AGRICULTURAL LITERACY OF RADIO STATION NEWS REPORTERS IN OKLAHOMA

By

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Bachelor of Science

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Stillwater, Oklahoma

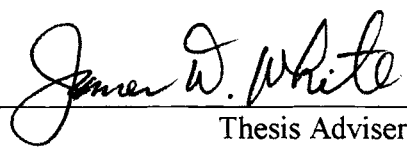
1992

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
December, 1995

AGRICULTURAL LITERACY OF RADIO STATION

NEWS REPORTERS IN OKLAHOMA

Thesis Approved:



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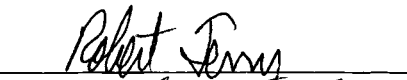

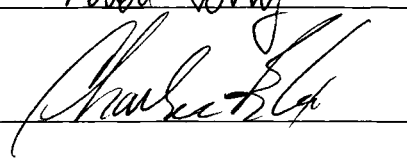

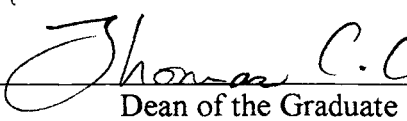

Dean of the Graduate College

ACKNOWLEDGMENTS

This study is dedicated to the very special people for whom it has been made a reality. I wish to say a special thanks to my major advisor, Dr. James White, who gave me the inspiration to conduct this study. Even through his illness, he has been a constant source of wisdom, direction and encouragement and has gone the extra mile to see me through my program. My sincere appreciation extends to committee members Dr. Robert Terry and Dr. Charles Cox who guided me in my instrumentation development and directed me toward invaluable research information. My thanks also go out to Dr. Wes Holley who provided a voice of reason amidst times of uncertainty and discouragement and for always taking time out of his busy schedule to be a friend.

Gracious and unfathomable gratitude goes out to my parents, Kenneth and Sue Fellers, for believing in me when I didn't believe in myself. Their love, understanding, prayers and financial support kept me striving toward my dream when no one else thought I would make it through. To my brother, John, his wife, Courtney, and my unborn niece or nephew, thank you for sharing your words of wisdom and experience so that my journey could be easier and full of laughter.

Finally, to my husband, Rodney, thank you for pushing me to keep striving to be my very best. Your constant and consistent love made this stressful time bearable. Thank you for allowing me to follow my dreams.

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CHAPTER I

INTRODUCTION

The twenty-first century is quickly approaching and with it the continued awakening of world issues and environmental awareness as it applies to agriculture. Recently, in the minds of so-called experts, agriculture has gone from a world resource champion to a world resource destroyer. The agriculture industry has become the environmental enemy and will continue to fall under attack unless a different message is conveyed to the public. More than ever before, intelligent decisions must be made concerning the dissemination of agricultural information in the United States.

Recent research studies have pointed out the lack of understanding Americans have for the agriculture industry. Up until now, most research efforts have focused on the agricultural knowledge levels of teachers, elementary and secondary students and college students. However, as the media continues to gain power and influence over the American public, researchers have begun to look toward the agricultural knowledge levels of those attempting to shape opinion via the media.

Raven (1994) stated that American agriculture has become less appreciated and understood. Raven further stated that today's youth believe that milk comes from the supermarket and that certain food products are less than desirable. For example, from the

Teenage Mutant Ninja Turtles/ABC's: For a Better Planet coloring book come these statements:

> **C is for Cruelty-free products**. Lots of products have to be tested by scientists before people can use them. Sometimes the products - like shampoo or makeup - are tested on animals in laboratories. The tests are cruel to the lab animals, and the animals can't fight back. Besides, testing on animals sometimes doesn't prove anything. What works one way on animals may not work the same way on humans.
>
> **M is for Meat**. Some animals are injected with artificial hormones to make them grow faster. But some of these hormones cause cancer. A lot of the world's cereal crop is fed to cattle, when it could be used to feed starving people instead. And cattle expel methane, a gas that makes the greenhouse effect worse. What can you do? How about not eating so much meat in the first place? And ask your folks to buy meat from organically raised beef cattle.
>
> **P is for Pesticides**. Pesticides are chemical poisons used by farmers to kill weeds and insect pests. But some pesticides are still in the food when it gets to the supermarket. And pesticides also poison animals that aren't pests (Raven, 1994, p. 37).

In this increasingly urbanized nation, fewer and fewer individuals can be associated with agriculture of any kind. Unless properly educated, it becomes difficult for consumers to separate factual agricultural information from false accusations and propaganda induced scare tactics. Therefore, consumers, including policy makers, are more likely to fall prey to misleading information about the American Food and Fiber System. Some reason that this concern will only rise as people continue the search for longer, healthier lives and a cleaner environment (Peters, 1994). The Teenage Mutant Ninja Turtles coloring book is only one example of how the media plants ideas of concern and feelings of uneasiness as it attempts to indoctrinate children into an "anti-agriculture" thought process. In fact, the coloring book is considered by the national media group ABC as a reliable method of expanding agricultural literacy even though the information is biased (Raven, 1994).

This lack of agriculture knowledge is not however, specific to one particular group. It has been found to touch all ages, races and educational levels. The designation of "agricultural literacy" is a relatively new term for a growing problem. It hasn't been until recently that this problem has brought about a large enough concern to merit the research. This new awareness of agricultural knowledge levels was brought to national attention when in 1986, Horn and Vining completed a study designed to gain a better understanding of agricultural knowledge levels among elementary and secondary public school students in Kansas. The results were clear. Kansas students did not know basic facts, except for very obvious situations.

What is agricultural literacy? Frick, Kahler & Miller (1992), through surveys, research and input from social scientists, have defined the term:

> An individual possessing such knowledge necessary would be able to synthesize, analyze, and communicate basic information about agriculture. Agricultural literacy knowledge encompasses 11 broad agricultural subject areas which include: agriculture's important relationship with the environment, processing of agricultural products, public agricultural policies, agriculture's products, agriculture's important relationship with natural resources, production of animal products, societal significance of agriculture, production of plant products, economic impact of agriculture, marketing of agricultural products, distribution of agricultural products and global significance of agriculture (Frick, Kahler & Miller, 1992, p. 36).

These researchers stated however, caution should be exercised when making broad statements about agricultural literacy levels of certain populations. Currently, it is used as a judgement by experts and has yet to be developed into an "exact" science.

> Determining the threshold level for literacy is not an exact science. Instead, it is a judgement by experts as to the minimum level of knowledge required by someone to function in a certain role and setting. The literature indicates that there are several tests or measures of functional literacy which testify to the diversity of skills deemed necessary for individuals to function in society. Functional

> agricultural literacy does not imply a perfect level of understanding about agriculture, but rather a minimum level (Frick & Spotanski, 1990, p. 6).

Why are so many researchers concerned about agricultural literacy levels? Many researchers believe there is a definite problem that needs immediate attention. Hillgren (1993) wrote that part of the agricultural illiteracy problem stems from the fact that agriculturalists spend too much time talking to other agriculturalists. If American agriculture is going to feed an ever-growing population, then it is crucial that all citizens are informed so that intelligent decisions can be made concerning the production of food and fiber.

> The problem of an agriculturally illiterate society may seem languid and undramatic compared with other topics that receive our attention, such as nuclear war, the national deficit, and world conflicts; however, there are few topics that are of more importance to the world than an adequate food supply, proper food use, and knowledge about the components of the agriculture industry that affects every consumer in our nation. To educate the populace about the importance of this issue means to begin with the end in mind by using the goal stated in the consensus definition of agricultural literacy to unite all forces in an effort to increase the agricultural literacy level of our society (Frick, 1993, p. 23).

This problem of agricultural literacy goes beyond the classroom into the realms of the media. According to Hillgren, good reporting often requires deeper knowledge than that which can be gained with occasional stories, and good stories go unreported when no one is assigned to keep a close eye on the beat, while newspapers rely on press releases as a major source of tips. Since agriculture has such an important impact on world sustainability, it becomes more important than ever that accurate and factual information be presented to the public.

> Regarding the current environment in production agriculture, according to Jerry Bretey, manager of radio stations in Mason City and Carroll, Iowa, means a journalist should put a real premium on clarity and brevity. Reporters

> also need to be careful that in this kind of environment, sweeping generalizations are dangerous (Gay, 1986, p. 20).

Many mass media tactics have attempted to distort agriculture's role and mission. However, it has not always received such poor publicity. The media as it relates to agriculture has changed.

Gay (1986), continued in her article by quoting John Robertson, editor of *Iowa Farmer Today*, said "ironically as the number of farmers has declined, the need for ag reporters has increased. Today's farm reporters need to deal on a more complex and sophisticated level than ever before, but still meet the basic goals of reporting" (p. 20).

> In 1952, it made sense for a large number of newspapers and radio stations to write about agriculture with a focus on farming and for a farmer audience. Approximately 15% of the nation's population, 23 million people, lived on farms. Many of the agricultural reporters were called *farm editors*. As technology and mechanization advanced, agriculture and mass communication methods changed as well (Hillgren, 1989, p. 19).

Currently, food and agriculture account for approximately 20 percent of the nation's gross national product and there is increased emphasis on foreign trade of agricultural commodities and agricultural policy. "For many journalists, public opinion on farm policy continues to reflect a basic ideological disagreement between defenders of the free market and advocates of government intervention in the economy" (Anderson, 1988, p. 56). Unfortunately, many newspaper editors and television and radio reporters have paid scant attention to the business of producing, processing and selling food and fiber products and related environmental, food safety, economic and social issues. When editors are seldom acquainted with agricultural issues, their direction of agricultural coverage is weak (Hillgren, 1989).

"From the perspective of newspaper journalists, some reporting on agriculture has focused too narrowly on farmers; perspectives with little interest for consumers and business" (Hillgren, 1989, p. 36). As a result, many newspapers, television and radio stations are adjusting to the needs of their audience. That includes agriculture and how it affects lives of others. In fact, some prominent newspapers have shifted agricultural coverage to the business pages and targeted coverage at consumers of agricultural products or investors in agribusiness.

Problem Statement

As a whole, the American public has a definite lack of understanding concerning production agriculture and agriculture issues. In addition, problems exist within the media with the perceived mind set of being the agriculture "expert" when in reality information presented by the media as news is biased, inaccurate and nonfactual.

It is vital that radio station reporters are educated with the accurate facts relating to local, state, national, and international agricultural industry in order for the listening audience to receive timely and truthful information. Therefore, there is a need to know the agricultural literacy levels of the media, specifically, the radio station news reporters.

Purpose

The purpose of this study was to determine the agricultural knowledge levels of broadcast news representatives of radio stations in Oklahoma.

Objectives

The following specific objectives were formulated to accomplish the purpose:

1. Identify the demographic characteristics of reporters employed by radio stations in Oklahoma;

2. Identify relative levels of agricultural literacy among news reporters of radio stations in Oklahoma;

3. Determine if a relationship exists in the levels of agricultural literacy between those who have had some form of agricultural education and those who have not;

4. Determine if radio reporters feel qualified to report agriculture news and activities;

5. Determine if radio reporters feel a need to report agriculture news and activities to the public.

Scope

The scope of the study included broadcast news representatives responsible for on-air news at the AM/FM radio stations in Oklahoma as listed in the Oklahoma Press Guide.

Limitations

Primarily, limitations involved those who received the questionnaire. Most radio stations had a news director. However, in some instances of small radio stations, news fell under the auspices of the program director, general manager, or owner. Therefore, adjustments were made by sending the questionnaire to the person responsible for writing

and/or reporting on-air news. This however, did not solve all the problems, since many with programming responsibilities did not receive the questionnaire.

Definitions

For the purpose of this study and to assure common understanding, the significant terms were defined.

Agriculture-- a field of study which applies many disciplines to produce food and fiber and conserve our natural resources (Frick, 1993).

Agricultural Literacy-- describes the understanding and knowledge necessary to synthesize, analyze, and communicate basic information about agriculture (Frick, 1992).

AM Radio-- a broadcasting system using amplitude modulation; also: a radio receiver of such a system (Webster, 1985).

Cable Radio-- a system of radio reception in which signals from distant stations are picked up by a master antenna and sent by cable to the individual receivers of paying subscribers.

Census-- complete enumeration of a population.

FM Radio-- a broadcasting system using frequency modulation; also: a radio receiver of such a system (Webster, 1985).

Radio Broadcast News Representative/Reporter-- the person responsible for placing current news occurrences and events on the radio via airwaves.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter is to present and familiarize the reader with the information relative to this study topic. The literature review was conducted in a way that attempted to identify similar studies conducted and data previously collected concluding major findings within this topic area. To do so, the following major areas were reviewed: (1) agriculture and the media, (2) agriculture literacy: the research and its implications, (3) truth and the media, (4) strategies for implementing agricultural literacy and (5) a summary.

Agriculture and the Radio

For almost a century, radio has been a part of the history and culture of the United States. However, the idea of voices over airwaves was not new to America. In 1876, the idea of radio intrigued Alexander Graham Bell. It was not until 1901 when the idea became reality as Canadian engineer, Reginald Fessenden, developed the concept of continuous airwaves. Then in 1906, Fessenden experimented with those waves by broadcasting a Christmas Eve program of instrumentals, vocal selections and poetry readings (Bittner & Bittner, 1977).

Radio became the vehicle to communicate dramatic moments in history to the American public. Radio brought the voice of President Franklin Delano Roosevelt into the American home 20 times in his first nine months in office. Roosevelt realized the enormous impact of this personal medium and utilized it in his famous fireside chats to bring comfort to war torn families. World War II saw radio usage in news reporting leap forward. "This time it leaped into the monumental responsibility of world politics and voluntary censorship" (Bittner & Bittner, 1977, p. 5, 6).

It wasn't long before industry and business realized the value and profitability that radio offered. Agriculture and the Extension Service were some of the first to take advantage of the new medium. In the early fall of 1921, 9XM began to broadcast agriculture market reports, and on July 10, 1922, the call letters changed to WHA. W.A. Sumner of the Agricultural Journalism Department at Wisconsin University broadcast the first talk to farmers. This was the beginning of the station's "Farm Hour".

In 1921, Frank Mullen at KDKA, was informing farmers on the life cycle of the corn borer (Bliss, 1991), but it was in March 1923, that Mullen, the first full-time farm broadcaster, went on the air, over KDKA, Pittsburgh. He had the responsibility for market reports, provided by the USDA, and farm news, gathered by the *Stockman and Farmer* staff.

In 1924, a USDA survey of farm families with radios indicated about 370,000 radio owners, more than twice the number of the year before. The airwaves became crowded and an urgency for governing policies became more and more pressing. At the 1924 National Agricultural Radio Conference in Chicago, several hundred people

representing radio stations, agricultural colleges and extension service, farm organizations and several branches of government adopted some resolutions:

1. Broadcasters should use only accurate and dependable information.
2. Programs for farmers should be timely.
3. Weather forecasts, especially storm warnings, are important.
4. Federal and state extension people should coordinate their material.
5. Consumer interests should be recognized.
6. Public agencies should release material to radio stations in the same manner as to the press.
7. The secretary of agriculture should release material to radio in the same manner as to the press (Bittner & Bittner, 1977, p. 14).

The USDA created the Radio Service USDA in 1926. Sam Pickard and a small crew headed up a script service and started the "Farm School of the Air".

> That same year, about 500 stations were on the air and the USDA estimated nearly one million farm families had receivers. The number of farms held steady all through the 1920s at just under 6.5 million; one farmer fed 10 people. Radio was used to communicate new farming techniques to farmers, pass along market reports and governmental policy (Bittner & Bittner, 1977, p. 16).

On May 5, 1944, the National Association of Radio Farm Directors was formed in Columbus, Ohio. The NARFD eventually became known as the National Association of Farm Broadcasters.

KBIX, Muskogee, was the first station in Oklahoma to place a farm broadcaster on the air--J. Kendall McClarren. He was responsible for a half-hour noon program, Monday-Friday and arranged for agricultural workers and farm families in eight surrounding counties to take turns appearing on the daily noontime program. A regular feature was the market reports from the Muskogee Stockyards (Baker, 1981).

Sam Schneider was the first radio specialist on the Oklahoma extension staff. Schneider and his staff filled a quarter hour each day at noon in 1937 at KOMA in Oklahoma City.

> Following WWII, television news posed a serious threat as did the high costs of rapidly changing radio equipment. Thus radio was forced to develop what became known as the 'rip and read' news style. . . which transformed disk jockeys into pseudo-journalists (Bittner & Bittner, 1977, p. 7).

With increased competition between network radio stations and increased technology, radio was forced into the "local" media business. In the late 1950s, radio emphasis became local radio rather than national radio.

"Although radio is no longer the primary source of news for most Americans as it was during its Golden Age--the 1920s-1940s--it remains a popular medium of information because of developments in remote audio and video technology" (Bittner & Bittner, 1977, p. 123).

Agricultural Literacy: The Research and Its Implications

Agriculture needs an ally. The industry supplying America and much of the world's basic life needs is fighting an uphill battle against an environmentally conscious audience that possess less than enough knowledge to pass judgement on agriculture. "Public impressions of agriculture have been tainted by the actions of special interest groups and information provided through the media" (Lichte & Birkenholz, 1993, p. 15). Unfortunately, with more than 90 percent of the population 30 years removed from agriculture (Mawby, 1985), not enough people have the required knowledge to come to the aide of an industry trapped within the barrage of false accusations.

> As fewer people are directly involved in production agriculture, public support of the industry becomes even more important. Fear of the unknown often leads to public alarm. Agriculturally literate people can make personal informed decisions about agriculture related topics such as food safety, genetic engineering and pesticide versus nonpesticide issues. The often highly sensational media coverage of alar-type scares is seen in context by people with a basic knowledge of agriculture. Those without this basic understanding react without reason, frightened for themselves and their families. The resulting damage to the industry is not easily repaired (Tisdale, 1991, p. 11).

"Public beliefs, attitudes, and actions have often resulted from biased or inaccurate information" (Birkenholz et al., 1993, p. 2). Unfortunately, the damage has been done and the agricultural industry continues to fight the powerful influence of the media and the ability of misinformed individuals and special interest groups to effectively manipulate the facts. Numerous studies (Horn & Vining, 1986; Frick, Kahler, & Miller, 1992; Terry, Jr., 1994) have shown that Americans do not have an adequate knowledge of agriculture. The media has used its contacts, via television and radio, with the American home to interject its own bias and opinions concerning agriculture. Furthermore, Americans seem more concerned than ever about the quality of life. Groundwater contamination problems caused by agriculture are widely broadcast. "Hysteria has risen over food safety and the use of pesticides in food production" (Peters, 1994, p. 38). This fear of agriculture has come about largely due to a lack of factual knowledge and experience concerning agriculture.

One consequence of the populace's lack of agricultural knowledge has been the development of public policy that adversely affects the production of food and fiber. In 1984 Mawby stated that "many bad decisions affecting food production can be traced to a lack of understanding about agriculture on the part of the 97 percent of our people who don't live on farms" (p. 72).

Other prominent researchers have called for all citizens to develop a minimum level of knowledge about the production of food in order for reasoned decisions to be made about policies and issues that affect agriculture (Raven, 1994).

"Recent trends indicate that people have become more interested in issues related to agriculture, food and the conservation of our natural resources. However, their beliefs, attitudes and actions are often misinformed or misguided" (Lichte & Birkenholz, 1993, p. 15).

There are numerous examples of how television reports have painted inaccurate, and less than flattering pictures of agriculture. According to Simon (1990), almost every television news story about natural resources has erroneously announced bad news. In addition, environmental extremists have been able to promote their causes through the media with sensational reports based upon false pretenses (Arnold, 1990).

The term "agricultural literacy" has been given to describe this agricultural knowledge dilemma. Frick, Kahler, and Miller (1992), define agricultural literacy as the understanding and knowledge necessary to synthesize, analyze and communicate basic information about agriculture. Agricultural literacy is based on the belief that every citizen should possess a minimum level of knowledge of the industry which produces and markets the food needed for human survival.

> The rationale to support the development of agricultural literacy is based on the assumption that as societal awareness of problems and issues facing agriculture and food production increases, public pressure will increase for the development of policies which are mutually beneficial for both consumers and producers (Birkenholz et al., 1993, p. 4).

According to this group of researchers, agricultural literacy/knowledge encompasses 11 broad agricultural subject areas which include: (1) agriculture's important

relationship with the environment, (2) processing of agricultural products, (3) public agricultural policies, (4) agriculture's important relationship with natural resources, (5) production of animal products, (6) societal significance of agriculture, (7) production of plant products, (8) economic impact of agriculture, (9) marketing of agricultural products, (10) distribution of agricultural products, and (11) global significance of agriculture.

This concern over the lack of adequate agricultural literacy has prompted scientists to investigate the levels of agricultural understanding among United States citizens. Most of these studies have focused on teachers, primary and secondary education students, and college students. However, within the past few years, researchers have begun to turn their agricultural literacy studies toward the media.

Robert Terry, Jr. (1994), agricultural education professor at Texas A&M University, took on the agricultural literacy question within the state of Texas. For his study, Terry targeted television news reporters in Texas. Reporters were asked open-ended questions via telephone to determine perceptions about agriculture in regard to societal impact, environmental impact, food safety, animal welfare and nutrition and health. He found that 30 percent of the reporters worked for stations in the metropolitan areas of Texas with 90 percent having less than 10 years experience. One-fourth of the reporters worked a beat that was related to agriculture and almost one-third were or had been members of one or more agricultural organizations. Eighty percent majored in communications or journalism in college, while 25 percent had taken one or more agriculture courses in high school or college.

Overall, the reporters agreed that agriculture has a positive impact on the environment and that people in agriculture are good caretakers of the environment. More than three-fourths of the reporters indicated they like to report stories about agriculture and 75 percent feel qualified to report agriculturally related stories. Neither gender, population or hometown, or location or station attributed to significant differences in perceptions about agriculture. Significant differences were attributed to major in college, membership in agricultural organization(s) and news beat. Agriculture majors, members of agricultural organization(s), and reporters assigned to cover agriculture had significantly higher perceptions than did their counterparts. Most of the television reporters, however, had little personal or professional contact with agriculture and did not have the background characteristics or educational and organizational experiences normally associated with agriculturally literate persons.

Terry (1994) further concluded that while most television reporters like reporting news about agriculture and feel qualified to do so, few have the technical knowledge and appropriate understanding about agriculture to accurately inform the public about the industry.

Today, with all the documentation available and additional studies in progress, researchers warn against making broad generalizations in regard to agricultural literacy.

> Determining the threshold level for literacy is not an exact science. Instead, it is a judgement by experts as to the minimum level of knowledge required by someone to function in a certain role and setting. The literature indicates that there are several tests or measures of functional literacy which testify to the diversity of skills deemed necessary for individuals to function in society Functional agricultural literacy does not imply a perfect level of understanding about agriculture, but rather a minimum level (Frick & Spotanski, 1990, p. 6).

Truth and The Media

Journalists are charged with accurately and fairly reporting the news. The profession demands it and the public expects it. As Americans continue to show an increased dependence on the media to keep them informed on world events, it becomes increasingly important that truthful information and accurate news reports are provided to the public.

The Federal Communications Commission (FCC) defines news in its program log regulations by stating that news programs: "include reports dealing with current local, national, and international events, including weather and stock market reports; and when an integral part of a news program, commentary, analysis, and sports news" (Fink, 1988, p. 150-151).

Journalists and the media have the power to influence individuals' attitudes, values and beliefs. Students of mass communication hold the assumption that cognitive factors have a major influence on human behavior.

> Therefore, if cognitive factors can be changed, then surely behavior can be changed. This assumption holds out the tantalizing possibility that cleverly designed information provided by mass communications can be used effectively to gain control over human conduct (DeFleur and Ball-Rokeach, 1989, p. 276).

For this reason, journalists must take every step necessary to provide correct and truthful information. According to the American Society of Newspaper Editors (ASNE), there is no place within journalism for personal bias as it relates to a particular news story. Lambeth (1986) wrote that journalists must be aware of and heed the demands of factual, contextual, and social truth, plus the truth of the physical and natural sciences. Lambeth's

statement became a challenge to journalists reporting agriculture as activists groups came out against the production practices of agriculturalists. For example, one of the many ways that the Sierra Club used communication to manipulate the thoughts and education of the American public was brought to light.

> The Sierra Club's coffee table book, *Clearcut: The Tragedy of Industrial Forestry*, claims to show pictures of U.S. forests destroyed by timber harvesting. But a six-month investigation by professional foresters, organized by the American Forest & Paper Association, shows the Sierra Club has deliberately misled its readers. The Sierra Club blames clearcutting and industrial forestry for the impacts actually caused by wildfire, insect and disease infestation, and other natural disasters (*Journal of Forestry*, 1995, p. 11).

If it is true that human attitudes and beliefs can be manipulated by the media, then truth is not just a personal conviction but a necessary component of journalism. The word truth has many dimensions, each of which a journalist must recognize and respect. Lambeth (1986) believed that truth and accuracy can be established through a habit of constantly checking information.

> There is truth in the sense of factual accuracy, reflected in the ASNE code's admonition that "every effort: --not just some effort, but every effort" --must be made to assure that the news content is accurate, free from bias and in context, and that all sides are presented fairly. Most fundamentally, the need is for a habit of accuracy, of checking and rechecking to establish the accuracy of questionable information. The habit includes acquisition of the skill to anticipate likelihood of error (p. 29).

Prominent professional journalists have begun to speak out against sensationalism within the realms of the media and have called for a return to hard-hitting factual based news. Personal responsibility was the thrust of a convicting speech in 1982 by a respected journalist that sparked within the media a new turn in the debate over ethics and what

became known as the "credibility gap." The speaker was Michael J. O'Neill, then editor of the *New York Daily News*.

> There has been astonishing growth in the power of the media over the last decade or so. I am by no means sure we are using it wisely. O'Neill warned that some reporters were going too far with investigative reporting. It had run off the ethical tracks . . . individuals and institutions have been needlessly hurt when the lure of sensational headlines has prevailed over fairness, balance, and a valid purpose . . . Is our duty to inform so stern that we must exile ourselves from humanity. O'Neill further warned that advocacy journalists were permitting cultural, visceral, and ideological biases to slip into news copy (Lambeth, 1986, p. 13).

The FCC has many rules and regulations journalist are supposed to follow when reporting the news. In fact, this governing group provided a framework of policies designed to protect the American people from biased and slanted journalism.

The same ideas and principles governing television and print media apply to radio journalism as well. In fact, the importance of accuracy in radio journalism is fundamental. The most elementary form of accuracy concerns obtaining the basic facts when a reporter is assigned to cover and write a radio news story (Bittner & Bittner, 1977, p. 17).

Even though radio is no longer the main source of news and information for most Americans, it is not free from the bias and inaccuracy found within the mass media. Radio reporters must be objective and free of emotion when reporting a news event. Every time a reporter presents a radio newscast, station listeners await a judgement. Based on that judgement, the audience often draw conclusions about events and people in the news (Fink, 1988).

Strategies for Implementing Agricultural Literacy

It is widely held that the American public, young and old, have little basic understanding of the nation's food and fiber industry. Many researchers have also agreed that a solution to this problem must be found if the future of the agriculture industry and agricultural policy making process is to be protected. Some strategies have been suggested and the burden of populace education have been placed on several different entities.

> The primary responsibility for agricultural literacy should be placed with the U.S. Department of Agriculture, building on and expanding beyond the Ag in the Classroom program. In order for USDA to provide the necessary leadership, USDA will need to work closely with the U.S. Department of Education and state departments of agriculture and education (Russell, McCracken, & Miller, 1990, p. 9).

At this time, the National FFA and USDA have accepted the education charge and placed agricultural literacy programs into public school systems. "Over the course of the last 10 years, several programs have been initiated to encourage agricultural literacy. Among the more familiar ones have been FFA's Food for America, USDA's Ag in the Classroom and California's Life Lab Science Program" (Pope, 1990, p. 23). Indeed there are those current and recognized agricultural literacy programs established in the public school systems. However, there continues to be a concern over the commitment toward adult agricultural literacy education programs among the collegiate community, general public and more recently the media.

As a beginning, researchers (Frick, Kahler, & Miller, 1992) provided a consensus definition and identified the concepts which constitute agricultural literacy. This research can expedite the process of developing effective educational strategies to improve national

agricultural literacy levels. A populace educated about the importance of this issue means to "begin with the end in mind" by using the goal stated in the consensus definition of agricultural literacy. Forces must be united in an effort to increase the agricultural literacy level in our society (Frick, 1993).

> One strategy for embarking upon an agricultural literacy program should begin with a comprehensive definition of what it means to be agriculturally literate. Using the definition as a guidepost can facilitate systematic instruction and provide meaningful, curriculum development. The possibility of a systematic and comprehensive plan to implement agriculture literacy activities would be of interest to all who are concerned about the dismal lack of agricultural awareness and knowledge possessed by our society (p. 22).

A systematic and comprehensive plan of greater agricultural literacy has been of interest to the media as attentions turned toward the environment and increased interest in governmental policy. Journalistic associations and universities where agricultural journalism and traditional journalism programs are in place are banding together to approach this growing concern. One of the most visible movements toward better agricultural reporting is the United States Agricultural Communicators Congress held every four years in conjunction with U.S. presidential elections. Established in 1984, representatives from the American Agricultural Editor's Association, National Association of Farm Broadcasters, Cooperative Communicators Association, Agricultural Relations Council and Agricultural Communicators in Education have met every four years in Washington, D.C., to discuss agricultural, environmental and trade related issues faced by journalists. This group has met with prominent U.S. policy makers, U.S. Presidents, presidential candidates and controversial figures and groups affecting agriculture through the media. The desire of this group is to better equip agricultural journalists to effectively report the plight of the American agricultural industry.

Professional journalists are not the only ones joining the agricultural literacy initiative. "Commodity groups and general farm organizations should become involved in the education of students and adults. Specially designed programs can be presented to inform younger students about the use of farm products and the ethical treatment of animals" (Lichte & Birkenholz, 1993, p. 16). University Extension centers should also play a role in educating adults in rural and urban areas through workshops, newsletters and newspaper articles to help keep citizens aware of changes in agriculture and agricultural policies. Colleges and universities have taken an interest and have begun producing journals, magazines and newsletters dealing with this issue. "A new National Association of Agricultural Journalists newsletter published at University of Missouri's School of Journalism is a journal for the exchange of ideas on improving coverage of food and agricultural journalism" (Hillgren, 1989, p. 36).

Most significantly for the news business, National Association of Agricultural Journalists (NAAJ) and the university hold workshops, with the help from Investigative Reporters and Editors (IRE) and Society of American Business Editors and Writers (SABEW), teaching journalists better ways to cover agriculture.

Most of the education, however, occurred before the college graduate received the diploma and began reporting about agriculture. There are those that believe agriculture should be part of every college curriculum, including a liberal arts program.

> Recognizing the gravity of this situation, the W. K. Kellogg Foundation (1984) has been helping institutions find new ways to prepare individuals who can look at agricultural issues in the context of society's broad goals. In 1976 the Foundation began to encourage the incorporation of education on food/agriculture/natural resources in liberal arts undergraduate curricula. The goal, obviously, was to promote greater awareness and understanding among

> students and faculty about the role and importance of agriculture to the nation and to the world (p. 7).

Perhaps the greatest current opportunity for agricultural and natural resources college faculty is to exploit the need for agricultural, food and environmental literacy in our society. After all, who is more capable of providing a fundamental understanding of our food, agricultural and natural resource system to future college graduates than college and university professors in the classroom setting (Goecker, 1992).

Summary

As a result of approximately 98 percent of the American population directly removed from the farm, and the everyday problems faced by farmers, there has developed a lack of adequate understanding of the food and fiber system in the United States. Studies conducted have shown that Americans do, in fact, fall short of a basic understanding of agriculture. Until recently, most agricultural literacy studies have focused on primary and secondary education students and the results of those studies have produced youth programs such as the National FFA's Food for America and the USDA's Ag in the Classroom. These programs have made progress toward a better agriculturally educated population. However, a greater agricultural education thrust must occur in other areas as the new millennia approaches.

> In spite of sustained programs of education in agriculture in public schools, universities, the Cooperative Extension Service and other agencies, most people still seem to perceive "agriculture" as synonymous with "farming." The problem of agricultural illiteracy is widespread, having serious ramifications in the arenas of public policy development, development of personnel to serve the broad agricultural industry and in the education of our people from kindergarten through adult levels (Russell, McCracken, & Miller 1990 p. 13).

Prior to the 1990s, no term had been placed with the lack of agricultural understanding. Then in 1990 Frick, Kahler, and Miller placed the term identifying this new field of study with a definition. It was discovered that most Americans, whether young or old, have limited knowledge about agriculture and food production. While "agricultural literacy" may be difficult to define, many would agree with the need for a basic understanding of agriculture, the agricultural industry and its national importance. "Without specific attention being directed to this area, little improvement can be expected" (Horn & Vining, 1986, p .3).

> Agricultural illiteracy is based on the belief that every citizen should possess a minimum level of the knowledge of the industry which produces and markets the food needed for human survival. The rationale to support the development of agricultural literacy is based on the assumption that as societal awareness of problems and issues facing agriculture and food production increases, public pressure will increase for the development of policies which are mutually beneficial for both consumers and producers (Birkenholz et al., 1993, p. 4) .

However, attention has turned toward the media as mass communication continues to have a greater impact on the American public. It has been shown that the media, many times, have portrayed agriculture in an unfavorable or false light. Weak agricultural coverage is expected when writers, editors, and broadcasters are unfamiliar or less than knowledgeable concerning agricultural issues (Hillgren, 1990).

> Few issues are of greater importance to the world than adequate food supplies, proper food use, and knowledge about the components of the agricultural industry. Yet today most people, including those in key positions of public decision-making, do not understand the complexities of America's food system; nor do they fully comprehend its relationship to human nutrition or its impact on international trade and relations (Mawby, W.K. Kellogg Study, 1994, p. 7).

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to determine the agricultural literacy knowledge levels of radio station news reporters in Oklahoma. Therefore, the purpose of this chapter was to describe the procedure and methodology used in conducting the study to accomplish the following objectives:

1. Identify the demographic characteristics of reporters employed by radio stations in Oklahoma;
2. Identify relative levels of agricultural literacy among news reporters of radio stations in Oklahoma;
3. Determine if a relationship exists in the levels of agricultural literacy between those who have had some form of agricultural education and those who have not;
4. Determine if radio reporters feel qualified to report agriculture news and activities;
5. Determine if radio reporters feel a need to report agriculture news and activities to the public.

Institutional Review Board (IRB) Statement

Federal regulations and Oklahoma State University policy require review and approval of all research studies that involve human subjects before investigators can begin their research. The Oklahoma State University Office of University Research Services and the Institutional Review Board conduct this review to protect the rights and welfare of human subjects involved in biomedical and behavioral research. In compliance with the aforementioned policy, this study received the proper surveillance and was granted to continue, IRB#: AG-95-016 (Refer to Appendix C).

Population

The population of this study included one representative radio broadcast news reporter from each of the 129 AM/FM radio stations listed in the Oklahoma Press Guide. There were 129 AM/FM radio stations listed in the Oklahoma Press Guide which excluded cable radio stations.

A "census" of the population was selected in order to acquire a better understanding of the agricultural knowledge levels among representatives of broadcast radio station news reporters within Oklahoma.

Instrument Design

The instrument used to collect the research data was in the form of a two-part questionnaire designed by the researcher and patterned with permission from Terry (1994) and Cox (1994). The major portion of the survey utilized Cox's (1994) Ag in the

Classroom "What do you Know" questionnaire. Part I consisted of 18 closed-ended demographic questions used to identify professional and personal characteristics of the reporters. Part II consisted of 30 multiple choice questions developed and based upon those agricultural literacy elements identified by Frick (1992). The elements selected were: (1) agriculture's important relationship with the environment, (2) processing of agricultural products, (3) public agricultural policies, (4) agriculture's important relationship with natural resources, (5) production of animal products, (6) societal significance of agriculture, (7) production of plant products, (8) economic impact of agriculture, (9) marketing of agricultural products, (10) distribution of agricultural products and (11) global significance of agriculture. Each question was accompanied by five multiple choice answers so as to give the respondent only a 20 percent chance of guessing the correct answer. This section of questions was used to determine agricultural knowledge levels of news reporters.

Pilot tests were conducted to test the validity of the instrument. The questionnaire was administered to 71 Oklahoma State University students enrolled in a radio news writing class in the Oklahoma State University School of Journalism and Broadcasting. These students represented the group most similar to the characteristics and educational background as the subjects to be surveyed. The students provided validity information by answering the questions for the researcher to evaluate the instrument's effectiveness and clarity. In addition to the journalism students, graduate students enrolled in the Department of Agricultural Education's Research Design class also answered the questions from the survey and discussed the instrument format and clarity of the questions prior to refinement.

Collection of the Data

There are vast differences among the radio stations in Oklahoma and it is difficult to compare a large metropolitan radio station to a small one-person radio station in rural Oklahoma. In fact, not all stations have a news reporter with some having only an owner to operate the station.

Therefore, data were collected by selecting one reporter from each of the 129 radio stations in Oklahoma to receive the survey. If the station did not employ a news reporter, the survey was sent to the program director. When no program director was available, the survey was then sent to a general manager. Finally, if no general manager was employed by the radio station, the survey was sent to the owner. Essentially, the survey was sent to the person responsible for the radio station news reports.

An initial survey was sent to the 129 radio news reporters accompanied by a descriptive cover letter, a self-addressed stamped envelope, and an ink pen. Survey subjects were given two weeks to return the survey. At the end of two weeks, a postcard was sent to nonrespondents to remind them to return the survey within the week. Three weeks after the initial survey was sent to the reporters, another survey, cover letter, and a self-addressed stamped envelope were sent to nonrespondents.

Analysis of Data

Due to the fact that this was a descriptive study to determine levels of agricultural literacy among persons responsible for radio station news reports, measures of central

tendency and variability were used to describe the data as well as frequency distributions and percentages.

The data were further analyzed to determine relationships, if any, between the demographics of the respondents and the number of correct responses (scores) achieved. To accomplish the comparison, a two-group analysis of those having an agriculture background and those not having an agriculture background was performed using the t-test. Statistical significance was established at alpha = .05.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The purpose of this study was to determine the agricultural knowledge levels of broadcast news representatives of radio stations in Oklahoma.

The scope of the study included broadcast news representatives responsible for on-air news at the AM/FM radio stations in Oklahoma as listed in the Oklahoma Press Guide. The population included the one radio station reporter/representative responsible for on-air news from each of the 129 radio stations in Oklahoma. The purpose of this chapter was to report the results from the survey instrument used to collect the data.

Extent of Respondents' Participation

A total of 129 radio station reporters/representatives were sent the "Agriculture and the Media" survey booklet. The number of respondents totaled 69 or a 53.5 percent response rate. Some respondents did not provide answers to every survey item. As a result, the value of N varied for each question contained in the survey instrument. As shown in Table I, those Oklahoma communities represented by the respondents included: Ada, Altus, Ardmore, Bartlesville, Blackwell, Bristow, Broken Bow, Chickasha, Clinton, Cushing, Durant, Elk City, Grove, Guthrie, Guymon, Enid, Frederick, Goodwell, Hobart, Idabel, Lawton, Madill, MacAlester, Muskogee, Norman, Oklahoma City, Okmulgee,

TABLE I

A DISTRIBUTION OF RESPONDENTS COMMUNITIES AND THE NUMBER OF RESPONDENTS' PER COMMUNITY

Community Where Respondents' Radio Stations Were Located	Frequency of News Broadcasters Representing Radio Stations in Each Community N=69
Ada	1
Altus	2
Ardmore	2
Bartlesville	1
Blackwell	1
Bristow	1
Broken Bow	1
Chickasha	1
Clinton	2
Cushing	1
Durant	1
Elk City	2
Grove	1
Guthrie	1
Guymon	2
Enid	2
Frederick	1
Goodwell	1
Hobart	1
Idabel	1
Lawton	6
Madill	1
MacAlester	2
Muskogee	1
Norman	3
Oklahoma City	7
Okmulgee	1
Pauls Valley	1
Ponca City	3
Poteau	1
Stillwater	1
Tahlequah	1
Tulsa	7
Vinita	2
Watonga	1
Weatherford	1
Wewoka	1
Woodward	3

Pauls Valley, Ponca City, Poteau, Stillwater, Tahlequah, Tulsa, Vinita, Watonga, Weatherford, Wewoka and Woodward. An attempt was made to telephone 10 percent of the non-respondents for the purpose of gathering demographical data for comparison analysis. Also included in Table I are the number of respondents from each community. The data presented in this study does not include non-respondent information due to the lack of participation by the non-respondents. Of the 10 percent called, no reporter would respond over the telephone to questions asked by the researcher.

Findings of the Study

Personal and Professional Characteristics

The data revealed in Table I showed a geographical listing of the respondents and the number of respondents per community, while Figure I illustrated the geographical locations of media respondents on the Oklahoma map. The 69 respondents represented all geographical areas of the state and while a majority (69.1%) of the station markets represented were from the non-metro areas of less than 100,000. The data in Table II revealed a total of 55 (79.7%) males and 14 (20.3%) females responded to the survey with most (26.1%) from communities of 10,000 to 50,000 in population. The data in Table II further indicated the highest education level completed by a majority of the respondents was a bachelor's degree (52.2%) and more than half (59.7%) had majored in journalism/communications. Only one (1.5%) had majored in an agricultural area. Almost three-fourths (71%) had reported an agriculturally related story or event while only 7.5 percent of respondents were assigned to a regular agriculture reporting beat. Over 37

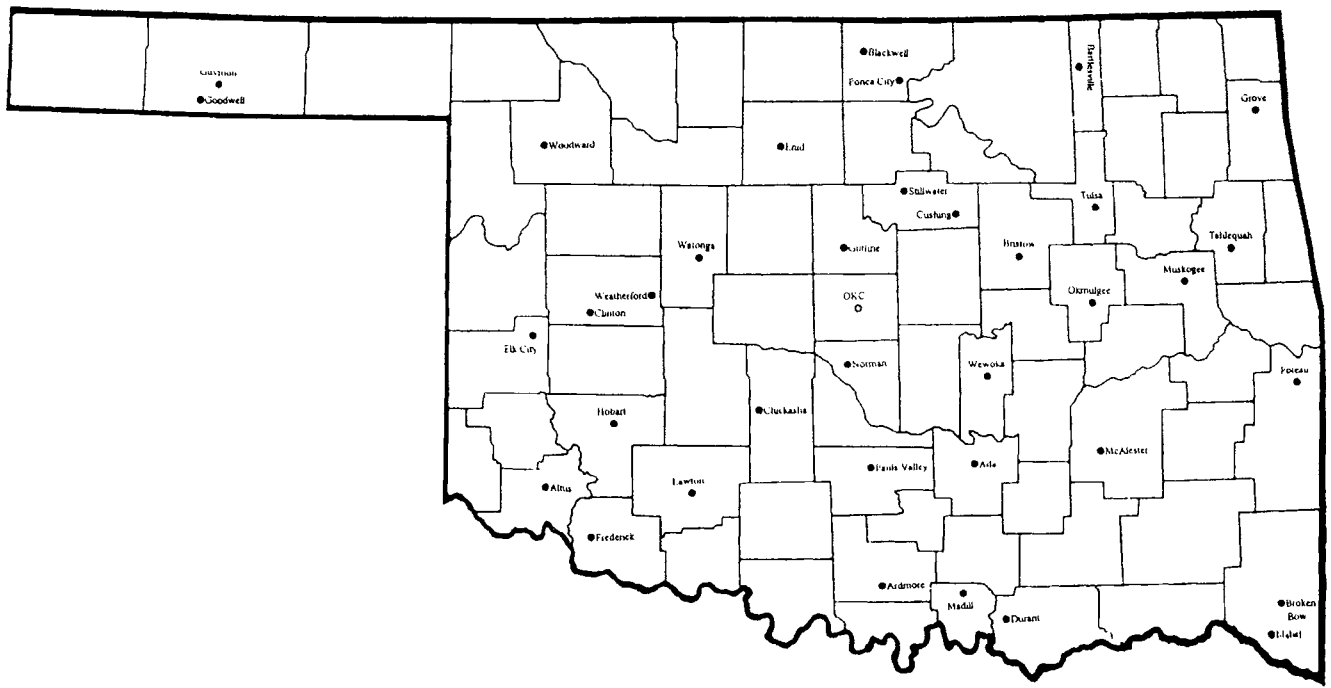

Figure 1. Location of Media Respondents and Communities Represented

TABLE II

A DISTRIBUTION OF THE RESPONDENTS' CHARACTERISTICS

Demographic Characteristic(s)	Frequency N=69	Percent (%)
Gender		
Male	55	79.7
Female	14	20.3
Station Market		
Metro Area (>100,000)	21	30.9
Non-Metro Area (<100,000)	47	69.1
Population of Hometown		
Farm or Ranch	5	7.2
Rural, Non Farm	4	5.8
Small Town	7	10.1
Large Town	13	18.8
Small City	18	26.1
Large City	6	8.7
Metro Area	16	23.2
Highest Degree Completed		
High School	18	26.1
Bachelor Degree	36	52.2
Masters Degree	4	5.8
Doctoral Degree	1	1.4
Continuing Education	8	11.6
College Major		
Did Not Attend	7	10.4
Agriculture	1	1.5
Journalism/Communication	40	59.7
Other	19	28.4
Ever Reported An Agriculture Event		
Yes	49	71.0
No	20	29.0
Regular Reporting Beat		
Ag & Related Areas	5	7.5
Non-Ag Area	25	37.3
Get News From Wire Service	23	34.3
Do Not Carry News	2	3.0
Ag/Non-Ag/Wire Service	4	6.0
Ag & Non-Ag Areas	4	6.0
Ag & Wire Service	1	1.5
Wire Service/Do Not Carry News	3	4.5

percent of the reporters covered a non-agricultural area, while slightly over a third (34.3%) received news only from a wire service.

The data shown in Table III indicated that the age of respondents ranged from 18 to 62 with an average age of 38.2 years. Of the 69 respondents, four, all of which were female, did not respond to the age portion of the questionnaire.

Table IV illustrated the educational level achieved by the respondents in agriculture. In this group, 14 (20.3%) respondents had taken an agriculture class at some time during school or professional careers, while the overwhelming majority (79.7%) of respondents had never taken an agriculture class. Of the 20.3 percent having had an agricultural course, five (33.3%) had taken an agricultural class in high school and five (33.3%) had taken a class in college. Respondents were asked to provide information about high school and college organizational affiliation of which only five (33.3%) had been a member of the FFA and five (33.3%) had been involved in 4-H. Fewer (1.5%) joined agriculture organizations in college while most (80.6%) became members of journalism professional groups. Fifty-four of the 69 respondents were in neither FFA nor 4-H.

The data in Table V addressed the number of years the respondents invested in their a radio broadcasting careers. The data indicated the average number of years respondents spent in a radio broadcast career ranged from one to 39 years. The average number of years in a broadcast career was 14.06 years. Only one of the 69 total respondents chose not to answer this question.

Revealed in Table VI were data showing the number of respondents with relatives involved in production agriculture. A total of 39 (57.4%) respondents had a relative

TABLE III

A DISTRIBUTION OF THE RESPONDENTS' AGE

Age	Frequency N=65	Percent (%)
18	1	1.5
22	2	3.1
23	1	1.5
24	1	1.5
27	1	1.5
28	2	3.1
29	3	4.6
30	3	4.6
31	1	1.5
32	4	6.2
33	4	6.2
34	2	3.1
35	3	4.6
36	3	4.6
37	3	3.1
38	1	1.5
39	4	6.2
40	2	3.1
41	3	4.6
42	4	6.2
43	3	4.6
44	1	1.5
45	2	3.1
46	1	1.5
47	1	1.5
51	3	4.6
53	2	3.1
54	1	1.5
55	1	1.5
58	1	1.5
59	1	1.5
62	1	1.5

Mean Age: $\bar{x} = 38.2$

TABLE IV

A DISTRIBUTION OF RESPONDENTS BY SELECTED AGRICULTURAL EDUCATION CHARACTERISTICS

Selected Agricultural Education Characteristic(s)	Frequency N=69	Percent (%)
Ever Taken an Agriculture Class		
Yes	14	20.3
No	55	79.7
Time Class Was Taken		
High School	5	33.3
College	5	33.3
Other	2	13.3
High School & College	1	6.7
High School & Other	2	13.3
High School Organizational Affiliation		
FFA	5	33.3
4-H	5	33.3
Other Ag-Related Group	1	6.7
Both FFA & 4-H	2	13.3
FFA and Other Ag-Related Group	2	13.3
Frequency Missing = 54		
College/Professional Organizational Affiliation		
Journalism Professional Group	25	80.6
Agriculture Journalism Group	1	3.2
Other Professional Group	2	6.5
Both Journalism/Ag Group	1	3.2
Both Journalism/Other Group	2	6.5
Frequency Missing = 38		

TABLE V

A DISTRIBUTION OF RESPONDENTS BY TOTAL NUMBER OF YEARS IN BROADCAST CAREERS

Years in Broadcasting Career	Frequency N=68	Percent (%)
1	2	2.9
2	2	2.9
3	6	8.8
4	1	1.5
5	3	4.4
6	3	4.4
7	1	1.5
8	3	4.4
9	1	1.5
10	6	8.8
11	3	4.4
12	5	7.4
14	2	2.9
15	4	5.9
16	1	1.5
17	2	2.9
18	2	2.9
20	3	4.4
21	1	1.5
22	3	4.4
23	3	4.4
24	4	5.9
25	1	1.5
27	2	2.9
30	1	1.5
31	1	1.5
37	1	1.5
39	1	1.5

Mean Number of Years: $\bar{x} = 14.06$

TABLE VI

A DISTRIBUTION OF RESPONDENTS BY WHETHER OR NOT RELATIVES WERE INVOLVED IN AGRICULTURE PRODUCTION

Characteristic	Frequency N=68	Percent (%)
Any Relatives Involved in Production Agriculture		
Yes	39	57.4
No	29	42.6
Which Relative		
Parent	11	28.2
Grandparent	7	17.9
Other	10	25.6
Parent & Grandparent	9	23.1
Grandparent & Other	2	5.1
No Relative	29	42.6

involved in production agriculture, while 29 (42.6%) did not have a relative involved in agriculture production. One did not respond. Of the 39 respondents that had a relative involved in production agriculture, 11 (28.2%) had a parent involved in production agriculture; seven (17.9%) claimed having a grandparent in production agriculture; while 10 (25.6%) had relatives other than immediate family (uncles, cousins, in-laws) in production agriculture. However, nine (23.1%) respondents had both a parent and a grandparent involved in production agriculture; with two (5.1%) claiming both a grandparent and "miscellaneous" relative in production agriculture. Of the 69 total respondents in this study, 30 had no relative involved in production agriculture.

Knowledge About Agriculture

The agriculture knowledge test included 30 questions concerned with agriculture current events, history, commodities, environmental well-being, natural resources, human health and agriculture science. Each question provided the respondent five possible responses from which to choose the most correct answer. Each question was assessed at one point per question for a total of 30 possible points. The questions, correct answers, frequency of accurate responses and modal responses are shown in Table VII.

Seventy-three percent of the reporters knew the current U.S. Secretary of Agriculture while less than half (46.2%) knew that less than two percent of the U.S. population was involved in production agriculture. A total of 57.6 percent knew that the main water source for irrigation in western Oklahoma was underground aquifers and 46 percent knew that agriculture chemicals most adversely affected the food chain. In the area of beef production, 86.4 percent of reporters knew the difference between a heifer

TABLE VII

A DISTRIBUTION OF THE NUMBER OF CORRECT ANSWERS TO EACH OF THE AGRICULTURAL KNOWLEDGE QUESTIONS

Item Correct Answer	Frequency Correct	Percent Correct	Mode Response
Milk is a noted source of what? *Calcium*	66	98.5	Calcium
Natural Resources least likely to influence crops. *Natural Gas*	65	98.5	Natural Gas
Farm equipment used to harvest wheat. *Combine*	63	95.5	Combine
Who is credited with the invention of the cotton gin? *Eli Whitney*	62	93.9	Eli Whitney
Term to describe sprouting of a seed. *Germination*	59	88.1	Germination
Process using heat to kill bacteria in milk. *Pasteurization*	59	86.8	Pasteurization
What makes a heifer different from a cow? *Heifer not given birth*	57	86.4	Heifer not given birth
Oklahoma's number one ag crop. *Wheat*	57	86.4	Wheat
Which is not an insect? *Spider*	56	87.5	Spider
Reason for increase in ag production in the last half of this century. *Mechanization*	54	84.4	Mechanization
Hard bottom layer underlying earth's surface. *Bedrock*	53	82.8	Bedrock

TABLE VII (Continued)

Item Correct Answer	Frequency Correct	Percent Correct	Mode Response
State where term "Maverick" originated. *Texas*	52	77.6	Texas
Mineral that gives Oklahoma's soil its red color. *Iron*	51	81.0	Iron
Entomology is the study of what? *Insects*	51	78.5	Insects
Veal is the meat of what young animal? *Cattle*	51	76.1	Cattle
Primary heating source for early plains settlers. *Manure*	50	76.9	Manure
Current U.S. Secretary of Agriculture. *Dan Glickman*	46	73.0	Dan Glickman
Protective case around a seed. *Seed Coat*	40	62.5	Seed Coat
What makes a whether different from a ram? *Whether is Neutered*	39	66.1	Neutered
Main source of water for western Oklahoma. *Underground Aquifer*	38	57.6	Und. Aquifer
Which is most lacking in diet of world population? *Protein*	33	50.0	Protein

TABLE VII (Continued)

Item Correct Answer	Frequency Correct	Percent Correct	Mode Response
From 1790-1820, % U.S. population in production ag. *90%*	30	47.6	90%
%U.S. population earning a living from production ag. *<2%*	30	46.2	<2%
Chemicals used in farming most adversly affect? *Food Chain*	29	46.0	Food Chain
Which is not a member of the grass family? *Clover*	21	33.3	Sugarcane
Lbs. of beef/year eaten by average American. *60-75*	19	29.7	50-55
Ag industry employees in U.S. *22-25 million*	16	25.8	15-20 mill.
Average size in acres of an Oklahoma farm. *400-450*	12	19.0	500-550
Best source of vitamin C. *Green Pepper*	11	16.9	Tomato
Which is the smallest soil particle? *Clay*	8	12.3	Silt

and a cow, while 76.1 percent responded that cattle is the meat source for veal. Only 19 percent knew that the average sized Oklahoma farm was 400-450 acres with most responding 500-550 acres. Approximately 13 percent knew the smallest particle of soil, while almost 83 percent selected bedrock as the answer to the hard bottom layer underlying the earth's surface.

As shown in Table VIII, the reporters' scores ranged from six to 27 with a mean score of 19.06. Half of the respondents answered correctly 19 of the 30 questions, while only 8.8 percent answered 25 or more correctly.

Reporters were asked to provide individual perceptions about agriculture and its importance to the public via the media, interest levels toward reporting agriculture and perceived agriculture reporting competence. The data in Table IX revealed that overall, 29 percent were definitely interested in reporting an agriculturally related story or event, while and 29 percent only had "some" interest. Furthermore, a total of 18 (26.1%) did not know if they were interested in reporting agriculture, 13 percent were not interested and two (2.9%) were definitely not interested in reporting agriculture.

When asked if the reporters felt qualified to report all aspects of agriculture, only 11 (20.4%) definitely felt qualified, however, the majority (48.1%) did feel qualified. Nine (16.7%) did not know if they felt qualified to report agriculture, six (11.1%) did not feel qualified and two (3.7%) definitely did not feel qualified. Of the 69 that returned the questionnaire, 15 did not respond to this question.

Finally, reporters were asked if there is a need to report agriculture to the public. Only 25 (36.2%) felt there was a definite need to report agriculture news to the public, while more than half (53.6%) felt some need to report agriculture. However, seven

TABLE VIII

A DISTRIBUTION OF INDIVIDUAL RESPONDENTS' SCORES ON THE AGRICULTURAL KNOWLEDGE SECTION OF THE SURVEY

Test Score*	Frequency N=68	Percent (%)
6	1	1.5
10	2	2.9
12	1	1.5
13	4	5.9
15	3	4.4
16	7	10.3
17	3	4.4
18	9	13.2
19	4	5.9
20	7	10.3
21	6	8.8
22	9	13.2
23	3	4.4
24	3	4.4
25	3	4.4
26	1	1.5
27	2	2.9

Total Possible Points =30
Mean Correct Score $\bar{x}$ = 19.06

TABLE IX

A DISTRIBUTION OF ATTITUDES TOWARD REPORTING AGRICULTURE

Interest, Need and Qualification Characteristic(s)	Frequency N=69	Percent (%)
Interested in Reporting an Agriculture Story/Event		
Definitely Yes	20	29.0
Yes	20	29.0
Don't Know	18	26.1
No	9	13.0
Definitely No	2	2.9
Have You Ever Reported An Agriculture Story/Event		
Yes	49	71.0
No	20	29.0
Did You Feel Qualified to Report the Story		
Definitely Yes	11	20.4
Yes	26	48.1
Don't Know	9	16.7
No	6	11.1
Definitely No	2	3.7
Frequency Missing = 15		
Do You Feel There is a Need to Report Ag to the Public		
Definitely Yes	25	36.2
Yes	37	53.6
Don't Know	7	10.1
No	-	-
Definitely No	-	-

(10.1%) of the respondents did not know if there was a need to report agriculture to the public.

The data in Table X illustrated the lack of knowledge concerning agriculture with only one individual with a degree in agriculture and scored six points higher than the non-agriculture majors mean scores. Too few respondents were available to complete a t-test for agriculture majors. However, of the 66 non-agriculture majors, the mean score was 6 points less than that of the agriculture major with a standard deviation of 4.15 and a probable $T > 0.146$.

Radio professionals with an agriculture background scored higher on the agriculture knowledge portion of the questionnaire than did those without an agriculture background. However, only one point separated the mean scores of the two groups. Those with an agriculture background had a mean score of 19.8 points and non-agriculture background respondents had mean correct scores of 18.8. A total of 10 radio personnel as shown in Table XI had an agriculture background as opposed to 85.3 percent who did not.

Of the 36 who felt qualified to report agriculture news, the data in Table XII indicated a mean score of 20 which was separated by only .5 of a point from the 12 that did not feel qualified. Overall, more than half felt qualified and answered two-thirds of the questions correctly.

TABLE X

DATA COMPARING THOSE SCORES OF RESPONDENTS WITH AGRICULTURE COLLEGE MAJORS AND THOSE WITH NON-AGRICULTURE COLLEGE MAJOR

College Major	N	Mean Score	Std. Dev.	T	DF	Prob>T
Agriculture	1	25.0	N/A	N/A	N/A	N/A
Non-Agriculture	65	18.9	4.15	1.47	64.0	0.1469

TABLE XI

DATA COMPARING THOSE SCORES OF RESPONDENTS WITH AN AGRICULTURE BACKGROUND AND THOSE WITH A NON-AGRICULTURE BACKGROUND

Background	N	Mean Score	Std. Dev.	T	DF	Prob> T
Agriculture	10	19.8	4.21	0.68	12.3	0.51
Non-Agriculture	57	18.8	4.17	0.68	65.0	0.50

TABLE XII

DATA COMPARING SCORES OF THOSE THAT FELT QUALIFIED TO REPORT AGRICULTURE AND THOSE THAT DID NOT FEEL QUALIFIED TO REPORT AGRICULTURE

Qualification Level	N	Mean Score	Std. Dev.	T	DF	Prob>T
Qualified	36	20.0	3.9	0.38	18.5	0.71
Not Qualified	12	19.5	4.0	0.38	46.0	0.70

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Many are alarmed at the increasing number in the U.S. population that seemingly exhibit an ignorance of basic agricultural practices and principles. Most agricultural literacy studies have been conducted with the educational systems in America until recently when researchers turned their attention toward the media. The media have the power to influence public opinions and attitudes, therefore, there is a need to determine apparent levels of agricultural literacy among the media, specifically, radio station news reporters.

Purpose of the Study

The purpose of this study was to determine the agricultural knowledge levels of broadcast news representatives of radio stations in Oklahoma.

Objectives

The following specific objectives were formulated to accomplish the purpose:

1. Identify the demographic characteristics of reporters employed by radio stations in Oklahoma;

2. Identify relative levels of agricultural literacy among news reporters of radio stations in Oklahoma;

3. Determine if a relationship exists in the levels of agricultural literacy between those who have had some form of agricultural education and those who have not;

4. Determine if radio reporters feel qualified to report agriculture news and activities;

5. Determine if radio reporters feel a need to report agriculture news and activities to the public.

Procedures

Demographic characteristics and agricultural knowledge level were determined by evoking responses from 69 (53.5%) of the 129 AM/FM radio station reporters in Oklahoma using a 48 item questionnaire to solicit both interval and nominal data. Those surveyed were asked to provide personal, professional and educational information as well as answer 30 multiple choice questions about topics relating to agriculture.

Summary of Major Findings

Objective One

Almost 80 percent of the radio station reporters across Oklahoma were male between the ages of 30 and 45 and grew up in a small town with a population between 10,000 and 50,000. More than half of the radio reporters have bachelor degrees in journalism and nearly three-fourths have reported agriculturally related stories or events.

One-fourth of those surveyed covered a non agriculture beat and only 7.5 percent covered agriculture.

Objective Two

Absolute standards regarding the agricultural literacy levels could not be defined since knowledge levels required to be considered literate change as time passes (Frick and Spotanski, 1990). Knowledge assessment of the study was pre-tested for validity and reliability. Therefore, consideration should be given to the performance of the group as a whole. A total of 50 percent of broadcast representatives scored 63 percent correct on the knowledge assessment section.

Objective Three

It was not possible to determine a relationship between agricultural education levels of respondents due to the lack of respondents with an agriculture background. However, consideration should be given to the performance of the agriculture versus non-agriculture college majors. Those with an agriculture college major score six points higher than those with a non-agriculture major.

Objective Four

Almost 70 percent of the radio reporters who responded to this study felt qualified to report agriculture news to the public, while nearly 15 percent did not. However, the t-test indicated no relationship in between those that felt qualified and those that did not at the probability level of alpha = .05.

Objective Five

A total of 90 percent of the reporters responding to this study felt that there was a need to report agriculture news to the public, while 10 percent did not.

Conclusions

An analysis of the data and subsequent major findings were the basis of the conclusions drawn in this study.

Objective One

The typical radio station reporter respondent in this study was a young adult male who grew up in a small town and was primarily involved in reporting non-agricultural news.

Objective Two

Based on the major findings, it seemed that the representatives/respondents were knowledgeable concerning the basics of agriculture. However, it was apparent that there was little understanding of the technical and policy issues of the industry.

Objective Three

According to the findings, Oklahoma radio station reporters were primarily educated in the liberal arts with little to no agricultural education. However, it was evident that the respondent with the bachelor's degree in agriculture scored at a higher

level on the knowledge assessment portion of the survey.

Based on the mean scores of the knowledge assessment section, no apparent relationship exists between those respondents with an agriculture background and those without. Furthermore, based on the findings, reporters with no ties to agriculture seem to be as knowledgeable about agriculture as those with agriculture backgrounds.

Objective Four

The typical radio station respondent felt qualified to report agriculture news and events even though they had little to no agriculture background or education. Furthermore, respondents apparently perceived the need to report agriculture news and events to the public or have had previous experience and responsibility for agriculture news events/activities.

Objective Five

The typical Oklahoma radio station reporter has had the responsibility at some time for agriculture news stories and/or events and felt a need to report agriculture news stories and events to the public.

Furthermore, the typical radio news respondent also has relatives involved in production agriculture. However, that relative is less likely to be a parent or grandparent. Based on the respondents' mean scores, there was apparently no relationship between those with relatives in agriculture and those without.

Recommendations

As a result of interpretations of the findings and conclusions, the following recommendations were outlined.

Objective One

Radio reporters, as major contributors and shapers of public attitudes and opinions, should recognize the importance of maintaining a high level of integrity concerning their knowledge of agriculture. This group should seek continuing agriculture educational opportunities in order to provide accurate and meaningful information to the publics that they serve.

Objective Two

While most radio news reporters in Oklahoma know and have a basic understanding about agriculture and agriculture news, a greater effort should be made to seek educational opportunities about the scientific and technical aspects of the industry.

Objective Three

Based on the major finding that more than 80 percent of Oklahoma reporters in this study had college degrees in areas other than agriculture, yet only 15 of the 69 respondents had taken an agriculture class of any kind, liberal arts programs across the nation should include a general agriculture class in their liberal arts curricula if citizens of Oklahoma are to become better informed concerning agriculture.

Objective Four

Based on the major finding that only 7.5 percent of the radio stations in Oklahoma air agricultural news and 90 percent feel qualified to report agriculture, an increased effort should be made by more radio stations to air agricultural news stories and events. If people are to be aware and literate about agriculture and its practices, more media entities should make a concentrated effort to provide accurate and meaningful information concerning the industry.

Objective Five

Based on the indicated interest level in reporting agriculture and the perceived need of agriculture news availability, radio station program directors should assign all reporters on staff to cover some agriculturally related stories and events.

Recommendations for Further Research

Further research should be conducted concerning the issue of agricultural literacy. Currently no agricultural literacy survey or method has been developed to satisfy agricultural theorists concerning accurate assessment of agricultural knowledge. Therefore, development of a standardized agricultural literacy instrument would be beneficial to the agricultural and communications professions and industries.

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APPENDIXES

APPENDIX A

COVER LETTER AND POSTCARD TO RADIO STATION NEWS REPORTERS

Date

Name, Title
Radio Station
Address
City, State, Zip

Dear

PLEASE STOP WHAT YOU ARE DOING FOR JUST A FEW MINUTES! If you would, right now take this ink pen that I have provided and fill out the enclosed questionnaire. I realize that your time as a journalist is very limited. As a result, this form will only take a few moments to complete. As a professional radio journalist, your information and expertise is vital to our research efforts.

More than 98 percent of the American public is removed from the farm. Because of this migration to the urban setting, few Americans have a basic knowledge about agriculture. Most studies have concentrated on primary, secondary, and college-age students. However, as the media continue to have an increased influence on the American public, emphasis has been placed on the agricultural knowledge levels of those communicating information via the media. This statewide survey examines the agricultural knowledge levels of those radio station personnel responsible for reporting on air news. This is not a test!

You may be assured of complete confidentiality. This questionnaire has an identification number for mailing purposes only. Your name will never be placed on the questionnaire and no one but myself will have access to the returned questionnaires. As a research faculty, we would greatly appreciate your participation by completing the enclosed questionnaire upon receipt of this packet. If you are unable to complete it at this time, please do so at your earliest convenience.

If you believe a summary of the initial results would be useful to you and your staff, please mark the appropriate box at the end of the questionnaire.

Thank you in advance for your assistance in making this study truly representative of Oklahoma radio news broadcasters. If you have any questions or comments, do not hesitate to contact me at Oklahoma State University, telephone 405/744-9347. You may also contact Jennifer Moore, Executive Secretary of the OSU Institutional Review Board, telephone 405/744-5700.

Sincerely,

Karen L. Howell
Research Associate

REMINDER! On June 1, a survey seeking information about radio reporters and their knowledge of agriculture was mailed to you. If you have already completed and returned it to us, please accept our sincere **thanks**. If not, please join your radio colleagues from around the state who have responded. Your expertise is extremely valuable in making this statewide survey of radio broadcasters truly representative.

If by some chance you did not receive the survey or it has been misplaced, please call me right now at 405/744-9347 and I will get another one in the mail today

Sincerely,

Karen L. Howell
Research Associate
Oklahoma State University

OSU

July 1, 1995

Name
Address
City, State, Zip

Dear (Name):

On June 1, I wrote to you seeking your knowledge and expertise of the agriculture industry. As of today, we have not received your completed survey. Your participation is greatly needed to make this research effort complete and representative of the radio broadcast industry

This study if one of the first of its kind in the United States dealing with radio broadcasters. Each and every reporter's information is vital to the success of this study. This survey has been sent to all radio stations throughout Oklahoma REGARDLESS OF STATION FORMAT. We want you to take just a few moments and complete this questionnaire even if your station does not air agriculturally related news or events. Once again, you may be assured of complete confidentiality.

Thank you in advance for your assistance in making this study truly representative of Oklahoma radio news broadcasters. If you have any questions or comments, do not hesitate to contact me at Oklahoma State University, telephone 405/744-9347. You may also contact Jennifer Moore, Executive Secretary of the OSU Institutional Review Board, telephone 405/744-5700.

Sincerely,

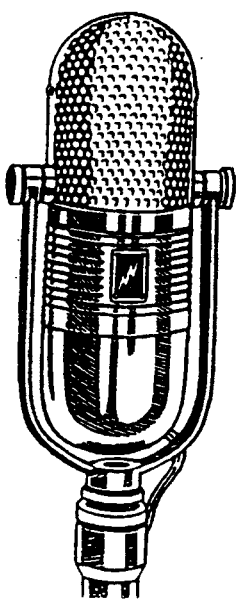
Karen Howell
Research Associate

APPENDIX B

SURVEY INSTRUMENT

"Agriculture and the Media"

OKLAHOMA STATE UNIVERSITY



A Study of Agricultural Literacy Among Radio Reporters

PART ONE

A LITTLE BIT ABOUT YOU

1. Gender: __ Male __ Female

2. Date of Birth (month/year): _____

3. Station Market: __ Metro area(>100,000)
__ Non-Metro area (<100,000)

4. Description of hometown situtaion:
__Farm or Ranch
__Rural, Non-Farm or ranch
__Small town <5,000
__Large town 5,000-10,000
__Small city 10,000-50,000
__Large city 50,000-100,000
__Metropolitan area >100,000

5. Highest educational degree completed:
__High School
__Bachelor Degree
__Masters Degree
__Doctorate
__Pursuing further education (Please list)
_____
_____

6. College Major:
__Did not attend
__Agricultural communications
__Agriculture
__Journalism/communications
__Other--please list
_____

7. Have you ever taken an agriculture class?
__Yes __ No

8. If yes, then when? (you may select more than one)
__ High school
__ Vocational and Technical School
__ College
__ Other--Please list
_____
_____

9. Years in radio broadcast career: _____

10. Regular Reporting Beat:
__ Agriculture and/or related areas
__ Non-agricultural areas
__Get news from wire service

11. High school organizational affiliation:
__ FFA
__ 4-H
__ Other agriculturally related group(s).
(Please list)
_____
_____

12. College and professional career affiliation:
__ Journalism professional groups
__ Agricultural journalism professional groups
__ Other--Please list:
_____
_____

13. Do (did) you have a relative involved in production agriculture?
__ Yes __ No

14. If yes, then who? (select more than one)
__ Parent __ Grandparent
__ Other--Please list
_____
_____

15. Would you be interested in reporting an agriculturally related news story or event?
__Definitely Yes
__Yes
__Don't know
__No
__Definitely No

16. Have you ever reported an agriculturally related news event or feature story?
__Yes __No

17. If yes, did you feel qualified to accurately report the details of the news event?
__Definitely Yes
__Yes
__Don't know
__No
__Definitely No

18. Do you feel that there is a need to report agriculture to the public?
__Definitely Yes
__Yes
__Don't know
__No
__Definitely No

PART TWO

WHAT DO YOU KNOW

(Please circle the most correct answer for each question.)

19. Milk is a noted source of what?
    a. carbohydrates
    b. iron
    c. Vitamin B 12
    d. Vitamin C
    e. calcium

20. What is the term used to describe the sprouting of a seed?
    a. hybridization
    b. germination
    c. fertilization
    d. propagation
    e. inoculation

21. Who is the current U.S. Secretary of Agriculture?
    a. John Block
    b. Robert Dole
    c. Jim Carrey
    d. Clayton Yeutter
    e. Dan Glickman

22. What process uses heat to kill bacteria in liquids like milk?
    a. homogenization
    b. gelatinization
    c. remediation
    d. pasteurization
    e. evaporation

23. Which of the following natural resources would least likely influence agricultural crops?
    a. sunshine
    b. soil
    c. water
    d. natural gas
    e. air

24. Who is most often credited for the invention of the cotton gin?
    a. Cyrus McCormick
    b. Benjamin Franklin
    c. George Washington Carver
    d. John Deere
    e. Eli Whitney

25. What is the protective case surrounding a new plant?
    a. germ
    b. seed coat
    c. foil
    d. embryo
    e. endosperm

26. In which state did the term "maverick" likely originate?
    a. Oklahoma
    b. Washington
    c. Texas
    d. Ohio
    e. Alabama

27. What makes a heifer different from a cow?
    a. a heifer is an old cow
    b. a heifer is black and white
    c. a heifer is a male cow
    d. a heifer is a cow that has not yet given birth
    e. a heifer is a cow raised for meat

28. Which of these is not an insect?
    a. butterfly
    b. spider
    c. grasshopper
    d. beetle
    e. wasp

29. What is Oklahoma's number one agricultural crop?
    a. peanuts
    b. hardwood forests
    c. wheat
    d. cotton
    e. soybeans

30. What mineral found in Oklahoma's soil gives it a red color?
    a. mercury
    b. nitrogen
    c. cobalt
    d. lead
    e. iron

31. Veal is the meat of what young meat producing animal?
    a. chicken
    b. swine
    c. deer
    d. cattle
    e. sheep

32. Early plains settlers relied on this as their primary heating source?
    a. animal manure
    b. oil
    c. natural gas
    d. fallen trees
    e. coal

33. What is the primary source of water used to irrigate crops in western Oklahoma?
    a. rainfall
    b. ponds and lakes
    c. underground aquifers
    d. rivers
    e. ditch water

34. Which of the following plants is not a member of the grass family?
    a. oats
    b. clover
    c. wheat
    d. rice
    e. sugarcane

35. Which of the following fruits or vegetables is the best source of Vitamin C?
    a. green pepper
    b. onion
    c. potato
    d. tomato
    e. carrot

36. The average Oklahoma farm is about how many acres?
    a. 300-350
    b. 400-450
    c. 500-550
    d. 600-650
    e. 700-750

37. Which of the following soil particles is the smallest in size?
    a. Sand
    b. dirt
    c. mud
    d. silt
    e. clay

38. What percent of the U.S. Population earns its living from farming/ranching?
    a. 10-12%
    b. <2%
    c. 20-22%
    d. 15-17%
    e. 5-7%

39. Which of the following is most lacking in the diets of the world's population?
    a. fat
    b. calories
    c. carbohydrates
    d. vitamins
    e. protein

40. What is the hard bottom layer that underlies the earth's surface?
    a. topsoil
    b. bedrock
    c. subsoil
    d. clay
    e. mineral

41. The average American eats about how many pounds of beef per year?
    a. 5-10
    b. 35-40
    c. 60-75
    d. 15-30
    e. 50-55

42. What makes a wether lamb different from a ram?
    a. a wether has given birth
    b. a wether is a neutered ram
    c. a wether is an old ram
    d. a wether is a young ram
    e. a wether is a female ram

43. Which of the following pieces of farm equipment is used to harvest wheat?
    a. plow
    b. disc
    c. harrow
    d. combine
    e. baler

44. The American agricultural industry employs approximately how many people in the U.S.?
    a. 15-20 million
    b. 22-25 million
    c. 27-30 million
    d. 31-35 million
    e. 36-39 million

45. Which of the following is being most adversely affected by chemicals used in agriculture?
    a. ozone
    b. ocean levels
    c. food chain
    d. livestock growth
    e. erodibility of soil

46. From 1790 to 1820, about what percent of the U.S. work force was employed in agriculture?
    a. 2%
    b. 30%
    c. 50%
    d. 65%
    e. 90%

47. What is the primary reason that agricultural production levels greatly increased during the first half of this century?
    a. mechanization
    b. education
    c. biotechnology
    d. government programs
    e. chemicals

48. Entomology is the study of:
    a. cattle
    b. swine
    d. soil
    d. plants
    e. insects

*I would like to receive a copy of the results of this survey.

__Yes __No

Thank You

APPENDIX C

INSTITUTIONAL REVIEW BOARD

APPROVAL FORM

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 05-16-95 **IRB#:** AG-95-016

Proposal Title: AGRICULTURAL LITERACY OF RADIO STATION REPORTERS IN OKLAHOMA

Principal Investigator(s): James D. White, Karen L. Howell

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING.
APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval are as follows:

Signature:  Date: May 17, 1995

Chair of Institutional Review Board

APPENDIX D

FREQUENCY AND PERCENTAGE OF RADIO STATION RESPONDENTS TO AGRICULTURAL KNOWLEDGE QUESTIONS

Question Answer*	Frequency N=69	Percent (%)
Milk is a noted source of what?		
Vitamin C	1	1.5
*Calcium	66	98.5
Carbohydrates	0	0.0
Iron	0	0.0
Vitamin B 12	0	0.0
Frequency Missing = 2		
What term is used to describe the sprouting of a seed?		
Hybridization	1	1.5
*Germination	59	88.1
Fertilization	3	4.5
Propagation	2	3.0
Inoculation	2	3.0
Frequency Missing = 2		
Who is the current U.S. Secretary of Agriculture?		
John Block	8	12.7
Robert Dole	2	3.2
Jim Carrey	0	0.0
Clayton Yuetter	7	11.1
*Dan Glickman	46	73.0
Frequency Missing = 6		
What process uses heat to kill bacteria in liquids like milk?		
Homogenization	9	13.2
Gelatinization	0	0.0
Remediation	0	0.0
*Pasteurization	59	86.8
Evaporation	0	0.0
Frequency Missing = 1		
Which of the following natural resources would least likely influence agricultural crops?		
Sunshine	0	0.0
Soil	0	0.0
Water	0	0.0
*Natural Gas	65	98.5
Air	1	1.5
Frequency Missing = 3		

Question Answer*	Frequency N=69	Percent (%)
Who is most often credited for the invention of the cotton gin?		
Cyrus McCormick	1	1.5
Benjamin Franklin	1	1.5
George Washington Carver	2	3.0
John Deere	0	0.0
*Eli Whitney	62	93.9
Frequency Missing = 3		
What is the protective case surrounding a new plant?		
Germ	7	10.9
*Seed Coat	40	62.5
Foil	5	7.8
Embryo	3	4.7
Endosperm	9	14.1
Frequency Missing = 5		
In which state did the term "maverick" likely originate?		
Oklahoma	14	20.9
Washington	0	0.0
Texas	52	77.6
Ohio	1	1.5
Alabama	0	0.0
Frequency Missing = 2		
What makes a heifer different from a cow?		
A heifer is an old cow	0	0.0
A heifer is black and white	1	1.5
A heifer is a male cow	0	0.0
*A heifer has not given birth	57	86.4
A heifer is raised for meat	8	12.1
Frequency Missing = 3		
Which of these is not an insect?		
Butterfly	4	6.3
*Spider	56	87.5
Grasshopper	0	0.0
Beetle	2	3.1
Wasp	2	3.1
Frequency Missing = 5		

Question Answer*	Frequency N=69	Percent (%)
What is Oklahoma's number one agriculture crop?		
Peanuts	3	4.5
Hardwood Forests	0	0.0
*Wheat	57	86.4
Cotton	1	1.5
Soybean	5	7.6
Frequency Missing = 3		
What mineral found in Oklahoma's soil gives it a red color?		
Mercury	1	1.6
Nitrogen	4	6.3
Cobalt	4	6.3
Lead	3	4.8
*Iron	51	81.0
Frequency Missing = 6		
Veal is the meat of what young meat producing animal?		
Chicken	1	1.5
Swine	0	0.0
Deer	1	1.5
*Cattle	51	76.1
Sheep	14	20.9
Frequency Missing = 2		
Early plains settlers relied on this as their primary heating source.		
Animal Manure	50	76.9
Oil	0	0.0
*Natural Gas	0	0.0
Fallen Trees	9	13.8
Coal	6	9.2
Frequency Missing = 4		
What is the primary source of water used to irrigate crops in western Oklahoma?		
Rainfall	13	19.7
Ponds and Lakes	10	15.2
*Underground Aquifers	38	57.6
Rivers	4	6.1
Ditch Water	1	1.5
Frequency Missing = 3		

Question Answer*	Frequency N=69	Percent (%)
Which of the following plants is not a member of the grass family?		
Oats	3	4.8
*Clover	21	33.3
Wheat	0	0.0
Rice	8	12.7
Sugarcane	31	49.2
Frequency Missing = 6		
Which of the following fruits or vegetables is the best source of Vitamin C?		
*Green Pepper	11	16.9
Onion	1	1.5
Potato	6	9.2
Tomato	34	52.3
Carrot	13	20.0
Frequency Missing = 4		
The average Oklahoma Farm is about how many acres?		
300-350	18	28.6
400-450	12	19.0
500-550	19	30.2
600-650	11	17.5
700-750	3	4.8
Frequency Missing = 6		
Which of the following soil particles is the smallest in size?		
Sand	4	6.2
Dirt	1	1.5
Mud	0	0.0
Silt	52	80.0
*Clay	8	12.3
Frequency Missing = 4		
What Percent of the U.S. population earns its living from farming/ranching?		
10-12%	16	24.6
*<2%	30	46.2
20-22%	2	3.1
15-17%	3	4.6
5-7%	14	21.5
Frequency Missing = 4		

Question Answer*	Frequency N=69	Percent (%)
Which of the following is most lacking in the diets of the world's population?		
Fat	3	4.5
Calories	0	0.0
Carbohydrates	0	0.0
Vitamins	30	45.5
*Protein	33	50.0
Frequency Missing = 3		
What is the hard bottom layer that underlies the earth's surface?		
Topsoil	1	1.6
*Bedrock	53	82.8
Subsoil	8	12.5
Clay	2	3.1
Mineral	0	0.0
Frequency Missing = 5		
The average American eats about how many pounds of beef per year?		
5-10	2	3.1
35-40	15	23.4
*60-75	19	29.7
15-30	5	7.8
50-55	23	35.9
Frequency Missing = 5		
What makes a wether lamb different from a ram?		
A wether has given birth	5	8.5
*A wether is a neutered ram	39	66.1
A wether is an old ram	0	0.0
A wether is a young ram	10	16.9
A wether is a female ram	5	8.5
Frequency Missing = 10		
Which of the following pieces of farm equipment is used to harvest wheat?		
Plow	1	1.5
Disc	0	0.0
Harrow	0	0.0
*Combine	63	95.5
Baler	2	3.0
Frequency Missing = 3		

Question Answer*	Frequency N=69	Percent (%)
The American agricultural industry employs approximately how may people in the U.S.?		
15-20 million	19	30.6
*22-25 million	16	25.8
27-30 million	16	25.8
31-35 million	5	8.1
36-39 million	6	9.7
Frequency Missing = 7		
Which of the following is being most adversely affected by chemicals used in agriculture?		
Ozone	15	23.8
Ocean Levels	0	0.0
*Food Chain	29	46.0
Livestock Growth	5	7.9
Erodibility of Soil	14	22.2
Frequency Missing = 6		
From 1790 to 1820, about what percent of the U.S. work force was employed in agriculture?		
2%	0	00.0
30%	8	12.7
50%	4	6.3
65%	21	33.3
*90%	30	47.6
Frequency Missing = 6		
What is the primary reason that agricultural production levels greatly increased during the first half of this century?		
*Mechanization	54	84.4
Education	4	6.3
Biotechnology	2	3.1
Government Programs	0	0.0
Chemicals	4	6.3
Frequency Missing = 5		
Entomology is the study of what?		
Cattle	2	3.1
Swine	0	0.0
Soil	0	0.0
Plants	12	18.5
*Insects	51	78.5
Frequency Missing = 4		

VITA

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Master of Science

Thesis: AGRICULTURAL LITERACY OF RADIO STATION NEWS REPORTERS IN OKLAHOMA

Major Field: Agricultural Education

Biographical:

Education: Graduated from Burlington High School, Burlington, Oklahoma in May 1988, Received Bachelor of Science in Agricultural Communications from Oklahoma State University, Stillwater, Oklahoma in December 1992, completed the requirements for the Master of Science Degree with a major in Agricultural Education at Oklahoma State University in December 1995

Experience: Reared on a farm near Byron, Oklahoma; employed as a farm laborer during summers; employed by the State FFA Association as the assistant editor for "The Outlook", 1989-1991, employed by the Department of Agricultural Communication as a graphics intern, Spring 1992; employed by DuPont Agricultural Products as a public relations intern/newsletter editor in Washington, D.C., Summer 1992; employed by the University Center for Water Research as a graduate research assistant/newsletter editor, Spring 1993, Kansas Authors Club State Technical Writing Competition Judge, 1995; employed by Oklahoma State University Office of High School and College Relations as a university representative; 1993-present; Oklahoma College Day/Night Coordination Committee College Information Hotline Director, 1995-96.

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