Kansas State University Agricultural Extension Service
- State Universities
- Kansas Department of Agriculture
- Natural Resources Conservation Service
- Kansas Department of Health and Environment.

Between 86 percent and 95 percent of farmers and non-farmers ranked each of the above sources as “somewhat reliable” or “very reliable.”

In addition, non-farm respondents gave fairly ratings (at least 68 percent approval) to every other information source we asked about.

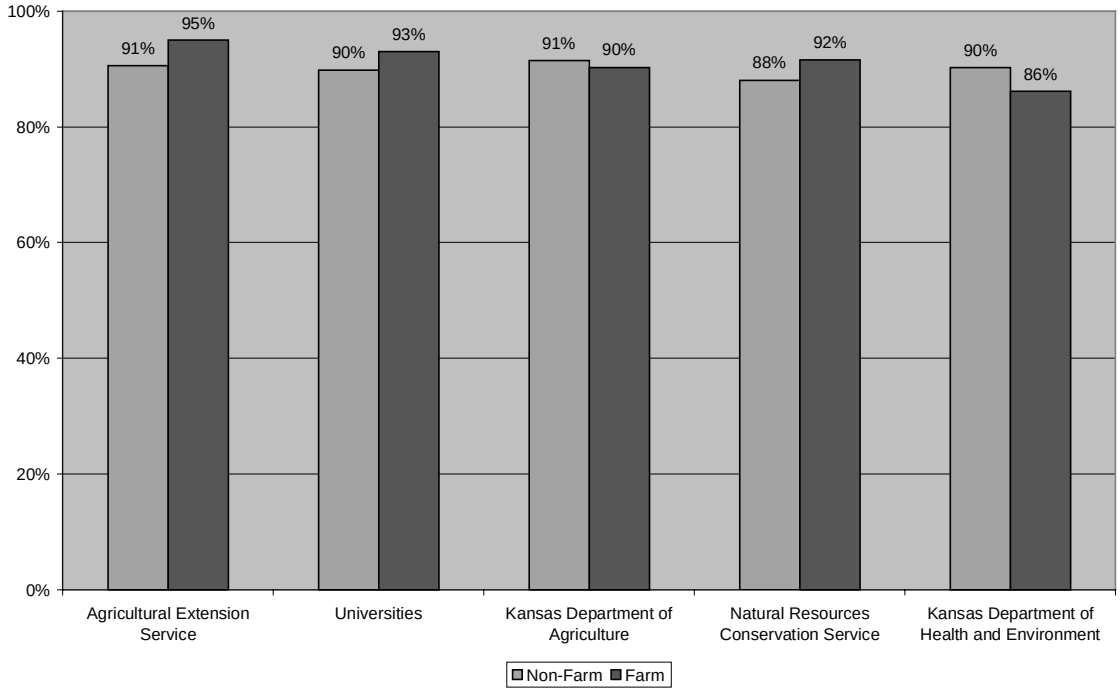
In addition, farm respondents gave reasonably high ratings (at least 66 percent approval) to:

- the Environmental Protection Agency
- state and local newspapers
- publications of state and local environmental organizations

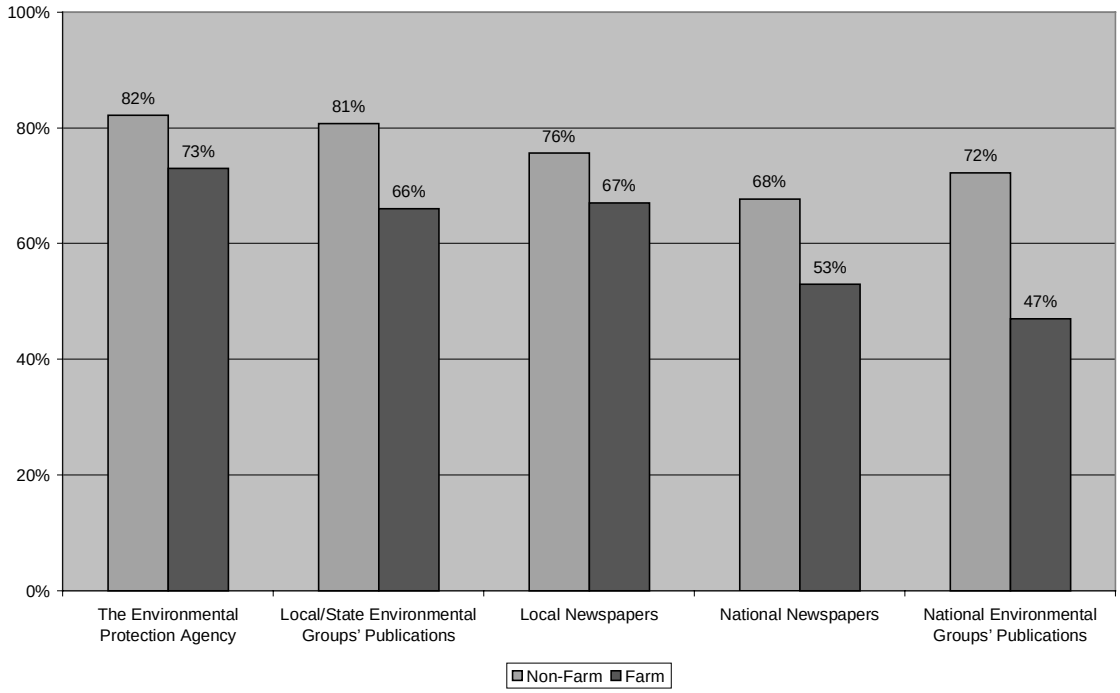
However, farmers expressed some reservations about:

- national newspapers (53 percent approval)
- publications of national environmental organizations (47 percent approval).

How reliable are the following sources of water quality information?



How reliable are the following sources of water quality information?



CHAPTER 5
WILLINGNESS TO PAY FOR CLEAN WATER

Introduction[2]

The main focus of this report is on attitudes towards voluntary actions to clean up Kaw Valley surface waters, but clean-up efforts will require financial support as well. Some of that support will consist of in-kind costs incurred in the course of voluntary actions. However, as was made especially clear in the farmers' focus groups, many desirable voluntary actions are simply too expensive to undertake without some outside support. That support could come from voluntary contributions, but a degree of government support might also be needed. At a minimum, government action is often needed to help organize voluntary action. (This report, for example, was commissioned by the Kaw Valley Heritage Alliance, a voluntary private organization. However, funding was provided by the US Environmental Protection Agency.)

This chapter explores the willingness of Kaw valley residents to pay monetarily for water quality improvements, in the form either of taxes or of voluntary contributions. There are a number of aspects of this general question, for example:

- Would majorities of voters support or oppose new taxes devoted to protecting surface waters?
- Can effective private surface water programs be supported by voluntary contributions?
- Irrespective of who actually pays, does the aggregate value to citizens of cleaner surface water exceed the cost of providing it?

Government action always has some cost, and hence there are some implications for taxation. We normally think of paying taxes as an *in*voluntary action. It is true that once the taxes have been levied, payment is not voluntary. But to the extent that we live in a democracy, that is somewhat misleading: taxes are levied in the first place with the voluntary consent of the people. Nevertheless, taxes are a blunt instrument, to be used when other means fail. Thus, in one sense, the willingness of citizens to pay taxes to clean up surface waters constitutes an outer limit on their willingness to take voluntary action.

In another sense, however, people's willingness to pay taxes (and/or make voluntary contributions) in order to obtain an amenity is the true economic measure of the value people place on that amenity. In other words, what economists call the "social value" of clean surface water (or any other amenity) is defined as the maximum amount of dollars that fully-informed people would be willing to pay in aggregate in order to obtain that amenity. A socially efficient society could be defined as one which provides each amenity if and only if its social value exceeds the social cost of providing it. (Social efficiency certainly does not mean that government action always has to come into the picture. Many amenities are supplied by purely

[2] This chapter is technically more demanding than the rest of this report. For that reason, some readers may prefer to skip directly to the conclusion of the chapter.

private action. Government efforts can potentially improve social efficiency only if private efforts have failed. Moreover, government efforts may fail as well.)

Because of these differing aims, we will address the question of willingness to pay from two rather different points of view:

- Popular support: percentage of the population willing to contribute, versus
- Social value: total dollars the population as a whole would be willing to contribute.

Note that, even if 100 percent of the population were willing to contribute some money for cleaning up our surface waters, if the average contribution were very small then the total contributions could be quite limited On the other hand, if each member of a small minority were willing to contribute a reasonably large sum of money, then the total contribution could be quite substantial. Therefore the social value of an amenity could be large even when its share of popular support is small, and vice versa.

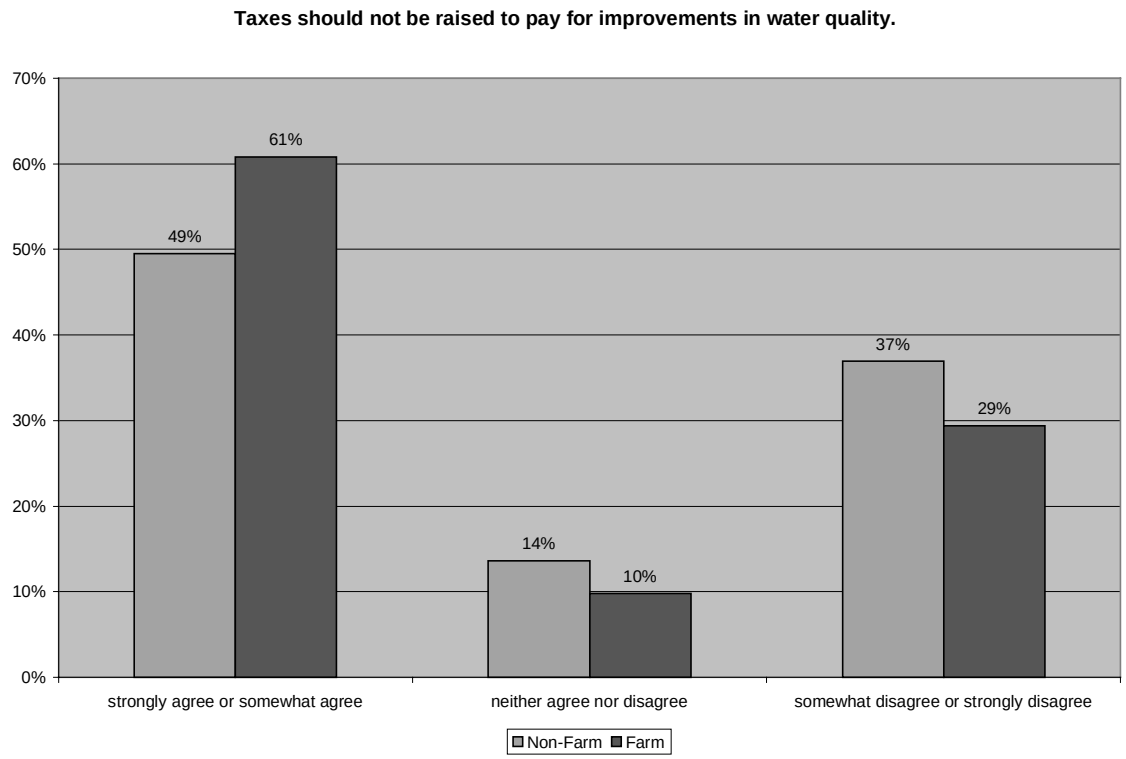
Popular support for clean water

As the previous chapter showed, majorities of Kaw Valley survey respondents say they are willing to support both stronger regulations and voluntary personal action to help improve surface water quality. As it happens, respondents are not very willing to pay additional taxes for those improvements. 61 percent of farm, and 49 percent of non-farm, respondents think taxes should not be raised to pay for improvements in water quality (graph shown on the next page). However, they are not as strongly opposed to making voluntary contributions to an action group working to improve water quality. 55 percent of farmers, but only 31 percent of non-farm residents, were somewhat or very unwilling to contribute to an action group.

To put it in positive terms, a 52 percent majority of non-farm respondents *would* make a voluntary contribution, although only 37 percent would agree to higher taxes. At the same time, 31 percent of farmers would make a voluntary contribution, and 29 percent would support higher taxes.

Note that these questions were asked in a purely hypothetical context. That is, survey respondents were not actually asked to vote for taxes or contribute any dollars. Previous research on similar survey questions suggests that many of the respondents were saying that they would probably contribute under the right set of circumstances, not that they would contribute at this moment. In that sense, these percentages may overstate their willingness to pay taxes or make voluntary contributions in actual cases.

In another sense, however, these percentages *understate* the willingness of Kaw Valley residents to pay for cleaning up surface waters. In particular, survey respondents had a variety of reasons for thinking that new taxes and/or voluntary contributions may not be needed. Residents who believe that no new taxes are needed, would be very unlikely to support new taxes.



Here are some of the reasons respondents might doubt that new taxes are needed:

- Some 32 percent of non-farm respondents and 52 percent of farm respondents asserted that they were not aware of any concerns about surface water quality in Northeast Kansas. (Comparison with responses to other questions suggests that many of these respondents actually *were* aware that concerns have been publicly expressed, but these respondents disagreed with the concerns and interpreted the question as referring only to *valid* concerns.) Also, some respondents said they believe that those concerns are being exaggerated – 24 percent of non-farm and 38 percent of farm respondents either strongly or somewhat agreed that concerns about water quality in Northeast Kansas are overblown.
- Many believe that polluters can and should pay the cleanup costs, rather than Kaw Valley taxpayers. 92 percent of non-farm and 84 percent of farm respondents approved either strongly or moderately of extra charges on polluters.
- Some believe that the major polluters are upstream, for example, in the Republican and Smokey Hill River watersheds, and that local residents in those regions should pay for the cleanup (a point made by some farm focus group participants).
- Some believe that low-cost voluntary action programs will be sufficient to solve any problems. For example, 86 percent of non-farm respondents either strongly or somewhat agreed that there would be a great deal of improvement if every household took steps to try to improve water quality.
- Some may believe that improved government administration could solve the problems without requiring new taxes.
- Some may believe that any needed funds could be diverted from other government programs, or made available from state, federal or private grant programs.

Note, however, that each of these reasons to oppose new taxes is based in part on specific beliefs about the facts of the case, in particular, beliefs such as:

- pollution of surface waters is not a serious problem;
- pollution is mainly caused in upstream tributaries;
- polluters can be made to pay without imposing seriously negative consequences on the rest of us;
- it is feasible to eliminate pollution through voluntary programs; or
- it is administratively or politically feasible to divert funds from other programs.

If these respondents who oppose new taxes happen to be substantially wrong about the facts of the case, and if this could be shown to them in a convincing fashion, then many respondents might well change their minds and support new taxes. Conversely, the facts of the case could be even less favorable to new taxes than respondents were assuming (remember that this report is concerned with the attitudes of citizens and takes no position on the actual facts of surface water pollution). The main point is this: the degree of public opposition or support for new taxes is dependent not only on the innate value that the public places on clean surface water, but also on the body of information that is available to the public. That is, these results do not show that Kaw Valley majorities would automatically oppose new taxes for cleaning up surface waters, but they do show they would have to be given very good reasons before they would support new taxes.

Also, taxes and contributions are not the only ways to obtain resources for improving surface waters. As noted in the previous chapter, majorities of both non-farm residents and farmers state they are willing right now to support a wide variety of voluntary actions. To the extent that voluntary approaches could be effective, they may constitute the best policy option for cleaning up Kaw Valley surface waters.

Modeling popular support

Based on the previous discussion, one would expect that the willingness to pay taxes will vary in predictable ways with beliefs about Kaw Valley surface water quality and about how it can or should be improved. There are also other grounds for making predictions about willingness to pay. According to economic theory, willingness to pay should vary with income. Studies have generally shown that concern for the environment is a "normal good," meaning that willingness to pay increases with income. In addition, it is very common for attitudes to vary with gender and age. Young people are often said to be more concerned about the environment than older people; we have no *a priori* idea about the direction of gender effects.

Table 5.1 shows a multiple regression model for willingness to pay a nonzero amount of taxes to ensure that the Kaw River is clean enough to swim in. The model is estimated using ordinary least squares.[3] The data are for non-farm respondents. The signs of coefficients are generally consistent with these predictions, although the significance levels for some of the coefficients are not especially high. Income, in particular, is significant only at the 15 percent level, which may

[3] A logistic regression led to essentially similar results. A logistic regression is theoretically more appropriate, but is a little harder to explain.

reflect limitations in the income variable. (Because many respondents are reluctant to reveal exact income figures, they were asked only to choose between five broad categories of income.)

Table 5.1
Threshold Willingness to Pay Taxes for a Swimable Kaw:
Regression Model (Non-farm)

Dependent Variable: Would you be willing to pay an additional tax or fee to ensure that the Kansas River is clean enough to swim in?			
	B	Std. Error	p (signif.)
(Constant)	-1.263	0.337	0.000
LOG(income)	0.040	0.028	0.151
Female	-0.065	0.041	0.113
Age	-0.004	0.001	0.000
I support extra charges on people who pollute.	0.056	0.027	0.039
Are you aware of any concerns regarding the quality of the surface water in northeast Kansas?	0.056	0.044	0.207
Concerns about water quality in northeast Kansas are overblown.	-0.021	0.017	0.211
Personal lifestyle choices can have an impact on surface water quality.	0.060	0.024	0.013
Government action is needed to improve the quality of the surface water in northeast Kansas.	0.029	0.017	0.087
R-squared (OLS)		.126	
N		394	
SOURCE: KU-PRI			

It is interesting that female respondents were significantly less willing than males to pay additional taxes, but we do not propose any particular explanation for that fact. Most of the measured effects are large enough to be politically significant. For example, according to the model, persuading someone who originally had a strong belief that government action was needed, that the Kaw could in fact be cleaned up without government action, could change his or her position on taxes about 12 percent of the time. (In interpreting the model, note that the attitude questions were based on a five-point scale.)

The aggregate social value of clean water

Those non-farm respondents who either said they would be willing to pay additional taxes for ensuring a swimable Kaw, or said they were unsure, were asked this follow-up question:

> Which of the following dollar amounts best represents the amount of additional taxes or fees you would be willing to pay a year? Would it be one dollar, three dollars, ten dollars, thirty dollars or one hundred dollars per year?

Economists refer to this kind of survey as "contingent valuation" (see, e.g., Hanemann 1994). Under fairly strong assumptions, it is possible to interpret responses to this question as measuring the social value of additional efforts to clean up the Kaw River. As suggested above, some of the required assumptions are that:

- Respondents reply honestly – e.g., they neither exaggerate nor minimize the amount in order to encourage particular public policies.
- Respondents have thought about it enough to have a good idea now (when the situation being discussed is purely hypothetical) of what they would do in an actual situation.
- Respondents understand that they would really have to pay or the river would not be cleaned up.
- Respondents are not placing a dollar value on any perceived injustice that could happen if taxpayers pay costs that polluters "ought" to pay.
- Respondents provide the *maximum* amount they would be willing to pay, rather than an estimate of a *fair* amount or a *typical* amount.

Non-farm sample results for this question are shown in Table 5.2. The column labeled "$0" indicates respondents who said they were not willing to pay any additional taxes. Note that some respondents declined to answer the question and are listed as "missing." Table 5.3 shows the counties included in the different strata for the non-farm household survey.

Table 5.2
Willingness to Pay Taxes for a Swimable Kaw:
Sample Counts by Dollar Value (Non-farm)

STRATA	NUMBER OF HOUSEHOLDS*	$0	$1	$3	$10	$30	$100	missing	TOTALS
1 (Western rural)	52,959	43	5	9	25	11	5	61	159
2 (Central Kaw)	113,621	30	6	10	13	13	6	23	101
3 (Eastern urban)	197,947	44	6	13	19	16	6	31	135
TOTALS	364,527	117	17	32	57	40	17	115	395

*: US Census, 1990
SOURCE: KU-PRI

Table 5.3
Stratum Definitions

Stratum 1= Western rural (Riley, Pottawatomie, Jackson, Jefferson, Geary, Wabaunsee, and Morris)
Stratum 2 = Central (Shawnee, Douglas, Leavenworth)
Stratum 3 = Eastern urban (Johnson, Wyandotte)
SOURCE: KU-PRI

These sample results can be used to estimate social values in a straightforward way. In particular, we calculate average dollar value per respondent from the sample data and multiply by the number of households in the Kaw Valley. Table 5.4 shows the results by stratum and for the whole of the Kaw Valley. The columns marked with an * assume that non-responders would have about the same willingness to pay on average as other respondents. This model suggests that the total social value for cleaning up the Kaw River would be around $5M/year.

Table 5.4
Willingness to Pay Taxes for a Swimable Kaw:
Aggregate and per-Household Dollar Values (Non-farm)

STRATA	NUMBER OF HOUSEHOLDS***	Dollar Values			
		Mean*	St. Dev.*	Aggregate*	Aggregate**
1	52959	$11.40	$27.00	$600,000	$400,000
2	113621	$14.80	$60.60	$1,700,000	$1,300,000
3	197947	$12.60	$37.70	$2,500,000	$1,900,000
TOTALS	364527	$13.10	$42.00	$4,800,000	$3,600,000

SOURCE: KU-PRI
*: assumes no missing data bias
**: lower bound model. See text.
***: Source: 1990 US Census
Standard errors of aggregates are about 20 percent for individual strata and 10 percent for totals.

Accuracy of the estimated social value

These results represent no more than a ballpark figure. It would be well beyond the scope of this study to provide complete state-of-the art estimates of social value of cleaning up the Kaw. Several problems would need to be addressed.

First, there is the problem of non-response bias. In other words, it may be wrong to assume that people who declined to answer place the same value on clean water as those who did respond. While we cannot be absolutely sure of the direction of bias, most likely this assumption imparts an upward bias – because non-responders tend to be relatively less interested in the issue being studied. That is, people who are not interested in surface water quality are less likely to place a

high value on clean surface water than those who are interested. While we cannot easily measure non-response bias, we can put an outer bound on it. The final column of Table 5.4 (marked with **) gives a lower bound model for social value that assumes non-responders would not be willing to pay anything at all. This leads to an estimated social value around $4M/year.

Second, there may be biases built into the contingent valuation method. There is a body of research that compares contingent valuations with valuations of the same amenities based on more costly measurements that are considered to be more accurate. (For example, in some cases an amenity was actually provided to a small village if villagers put up the amount of money at which they had previously claimed to value the amenity – a "put up or shut up"" test.) This literature suggests that contingent valuations tend to fall somewhere between the "true" or comparison amount and (in extreme cases) up to three times as much as the "true" amount. To achieve "accurate" results (i.e., results near the "true" amounts), researchers may need to engage the respondent in an extended conversation that clarifies the issues. That was not done in this survey. The absence of such discussion would be expected to impart an upward bias to our results. Assuming an upward bias by factor of 2, the "true" social value would be between $2M and $3M, depending on the amount and direction of non-response bias.

On the other hand, the regression model shown in Table 5.1 implies that our results are biased *downward* because many respondents believe that the Kaw can or should be cleaned up without new taxes, or that polluters can be made to pay for the clean up. If that is the case, cleaner surface waters could have a positive value for these respondents even though they would not agree to higher taxes. Based on the fact that citizens are about 40 percent more willing to make voluntary contributions than support higher taxes, we suggest that this bias is at least 40 percent. Moreover, because willingness to make voluntary contribution itself is subject to the same kinds of biases, 40 percent may greatly understate this bias. Assuming a 50 percent to 100 percent bias of this type, the "true" social value would be between $3M and $6M, depending both on contingent valuation bias and non-response bias.

Also, the survey categories top out at $100, so that the amount of any individual's dollar value over that amount is excluded from the calculated total. The resulting downward bias may be very significant, because a large share of the social value of an amenity is often contributed by a small number of individuals in the tail of the distribution – i.e., by a few individuals who are willing to pay exceptionally large amounts for the amenity.

Finally, we have analyzed responses on the assumption that individual respondents were reporting total values for the household as a whole, but probably that was not always the case -- there is another downward bias for individuals in the same household whose willingness to pay was not reported.

Taking all these potential biases into account, it seems reasonable to guesstimate that the perceived social value to regional households of cleaning up the Kaw lies somewhere between $3M and $8M per year. (We emphasize again that this value excludes any gains to industry as well as gains to individuals living downstream from the Kaw watershed.)

The per-household value of clean water

According to the model, average individuals in non-farm households place a value of $10 to $15 per year on cleaning up Kaw River waters. There is a great deal of variation across individuals: around 42 percent place no value on it at all, while around 6 percent value it in a top category that may include some values well over $100.

The results above were broken out by sampling stratum because we hypothesized that the amounts citizens are willing to pay depend on their geographical relationship to the river. The previous chapters argued that the Stratum 2 (central Kaw) counties are likely to be more interested than the others in cleaning up the Kaw – they are both less rural than Stratum 1 and, being down stream, more subject to any pollution the Stratum 1 counties generate, while its population lives in closer association with the river than does the Stratum 3 (eastern urban) population. (It is also the case that aggregate voting behavior is politically more liberal in central Kaw counties than in Strata 1 and 3 counties.) This idea tended to be supported by the present data. As seen in Table 5.4, sample respondents in Stratum 2 were willing to pay $2 or $3 more on average than respondents in the other two Strata. However, these differences were not statistically significant ($p = .1$). In other words, the sample was not large enough for us to be confident that differences this small are not merely due to sampling fluctuations.

The previous discussion was limited to non-farm households. Similar though somewhat different questions were asked of farm household members. In particular, each farm household respondent was presented with a single (randomly chosen) amount and asked if he or she would be willing to pay at least that amount of new taxes. (The amounts were either $1, $3, $10, $30, or $100.)[4]

The results are shown in Tables 5.5 and 5.6. Three features are interesting when comparing these results. First, the variation across individuals is even larger than for non-farm households. Second, the fraction who did not answer (7 percent) was much smaller than for non-farmers (29 percent). Third, the average farm respondent is willing to pay more than $30/year to clean up the Kaw -- at least *twice as much* in new taxes as the average non-farm respondent. Note that this is a reversal from the finding on popular percentages – i.e., fewer farmers than non-farmers will support any new taxes at all.

In particular, a higher percentage of farm respondents than non-farmers fall into either of the two extreme categories – 55 percent of farmers (versus 42 percent) say they would pay nothing at all, while 21percent (versus less than six percent) say they would pay more than $100/year in new taxes. The differences between farmers and others are both economically and statistically significant ($p << .01$, a variety of tests).

Evidently, farmers are much more polarized about surface waters than other citizens. Farmers may have very good reasons to feel more strongly about the issue than other citizens. First, farmers are coming under the gun from the U.S. Environmental Protection Agency to take costly

[4] This method of asking the question is harder to analyze, but it is believed to lead to more reliable and less biased responses than the first method. The reason is that people are more accustomed to deciding whether to buy or not buy when the price is fixed, than to determining the highest price they would be willing to pay. For an explanation of the analytic approach, see Burress and Oslund (1999, p. 47-49)

steps to control non-point-source pollution, at a time when farm incomes have suffered a disastrous decline. Second, farmers on average feel closer to the land and the natural world than other citizens, by virtue of the fact that much of their work takes place in, and makes use of, the natural world. For example, farmers in our focus groups expressed a strong sense of stewardship over the lands and waters they use.

Table 5.5
Willingness to Pay Taxes for a Swimable Kaw:
Sample Counts by Dollar Value (Farm)

RESPONSE	$1	$3	$10	$30	$100	TOTALS
Yes, will pay.	27	19	7	10	7	70
No, will not pay	33	31	36	38	27	165
No answer	2	3	3	3	6	17
TOTALS	62	53	46	51	40	252

SOURCE: KU-PRI

Table 5.6
Willingness to Pay Taxes for a Swimable Kaw:
Aggregate and per-Household Dollar Values (Farm)

	NUMBER OF HOUSEHOLDS***	Dollar Values			
		Mean*	St. Dev.*	Aggregate*	Aggregate**
TOTALS	7500	$31.70	$17.20	$210,000	$190,000

SOURCE: KU-PRI
*: assumes no missing data bias
**: lower bound model. See text.
*** estimated by KU-PRI
Standard errors of aggregates are about 20% for individual estimates.

Conclusions

Substantial majorities of Kaw Valley citizens say they would support a number of voluntary actions as well as stronger enforcement of regulations. However, only a slight majority would be willing to help support action with monetary contributions, and only a minority would support action using new taxes.

Farm household members are almost as willing as other citizens to support voluntary actions, but farmers are typically much less supportive than others of regulations, voluntary contributions, and taxes. It was clear in the focus group discussions that farmers feel they are under a great deal of economic stress and believe that costly efforts to reduce runoff from farm lands should be assisted with government funds, presumably paid for out of existing taxes.

Yet, almost paradoxically, farmers on average said they would be willing to pay more than twice as much in new taxes (over $30 per year) than non-farmers ($10-$15 per year) to make the Kaw swimable. The difference is that farmers were much more polarized than non-farmers. Even though a majority of farmers opposed any new taxes, 21 percent of farmers (versus fewer than six percent of non-farmers) would be willing to pay over $100 per year.

At the same time, these popular percentages depend partly on factual beliefs held by the citizens. For example, the percent of citizens willing to contribute will be significantly decreased if they come to believe the level of pollution is already very low, or that there are good prospects for making either polluters or national government pay for the clean up. For that reason, these percentages may change if relevant new information is made available.

For this and other reasons, it is quite difficult to measure the social value of clean Kaw Valley surface waters, i.e., the true monetary value Kaw Valley citizens and others would place on it directly and indirectly. For example, it is hard to separate social value from particular calculations about the existing need for new taxes. There are also specific technical difficulties in measuring social value, which this study was not designed to address.

Nevertheless, this chapter provided a provisional estimate suggesting that making the Kaw swimable is worth in the neighborhood of $5M per year to Kaw Valley citizens. However, analysis of the data suggests that this figure may be more a reflection of the taxes citizens would be willing to pay now, given their existing political calculations, than a true social value for clean water. That social value could be higher than $5M, but how much higher, we do not know.

CHAPTER 6
CONCLUSIONS AND IMPLICATIONS

Levels of concern

Kaw valley residents are moderately concerned with surface water quality, but their concerns may not be well thought out. For example, most say they would not swim in the Kansas River, yet most would eat fish from the Kansas River. Also, residents do not think they can have much impact on surface water quality, yet they express a willingness to take personal action anyway. Residents do say they want to protect surface water quality and are supportive of actions to do so.

Knowledge about the current state of surface water quality in the Kaw Valley is limited. Even though the press has reported lawsuits and other controversy on Kaw water quality, many residents seem to be unaware of it. Agricultural producers, however, are generally more aware of surface water quality issues than other respondents. Residents of the central Kaw Valley counties of Douglas, Shawnee, and Leavenworth are more likely to believe that surface water quality needs improvement than those in the western rural and eastern urban Kaw Valley counties. This is perhaps because it is in the central Kaw Valley counties where the Kansas River in particular becomes increasingly impaired. Also, the major population centers of Topeka and Lawrence lie on the river. On the other hand, counties in the western rural region of the Kaw Valley lie in the upper reaches of the Kansas River where the river is less impaired. Finally, in the eastern urban counties of Johnson and Wyandotte, the Kansas River is largely isolated from a large portion of the population because it flows through primarily industrial areas of the counties and is somewhat hidden from residential and commercial areas.

An overriding concern of agricultural producers is that water quality programs may impose additional costs on farmers. Farmers in focus groups expressed strong fears about being unfairly singled out for causing water quality problems, and/or bearing the costs of the solutions.

Implications for action

There is strong support for voluntary programs and for the use of government resources to support those voluntary programs. There is also significant support among the general public for incentive-based programs that encourage voluntary actions.

The most popular programs were educational programs. It is important that these programs should originate from a trusted source. Especially trusted sources were the Agricultural Extension Service, the Universities, the Kansas Department of Agriculture, Natural Resource Conservation Service, and the Kansas Department of Health and Environment.

Any government programs will require some degree of public funding. To support these programs, many Kaw Valley residents prefer that government divert funds from other uses. A significant number of households – a majority of those who responded with a definite opinion, but a only minority of all households – also expressed some willingness to pay for programs

through additional taxes. However, the amount of taxes they were typically willing to pay is rather modest. The median amount was around $3 per household per year. Because a few households were willing to pay much more, the average is closer to $10 or $20. But even using the average figure, and assuming it applies to non-responding as well as responding households, Kaw residents were not willing to pay much more than $5 million per year in aggregate new taxes.

To place this amount in perspective, the cost of building a single new sewage treatment plant in Lawrence was recently estimated at $40 million. While the present report does not address the actual costs of improving surface water quality in the Kaw Valley, this comparison could suggest, as a worst-case possibility, that its residents simply do not value water quality high enough to justify the costs of meeting high standards.

There are, of course, reasons that go well beyond local preferences to support high water quality standards. A large share of any pollutants in Kaw Valley surface waters will eventually pollute the Missouri River, the Mississippi River, and the Gulf of Mexico in turn. For that reason, the total social value of high quality water exceeds whatever value local residents may place on it. That logic has helped persuade the US Congress to mandate the waters in most of the US's navigable rivers, including the Kaw, be brought up to a fishable and swimable level of quality.

There are many other reasons, however, why it would be wrong to conclude that Kaw Valley residents value clean surface water at no more than $5 million per year. For example, this amount does not include the taxes they were already paying for government support of water quality. More importantly, many survey respondents had various reasons for thinking that new taxes simply are not needed. In particular:

- Some are unaware of any concerns about Kaw Valley water quality, or else believe that those concerns are being exaggerated.
- Some believe that polluters can and should pay the cleanup costs, rather than Kaw Valley taxpayers.
- Some believe that the major polluters are upstream, for example in the Republican and Delaware watersheds, and that local taxpayers in those regions should pay for the cleanup.
- Some believe that low-cost voluntary programs will be sufficient to solve any problems.
- Some believe that improved government administration could solve the problems without requiring new taxes.
- Some believe that any needed funds could be diverted from other government programs, or made available from state, federal or private grant programs.

All of these beliefs are partly based on perceptions about facts. To the extent that some of those perceptions are accurate, water quality actually can be improved without raising Kaw Valley taxes. To the extent that some of those perceptions are inaccurate, they could potentially be changed by supplying accurate information.

We have pointed out that Kaw Valley residents tend to prefer that polluters rather than taxpayers pay for cleaning up the water. Unfortunately, they have no unified view of who those polluters are. Respondents tend to deny that they themselves are the main polluters, and tend to distribute

the blame widely across industry, agriculture, government, and households. Translating the "polluter pays" principle into policies that have broad public support will depend on obtaining and disseminating accurate information on the sources of pollution.

Finally, we reiterate that this study measured Kaw Valley residents' perceptions of surface water quality in the Kaw Valley, not whether there actually are surface water quality problems. There is a strong need for data gathering on surface water quality and communication of that data to the public from a trusted source.

APPENDIX 1

NON-FARM RESIDENT FOCUS GROUP

Participants: Residents of the Kaw Valley watershed
Location:
Recruitment:
Purpose: To explore:

1) What Kaw Valley residents currently believe about surface water quality in the Kaw Valley;
2) What actions Kaw Valley residents believe most impact the quality of surface water; and
3) Incentives and disincentives for individuals to change their behavior as related to the quality of surface water in the Kaw Valley.

1. Introduce self and assistant
2. Explain the idea of a focus group. Research is being conducted by KU under a grant from the Kaw Valley Heritage Alliance.
3. Introduce the topic for the session: To explore residents' beliefs about water quality in the Kaw Valley.
4. State that the session will be audiotaped.
5. Assure participants of anonymity of responses. **Be sure that everyone has signed and turned in the consent statement and receipt for payment.**
6. Guidelines for participation
   - Speak one at a time
   - Speak so that everyone can hear you
   - Do not hesitate to disagree with others; there are no right or wrong answers
   - I may need to interrupt from time to time to keep the discussion on track
7. Introduction of participants

   So that we may all know each other a little better, let's begin with each person providing the following:

- First name
- Where do you live?
- Your occupation?
- What do you like to do when you're not working?
- How many people live in your household?

B. WARM-UP—General impressions of water and its usage (20 minutes)

To get started, let's spend just a few minutes talking about water in general.

1. Think for a minute about water and how you and your family use it… Give me some examples of those uses…
   - Prompt—drinking, bathing, cooking, gardening, recreation, washing, general use, etc.

2. What are your ***primary or most important*** uses of water?

3. What other major uses do you make of water?

4. Do you worry about the water you use? Is it a "problem", or is it "just there"?

C. OVERVIEW OF WATER & SOURCES (25 minutes)

Now we're going to focus on the sources of the water you use.

1. Where do you get the water you use? (What is the source?)
   - Do you have different sources depending on usage?
   - If so, why?
   - What are those sources & uses?

2. In particular, what is your source of drinking water?

3. What are some of the recreational ways you use water?
   - In what waters do you do those activities?

4. Does anyone fish: In the Kaw River? Elsewhere in the Kaw Valley region?
   - Do you eat the fish you catch from Kaw Valley waters?
   - Those who don't fish, would you eat fish from the Kaw Valley region?
   - Why/Why not?

5. Where do you get your information on water quality issues?

D. IMPRESSIONS OF WATER QUALITY IN THE KAW VALLEY (30 minutes)

Looking specifically at the Kaw Valley region, let's discuss your impressions of water quality in the region.

1. How do you feel about surface water in the Kaw Valley?
   - What words would you use to describe it?
     —What's good about it?
     —What's bad about it?

2. Do you think anything is wrong with the water in the Kaw Valley?
   - If so, what? (PROMPT—germs, viruses, toxins, pesticides, bad taste, bad smell, solid particles? In which waters?
   - How did it get there?
   - Why are you concerned about water quality? (PROMPT—for yourself, family, industry, jobs and livelihood, your community, people downstream, future generations?)
   - If not, why not?

3. Do you think action is needed to improve the quality of water in the Kaw Valley?
   - If so, what needs to change?

4. Is there too much Atrazine in the water?
   - Should something be done to reduce it?

E. WRAP-UP & CONCLUSIONS—Courses of action/motivation for change

Now let's look at possible approaches for influencing changes in household and industry water usage and farming methods.

1. What would it take to motivate people to make changes for the sake of improving water quality?
2. In order to improve water quality in the Kaw Valley, what would ***you*** be willing to do?

3. What about the use of lawn and garden chemicals?
   - Do you see that as having an impact on water quality?

4. If you knew that it did have a major impact, would you change your behavior?

5. How would you react to these approaches to cleaning up the water supply:
   Volunteerism?
   Public awareness programs designed to change behavior?
   Develop new and better technologies? Government backed research?
   Develop new pesticides?
   Change zoning and building codes to discourage lawns?
   Mandates on discharges and use?
   What mandates? Water treatment, farming practices, lawn chemicals?
   Taxes?
   Pricing?

6. Is there anything else you would like to add? Anything we have missed?

Thank you for your time. We appreciate your willingness to participate. Your comments have been very helpful.

FARMERS FOCUS GROUP

Participants: Farmers in the Kaw Valley watershed
Location:
Recruitment:
Purpose: To explore:

1) What Kaw Valley farmers currently believe about surface water quality in the Kaw Valley;
2) What actions Kaw Valley farmers believe most impact the quality of surface water; and
3) Incentives and disincentives for individuals to change their behavior as related to the quality of surface water in the Kaw Valley.

1. Introduce self and assistant
2. Explain the idea of a focus group. Research is being conducted by KU under a grant from the Kaw Valley Heritage Alliance.
3. Introduce the topic for the session: To explore farmers' beliefs about water quality in the Kaw Valley.
4. State that the session will be audiotaped.
5. Assure participants of anonymity of responses. **Be sure that everyone has signed and turned in the consent statement and receipt for payment.**
6. Guidelines for participation
   - Speak one at a time
   - Speak so that everyone can hear you
   - Do not hesitate to disagree with others; there are no right or wrong answers
   - I may need to interrupt from time to time to keep the discussion on track
7. Introduction of participants

   So that we may all know each other a little better, let's begin with each person providing the following:
   - First name
   - Where do you live and farm?
   - Do you have an off-farm job? What is it?
   - What do you like to do when you're not working?
   - How many people live in your household?

B. WARM-UP—General impressions of water and its usage (20 minutes)

To get started, let's spend just a few minutes talking about water in general.

1. Think for a minute about water and how you and your family use it… Give me some examples of those uses…
   - Prompt—drinking, bathing, cooking, gardening, recreation, farming, washing, general use, etc.

2. What are your ***primary or most important*** uses of water?

3. What other major uses do you make of water?
4. Do you worry about the water you use? Is it a "problem", or is it "just there"?

C. OVERVIEW OF WATER & SOURCES (25 minutes)

Now we're going to focus on the sources of the water you use.

1. Where do you get the water you use? (What is the source?)
   - Do you have different sources depending on usage?
   - If so, why?
   - What are those sources & uses?

2. What is your source of drinking water?

3. What are some of the recreational ways you use water?
   - In what waters do you do those activities?

4. Does anyone fish: In the Kaw River? Elsewhere in the Kaw Valley region?
   - Do you eat the fish you catch in Kaw Valley waters?
   - Those who don't fish, would you eat fish from the Kaw Valley region?
   - Why/Why not?

5. Where do you get your information on water quality issues?

D. IMPRESSIONS OF WATER QUALITY IN THE KAW VALLEY (30 minutes)
Looking specifically at the Kaw Valley region, let's discuss your impressions of water quality in the region.

1. How do you feel about surface water in the Kaw Valley?
   - What words would you use to describe it?
     —What's good about it?
     —What's bad about it?

2. Do you think anything is wrong with the water in the Kaw Valley?
   - If so, what? (PROMPT—germs, viruses, toxins, pesticides, bad taste, bad smell, solid particles?
   - How did it get there?
   - Why are you concerned about water quality? (PROMPT—yourself, family, industry, jobs and livelihood, your community, people downstream, future generations?)
   - If not, why not?

3. Do you think action is needed to improve the quality of water in the Kaw Valley?
   - If so, what needs to change?

4. Is there too much Atrazine in the water?
   - Should something be done to reduce it?

E. WRAP-UP & CONCLUSIONS—Courses of action/motivation for change
Now let's look at possible approaches for influencing changes in water usage and farming methods.

1. What would it take to motivate people to make changes for the sake of improving water quality?

2. In order to improve water quality in the Kaw Valley, what would ***you*** be willing to do?

3. What about run-off, silt, and mud? Should buffer zones be used to control run-off and siltation?

4. What about no-till farming or organic farming?
   - Why would you be willing or not willing to use these methods?

5. How would you react to these approaches to cleaning up the water supply:
   Volunteerism?
   Public awareness programs designed to change behavior?
   Develop new and better technologies? Government backed research?
   Develop new pesticides?
   Change zoning and building codes to discourage lawns?
   Mandates on discharges and use?
   What mandates? Water treatment, farming practices, lawn chemicals?
   Taxes?
   Pricing?

6. Is there anything else you would like to add? Anything we have missed?

Thank you for your time. We appreciate your willingness to participate. Your comments have been very helpful.

APPENDIX 2

Kaw Valley Heritage Alliance Non-Farm Household Survey

Hello, my name is _____, and I am calling from The University of Kansas. We are conducting a survey about water quality and resources in the Kansas River Valley. This is not a sales call. The purpose of this study is to determine how residents feel about the quality of water resources in our state. It will take about 15 minutes to complete. MAY I SPEAK WITH THE ADULT IN YOUR HOUSEHOLD WHO HAD THE MOST RECENT BIRTHDAY AND IS CURRENTLY AT HOME? (INT: If an new caller gets on re-read introduction at the top and then begin text below.)

A1. Do you have a few minutes to answer the questions?

❑ Yes	100%
❑ No (Skip to Case ID)	0%
	n=395

A2. First, could you please tell me which county you live in?

❑ Douglas	6.1%
❑ Geary	6.3%
❑ Jackson	3.3%
❑ Jefferson	5.3%
❑ Johnson	24.3%
❑ Leavenworth	4.8%
❑ Morris	1.0%
❑ Pottawatomie	6.1%
❑ Riley	16.7%
❑ Shawnee	14.7%
❑ Wabaunsee	1.5%
❑ Wyandotte	9.9%
❑ Don't know/NA	0%
(Go to Case ID and Terminate)	n=395

Q1. All things considered, how much do you enjoy living in northeast Kansas? Do you enjoy it…

❑ Very much	66.3%
❑ Somewhat	28.1%
❑ Not too much, or	2.8%
❑ Not at all	2.0%
❑ Don't know/NA	.8%
	n=395

Q2. What do you like best about living in northeast Kansas?

_____ Responses varied.

Q3. What is your favorite local outdoor natural area?

_____ Responses varied.

Q4. Have you visited any lakes, rivers, streams, or ponds in northeast Kansas in the past year?

❑ Yes (Go to Q4a)	65.3%
❑ No (Go to Q5)	34.5%
❑ No answer/Don't know	.3%
	n=395

Q4a. How many times have you visited lakes, rivers, streams, and ponds in northeast Kansas in the past year?

_____ mean = 11.8
median = 5
n=232

Q5. In general, how would you describe the overall quality of the surface water in northeast Kansas? Would you say it is…

❑ Very good	17.2%
❑ Somewhat good	45.1%
❑ Neither good nor bad	16.2%
❑ Somewhat bad	11.6%
❑ Very bad	4.6%
❑ Don't know	5.3%
❑ No answer	0%
	n=395

Q6. Are you aware of any concerns regarding the quality of the surface water in northeast Kansas?

❑ Yes (Go to Q6a)	32.2%
❑ No	67.6%
❑ Don't know	.3%
	n=395

Q6a. What kinds of concerns have you heard about?

_____ Responses varied.

Q7. What is your source of drinking water?

❑ City water with no home purification	55.7%
❑ Rural water district with no home purification	11.6%
❑ Well water with no home purification	7.1%
❑ Bottled water (Go to Q7a)	7.1%
❑ City, rural, or well water with home purification (Go to Q7a)	18.5%
	n=395

Q7a. Why do you use bottled water or home purification?

_____ Responses varied.

Q7b. Please list any other sources of drinking water you use at home.

_____ Responses varied.

Q8. In what kinds of water-based recreational activities have you participated in the last two years? You may choose activities you have participated in outside of northeast Kansas as well as locally.

❑ Q8a.	Fishing	45.3%
❑ Q8b.	Swimming	52.9%

❑	Q8c.	Boating (water skiing, canoeing, sailing)	41.5%
❑	Q8d.	Observing birds and wildlife near water	42.5%
❑	Q8e.	Hunting near water	10.9%
❑	Q8f.	Camping near water	30.0%
❑	Q8g.	Picnicking near water	45.1%
❑	Q8h.	Walking, running, or hiking near water	55.7%
❑	Q8i.	Biking near water	14.5%
❑	Q8j.	Windsurfing/surfing	1.0%
❑	Q8k.	Scuba diving/snorkeling	3.0%
			n=395

Q8l. Any other activities? (please describe)

_____ Responses varied.

Q9. Have water quality concerns discouraged you from participating in any of these activities in northeast Kansas?

❑	Yes (Go to Q9a.)	11.9%
❑	No	86.3%
❑	Don't know/No answer	1.8%
		n=395

Q9a. What activity have you avoided, and why?

_____ Responses varied.

Q10. Are there any water bodies in northeast Kansas out of which you would NOT eat fish?

❑	Yes (Go to Q10a)	27.6%
❑	No (Go to Q11a)	57.7%
❑	I don't eat fish (Go to Q11a)	10.9%
❑	Not answered (Go to Q11a)	3.8%
		n=395

Q10a. Which water bodies?

❑	Q10a1.	Kansas River	19.5%
❑	Q10a2.	Clinton Lake	2.8%
❑	Q10a3.	Perry Lake	3.1%
❑	Q10a4.	Tuttle Creek Reservoir	4.8%
❑	Q10a5.	Small streams, rivers, or creeks	6.3%
❑	Q10a6.	Farm Ponds	3.3%
❑	Q10a7.	Other (Also ask Q10b.)	5.8%
❑	Q10a8.	Would not eat fish from any Kaw Valley waters	2.3%
			n=109

Q10b. Please specify other

_____ Responses varied

Q10c. Why would you not eat fish from these waters?

_____ Responses varied.

Q11. Sometimes people get information about water quality from outside sources. How reliable do you consider the following sources of information about water quality?

Q11a. Other citizens? Are they…

❑ Very reliable	8.4%
❑ Somewhat reliable	48.1%
❑ Neither	12.9%
❑ Somewhat unreliable	20.3%
❑ Very unreliable	5.6%
❑ No answer/Don't know	4.8%
	n=395

Q11b. Agricultural extension service? Are they

❑ Very reliable	43.0%
❑ Somewhat reliable	37.5%
❑ Neither	3.0%
❑ Somewhat unreliable	4.3%
❑ Very unreliable	1.0%
❑ No answer/Don't know	11.1%
	n=395

Q11c. The Environmental Protection Agency? Are they

❑ Very reliable	42.0%
❑ Somewhat reliable	33.9%
❑ Neither	5.3%
❑ Somewhat unreliable	5.8%
❑ Very unreliable	5.3%
❑ No answer/Don't know	7.6%
	n=395

Q11d. Radio shows? Are they

❑ Very reliable	6.8%
❑ Somewhat reliable	34.4%
❑ Neither	15.7%
❑ Somewhat unreliable	16.2%
❑ Very unreliable	14.7%
❑ No answer/Don't know	12.2%
	n=395

Q11e. Universities? Are they…

❑ Very reliable	41.0%
❑ Somewhat reliable	39.5%
❑ Neither	6.1%
❑ Somewhat unreliable	2.8%
❑ Very unreliable	.3%
❑ No answer/Don't know	10.4%
	n=395

Q11f. Television? Is it…

❑ Very reliable	11.8%

❑ Somewhat reliable	44.3%
❑ Neither	12.9%
❑ Somewhat unreliable	15.9%
❑ Very unreliable	10.4%
❑ No answer/Don't know	5.3%
	n=395

Q11g. Local newspapers? Are they…

❑ Very reliable	20.0%
❑ Somewhat reliable	52.2%
❑ Neither	9.9%
❑ Somewhat unreliable	7.6%
❑ Very unreliable	5.8%
❑ No answer/Don't know	4.6%
	n=395

Q11h. National newspapers? Are they…

❑ Very reliable	14.9%
❑ Somewhat reliable	43.5%
❑ Neither	12.4%
❑ Somewhat unreliable	9.9%
❑ Very unreliable	5.6%
❑ No answer/Don't know	13.7%
	n=395

Q11i. National environmental groups' publications? Are they…

❑ Very reliable	21.5%
❑ Somewhat reliable	39.7%
❑ Neither	9.9%
❑ Somewhat unreliable	7.6%
❑ Very unreliable	6.1%
❑ No answer/Don't know	15.2%
	n=395

Q11j. Local/state environmental groups' publications? Are they…

❑ Very reliable	28.6%
❑ Somewhat reliable	41.3%
❑ Neither	6.3%
❑ Somewhat unreliable	6.1%
❑ Very unreliable	4.3%
❑ No answer/Don't know	13.4%

Q11k. The Kansas Department of Agriculture? Is it…

❑ Very reliable	49.1%
❑ Somewhat reliable	34.7%
❑ Neither	4.3%
❑ Somewhat unreliable	2.0%
❑ Very unreliable	1.5%
❑ No answer/Don't know	8.4%
	n=395

Q11l. The Kansas Department of Health and Environment? Is it…

❑ Very reliable	46.8%
❑ Somewhat reliable	34.4%
❑ Neither	3.3%
❑ Somewhat unreliable	3.0%
❑ Very unreliable	2.5%
❑ No answer/Don't know	9.9%
	n=395

Q11m. Manufacturers of commercial products? Are they…

❑ Very reliable	3.5%
❑ Somewhat reliable	24.8%
❑ Neither	10.6%
❑ Somewhat unreliable	21.5%
❑ Very unreliable	32.2%
❑ No answer/Don't know	7.3%
	n=395

Q11n. Natural resources conservation service? Are they…

❑ Very reliable	34.7%
❑ Somewhat reliable	41.8%
❑ Neither	4.1%
❑ Somewhat unreliable	4.1%
❑ Very unreliable	2.3%
❑ No answer/Don't know	13.2%
	n=395

Q12. Do you believe anything you personally do could have a …

❑ …significant effect on the quality of local surface water.	19.5%
❑ …moderate effect on the quality of local surface water.	30.4%
❑ …little effect on the quality of local surface water.	26.8%
❑ …no effect on the quality of local surface water.	20.0%
❑ Don't know/unsure	1.4%
❑ No answer	1.9%
	n=395

Q13. Have you heard of any concerns about the following substances in northeast Kansas surface waters? There is nothing special about this list. It is simply a list the EPA uses to monitor water quality.

Q13a. Have you heard of concerns about ALACHLOR?

❑ Yes (Go to Q13a1)	8.0%
❑ No (Go to Q13b)	90.5%
❑ Don't know	1.3%
❑ No answer	.3%
	n=388

Q13a1. How concerned are you about ALACHLOR in northeast Kansas surface waters? Are you…

❑ Very concerned	22.6%
❑ Somewhat concerned	45.2%
❑ Unsure	12.9%
❑ Somewhat not concerned	6.5%
❑ Not concerned at all	12.9%
	n=31

Q13b. Have you heard of concerns about AMMONIA?

❑ Yes (Go to Q13b1)	30.4%
❑ No (Go to Q13c)	69.1%
❑ Don't know	.3%
❑ No answer	.3%
	n=388

Q13b1. How concerned are you about AMMONIA in northeast Kansas surface waters? Are you…

❑ Very concerned	21.8%
❑ Somewhat concerned	32.8%
❑ Unsure	14.3%
❑ Somewhat not concerned	16.0%
❑ Not concerned at all	13.4%
❑ No answer	1.7%
	n=119

Q13c. Have you heard of concerns about ATRAZINE?

❑ Yes (Go to Q13c1)	28.6%
❑ No (Go to Q13d)	70.6%
❑ Don't know	.5%
❑ No answer	.3%
	n=388

Q13c1. How concerned are you about ATRAZINE in northeast Kansas surface waters? Are you…

❑ Very concerned	30.4%
❑ Somewhat concerned	42.9%
❑ Unsure	8.9%
❑ Somewhat not concerned	12.5%
❑ Not concerned at all	5.3%
❑ No answer	0%
	n=112

Q13d. Have you heard of concerns about CHLORDANE?

❑ Yes (Go to Q13d1)	32.2%
❑ No (Go to Q13e)	66.8%
❑ Don't know	.8%
❑ No answer	.3%
	n=388

Q13d1. How concerned are you about CHLORDANE in northeast Kansas surface waters? Are you…

❑ Very concerned	27.8%

❑ Somewhat concerned	42.9%
❑ Unsure	9.5%
❑ Somewhat not concerned	7.9%
❑ Not concerned at all	10.3%
❑ No answer	1.6%
	n=126

Q13e. Have you heard of concerns about CHLORIDE?

❑ Yes (Go to Q13e1)	27.1%
❑ No (Go to Q13f)	72.2%
❑ Don't know	.5%
❑ No answer	.3%
	n=388

Q13e1. How concerned are you about CHLORIDE in northeast Kansas surface waters? Are you…

❑ Very concerned	19.8%
❑ Somewhat concerned	32.1%
❑ Unsure	11.3%
❑ Somewhat not concerned	22.6%
❑ Not concerned at all	14.2%
❑ No answer	0%
	n=106

Q13f. Have you heard of concerns about SEDIMENT LOAD?

❑ Yes (Go to Q13f1)	29.1%
❑ No (Go to Q13g)	68.3%
❑ Don't know	2.3%
❑ No answer	.3%
	n=388

Q13f1. How concerned are you about SEDIMENT LOAD in northeast Kansas surface waters? Are you…

❑ Very concerned	26.3%
❑ Somewhat concerned	39.5%
❑ Unsure	8.8%
❑ Somewhat not concerned	17.5%
❑ Not concerned at all	7.9%
❑ No answer	0%
	n=114

Q13g. Have you heard of concerns about FECAL COLIFORM BACTERIA?

❑ Yes (Go to Q13g1)	32.2%
❑ No (Go to Q13h)	64.9%
❑ Don't know	2.6%
❑ No answer	.3%
	n=388

Q13g1. How concerned are you about FECAL COLIFORM BACTERIA in northeast Kansas surface waters? Are you…

❑ Very concerned	40.5%
❑ Somewhat concerned	36.5%
❑ Unsure	5.6%
❑ Somewhat not concerned	10.3%
❑ Not concerned at all	7.1%
❑ No answer	0%
	n=126

Q13h. Have you heard of concerns about DISSOLVED OXYGEN CONTENT?

❑ Yes (Go to Q13h1)	7.5%
❑ No (Go to Q13i)	90.2%
❑ Don't know	2.1%
❑ No answer	.3%
	n=388

Q13h1. How concerned are you about DISSOLVED OXYGEN CONTENT in northeast Kansas surface waters? Are you…

❑ Very concerned	24.1%
❑ Somewhat concerned	48.3%
❑ Unsure	10.3%
❑ Somewhat not concerned	10.3%
❑ Not concerned at all	6.9%
❑ No answer	0%
	n=29

Q13i. Have you heard of concerns about NITROGEN?

❑ Yes (Go to Q13i1)	30.9%
❑ No (Go to Q13j)	67.5%
❑ Don't know	1.3%
❑ No answer	.3%
	n=388

Q13i1. How concerned are you about NITROGEN in northeast Kansas surface waters? Are you…

❑ Very concerned	33.9%
❑ Somewhat concerned	42.1%
❑ Unsure	9.1%
❑ Somewhat not concerned	6.6%
❑ Not concerned at all	7.4%
❑ No answer	.8%
	n=121

Q13j. Have you heard of concerns about PHOSPHOROUS?

❑ Yes (Go to Q13j1)	24.3%
❑ No (Go to Q13k)	74.2%
❑ Don't know	1.3%
❑ No answer	.3%
	n=387

Q13j1. How concerned are you about PHOSPHOROUS in northeast Kansas surface waters? Are you…

❑ Very concerned	26.3%
❑ Somewhat concerned	47.4%
❑ Unsure	12.6%
❑ Somewhat not concerned	6.3%
❑ Not concerned at all	7.4%
❑ No answer	0%
	n=95

Q13k. Have you heard of concerns about SELENIUM?

❑ Yes (Go to Q13k1)	7.7%
❑ No (Go to Q13l)	90.2%
❑ Don't know	1.8%
❑ No answer	.3%
	n=388

Q13k1. How concerned are you about SELENIUM in northeast Kansas surface waters? Are you…

❑ Very concerned	23.3%
❑ Somewhat concerned	40.0%
❑ Unsure	13.3%
❑ Somewhat not concerned	13.3%
❑ Not concerned at all	10.0%
❑ No answer	0%
	n=30

Q13l. Have you heard of concerns about SILTATION?

❑ Yes (Go to Q13l1)	13.1%
❑ No (Go to Q13m)	85.1%
❑ Don't know	1.5%
❑ No answer	.3%
	n=388

Q13l1. How concerned are you about SILTATION in northeast Kansas surface waters? Are you…

❑ Very concerned	23.5%
❑ Somewhat concerned	43.1%
❑ Unsure	7.8%
❑ Somewhat not concerned	11.8%
❑ Not concerned at all	13.7%
❑ No answer	0%
	n=51

Q13m. Have you heard of concerns about SULFATES?

❑ Yes (Go to Q13m1)	21.6%
❑ No (Go to Q14)	76.8%
❑ Don't know	1.3%
❑ No answer	.3%
	n=388

Q13m1. How concerned are you about SULFATES in northeast Kansas surface waters? Are you…

❑ Very concerned	26.2%
❑ Somewhat concerned	42.9%
❑ Unsure	14.3%
❑ Somewhat not concerned	8.3%
❑ Not concerned at all	8.3%
❑ No answer	0%
	n=84

Q14. I am going to read you several statements regarding water quality. Please indicate how strongly you agree or disagree with each statement.

Q14a. Personal lifestyle choices can have an impact on surface water quality. Do you…

❑ Strongly agree	34.4%
❑ Agree	49.6%
❑ Neither agree nor disagree	7.3%
❑ Somewhat disagree	4.3%
❑ Strongly disagree	1.5%
❑ No answer	2.8%
	n=395

Q14b. Households like mine don't have much impact on water quality. Do you…

❑ Strongly agree	17.0%
❑ Agree	25.1%
❑ Neither agree nor disagree	9.1%
❑ Somewhat disagree	24.6%
❑ Strongly disagree	21.5%
❑ No answer	2.8%
	n=395

Q14c. Concerns about water quality in northeast Kansas are overblown. Do you…

❑ Strongly agree	6.6%
❑ Agree	17.0%
❑ Neither agree nor disagree	15.7%
❑ Somewhat disagree	29.6%
❑ Strongly disagree	25.6%
❑ No answer	5.6%
	n=395

Q14d. It is my personal responsibility to help safeguard water quality. Do you…

❑ Strongly agree	53.2%
❑ Agree	33.2%
❑ Neither agree nor disagree	5.1%
❑ Somewhat disagree	3.3%
❑ Strongly disagree	2.5%
❑ No answer	2.8%
	n=395

Q14e. Government action is needed to improve the quality of the surface water in northeast Kansas. Do you…

❑ Strongly agree	29.1%
❑ Agree	31.9%
❑ Neither agree nor disagree	13.7%
❑ Somewhat disagree	11.9%
❑ Strongly disagree	8.9%
❑ No answer	4.6%
	n=395

Q14f. Taxes should not be raised to pay for improvements in water quality. Do you…

❑ Strongly agree	24.1%
❑ Agree	23.8%
❑ Neither agree nor disagree	13.2%
❑ Somewhat disagree	20.5%
❑ Strongly disagree	15.2%
❑ No answer	3.3%
	n=395

Q14g. My personal participation in civic and political activities can have an important effect on water quality. Do you…

❑ Strongly agree	29.6%
❑ Agree	40.0%
❑ Neither agree nor disagree	12.4%
❑ Somewhat disagree	7.6%
❑ Strongly disagree	6.6%
❑ No answer	3.8%
	n=395

Q14h. Choices I make at work can have an important effect on water quality. Do you…

❑ Strongly agree	28.6%
❑ Agree	25.3%
❑ Neither agree nor disagree	10.9%
❑ Somewhat disagree	12.4%
❑ Strongly disagree	11.6%
❑ No answer	11.1%
	n=395

Q14i. My decision to use lawn and garden chemicals can have an impact on water quality. Do you…

❑ Strongly agree	57.0%
❑ Agree	29.6%
❑ Neither agree nor disagree	3.5%
❑ Somewhat disagree	3.8%
❑ Strongly disagree	3.0%
❑ No answer	3.0%
	n=395

Q15. What do you think of the following approaches to safeguarding water quality? Please indicate whether you would strongly approve, moderately approve, neither approve nor disapprove, moderately disapprove, or strongly disapprove of the following approaches.

Q15a. Voluntary approaches such as disposing of household hazardous wastes at a local hazardous waste disposal site. Do you…

❑ Strongly approve	70.1%
❑ Moderately approve	20.0%
❑ Neither approve nor disapprove	2.3%
❑ Moderately disapprove	1.5%
❑ Strongly disapprove	2.8%
❑ No answer	3.3%
	n=395

Q15b. Public awareness programs through advertising, public forums, or education in the schools. Do you…

❑ Strongly approve	67.3%
❑ Moderately approve	25.1%
❑ Neither approve nor disapprove	4.1%
❑ Moderately disapprove	0%
❑ Strongly disapprove	.8%
❑ No answer	2.8%
	n=395

Q15c. Have the government pay for more research to develop environmentally friendly technologies. Do you…

❑ Strongly approve	39.5%
❑ Moderately approve	29.9%
❑ Neither approve nor disapprove	11.1%
❑ Moderately disapprove	9.9%
❑ Strongly disapprove	5.8%
❑ No answer	3.8%
	n=395

Q15d. Tougher regulation of industry. Do you…

❑ Strongly approve	60.5%
❑ Moderately approve	24.8%
❑ Neither approve nor disapprove	6.1%
❑ Moderately disapprove	3.3%
❑ Strongly disapprove	1.8%
❑ No answer	3.5%
	n=395

Q15e. Tougher regulation of households. Do you…

❑ Strongly approve	29.1%
❑ Moderately approve	32.7%
❑ Neither approve nor disapprove	10.6%
❑ Moderately disapprove	13.7%
❑ Strongly disapprove	11.1%
❑ No answer	2.8%
	n=395

Q15f. Tougher regulation of farmers. Do you…

❑ Strongly approve	36.5%
❑ Moderately approve	33.9%

❑ Neither approve nor disapprove	9.6%
❑ Moderately disapprove	8.1%
❑ Strongly disapprove	8.4%
❑ No answer	3.5%
	n=395

Q15g. Tougher regulation of water and sewage treatment plants. Do you…

❑ Strongly approve	60.3%
❑ Moderately approve	25.1%
❑ Neither approve nor disapprove	6.3%
❑ Moderately disapprove	2.0%
❑ Strongly disapprove	1.5%
❑ No answer	4.8%
	n=395

Q15h. Tougher regulations on new housing and business development. Do you…

❑ Strongly approve	50.9%
❑ Moderately approve	27.6%
❑ Neither approve nor disapprove	8.9%
❑ Moderately disapprove	5.6%
❑ Strongly disapprove	3.3%
❑ No answer	3.8%
	n=395

Q15i. Extra charges on people who pollute. Do you…

❑ Strongly approve	73.7%
❑ Moderately approve	16.5%
❑ Neither approve nor disapprove	4.1%
❑ Moderately disapprove	2.0%
❑ Strongly disapprove	1.3%
❑ No answer	2.5%
	n=395

Q16. How willing would you be to take the following actions to safeguard the quality of the surface water in northeast Kansas?

Q16a. Reduce your own use of lawn and garden chemicals. Are you…

❑ Very willing	48.6%
❑ Somewhat willing	24.8%
❑ Neither willing nor unwilling	5.8%
❑ Somewhat unwilling	3.0%
❑ Very unwilling	.8%
❑ Does not apply/no answer	17.0%
	n=395

Q16b. Eliminate all your use of lawn and garden chemicals. Are you…

❑ Very willing	24.6%
❑ Somewhat willing	23.0%
❑ Neither willing nor unwilling	7.8%
❑ Somewhat unwilling	12.7%

❑ Very unwilling	14.7%
❑ Does not apply/no answer	17.2%
	n=395

Q16c. Take household hazardous wastes to proper disposal site. Are you…

❑ Very willing	77.0%
❑ Somewhat willing	14.4%
❑ Neither willing nor unwilling	2.8%
❑ Somewhat unwilling	1.5%
❑ Very unwilling	1.0%
❑ Does not apply/no answer	3.3%
	n=395

Q16d. Purchase local pesticide-free produce. Are you…

❑ Very willing	50.1%
❑ Somewhat willing	21.8%
❑ Neither willing nor unwilling	10.4%
❑ Somewhat unwilling	6.3%
❑ Very unwilling	7.8%
❑ Does not apply/no answer	3.5%
	n=395

Q16e. Use "natural" cleaning products at a small additional cost. Are you…

❑ Very willing	59.0%
❑ Somewhat willing	26.8%
❑ Neither willing nor unwilling	5.6%
❑ Somewhat unwilling	2.5%
❑ Very unwilling	2.3%
❑ Does not apply/no answer	3.8%
	n=395

Q16f. Use phosphorous-free detergents. Are you…

❑ Very willing	58.2%
❑ Somewhat willing	23.0%
❑ Neither willing nor unwilling	11.1%
❑ Somewhat unwilling	1.8%
❑ Very unwilling	2.0%
❑ Does not apply/no answer	3.8%
	n=395

Q16g. Live in a house with a smaller yard. Are you…

❑ Very willing	28.1%
❑ Somewhat willing	18.0%
❑ Neither willing nor unwilling	8.9%
❑ Somewhat unwilling	12.4%
❑ Very unwilling	27.3%
❑ Does not apply/no answer	5.3%
	n=395

Q16h. Read a newsletter about things you can do to improve water quality. Are you…

❑ Very willing	58.2%
❑ Somewhat willing	26.3%
❑ Neither willing nor unwilling	5.8%
❑ Somewhat unwilling	3.0%
❑ Very unwilling	2.5%
❑ Does not apply/no answer	4.1%
	n=395

Q16i. Give money to an action group working to improve water quality. Are you…

❑ Very willing	16.2%
❑ Somewhat willing	33.2%
❑ Neither willing nor unwilling	17.2%
❑ Somewhat unwilling	10.1%
❑ Very unwilling	20.0%
❑ Does not apply/no answer	3.3%
	n=395

Q16j. Organize an action group to improve water quality. Are you…

❑ Very willing	6.3%
❑ Somewhat willing	13.9%
❑ Neither willing nor unwilling	11.6%
❑ Somewhat unwilling	17.2%
❑ Very unwilling	47.6%
❑ Does not apply/no answer	3.3%
	n=395

Q16k. Support measure that require developers to protect stream corridors for hiking and biking trails. Are you…

❑ Very willing	46.6%
❑ Somewhat willing	29.4%
❑ Neither willing nor unwilling	8.4%
❑ Somewhat unwilling	5.8%
❑ Very unwilling	5.3%
❑ Does not apply/no answer	4.6%
	n=395

Q16l. Support measures that limit development in flood plains. Are you…

❑ Very willing	50.6%
❑ Somewhat willing	25.1%
❑ Neither willing nor unwilling	11.9%
❑ Somewhat unwilling	3.5%
❑ Very unwilling	5.1%
❑ Does not apply/no answer	3.8%
	n=395

Q16m. Support wetlands preservation. Are you…

❑ Very willing	60.8%
❑ Somewhat willing	20.8%
❑ Neither willing nor unwilling	6.3%

❑ Somewhat unwilling	4.1%
❑ Very unwilling	4.3%
❑ Does not apply/no answer	3.8%
	n=395

Q16n. Write a letter to a politician about water quality. Are you…

❑ Very willing	33.7%
❑ Somewhat willing	30.9%
❑ Neither willing nor unwilling	8.9%
❑ Somewhat unwilling	9.1%
❑ Very unwilling	13.9%
❑ Does not apply/no answer	3.5%
	n=395

Q17. If every household in northeast Kansas took steps to try to improve water quality, how much of an improvement in water quality do you think there would be?

❑ A great deal of improvement	30.4%
❑ Some improvement	49.6%
❑ Little improvement	11.9%
❑ No improvement	1.5%
❑ Don't know	0%
❑ No answer	6.6%
	n=395

Q18. Do you think there are problems with the quality of the surface water in northeast Kansas?

❑ Yes	39.7%
❑ No (Go to Q22)	40.5%
❑ Unsure	16.2%
❑ Not answered	3.5%
	n=395

Q19. How big do you think are the problems with the quality of the surface water in northeast Kansas? Are they…

❑ Large	27.5%
❑ Moderate	65.4%
❑ Small	7.1%
❑ Don't know	0%
❑ No answer	0%
	n=242

Q20. How much of the water quality problem in northeast Kansas would you say is caused by each of the following:

Q20a. Households? Do they cause…

❑ Almost all of the problem	3.2%
❑ Some of the problem	51.9%
❑ Unsure	7.7%
❑ A little of the problem	30.8%
❑ Hardly any of the problem	6.4%
❑ No answer	0%
	n=395

Q20b. Businesses (Do they cause…)

❑ Almost all of the problem	31.4%
❑ Some of the problem	59.0%
❑ Unsure	3.2%
❑ A little of the problem	5.1%
❑ Hardly any of the problem	1.3%
❑ No answer	0%
	n=156

Q20c. Farmers (Do they cause…)

❑ Almost all of the problem	35.3%
❑ Some of the problem	53.2%
❑ Unsure	1.3%
❑ A little of the problem	9.0%
❑ Hardly any of the problem	1.3%
❑ No answer	0%
	n=156

Q20d. Government (Does it cause…)

❑ Almost all of the problem	21.2%
❑ Some of the problem	48.1%
❑ Unsure	14.1%
❑ A little of the problem	9.0%
❑ Hardly any of the problem	7.7%
❑ No answer	0%
	n=156

Q21. What do you think is the greatest source of water pollution in northeast Kansas?

_____ Responses varied.

Q22. How much of an effect do you think the following sources of pollution have on the quality of the surface water in northeast Kansas? For each category, please tell me whether you think it has a significant effect, moderate effect, a small effect, or no effect.

Q22a. Industrial wastes. Do they have a…

❑ Significant effect	64.1%
❑ Moderate effect	22.5%
❑ Small effect	4.3%
❑ No effect	1.0%
❑ Don't know	0%
❑ No answer	8.1%
	n=395

Q22b. Sewage discharges from municipal wastewater treatment plants. Does it have a…

❑ Significant effect	48.4%
❑ Moderate effect	30.1%
❑ Small effect	8.1%

❑ No effect	2.5%
❑ Don't know	0%
❑ No answer	10.9%
	n=395

Q22c. Sediment washing off fields. (Does it have a…)

❑ Significant effect	35.2%
❑ Moderate effect	42.0%
❑ Small effect	11.6%
❑ No effect	2.0%
❑ Don't know	0%
❑ No answer	9.1%
	n=395

Q22d. Sediment washing off construction sites. (Does it have a…)

❑ Significant effect	27.6%
❑ Moderate effect	45.6%
❑ Small effect	15.4%
❑ No effect	2.5%
❑ Don't know	0%
❑ No answer	8.9%
	n=395

Q22e. Runoff containing manure from livestock operations. (Does it have a…)

❑ Significant effect	37.7%
❑ Moderate effect	39.0%
❑ Small effect	13.7%
❑ No effect	1.3%
❑ Don't know	0%
❑ No answer	8.4%
	n=395

Q22f. Fertilizers from agricultural fields. (Does it have a…)

❑ Significant effect	47.8%
❑ Moderate effect	34.9%
❑ Small effect	8.1%
❑ No effect	.8%
❑ Don't know	0%
❑ No answer	8.4%
	n=395

Q22g. Pesticides and herbicides from agricultural fields. (Do they have a…)

❑ Significant effect	52.4%
❑ Moderate effect	30.9%
❑ Small effect	6.3%
❑ No effect	.5%
❑ Don't know	0%
❑ No answer	9.9%
	n=395

Q22h. Pollutants washing off city streets and parking lots. (Do they have a…)

❑ Significant effect	30.6%
❑ Moderate effect	42.8%
❑ Small effect	14.9%
❑ No effect	3.8%
❑ Don't know	0%
❑ No answer	7.8%
	n=395

Q22i. Chemicals from home lawns and gardens. (Do they have a…)

❑ Significant effect	21.0%
❑ Moderate effect	44.3%
❑ Small effect	25.3%
❑ No effect	2.0%
❑ Don't know	0%
❑ No answer	7.3%
	n=395

Q22j. Chemicals from golf courses. (Do they have a…)

❑ Significant effect	19.7%
❑ Moderate effect	38.2%
❑ Small effect	24.1%
❑ No effect	3.8%
❑ Don't know	0%
❑ No answer	14.2%
	n=395

Q22k. Household hazardous wastes. (Do they have a…)

❑ Significant effect	24.1%
❑ Moderate effect	39.2%
❑ Small effect	26.6%
❑ No effect	2.3%
❑ Don't know	0%
❑ No answer	7.8%
	n=395

Q22l. Droppings from wildlife. (Do they have a…)

❑ Significant effect	7.1%
❑ Moderate effect	16.2%
❑ Small effect	36.7%
❑ No effect	30.4%
❑ Don't know	0%
❑ No answer	9.6%
	n=395

Q23. Have you or has anyone in your household taken household hazardous wastes to a local household hazardous waste collection facility?

❑ Yes (Go to Q24)	61.0%
❑ No	34.9%

- ❑ No answer 4.1%

n=395

Q23a. Why not? (you may choose more than one answer)

- ❑ Q23a1. I/We don't know of a facility in my area. 46.4%
- ❑ Q23a2. My county doesn't have a facility. 2.9%
- ❑ Q23a3. I/We don't use toxic products. 47.8%
- ❑ Q23a4. The hours of operation of the facility aren't compatible with my schedule. .7%
- ❑ Q23a5. I/We dispose of toxic products with my regular trash collection. 8.0%
- ❑ Q23a6. I/We don't have a way to transport the materials to the facility. 2.9%
- ❑ Q23a7. Other, please specify _____ Responses varied.

n=138

Q24. How important to you are the following environmental issues in northeast Kansas?

Q24a. Loss of wildlife habitat. Is it…

- ❑ Very important 54.2%
- ❑ Somewhat important 29.6%
- ❑ Unsure 6.1%
- ❑ Somewhat unimportant 4.8%
- ❑ Very unimportant 1.0%
- ❑ No answer 4.3%

n=395

Q24b. Drinking water quality. Is it…

- ❑ Very important 82.5%
- ❑ Somewhat important 11.6%
- ❑ Unsure .5%
- ❑ Somewhat unimportant 1.0%
- ❑ Very unimportant 0%
- ❑ No answer 4.3%

n=395

Q24c. Air quality. Is it…

- ❑ Very important 80.0%
- ❑ Somewhat important 11.4%
- ❑ Unsure 2.0%
- ❑ Somewhat unimportant 2.3%
- ❑ Very unimportant 0%
- ❑ No answer 4.3%

n=395

Q24d. Littering: cans, bottles, and other trash. Is it…

- ❑ Very important 65.8%
- ❑ Somewhat important 25.6%
- ❑ Unsure .5%

❑ Somewhat unimportant	3.5%
❑ Very unimportant	.3%
❑ No answer	4.3%
	n=395

Q24e. Sand dredging. Is it…

❑ Very important	17.5%
❑ Somewhat important	26.3%
❑ Unsure	29.6%
❑ Somewhat unimportant	12.2%
❑ Very unimportant	5.8%
❑ No answer	8.6%
	n=395

Q24f. Urban sprawl. Is it…

❑ Very important	30.1%
❑ Somewhat important	38.0%
❑ Unsure	14.7%
❑ Somewhat unimportant	9.6%
❑ Very unimportant	2.5%
❑ No answer	5.1%
	n=395

Q24g. Sedimentation. Is it…

❑ Very important	23.0%
❑ Somewhat important	38.5%
❑ Unsure	20.8%
❑ Somewhat unimportant	9.6%
❑ Very unimportant	1.8%
❑ No answer	6.3%
	n=395

Q24h. Pesticides in surface water. Is it…

❑ Very important	59.2%
❑ Somewhat important	28.9%
❑ Unsure	5.1%
❑ Somewhat unimportant	1.3%
❑ Very unimportant	.8%
❑ No answer	4.8%
	n=395

Q24i. Lack of recycling. Is it…

❑ Very important	54.4%
❑ Somewhat important	28.9%
❑ Unsure	5.8%
❑ Somewhat unimportant	4.8%
❑ Very unimportant	1.8%
❑ No answer	4.3%
	n=395

Q24j. Loss of farmland. Is it…

❑ Very important	50.9%
❑ Somewhat important	28.1%
❑ Unsure	7.8%
❑ Somewhat unimportant	6.8%
❑ Very unimportant	1.8%
❑ No answer	4.6%
	n=395

Q24k. Dumping used oil, tires, batteries, and other hazardous automobile wastes. Is it…

❑ Very important	70.6%
❑ Somewhat important	19.5%
❑ Unsure	2.5%
❑ Somewhat unimportant	2.3%
❑ Very unimportant	0%
❑ No answer	5.1%
	n=395

Q24l. Municipal sewage disposal. Is it…

❑ Very important	54.2%
❑ Somewhat important	29.4%
❑ Unsure	6.8%
❑ Somewhat unimportant	3.8%
❑ Very unimportant	1.3%
❑ No answer	4.6%
	n=395

Q24m. Pesticides in groundwater. Is it…

❑ Very important	62.0%
❑ Somewhat important	26.1%
❑ Unsure	5.1%
❑ Somewhat unimportant	1.8%
❑ Very unimportant	0%
❑ No answer	5.1%
	n=395

Q24n. Solid waste disposal. Is it…

❑ Very important	54.2%
❑ Somewhat important	32.4%
❑ Unsure	3.8%
❑ Somewhat unimportant	4.6%
❑ Very unimportant	.5%
❑ No answer	4.6%
	n=395

Q24o. Industrial waste discharges. Is it…

❑ Very important	71.6%
❑ Somewhat important	17.2%
❑ Unsure	4.3%

❑ Somewhat unimportant	2.0%
❑ Very unimportant	.3%
❑ No answer	4.6%
	n=395

Q24p. Bacteria from livestock operations. Is it…

❑ Very important	52.5%
❑ Somewhat important	31.4%
❑ Unsure	9.1%
❑ Somewhat unimportant	4.1%
❑ Very unimportant	.8%
❑ No answer	4.6%
	n=395

Q24q. Water quality for fish and other aquatic life. Is it…

❑ Very important	65.3%
❑ Somewhat important	23.5%
❑ Unsure	3.3%
❑ Somewhat unimportant	2.5%
❑ Very unimportant	.3%
❑ No answer	5.1%
	n=395

Q25. Are there any other environmental issues you think are important in northeast Kansas?

❑ Yes (Go to Q25a)	7.8%
❑ No	86.1%
❑ Don't know/No answer	6.1%
	n=395

Q25a. Please specify

_____ Responses varied.

Q26. Gender. (Record, but DO NOT ask)

❑ Male	40.0%
❑ Female	57.2%
❑ Undeterminable/missing	2.8%
	n=395

Q27. What is your age?

mean=48.18, median=46.5
n=378

_____

Q28. What is the highest level of education that you have completed? Is it…

❑ Less than high school	3.80%
❑ High school or equivalent	27.1%
❑ Some college or technical training	28.6%
❑ Bachelor's degree	23.0%
❑ Graduate school or professional degree	12.7%

❑ No answer	4.8%
	n=395

Q29. Which best describes your employment status? Are you (You may choose only one.)

❑ Employed or self employed full time	40.3%
❑ Employed or self employed part time	10.1%
❑ Homemaker	10.6%
❑ Not employed	4.3%
❑ Student	8.6%
❑ Retired	24.8%
❑ Not answered	1.3%
	n=395

Q30. What is your occupation, if any?

_____ Responses varied.

Q31. Do you think the Kansas River is clean enough to swim in now?

❑ Yes	18.7%
❑ No	52.4%
❑ Don't know	22.0%
❑ No answer	6.8%
	n=395

Q32. Would you be willing to pay an additional tax or fee to ensure that the Kansas River is clean enough to swim in?

❑ Yes	41.0%
❑ No (Skip to Q33)	59.0%
❑ No answer (Skip to Q33)	0%
	n=395

Q32a. Which of the following dollar amounts best represents the amount of additional taxes or fees you would be willing to pay a year? Would it be one dollar, three dollars, ten dollars, thirty dollars, or one hundred dollars per year?

❑ $1	10.4%
❑ $3	19.6%
❑ $10	35.0%
❑ $30	24.5%
❑ $100	10.4%
	n=163

Q33. Which of the following income categories best describes your total expected household income for 1999? Is it…

❑ Under $15,000	11.1%
❑ $15,000 - $25,000	14.2%
❑ $25,000 - $50,000	30.6%
❑ $50,000 - $80,000	17.7%
❑ Over $80,000	10.6%
❑ No answer	15.7%
	n=395

Q34. Does you household derive any portion of it's annual income from farming or ranching?

❑ Yes	3.8%
❑ No	70.1%
❑ No answer/missing	26.1%
	n=395

Q34a. What percentage of your household income comes from farming or ranching?

mean=5.33, median=5.0
n=12

_____

Q35. How many people age 18 and older currently reside in your household?

mean=1.93, median=2.0
n=377

_____

Q35a. How many people under the age of 18 currently reside in your household?

mean=.7, median=0
n=375

_____

That is all the questions we have for you. Thank you for your time to complete the survey.

Kaw Valley Heritage Alliance Farming Household Survey

Hello, my name is _____, and I am calling from The University of Kansas. We are conducting a survey about water quality and resources in the Kansas River Valley. This is not a sales call. The purpose of this study is to determine how residents feel about the quality of water resources in our state. It will take about 15 minutes to complete. MAY I SPEAK WITH THE ADULT IN YOUR HOUSEHOLD WHO HAD THE MOST RECENT BIRTHDAY AND IS CURRENTLY AT HOME? (INT: If a new caller gets on re-read introduction at the top and then begin text below.)

S1. Do you have a few minutes to answer the questions?

❑ Yes	100%
❑ No (Skip to Case ID)	0%
	n=252

S2. First, could you please tell me which county you live in?

❑ Douglas	15.9%
❑ Geary	9.9%
❑ Jackson	9.5%
❑ Jefferson	7.9%
❑ Johnson	4.4%
❑ Leavenworth	7.1%
❑ Morris	6.0%
❑ Pottawatomie	12.3%
❑ Riley	10.7%
❑ Shawnee	11.5%
❑ Wabaunsee	4.0%
❑ Wyandotte	0.8%
❑ Don't know/NA	0.0%
(Got to Case ID and terminate)	n=252

S3. Because we are interested in speaking with people who live in households that are involved in agriculture, I would like to ask you the following question. Does your household derive any portion of its annual income from any type of agricultural production, that would include farming, growing vegetables or fruit to sell to others, or raising any kind of livestock?

❑ Yes	100%
❑ No (Go to Case ID and terminate)	0%

n=252

Q1. All things considered, how much do you enjoy living in northeast Kansas? Do you enjoy it…

❑ Very much	86.9%
❑ Somewhat	12.7%
❑ Not too much, or	0.4%
❑ Not at all	0.0%
❑ Don't know/NA	0.4%
	n=252

Q2. What do you like best about living in northeast Kansas?

_____ Responses varied.

Q3. Have you visited any lakes, rivers, streams, or ponds in northeast Kansas in the past year?

❑ Yes (Go to Q3a)	71.0%
❑ No (Go to Q4)	29.0%
❑ No answer/Don't know	0.0%
	n=252

Q3a. How many times have you visited lakes, rivers, streams, and ponds in northeast Kansas in the past year?

mean=66, median=9

_____ n=170

Q4. In general, how would you describe the overall quality of the surface water in northeast Kansas? Would you say it is…

❑ Very good	26.6%
❑ Somewhat good	52.4%
❑ Neither good nor bad	10.3%
❑ Somewhat bad	6.0%
❑ Very bad	0.8%
❑ Don't know	0.0%
❑ No answer	4.0%
	n=252

Q5. Are you aware of any concerns regarding the quality of the surface water in northeast Kansas?

❑ Yes (Go to Q5a)	47.2%
❑ No	52.8%
❑ Don't know	0.0%
	n=252

Q5a. What kinds of concerns have you heard about?

_____

Q6. What is your source of drinking water?

❑ City water with no home purification	13.9%
❑ Rural water district with no home purification	32.5%
❑ Well water with no home purification	39.3%
❑ Bottled water (Go to Q6a)	3.2%
❑ City, rural, or well water with home purification	11.1%
	n=252

Q6a. Why do you use bottled water or home purification?

_____ Responses varied.

Q6b. Please list any other sources of drinking water you use at home.

_____ Responses varied.

Q7. In what kinds of water-based recreational activities have you participated in the last two years? You may choose activities you have participated in outside of northeast Kansas as well as locally. (You may choose more than one activity.)

❑ Q7a.	Fishing	52.4%

❑	Q7b.	Swimming	31.1%
❑	Q7c.	Boating (water skiing, canoeing, sailing)	29.0%
❑	Q7d.	Observing birds and wildlife near water	52.0%
❑	Q7e.	Hunting near water	24.3%
❑	Q7f.	Camping near water	19.0%
❑	Q7g.	Picnicking near water	42.1%
❑	Q7h.	Walking, running, or hiking near water	55.0%
❑	Q7i.	Biking near water	4.0%
❑	Q7j.	Windsurfing/surfing	0.8%
❑	Q7k.	Scuba diving/snorkeling	0.8%
❑	Q7l.	Any other activities? (please describe) _____ Responses varied.	

n=252

Q8. Have water quality concerns discouraged you from participating in any of these activities in northeast Kansas?

❑ Yes (Go to Q8a.)	6.7%
❑ No	91.7%
❑ Don't know/No answer	1.6%

n=252

Q8a. What activity have you avoided, and why?

_____ Responses varied.

Q9. Are there any water bodies in northeast Kansas out of which you would NOT eat fish?

❑ Yes (Go to Q9a)	22.6%
❑ No (Go to Q10a)	72.0%
❑ I don't eat fish (Go to Q10a)	4.8%
❑ Not answered (Go to Q10a)	2.4%

n=252

Q9a. Which water bodies?

❑	Q9a1.	Kansas River	11.1%
❑	Q9a2.	Clinton Lake	1.6%
❑	Q9a3.	Perry Lake	0.8%
❑	Q9a4.	Tuttle Creek Reservoir	2.8%
❑	Q9a5.	Small streams, rivers, or creeks	2.4%
❑	Q9a6.	Farm Ponds	3.6%
❑	Q9a7.	Other (Also ask Q10b.)	4.4%
❑	Q9a8.	Would not eat fish from any Kaw Valley waters n=57	0.8%

Q9b. Please specify other

_____ Responses varied.

Q9c. Why would you not eat fish from these waters?

_____ Responses varied

Q10. Sometimes people get information about water quality from outside sources. How reliable

do you consider the following sources of information about water quality?

Q10a. Other citizens? Are they…

❑ Very reliable	7.5%
❑ Somewhat reliable	44.0%
❑ Neither	17.1%
❑ Somewhat unreliable	16.7%
❑ Very unreliable	9.9%
❑ No answer/Don't know	4.8%
	n=252

Q10b. Agricultural extension service? Are they

❑ Very reliable	62.7%
❑ Somewhat reliable	30.6%
❑ Neither	2.4%
❑ Somewhat unreliable	2.0%
❑ Very unreliable	0.4%
❑ No answer/Don't know	2.0%
	n=252

Q10c. The Environmental Protection Agency? Are they

❑ Very reliable	22.6%
❑ Somewhat reliable	42.5%
❑ Neither	8.3%
❑ Somewhat unreliable	7.9%
❑ Very unreliable	7.5%
❑ No answer/Don't know	11.1%
	n=252

Q10d. Radio shows? Are they

❑ Very reliable	4.0%
❑ Somewhat reliable	34.5%
❑ Neither	17.1%
❑ Somewhat unreliable	15.9%
❑ Very unreliable	13.1%
❑ No answer/Don't know	15.5%
	n=252

Q10e. Universities? Are they…

❑ Very reliable	49.6%
❑ Somewhat reliable	39.7%
❑ Neither	3.2%
❑ Somewhat unreliable	2.0%
❑ Very unreliable	1.2%
❑ No answer/Don't know	4.4%
	n=252

Q10f. Television? Is it…

❑ Very reliable	5.2%

❑ Somewhat reliable	38.5%
❑ Neither	17.9%
❑ Somewhat unreliable	18.3%
❑ Very unreliable	13.1%
❑ No answer/Don't know	7.1%
	n=252

Q10g. Local newspapers? Are they…

❑ Very reliable	11.5%
❑ Somewhat reliable	53.2%
❑ Neither	13.1%
❑ Somewhat unreliable	13.1%
❑ Very unreliable	5.6%
❑ No answer/Don't know	3.6%
	n=252

Q10h. National newspapers? Are they…

❑ Very reliable	7.9%
❑ Somewhat reliable	35.3%
❑ Neither	15.5%
❑ Somewhat unreliable	14.7%
❑ Very unreliable	8.3%
❑ No answer/Don't know	18.3%
	n=252

Q10i. National environmental groups' publications? Are they…

❑ Very reliable	6.7%
❑ Somewhat reliable	30.2%
❑ Neither	8.7%
❑ Somewhat unreliable	19.0%
❑ Very unreliable	13.9%
❑ No answer/Don't know	21.4%

Q10j. Local/state environmental groups' publications? Are they…

❑ Very reliable	11.9%
❑ Somewhat reliable	41.7%
❑ Neither	7.5%
❑ Somewhat unreliable	13.5%
❑ Very unreliable	7.1%
❑ No answer/Don't know	18.3%
	n=252

Q10k. The Kansas Department of Agriculture? Is it…

❑ Very reliable	52.0%
❑ Somewhat reliable	36.9%
❑ Neither	3.2%
❑ Somewhat unreliable	5.2%
❑ Very unreliable	1.2%
❑ No answer/Don't know	1.6%
	n=252

Q10l. The Kansas Department of Health and Environment? Is it…

❑ Very reliable	36.5%
❑ Somewhat reliable	41.7%
❑ Neither	7.1%
❑ Somewhat unreliable	4.0%
❑ Very unreliable	1.2%
❑ No answer/Don't know	9.5%
	n=252

Q10m. Manufacturers of commercial products? Are they…

❑ Very reliable	2.4%
❑ Somewhat reliable	25.4%
❑ Neither	16.7%
❑ Somewhat unreliable	22.2%
❑ Very unreliable	22.6%
❑ No answer/Don't know	10.7%
	n=252

Q10n. Natural resources conservation service? Are they…

❑ Very reliable	35.3%
❑ Somewhat reliable	46.0%
❑ Neither	5.6%
❑ Somewhat unreliable	1.6%
❑ Very unreliable	0.4%
❑ No answer/Don't know	11.1%
	n=252

Q11. Do you believe anything you personally do could have a …

❑ …significant effect on the quality of local surface water.	27.4%
❑ …moderate effect on the quality of local surface water.	31.3%
❑ …little effect on the quality of local surface water.	22.2%
❑ …no effect on the quality of local surface water.	16.3%
❑ Don't know/unsure	0.0%
❑ No answer	2.8%
	n=252

Q12. Have you heard of any concerns about the following substances in northeast Kansas surface waters? There is nothing special about this list. It is simply a list the EPA uses to monitor water quality.

Q12a. Have you heard of concerns about ALACHLOR?

❑ Yes (Go to Q12a1)	15.5%
❑ No (Go to Q12b)	83.7%
❑ Don't know	0.0%
❑ No answer	0.8%
	n=252

Q12a1. How concerned are you about ALACHLOR in northeast Kansas surface waters? Are you…

❑ Very concerned	13.2%
❑ Somewhat concerned	26.3%
❑ Unsure	5.3%
❑ Somewhat not concerned	34.2%
❑ Not concerned at all	21.1%
	n=38

Q12b. Have you heard of concerns about AMMONIA?

❑ Yes (Go to Q12b1)	32.5%
❑ No (Go to Q12c)	65.5%
❑ Don't know	0.0%
❑ No answer	2.0%
	n=252

Q12b1. How concerned are you about AMMONIA in northeast Kansas surface waters? Are you…

❑ Very concerned	17.1%
❑ Somewhat concerned	35.4%
❑ Unsure	9.8%
❑ Somewhat not concerned	19.5%
❑ Not concerned at all	18.3%
	n=82

Q12c. Have you heard of concerns about ATRAZINE?

❑ Yes (Go to Q12c1)	73.4%
❑ No (Go to Q12d)	25.8%
❑ Don't know	0.0%
❑ No answer	0.8%
	n=252

Q12c1. How concerned are you about ATRAZINE in northeast Kansas surface waters? Are you…

❑ Very concerned	21.2%
❑ Somewhat concerned	34.8%
❑ Unsure	6.5%
❑ Somewhat not concerned	20.1%
❑ Not concerned at all	17.4%
	n=68

Q12d. Have you heard of concerns about CHLORDANE?

❑ Yes (Go to Q12d1)	38.9%
❑ No (Go to Q12e)	57.9%
❑ Don't know	0.0%
❑ No answer	3.2%
	n=252

Q12d1. How concerned are you about CHLORDANE in northeast Kansas surface waters? Are you…

❑ Very concerned	20.4%
❑ Somewhat concerned	35.7%
❑ Unsure	6.1%

- ❑ Somewhat not concerned 13.3%
- ❑ Not concerned at all 24.5%

n=154

Q12e. Have you heard of concerns about CHLORIDE?

- ❑ Yes (Go to Q12e1) 16.7%
- ❑ No (Go to Q12f) 79.4%
- ❑ Don't know 0.0%
- ❑ No answer 4.0%

n=252

Q12e1. How concerned are you about CHLORIDE in northeast Kansas surface waters? Are you…

- ❑ Very concerned 26.2%
- ❑ Somewhat concerned 33.3%
- ❑ Unsure 16.7%
- ❑ Somewhat not concerned 14.3%
- ❑ Not concerned at all 9.5%

n=42

Q12f. Have you heard of concerns about SEDIMENT LOAD?

- ❑ Yes (Go to Q12f1) 40.9%
- ❑ No (Go to Q12g) 56.7%
- ❑ Don't know 0.0%
- ❑ No answer 2.4%

n=

Q12f1. How concerned are you about SEDIMENT LOAD in northeast Kansas surface waters? Are you…

- ❑ Very concerned 25.0%
- ❑ Somewhat concerned 52.9%
- ❑ Unsure 7.7%
- ❑ Somewhat not concerned 7.7%
- ❑ Not concerned at all 6.7%

n=104

Q12g. Have you heard of concerns about FECAL COLIFORM BACTERIA?

- ❑ Yes (Go to Q12g1) 44.4%
- ❑ No (Go to Q12h) 54.4%
- ❑ Don't know 0.0%
- ❑ No answer 1.2%

n=252

Q12g1. How concerned are you about FECAL COLIFORM BACTERIA in northeast Kansas surface waters? Are you…

- ❑ Very concerned 36.0%
- ❑ Somewhat concerned 36.0%
- ❑ Unsure 10.5%
- ❑ Somewhat not concerned 4.4%
- ❑ Not concerned at all 13.2%

n=114

Q12h. Have you heard of concerns about DISSOLVED OXYGEN CONTENT?

❑ Yes (Go to Q12h1)	11.9%
❑ No (Go to Q12i)	85.3%
❑ Don't know	97.2%
❑ No answer	2.8%
	n=252

Q12h1. How concerned are you about DISSOLVED OXYGEN CONTENT in northeast Kansas surface waters? Are you…

❑ Very concerned	19.4%
❑ Somewhat concerned	45.2%
❑ Unsure	22.6%
❑ Somewhat not concerned	6.5%
❑ Not concerned at all	6.5%
	n=31

Q12i. Have you heard of concerns about NITROGEN?

❑ Yes (Go to Q12i1)	60.3%
❑ No (Go to Q12j)	38.9%
❑ Don't know	0.0%
❑ No answer	0.8%
	n=252

Q12i1. How concerned are you about NITROGEN in northeast Kansas surface waters? Are you…

❑ Very concerned	17.0%
❑ Somewhat concerned	48.4%
❑ Unsure	6.5%
❑ Somewhat not concerned	15.7%
❑ Not concerned at all	12.4%
	n=99

Q12j. Have you heard of concerns about PHOSPHOROUS?

❑ Yes (Go to Q12j1)	30.6%
❑ No (Go to Q12k)	67.5%
❑ Don't know	0.0%
❑ No answer	2.0%
	n=252

Q12j1. How concerned are you about PHOSPHOROUS in northeast Kansas surface waters? Are you…

❑ Very concerned	18.2%
❑ Somewhat concerned	42.9%
❑ Unsure	9.1%
❑ Somewhat not concerned	14.3%
❑ Not concerned at all	15.6%
	n=77

Q12k. Have you heard of concerns about SELENIUM?

❑ Yes (Go to Q12k1)	10.3%
❑ No (Go to Q12l)	87.3%
❑ Don't know	0.0%
❑ No answer	2.4%
	n=252

Q12k1. How concerned are you about SELENIUM in northeast Kansas surface waters? Are you…

❑ Very concerned	34.6%
❑ Somewhat concerned	23.1%
❑ Unsure	11.5%
❑ Somewhat not concerned	11.5%
❑ Not concerned at all	19.2%
	n=26

Q12l. Have you heard of concerns about SILTATION?

❑ Yes (Go to Q12l1)	25.8%
❑ No (Go to Q12m)	73.0%
❑ Don't know	0.0%
❑ No answer	1.2%
	n=252

Q12l1. How concerned are you about SILTATION in northeast Kansas surface waters? Are you…

❑ Very concerned	29.3%
❑ Somewhat concerned	52.3%
❑ Unsure	1.5%
❑ Somewhat not concerned	9.2%
❑ Not concerned at all	7.7%
	n=65

Q12m. Have you heard of concerns about SULFATES?

❑ Yes (Go to Q12m1)	28.2%
❑ No (Go to Q13)	69.8%
❑ Don't know	0.0%
❑ No answer	2.0%
	n=252

Q12m1. How concerned are you about SULFATES in northeast Kansas surface waters? Are you…

❑ Very concerned	15.7%
❑ Somewhat concerned	55.7%
❑ Unsure	7.1%
❑ Somewhat not concerned	14.3%
❑ Not concerned at all	7.1%
	n=70

Q13. I am going to read you several statements regarding water quality. Please indicate how strongly you agree or disagree with each statement.

Q13a. Personal lifestyle choices can have an impact on surface water quality. Do you…

❑ Strongly agree	49.6%
❑ Agree	40.5%
❑ Neither agree nor disagree	4.8%
❑ Somewhat disagree	3.2%
❑ Strongly disagree	0.4%
❑ No answer	1.6%
	n=252

Q13b. Households like mine don't have much impact on water quality. Do you…

❑ Strongly agree	21.4%
❑ Agree	24.6%
❑ Neither agree nor disagree	6.7%
❑ Somewhat disagree	17.9%
❑ Strongly disagree	25.4%
❑ No answer	4.0%
	n=252

Q13c. Concerns about water quality in northeast Kansas are overblown. Do you…

❑ Strongly agree	10.3%
❑ Agree	28.2%
❑ Neither agree nor disagree	13.5%
❑ Somewhat disagree	23.8%
❑ Strongly disagree	19.4%
❑ No answer	4.8%
	n=252

Q13d. It is my personal responsibility to help safeguard water quality. Do you…

❑ Strongly agree	78.6%
❑ Agree	17.9%
❑ Neither agree nor disagree	1.2%
❑ Somewhat disagree	1.2%
❑ Strongly disagree	1.2%
❑ No answer	4.8%
	n=252

Q13e. Government action is needed to improve the quality of the surface water in northeast Kansas. Do you…

❑ Strongly agree	17.5%
❑ Agree	28.2%
❑ Neither agree nor disagree	12.7%
❑ Somewhat disagree	21.0%
❑ Strongly disagree	18.3%
❑ No answer	2.4%
	n=252

Q13f. Taxes should not be raised to pay for improvements in water quality. Do you…

❑ Strongly agree	38.9%
❑ Agree	20.2%

❑ Neither agree nor disagree	9.5%
❑ Somewhat disagree	15.1%
❑ Strongly disagree	13.5%
❑ No answer	2.8%
	n=252

Q13g. My personal participation in civic and political activities can have an important effect on water quality. Do you…

❑ Strongly agree	38.1%
❑ Agree	35.3%
❑ Neither agree nor disagree	5.2%
❑ Somewhat disagree	9.5%
❑ Strongly disagree	9.1%
❑ No answer	2.8%
	n=252

Q13h. Choices I make at work can have an important effect on water quality. Do you…

❑ Strongly agree	41.3%
❑ Agree	28.2%
❑ Neither agree nor disagree	8.3%
❑ Somewhat disagree	4.8%
❑ Strongly disagree	8.7%
❑ No answer	8.7%
	n=252

Q13i. My decision to use lawn and garden chemicals can have an impact on water quality. Do you…

❑ Strongly agree	58.3%
❑ Agree	26.6%
❑ Neither agree nor disagree	4.4%
❑ Somewhat disagree	5.2%
❑ Strongly disagree	5.2%
❑ No answer	0.4%
	n=252

Q14. What do you think of the following approaches to safeguarding water quality? Please indicate whether you would strongly approve, moderately approve, neither approve nor disapprove, moderately disapprove, or strongly disapprove of the following approaches.

Q14a. Voluntary approaches such as disposing of household hazardous wastes at a local hazardous waste disposal site. Do you…

❑ Strongly approve	76.2%
❑ Moderately approve	15.9%
❑ Neither approve nor disapprove	0.8%
❑ Moderately disapprove	3.2%
❑ Strongly disapprove	2.4%
❑ No answer	1.6%
	n=252

Q14b. Public awareness programs through advertising, public forums, or education in the schools. Do you…

❑ Strongly approve	70.6%
❑ Moderately approve	21.4%
❑ Neither approve nor disapprove	3.6%
❑ Moderately disapprove	1.6%
❑ Strongly disapprove	0.8%
❑ No answer	2.0%
	n=252

Q14c. Have the government pay for more research to develop environmentally friendly technologies. Do you…

❑ Strongly approve	25.4%
❑ Moderately approve	29.0%
❑ Neither approve nor disapprove	12.3%
❑ Moderately disapprove	14.3%
❑ Strongly disapprove	15.5%
❑ No answer	3.6%
	n=252

Q14d. Tougher regulation of industry. Do you…

❑ Strongly approve	51.6%
❑ Moderately approve	23.4%
❑ Neither approve nor disapprove	10.7%
❑ Moderately disapprove	7.5%
❑ Strongly disapprove	3.6%
❑ No answer	3.2%
	n=252

Q14e. Tougher regulation of households. Do you…

❑ Strongly approve	22.2%
❑ Moderately approve	28.6%
❑ Neither approve nor disapprove	12.3%
❑ Moderately disapprove	14.7%
❑ Strongly disapprove	18.3%
❑ No answer	4.0%

Q14f. Tougher regulation of farmers. Do you…

❑ Strongly approve	13.1%
❑ Moderately approve	26.6%
❑ Neither approve nor disapprove	12.7%
❑ Moderately disapprove	15.1%
❑ Strongly disapprove	31.0%
❑ No answer	1.6%
	n=252

Q14g. Tougher regulation of water and sewage treatment plants. Do you…

❑ Strongly approve	42.1%
❑ Moderately approve	28.6%
❑ Neither approve nor disapprove	12.7%
❑ Moderately disapprove	6.0%

❑ Strongly disapprove	4.4%
❑ No answer	6.3%
	n=252

Q14h. Tougher regulations on new housing and business development. Do you…

❑ Strongly approve	40.9%
❑ Moderately approve	28.6%
❑ Neither approve nor disapprove	7.9%
❑ Moderately disapprove	8.7%
❑ Strongly disapprove	8.3%
❑ No answer	5.6%
	n=252

Q14i. Extra charges on people who pollute. Do you…

❑ Strongly approve	64.7%
❑ Moderately approve	17.5%
❑ Neither approve nor disapprove	7.9%
❑ Moderately disapprove	2.0%
❑ Strongly disapprove	5.6%
❑ No answer	2.4%
	n=252

Q15. How willing would you be to take the following actions to safeguard the quality of the surface water in northeast Kansas?

Q15a. Reduce your own use of lawn and garden chemicals. Are you…

❑ Very willing	48.8%
❑ Somewhat willing	25.0%
❑ Neither willing nor unwilling	5.2%
❑ Somewhat unwilling	3.6%
❑ Very unwilling	5.6%
❑ No answer	11.9%
	n=252

Q15b. Eliminate all your use of lawn and garden chemicals. Are you…

❑ Very willing	25.4%
❑ Somewhat willing	17.5%
❑ Neither willing nor unwilling	5.2%
❑ Somewhat unwilling	13.9%
❑ Very unwilling	28.2%
❑ No answer	9.9%
	n=252

Q15c. Take household hazardous wastes to proper disposal site. Are you…

❑ Very willing	85.3%
❑ Somewhat willing	7.5%
❑ Neither willing nor unwilling	2.4%
❑ Somewhat unwilling	1.2%
❑ Very unwilling	2.0%
❑ No answer	1.6%

n=252

Q15d. Purchase local pesticide-free produce. Are you…

❑ Very willing	40.9%
❑ Somewhat willing	24.2%
❑ Neither willing nor unwilling	9.5%
❑ Somewhat unwilling	9.1%
❑ Very unwilling	12.7%
❑ No answer	3.6%
	n=252

Q15e. Use "natural" cleaning products at a small additional cost. Are you…

❑ Very willing	57.1%
❑ Somewhat willing	25.4%
❑ Neither willing nor unwilling	6.3%
❑ Somewhat unwilling	5.6%
❑ Very unwilling	3.6%
❑ No answer	2.0%
	n=252

Q15f. Use phosphorous-free detergents. Are you…

❑ Very willing	60.7%
❑ Somewhat willing	21.0%
❑ Neither willing nor unwilling	7.9%
❑ Somewhat unwilling	3.2%
❑ Very unwilling	3.6%
❑ No answer	3.6%
	n=252

Q15g. Read a newsletter about things you can do to improve water quality. Are you…

❑ Very willing	69.0%
❑ Somewhat willing	20.6%
❑ Neither willing nor unwilling	4.4%
❑ Somewhat unwilling	2.8%
❑ Very unwilling	2.4%
❑ No answer	.8%
	n=252

Q15h. Give money to an action group working to improve water quality. Are you…

❑ Very willing	8.3%
❑ Somewhat willing	22.2%
❑ Neither willing nor unwilling	13.1%
❑ Somewhat unwilling	15.9%
❑ Very unwilling	38.9%
❑ No answer	1.6%
	n=252

Q15i. Organize an action group to improve water quality. Are you…

❑ Very willing	3.2%

❑ Somewhat willing	9.5%
❑ Neither willing nor unwilling	4.8%
❑ Somewhat unwilling	11.1%
❑ Very unwilling	71.0%
❑ No answer	.4%
	n=252

Q15j. Support measures that require developers to protect stream corridors for hiking and biking trails. Are you…

❑ Very willing	36.1%
❑ Somewhat willing	23.8%
❑ Neither willing nor unwilling	8.7%
❑ Somewhat unwilling	8.7%
❑ Very unwilling	19.8%
❑ No answer	2.8%
	n=252

Q15k. Support measures that limit development in flood plains. Are you…

❑ Very willing	57.9%
❑ Somewhat willing	20.2%
❑ Neither willing nor unwilling	7.1%
❑ Somewhat unwilling	4.0%
❑ Very unwilling	5.2%
❑ No answer	5.6%
	n=252

Q15l. Support wetlands preservation. Are you…

❑ Very willing	42.9%
❑ Somewhat willing	24.6%
❑ Neither willing nor unwilling	7.5%
❑ Somewhat unwilling	11.5%
❑ Very unwilling	11.9%
❑ No answer	1.6%
	n=252

Q15m. Write a letter to a politician about water quality. Are you…

❑ Very willing	30.6%
❑ Somewhat willing	26.6%
❑ Neither willing nor unwilling	5.6%
❑ Somewhat unwilling	9.5%
❑ Very unwilling	27.0%
❑ No answer	.8%
	n=252

Q15n. Practice no till farming. Are you…

❑ Very willing	54.8%
❑ Somewhat willing	21.8%
❑ Neither willing nor unwilling	5.2%
❑ Somewhat unwilling	2.4%
❑ Very unwilling	9.9%

❑ No answer	6.0%
	n=252

Q15o. Practice organic farming. Are you…

❑ Very willing	19.0%
❑ Somewhat willing	22.2%
❑ Neither willing nor unwilling	10.3%
❑ Somewhat unwilling	20.6%
❑ Very unwilling	21.8%
❑ No answer	6.0%
	n=252

Q15p. Make water quality-related improvements to your land such as establishing buffer strips or installing terraces at your expense. Are you…

❑ Very willing	71.8%
❑ Somewhat willing	13.5%
❑ Neither willing nor unwilling	4.0%
❑ Somewhat unwilling	3.6%
❑ Very unwilling	3.6%
❑ No answer	3.6%
	n=252

Q15q. Use low-input farming methods. Are you…

❑ Very willing	51.2%
❑ Somewhat willing	19.4%
❑ Neither willing nor unwilling	7.9%
❑ Somewhat unwilling	3.2%
❑ Very unwilling	7.1%
❑ No answer	11.1%
	n=252

Q16. What agricultural management practices do you currently use to safeguard water quality?

❑ Q16a. No-till planting	49.6%
❑ Q16b. Buffer strips	51.6%
❑ Q16c. Retaining ponds	40.9%
❑ Q16d. Terracing	78.2%
❑ Q16e. Integrated pest management	15.5%
❑ Q16f. Low input farming	30.6%
❑ Q16g. Pesticide free farming	10.3%
❑ Q16h. Organic farming	10.7%
❑ Q16i. Something else (Go to Q16i1)	18.7%
	n=252

Q16i1. Please specify other practice.

_____ Responses varied.

Q17. If every farmer and rancher in northeast Kansas implemented all relevant best management practices to try to improve water quality, how much of an improvement in water quality do you think there would be? Would there be…

❑ A great deal of improvement	26.6%
❑ Some improvement	53.2%
❑ Little improvement	12.3%
❑ No improvement	2.0%
❑ Don't know	0%
❑ No answer	6.0%
	n=252

Q18. Do you think there are problems with the quality of the surface water in northeast Kansas?

❑ Yes	46.4%
❑ No (Go to Q22)	44.8%
❑ Unsure	7.1%
❑ Not answered	1.6%
	n=252

Q19. How big do you think are the problems with the quality of the surface water in northeast Kansas? Are they…

❑ Large	6.7%
❑ Moderate	32.9%
❑ Small	4.8%
❑ Don't know	0%
❑ No answer	55.6%
	n=252

Q20. How much of the water quality problem in northeast Kansas would you say is caused by each of the following:

Q20a. Households? Do they cause…

❑ Almost all of the problem	4.0%
❑ Some of the problem	47.6%
❑ Unsure	9.5%
❑ A little of the problem	22.2%
❑ Hardly any of the problem	15.9%
❑ No answer	.8%
	n=252

Q20b. Businesses (Do they cause…)

❑ Almost all of the problem	19.4%
❑ Some of the problem	59.9%
❑ Unsure	8.7%
❑ A little of the problem	9.9%
❑ Hardly any of the problem	1.2%
❑ No answer	.8%
	n=252

Q20c. Farmers (Do they cause…)

❑ Almost all of the problem	6.0%
❑ Some of the problem	68.3%
❑ Unsure	3.6%
❑ A little of the problem	13.9%
❑ Hardly any of the problem	7.1%
❑ No answer	1.2%

n=252

Q20d. Government (Does it cause…)

❑ Almost all of the problem	11.1%
❑ Some of the problem	43.3%
❑ Unsure	26.6%
❑ A little of the problem	9.1%
❑ Hardly any of the problem	6.7%
❑ No answer	3.2%
	n=252

Q21. What do you think is the greatest source of water pollution in northeast Kansas?

_____ Responses varied.

Q22. How much of an effect do you think the following sources of pollution have on the quality of the surface water in northeast Kansas? For each category, please tell me whether you think it has a significant effect, moderate effect, a small effect, or no effect.

Q22a. Industrial wastes. Do they have a…

❑ Significant effect	44.4%
❑ Moderate effect	36.9%
❑ Small effect	12.3%
❑ No effect	1.2%
❑ No answer	5.2%
	n=252

Q22b. Sewage discharges from municipal wastewater treatment plants. Does it have a…

❑ Significant effect	30.6%
❑ Moderate effect	40.9%
❑ Small effect	15.5%
❑ No effect	2.0%
❑ No answer	11.1%
	n=252

Q22c. Sediment washing off fields. (Does it have a…)

❑ Significant effect	22.2%
❑ Moderate effect	49.4%
❑ Small effect	27.2%
❑ No effect	1.2%
❑ No answer	3.6%
	n=252

Q22d. Sediment washing off construction sites. (Does it have a…)

❑ Significant effect	19.8%
❑ Moderate effect	40.9%

❑ Small effect	26.6%
❑ No effect	3.2%
❑ No answer	9.5%
	n=252

Q22e. Runoff containing manure from livestock operations. (Does it have a…)

❑ Significant effect	26.6%
❑ Moderate effect	39.3%
❑ Small effect	25.4%
❑ No effect	3.2%
❑ No answer	5.6%
	n=252

Q22f. Fertilizers from agricultural fields. (Does it have a…)

❑ Significant effect	22.2%
❑ Moderate effect	43.3%
❑ Small effect	28.2%
❑ No effect	2.8%
❑ No answer	3.6%
	n=252

Q22g. Pesticides and herbicides from agricultural fields. (Do they have a…)

❑ Significant effect	21.0%
❑ Moderate effect	43.3%
❑ Small effect	29.4%
❑ No effect	2.0%
❑ No answer	4.4%
	n=252

Q22h. Pollutants washing off city streets and parking lots. (Do they have a…)

❑ Significant effect	24.6%
❑ Moderate effect	40.9%
❑ Small effect	21.8%
❑ No effect	3.6%
❑ No answer	9.1%
	n=252

Q22i. Chemicals from home lawns and gardens. (Do they have a…)

❑ Significant effect	19.8%
❑ Moderate effect	33.3%
❑ Small effect	37.7%
❑ No effect	4.8%
❑ No answer	4.4%
	n=252

Q22j. Chemicals from golf courses. (Do they have a…)

❑ Significant effect	15.5%
❑ Moderate effect	35.3%
❑ Small effect	24.2%
❑ No effect	7.5%
❑ No answer	17.5%
	n=252

Q22k. Household hazardous wastes. (Do they have a…)

❑ Significant effect	13.5%
❑ Moderate effect	30.6%
❑ Small effect	42.5%
❑ No effect	4.4%
❑ No answer	9.1%
	n=252

Q22l. Droppings from wildlife. (Do they have a…)

❑ Significant effect	3.2%
❑ Moderate effect	17.5%
❑ Small effect	41.7%
❑ No effect	32.1%
❑ No answer	5.6%
	n=252

Q23. What do you think about the level of surface water quality testing in Kansas? Do you think it is…

❑ Too much	1.6%
❑ About right	53.6%
❑ Too little	13.9%
❑ Don't know	29.8%
❑ No answer	1.2%
	n=252

Q24. Have you or has anyone in your household taken household hazardous wastes to a local household hazardous waste collection facility?

❑ Yes (Go to Q25)	73.8%
❑ No	25.4%
No Answer	0.8%
	n=252

Q24a. Why not?

❑ Q24a1. I/We don't know of a facility in my area.	5.6%
❑ Q24a2. My county doesn't have a facility.	0.8%
❑ Q24a3. I/We don't use toxic products.	15.9%
❑ Q24a4. The hours of operation of the facility aren't compatible with my schedule.	0.8%
❑ Q24a5. I/We dispose of toxic products with my regular trash collection.	1.2%
❑ Q24a6. I/We don't have a way to transport the materials to the facility.	0%

❑ Q24a7. Other, please specify _____ Responses varied.
n=61

Q25. How important to you are the following environmental issues in northeast Kansas?

Q25a. Loss of wildlife habitat. Is it…

❑ Very important	41.3%
❑ Somewhat important	36.5%
❑ Unsure	4.4%
❑ Somewhat unimportant	10.7%
❑ Very unimportant	6.0%
❑ No answer	1.2%
	n=252

Q25b. Drinking water quality. Is it…

❑ Very important	82.9%
❑ Somewhat important	11.9%
❑ Unsure	2.4%
❑ Somewhat unimportant	0.8%
❑ Very unimportant	0.8%
❑ No answer	1.2%
	n=252

Q25c. Air quality. Is it…

❑ Very important	78.2%
❑ Somewhat important	11.9%
❑ Unsure	2.4%
❑ Somewhat unimportant	3.2%
❑ Very unimportant	3.2%
❑ No answer	1.2%
	n=252

Q25d. Littering: cans, bottles, and other trash. Is it…

❑ Very important	71.8%
❑ Somewhat important	21.4%
❑ Unsure	0.8%
❑ Somewhat unimportant	4.0%
❑ Very unimportant	0.8%
❑ No answer	1.2%
	n=252

Q25e. Sand dredging. Is it…

❑ Very important	9.1%
❑ Somewhat important	24.2%
❑ Unsure	27.0%
❑ Somewhat unimportant	19.0%
❑ Very unimportant	11.9%
❑ No answer	8.7%
	n=252

Q25f. Urban sprawl. Is it…

❑ Very important	46.8%
❑ Somewhat important	31.7%
❑ Unsure	11.9%
❑ Somewhat unimportant	4.4%
❑ Very unimportant	3.2%
❑ No answer	2.0%
	n=252

Q25g. Sedimentation. Is it…

❑ Very important	24.2%
❑ Somewhat important	48.0%
❑ Unsure	11.9%
❑ Somewhat unimportant	8.7%
❑ Very unimportant	4.8%
❑ No answer	2.4%
	n=252

Q25h. Pesticides in surface water. Is it…

❑ Very important	41.7%
❑ Somewhat important	40.5%
❑ Unsure	4.4%
❑ Somewhat unimportant	7.9%
❑ Very unimportant	3.2%
❑ No answer	2.4%
	n=252

Q25i. Lack of recycling. Is it…

❑ Very important	50.8%
❑ Somewhat important	34.1%
❑ Unsure	6.3%
❑ Somewhat unimportant	6.0%
❑ Very unimportant	1.6%
❑ No answer	1.2%
	n=252

Q25j. Loss of farmland. Is it…

❑ Very important	69.4%
❑ Somewhat important	19.4%
❑ Unsure	4.4%
❑ Somewhat unimportant	4.4%
❑ Very unimportant	1.2%
❑ No answer	1.2%
	n=252

Q25k. Dumping used oil, tires, batteries, and other hazardous automobile wastes. Is it…

❑ Very important	69.0%
❑ Somewhat important	21.0%
❑ Unsure	2.8%

❑ Somewhat unimportant	4.0%
❑ Very unimportant	1.2%
❑ No answer	1.2%
	n=252

Q25l. Municipal sewage disposal. Is it…

❑ Very important	50.8%
❑ Somewhat important	28.2%
❑ Unsure	9.9%
❑ Somewhat unimportant	6.0%
❑ Very unimportant	2.8%
❑ No answer	2.4%
	n=252

Q25m. Pesticides in groundwater. Is it…

❑ Very important	56.7%
❑ Somewhat important	27.8%
❑ Unsure	4.8%
❑ Somewhat unimportant	7.1%
❑ Very unimportant	2.4%
❑ No answer	1.2%
	n=252

Q25n. Solid waste disposal. Is it…

❑ Very important	47.6%
❑ Somewhat important	35.3%
❑ Unsure	7.9%
❑ Somewhat unimportant	4.8%
❑ Very unimportant	2.0%
❑ No answer	2.4%
	n=252

Q25o. Industrial waste discharges. Is it…

❑ Very important	61.5%
❑ Somewhat important	23.4%
❑ Unsure	6.7%
❑ Somewhat unimportant	4.0%
❑ Very unimportant	2.0%
❑ No answer	2.4%
	n=252

Q25p. Bacteria from livestock operations. Is it…

❑ Very important	38.1%
❑ Somewhat important	39.3%
❑ Unsure	6.7%
❑ Somewhat unimportant	9.1%
❑ Very unimportant	5.2%
❑ No answer	1.6%
	n=252

Q25q. Water quality for fish and other aquatic life. Is it…

❑ Very important	54.8%
❑ Somewhat important	30.2%
❑ Unsure	3.2%
❑ Somewhat unimportant	6.7%
❑ Very unimportant	4.0%
❑ No answer	1.2%
	n=252

Q26. Do you think the Kansas River is clean enough to swim in now?

❑ Yes (Go to Q27)	26.6%
❑ No answer	2.8%
❑ No	44.8%
❑ Don't know	25.8%
	n=252

Q26a. Would you be willing to pay an additional ($1, $3, $10, $30, $100) a year in taxes to ensure that the Kansas River is clean enough to swim in?

Question dollar levels and responses varied. See chapter 5 for discussion and results.

Q27. Are there any other environmental issues you think are important in northeast Kansas?

❑ Yes	10.7%
❑ No (Go to 28)	86.9%
❑ Don't know/No answer	2.4%
	n=252

Q27a. Please specify:

_____ Responses varied.

Q28. What is your age?

_____ mean=60.88, median=63

Q29. What is the highest level of education that you have completed? Is it…

❑ Less than high school	3.6%
❑ High school or equivalent	43.3%
❑ Some college or technical training	30.6%
❑ Bachelor's degree	15.5%
❑ Graduate school or professional degree	6.3%
❑ No answer	0.8%
	n=252

Q30. Which best describes your employment status? Are you (You may choose only one.)

❑ Employed or self employed full time	42.9%
❑ Employed or self employed part time	12.7%
❑ Homemaker	9.5%
❑ Not employed	0.8%

❑ Student	0.8%
❑ Retired	32.9%
❑ Not answered	0.4%
	n=252

Q31. What is your occupation, if any?

_____ Responses varied.

Q32. Including yourself, how many people age 18 and over are in your household?

_____ mean=1.91, median=2

Q33. How many people under age of 18 are in your household?

_____ mean=.45, median=0

Q34. Which of the following income categories best describes your total expected household income for 1999? Is it…

❑ Under $15,000	6.3%
❑ $15,000 - $25,000	16.7%
❑ $25,000 - $50,000	32.5%
❑ $50,000 - $80,000	17.9%
❑ Over $80,000	7.1%
❑ No answer	19.4%
	n=252

Q35. Could you please tell me approximately what percentage of your 1999 household income was derived from any form of agricultural production?

_____ mean=52.63, median=50

Q36. Gender. (Record, but DO NOT ask)

❑ Male	45.2%
❑ Female	54.8%
❑ Not sure	0.0%
	n=252

That is all the questions we have for you. Thank you for your time to complete the survey.

REFERENCES

American Rivers. *America's Most Endangered Rivers 1998*. http://www.amrivers.org/20-20.html.

Burress, David; and Patricia Oslund. 1999. *Benefits and Costs of the Kansas Comprehensive Highway Program*, Topeka KS: Kansas Department of Transportation Report # KTRAN-KU-97-3, January 1999; jointly issued as Lincoln NE: University of Nebraska, Mid-America Transportation Center Report MATC/KU97-2, April 1999; also issued as Lawrence KS: University of Kansas, Institute for Public Policy and Business Research Report 250, January 1999. (Also available from National Technical Information Service, Accession Number PB99-137713 and at http://www.ukans.edu/cwis/units/PRI/publicat/publicat.shtml).

Brady, Lawrence L. (compiler), David A. Grisafe, James R. McCauley, Gregory C. Ohlmacher, Hernán A. M. Quinodoz, and Kenneth A. Nelson. 1998. *The Kansas River Corridor – Its Geologic Setting, Land Use, Economic Geology, and Hydrology.* Kansas Geological Survey Open-file Report 98-2. Lawrence, KS. January.

Hanemann, W. Michael. 1994. "Valuing the Environment through Contingent Evaluation," *Journal of Economic Perspectives* 8(4), Fall, pp. 3-18

United States Environmental Protection Agency. 2000. *Surf Your Watershed: Watershed Environmental Profile*. Index of Watershed Indicators (IWI), http://www.epa.gov/iwi/hucs/10270104/score.html (last accessed 12/22/00).

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