

1998 NEWSPAPER COVERAGE OF OKLAHOMA SWINE  
PRODUCTION ISSUES: A CONTENT ANALYSIS

By

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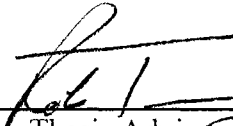
Bachelor of Science  
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1989

Submitted to the Faculty of the  
Graduate College of the  
Oklahoma State University  
in partial fulfillment  
of the requirements  
for the Degree of  
DOCTOR OF PHILOSOPHY  
December, 2000

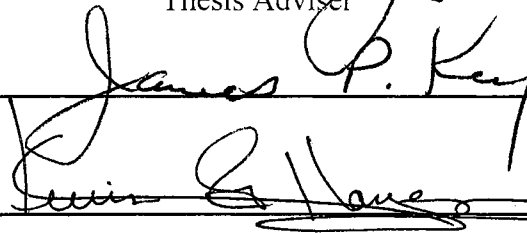
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PRODUCTION ISSUES: A CONTENT ANALYSIS

Pages in Study: 89

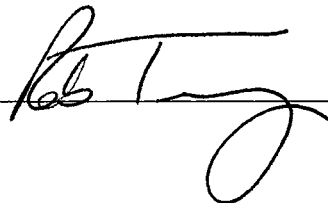
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Scope and Method of Study: The scope of this study included 40 newspaper articles published in 1998 by The Daily Oklahoman and the Tulsa World concerning swine concentrated animal feeding operations (CAFOs) as well as the 15 journalists who wrote the aforementioned articles. The methods of study were content analysis using the Hayakawa-Lowry news bias categories and telephone interviews with the journalists.

Findings and Conclusions: The 40 articles written about swine CAFOs included 36 news stories and 4 feature stories of which 21 were published in The Daily Oklahoman. Nearly 64 percent of the sentences in these articles were classified as reports, while about 15 percent were inferences and 17.7 percent were judgments. Of those sentences categorized as judgments, 69.4 percent were negative toward agriculture. The majority of journalists who wrote the published articles were male, had earned at least a bachelor's degree, had never lived on a farm or ranch, and had not been involved in either agricultural or environmental organizations. These journalists' average tenure as a reporter was 21.1 years, their assigned beats were varied, and most wrote approximately 20 agricultural news stories per year. The journalists said they liked to report agricultural news, felt qualified to do so, and would participate in an agricultural media workshop. The journalists' mean score on agricultural literacy questions was 50.5 percent, and they had positive or neutral perceptions of most of the agricultural issues presented in the questionnaire. The strongest relationships were between the journalists' knowledge of agriculture and their perceptions of agriculture ( $r=.30$  or a moderate positive correlation) and between their perceptions of agriculture and their level of objectivity in their published stories ( $r = -.42$  or a moderate negative correlation).

ADVISER'S APPROVAL:

 ASSOCIATE PROFESSOR

## ACKNOWLEDGMENTS

Taped to my computer monitor is a slip from a fortune cookie: “Many possibilities are open to you — work a little harder.” Completing this dissertation and subsequently this doctoral program has meant several people have “worked a little harder” for the past several years.

To my husband, Ron, thank you for your continuous love and support, your commitment to our family, and your patience with my need to excel. To my son, Jacob, thank you for bringing such joy to my life and for helping me to keep focused on what is truly important in life: family and faith. To my parents, Art and Mildred, my brother, Trent, and his wife, Kathy, thank you for always believing in me, for supporting me, for praying for me, for babysitting, and for just being you. I love you all more than you will ever know.

I offer a special thanks to my students in the Oklahoma State University agricultural communications program, especially Melinda Thomas Tharp and Sarah Lockhart who served as coders for this study. Just like my family, you have supported me, accepted my shortcomings, and been proud of my accomplishments. You have a very special place in my heart.

My deepest appreciation also extends to the faculty and staff in the Department of Agricultural Education, Communications, and 4-H Youth Development, especially Drs. Jim Key, Rob Terry, Bob Terry, Kevin Hayes, and James White, and to my

wonderful assistant and friend Elizabeth Whitfield.

Finally, I thank the late Eddy Finley for pushing me to pursue a doctoral degree, and thank God for giving me the strength to endure.

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## CHAPTER I

### INTRODUCTION

With paper and ink, newspapers bring people closer to the events and issues of the community, the state, the nation, and the world. While the electronic broadcasting media have the ability to deliver the news quickly, newspapers have the ability to present the news in more detail (Burnett & Tucker, 1990). The news — what reporters write about the events and issue — should be composed in an objective manner. “Reporters must strive to be neutral observers, collecting information and reporting it to let readers form their own opinions” (Baker-Woods, Dodd, et. al., 1997, p. 73). “Objectivity has been and still is accepted as a working credo by many, perhaps most, American journalists, students and teachers of journalism. It has been exalted by leaders of the profession as an essential, if unattainable, ideal” (Brooks, Kennedy, Moen & Ranly, 1996, p. 13).

Presentation of the facts in an unbiased story can allow the readers to form individual opinions about the event or issue. The writer should present both sides of an issue equally without presenting his or her own opinion on the topic. “If particular points of view on a single issue are given more attention than others, their public salience will increase and thereby alter the public debate resolving the issue” (Fico & Soffin, 1995, p. 621).

With the interest given today in the discussion of biased reporting and propaganda, and the general mistrust of many of the communications we receive, we are likely to forget that we still have an enormous amount of reliable information available and that deliberate misinformation, except in warfare, still is more the exception than the rule. (Hayakawa, 1990, p. 23)

As with other news story topics, issues and events related to agriculture also should be reported with objectivity, regardless of the controversy surrounding the topic. “Agenda-setting theory holds that over time, issues given more attention by the press will come to be deemed more important by the public” (Fico & Soffin, 1995, p. 621). Several studies have investigated the role and impact of the press in delivering agricultural news and information.

Journalists have a responsibility to report news both accurately and fairly.

If they fail in their duties, responsible reporting and consumption of agricultural news will not occur. Likewise, important decisions affecting the food and fiber industry may be made by misinformed individuals.

(Whitaker & Dyer, 1998, p. 445)

According to Merrill’s study (as cited in Thomson & Kelvin, 1996), “as urban dwellers become more isolated from the original sources of their food, their dependence on agriculture becomes less vivid, and agriculture becomes of peripheral importance to their own, more immediate needs” (p. 12). Ball-Rokeach and DeFleur (1976) determined that as the public’s first-hand knowledge and experience with an issue decrease, individuals are more likely to use generalized mass media for information about that issue.

Print media play a key role in bringing agricultural issues to the forefront.

How newspaper editors chose [sic] to frame and report news relevant to the environment, water quality, nutrient management, and food safety greatly affects public understanding of and appreciation for agriculture.

(Stringer & Thomson, 1999, p. 1)

Consumers “express a diversity of perspectives regarding issues related to farming and the food system” (Thomson & Kelvin, 1996, p. 19).

Whitaker and Dyer (1998, p. 445) recommended that research “be conducted to determine the relationship of journalists’ backgrounds and the level of bias in their reporting of agricultural issues.” Hess (1997) recommended additional research involving identification of reporters who write agricultural news. Hays (1993, p. 22) suggested content analysis research should be conducted to look at “the effects of specific situations—for example, proposed environmental legislature—on the amount of agriculture-related reporting,” and content analysis of reporting behavior is the appropriate place to begin assessing bias or fairness (Fico & Soffin, 1995).

Finding a specific situation to assess agricultural reporting in Oklahoma was not difficult. The controversial nature of swine concentrated animal feeding operations (CAFOs) prompted much attention by the Oklahoma press in 1997 and 1998, during the period the legislature was creating legislation to regulate this type of agricultural enterprise. Oklahoma S.B. 1175 was introduced in the Oklahoma Legislature in 1997 by State Senator Paul Muegge, chairman of the Senate Agriculture Committee, and by State Representative M.C. Leist, chairman of the House Agriculture Committee. Through its amendments, the bill redefined agricultural licensed managed feeding operations

(LMFOs) and contained numerous regulatory amendments, including changes in building permits, employee education for waste management, per-animal-unit fees, licensing, notification of affected property owners, environmentally related management plans, record keeping, set-back standards, waste management systems, and waste retention structures (Oklahoma Concentrated Animal Feeding Operations Act, 1998). The document was passed by the Oklahoma Legislature on May 28, 1998, and was signed by Governor Frank Keating on June 10, 1998. (D. Parrish, personal communication, September 23, 1998).

The Oklahoma newspaper and broadcast members of The Associated Press voted the “debate on hog farming and other agriculture issues” the third most important news story in Oklahoma in 1997 (Kurt, 1997, p. 1). On January 1, 1998, The Daily Oklahoman reported that the swine concentrated animal feeding operations issue was one of the top Oklahoma business news stories in 1997 (Boyd, 1998).

With these things in mind, how much newspaper coverage was given to the swine concentrated animal feeding operations issue and how objectively was it reported by the Oklahoma newspapers with the largest total circulation?

### Purposes

The purposes of this study were to evaluate the news published in 1998 about swine concentrated animal feeding operations (CAFOs) by the two largest Oklahoma newspapers and to profile the people who authored that news.

## Objectives

The specific objectives of the study were to:

1. Identify the news articles published about swine concentrated animal feeding operations (CAFOs) by the two largest Oklahoma newspapers;
2. Determine the level of objectivity in the identified articles;
3. Determine the favorability of judgment statements in the identified articles;
4. Develop a collective profile of the journalists responsible for these articles, including their professional characteristics, agricultural literacy, and perceptions about agricultural topics; and
5. Compare the level of objectivity with the agricultural background of the identified journalists.

## Scope of the Study

The scope of the study was all news and feature newspaper articles written about swine concentrated animal feeding operations and published in The Daily Oklahoman or the Tulsa World between January 1, 1998, and December 31, 1998. Editorials written during this time period were not included in the scope of this study. Editorials are, by definition, an expression of the writer's opinions and, when labeled as such, are not considered by the readers to include objective information. A total of 40 articles met these criteria.

## Assumptions of the Study

The content analysis portion of this research was conducted under the following assumptions:

1. Reporters in search of information about a controversial topic are guided by some ethic of fairness.
2. “Report” sentences are more likely to be perceived by the public as objective than “inference” or “judgment” sentences.
3. The press and other news media are the main conduits of information to the public.

In the study’s questionnaire phase, additional assumptions were made:

1. The identified journalists understood the questions that were asked.
2. The identified journalists provided accurate information to the questions.

## Limitations

The following limitations were considered when collecting information for this study:

1. Due to the small number of people who wrote stories about the CAFO issue, the results of the study can not be generalized to the population (all reporters).
2. The average person does not use the narrow definitions of reports, inferences, and judgments that were used in this study.

## Definitions

To assure common understanding for the purpose of this study, the following terms were operationally defined:

Agricultural Literacy — “Understanding and possession of knowledge needed to synthesize, analyze, and communicate basic information about agriculture” (Frick, Kahler, & Miller, 1991, p. 49).

Animal Feeding Operation — A location where animals are, or have been, concentrated for 90 or more consecutive days in any 12-month period and vegetation is not produced (Oklahoma Concentrated Animal Feeding Operations Act, 1998).

Bias — “A mental leaning or inclination; partiality; bent” (Neufeldt & Guralnik, 1988, p. 135).

Concentrated (or Confined) Animal Feeding Operation (CAFO) for Swine — As related to swine, a concentrated animal feeding operation is a licensed, managed feeding operation or an animal feeding operation that confines more than 750 swine each weighing approximately 55 pounds or more than 3,000 weaned swine each weighing under 55 pounds and where waste is discharged through artificial methods or directly into natural waterways (Oklahoma Concentrated Animal Feeding Operations Act, 1998).

Editorial — “A statement of opinion in a newspaper ... as by an editor, publisher, or owner” (Neufeldt & Guralnik, 1988, p. 431).

Feature Article — “Creative journalism ... an indepth reporting of the news ... based on factual information gleaned by the writer by research and interviews” (Nelson & Rhoades, 1984, p. 89).



Inference — “A statement about the unknown based on the known” where a writer or speaker “draws an inference from some set of observable data” (Hayakawa, 1990, p. 24).

Judgment — A statement that contains “expressions of the speaker’s approval or disapproval of the occurrences, persons, or objects he is describing” (Hayakawa, 1990, p. 25). A statement in this category “is a conclusion, evaluating a number of previously observed facts” (Hayakawa, 1990, p. 27).

News — Stories that have as their main purpose “to convey factual information quickly to a reader” (Nelson & Rhoades, 1984, p. 15); “reports, collectively, of recent happenings, especially those ... printed in a newspaper” (Neufeldt & Guralnik, 1988, p. 913).

Objectivity — The quality or state of being without bias or prejudice (Neufeldt & Guralnik, 1988).

Report — A statement that is “verifiable ... exclude as far as possible, inferences, judgments, and the use of ‘loaded’ words” (Hayakawa, 1990, p. 23); can be proven either accurate or inaccurate (Hayakawa, 1990).

## CHAPTER II

### REVIEW OF LITERATURE

The purpose of this chapter is to present and familiarize the reader with information relative to this research topic. Through the presentation of related research, the chapter explores content analysis in journalism research, objectivity and bias in the media, the delivery of agricultural news, agricultural literacy, and swine concentrated animal feeding operations in Oklahoma.

#### Content Analysis in Journalism Research

Everyone who reads, watches, or listens to the news as reported by the media participates in some type of content analysis by forming opinions based on what the individual observes (Stempel & Westley, 1989). Berelson (1952) defined content analysis as “a research design technique for the objective, systematic, and quantitative description of the manifest content of communication” (p. 18). Stempel and Westley (1989) stated that content analysis is objective and systematic if the categories used for analysis are “defined so precisely that different persons can apply them to the same content and get the same result” (p. 125) and by applying a set procedure to all content being analyzed. The formal analysis of media content has been studied since the 1930s,

when Mitchell V. Charnley of the University of Minnesota conducted a study of newspaper accuracy in 1936 (Burriss, 1985).

Although content analysis research may at first appear qualitative in nature, it is quantitative in the sense that numerical values or frequencies are recorded for the categorized types of content (Stempel & Westley, 1989). The manifest nature of the analysis indicates that coding must occur based on the appearance of the content, not as it was intended to be interpreted; furthermore, the concept of manifest content is critical to maintaining objectivity in the analysis (Stempel & Westley, 1989).

Lowry (1971) used a trichotomy of sentence types developed by S.I. Hayakawa to conduct a content analysis of network television news before and after United States Vice President Spiro Agnew criticized the media in a series of speeches. Lowry (1971) found that the journalists' percentage of report sentences increased after Agnew's comments, especially in the report sentences/attributed category which is "the 'safest' of all categories available"(p. 208). Both before and after Agnew's speeches, the networks' greatest percentage of sentences (49 percent) were coded as inferences/unlabeled and three percent or less of the sentences were coded as judgments.

Following his study using the Hayakawa sentence types, Lowry (1985) conducted research to prove the construct validity of the Hayakawa-Lowry news bias categories. He concluded that "Hayakawa's distinctions between reports, inferences, and judgments are indeed perceived by untrained audience members and actually do affect their perceptions of news objectivity" (p. 579) and that "the differences measured by these categories when used by researchers in content analysis studies are differences that do indeed make a

meaningful difference to news consumers” (p. 580). Lowry also concluded that “negative judgments are sometimes perceived as more biased than are positive judgments” (p. 579).

Content analysis has been used to study agricultural news. Whitaker and Dyer (1998) used Lowry’s approach to content analysis to compare the three agricultural periodicals of the largest circulation with the three news periodicals of the largest circulation. Using the Hayakawa-Lowry news bias categories, they determined that “bias occurs in the reporting of environmental and food safety issues in both news and agricultural magazines, although it is present to a greater extent in news magazines” and that “importance of issues in the agricultural industry is viewed differently by agricultural professionals and news reporters” (p. 444). Whitaker and Dyer also recommended that research be conducted to “determine the relationship of journalists’ backgrounds and the level of bias in their reporting of agricultural issues” (p. 445).

Using a different approach to content analysis, Hays (1993) studied coverage of agricultural issues in three urban newspapers, The Chicago Tribune, The Los Angeles Times, and The Washington Post. He found that the number of agriculture-related news items declined between 1982 and 1990, while there was a slight trend reversal in 1992. No subject area had a specific increase or decrease in coverage, and the articles written about agricultural topics were of significant length (median length: 13 paragraphs). “The amount and space given to most news and feature stories found in the study is an indication that agricultural subject matter, when used, is taken seriously by urban editors” (p. 22).

## Objectivity and Bias in the Media

“Bias...is hard to define, but many find it easy to recognize in their newspapers and newscasts” (Stevenson & Greene, 1989, p. 115). Objective, or “fair,” reporting matters politically because people and institutions use available information to decide public policy (Fico & Soffin, 1995, p. 621).

Stevenson and Greene (1980) described two common definitions of bias as used in quantitative studies of news bias: the first, while used less frequently, is that bias is “inaccuracy”; the second “—and one that has been adopted in most serious studies of news bias—is that bias is the systematic differential treatment of...one side of an issue over an extended period of time” (p. 116) or that bias is “failure to treat all voices in the marketplace of ideas equally” (p. 116).

Professional organizations, including the American Society of Newspaper Editors and the Society of Professional Journalists, and many prestigious newspapers ascribe to written codes of ethics and standards of fairness in their reporting (Fico & Soffin, 1995). Studies by Bogart and Hartung (as cited in Fico & Soffin, 1995) indicated that journalists perceived accuracy and objectivity to be the most important factors of editorial quality. Even so, Fico and Soffin (1995) concluded that the majority of news stories in selected “prestige” and Michigan newspapers were imbalanced and, in fact, “nearly half...were absolutely one-sided in their presentation of controversy” (p. 626). Lichter, Lichter, and Rothman (as cited in Whitaker & Dyer, 1998) determined that “journalists were white males, 30-40 years of age, highly educated, from families of above average income and education, raised in the Northeast, and philosophically to the left” and that “almost a third

of respondents believed they could not be impartial when an issue was emotionally charged” (p. 437).

In their study of the 1976 presidential campaign, Stevenson and Greene (1980) concluded:

News bias is less a function of reporters’ accuracy or fairness and more a function of what readers and viewers think the situation is or ought to be...The problem of news bias is important to journalists and to the political system in which journalism plays such an important part...we should think of accuracy, completeness, and fairness as matters of professional concern.” (p. 121)

“A commitment to fairness, at a minimum, requires a commitment to systematic evaluation of sources used in controversial stories and how they are used as issues unfold” (Fico & Soffin, 1995, p. 631). With the increasing number of policy issues related to agriculture coming before the public, fairness, or lack of bias, in mass media coverage of agriculture is of concern (Terry, Dunsford, & Lacewell, 1996, p. 216).

### Delivery of Agricultural News

Delivery of agricultural news can be accomplished through various media (newspapers, magazines, newsletters, television, and radio) including both popular media and agricultural media (Burnett & Tucker, 1990). Although the vast majority of farmers purchase farm magazines and agricultural newspapers and newsletters to get their information (Ortmann, Patrick, Musser, & Doster, 1993), Schnitkey, Batte, Jones, and

Botomogno (1992) found that Ohio farmers declared mass media as the most useful source of information for making marketing and production decisions.

“The mass media is the primary source used by people to gather initial awareness...mass media sources have a great influence upon public perception” (Rogers, as cited in Terry, Dunsford, & Lacewell, 1996, p. 215). Jo and Rodriguez (1999) also found that in Iowa newspapers are the number one information source on environmental issues and that the mass media, overall, are preferred information sources, even though mass media sources were rated as moderately credible. “Despite the importance of agriculture to America’s economic, environmental, and cultural growth, agricultural news is a surprisingly neglected topic in the mass media” (Stringer & Thomson, 1999, p. 1). Reisner and Walter stated “agricultural news is a relatively minor component of the editorial content of papers...that have primarily urban audiences” (1994, p. 526).

Throughout history, agriculturists, unlike the general public, have relied on entirely different sources for their information. ... agriculturists may not see the same environmental and food safety reporting as does the rest of the population and may be out of touch with consumers’ views of agriculture. (Whitaker & Dyer, 1998, p. 437)

“Mainstream print media...serve agriculture more indirectly by covering agricultural events and issues for the nonfarming public, which depends on that coverage for much of its understanding of agricultural topics” (Reisner & Walter, 1994, p. 525).

Corbett (1992) stated that issue coverage “generally is framed in terms of the prevailing concerns, values and problem orientation of the immediate social and cultural environment” (p. 929). Reisner and Walter (1994) suggested that both the news media

and the agricultural media are at fault, presenting a “fragmented and often biased picture of agriculture” (p. 534): “General-interest newspapers’ farm writing tends to be superficial, stereotyped, and crisis-oriented, and... farm magazine writing tends to be uncritical of agriculture and unconcerned with social and environmental issues” (p. 533).

Stevenson and Greene (1989) indicated that “the most frequent errors of science writing — and quite likely other news writing as well — are omissions of important details or qualifications” (p. 115). Scientists’ most common complaint in scientific news in both print and broadcast is omission of information/detail (Moore & Singletary, 1985; Tankard & Ryan, Pulford, and Borman, as cited in Moore & Singletary, 1985). Although “better reporting of science news is possible” (Moore & Singletary, 1985, p. 823), Sullivan (1985) stated:

With the increasing rapidity of change in science and technology and the complexity of the interactions between these changes and the social and political systems that embody them, the need for comprehensive and accurate reporting on science and technology issues seems even more evident today. (p. 832)

Coverage of science, technology, and the environment by the mass media is “primarily controlled by ‘expert’ scientific sources and the journalists who rely on them” (Nelkin, as cited in Corbett, 1992). “Science reporting should go beyond technical and economic considerations to include possible social and ethical implications of proposed changes” (Sullivan, 1985, p. 832). Due to the recognition of agriculture as a science (Neufeldt & Guralnik, 1988), this research could be applied to agricultural writing.



In studying agricultural news coverage, Hess (1997) determined that the Associated Press released about seven or eight agricultural news stories per day to its member television broadcasting stations. Among these stories, less than half (42.6 percent) of the statements within the stories were report sentences and more than one-fourth (25.6 percent) of the statements were judgment sentences. In addition, 60.2 percent of the judgment statements were unfavorable about agriculture.

In 1996, Terry, Dunsford, and Lacewell concluded that the three most popular national news magazines give “very little coverage” (p. 224) to agriculture, in spite of agriculture’s impact on society. In the agricultural articles that were published, the researchers found a “high degree of bias in them” where “most judgment statements...were unfavorable toward agriculture” (p. 224).

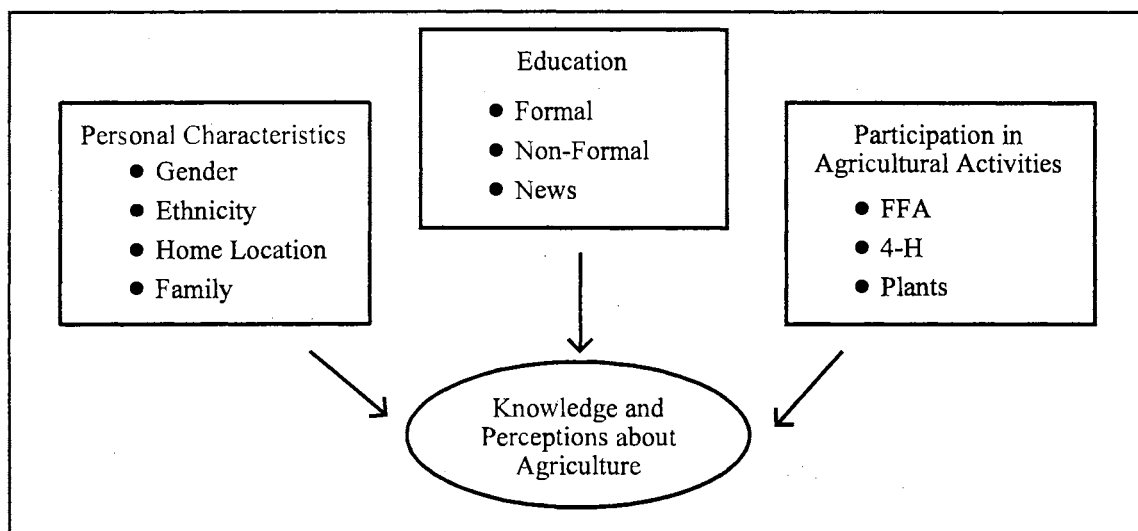
“The current state of agricultural reporting...holds potentially serious implications for public understanding of and participation in agricultural policy making” (Reisner & Walter, 1994, p. 535).

Neither farm magazines nor general newspapers appear to furnish their audiences with the kind of reporting likely to increase public understanding of issues facing farmers or farmer understanding of public concerns about agriculture’s environmental or social effects. Print media coverage of agriculture thus appears to enhance rather than reduce the potential for polarization between production agriculture and the public. (Reisner & Walter, 1996, p. 535-536)

## Agricultural Literacy

A literate person is one who is “able to read and write” or is “well-educated; having or showing extensive knowledge, learning, or culture” (Neufeldt & Guralnik, 1988, p. 789). According to the Committee on Agricultural Education in Secondary Schools for the National Research Council’s Board of Agriculture (1988), an agriculturally literate person is someone whose “understanding of the food and fiber system includes its history and current economic, social, and environmental significance to all Americans” (p. 1) as well as “some knowledge of food and fiber production, processing, and domestic and international marketing” (p. 1). But in a nation with less than two percent of the workforce employed in production agriculture (Gale & Bowers, 1999) why is agricultural literacy important? Citizens should be informed about agriculture so that they are “able to participate in establishing the policies that will support a competitive agricultural industry in this country and abroad” (National Research Council, 1988, p. 2). Pope (1990) stated that “the real need for an agriculturally literate society is knowledge of the impact the industry, as a whole, has upon our daily lives” (p. 23). Brown and Coffey (1992) suggested that people need to achieve higher levels of agricultural literacy because of the increasing number of suburbanites who “become leaders and policy-makers for the agricultural industry,” making it “imperative that consumers and government policy-makers alike understand the role of science in agriculture so that they may utilize scientific facts rather than emotions in making decisions concerning food” (p. 169). “The notion of agricultural literacy, since its inception, has been based on the premise that every person should possess a minimum

level of knowledge of the industry which produces and markets food needed for human survival” (Frick, Birkenholz, & Machtmes, 1995a, p. 44). Frick and Elliot (1995) proposed a conceptual framework to explain the factors that contribute to knowledge and opinions about agriculture. As illustrated in Figure 1, their framework included three factors: personal factors, participation in agricultural activities, and education.



**Figure 1.** Conceptual Framework for Agricultural Literacy. Source: Frick and Elliot, 1995.

Terry, Dunsford, and Lacewell (1996) addressed the need for agricultural literacy: The need for a society knowledgeable about agriculture is based on two primary factors. First, as consumers of agricultural goods, people need to understand basic principles of food and fiber sources, marketing, distribution, and nutrition. Second, because of the role citizens play in

policy decisions, people need to understand the impact of agriculture upon society, the economy, and the environment. (p. 215)

For the general public, knowledge of agriculture (or lack thereof) can influence decisions and opinions concerning agricultural policy (Hays, 1993). “Fear of the unknown often leads to needless public alarm. Agriculturally literate people can make personal informed decisions about agriculture related topics such as food safety, genetic engineering and pesticide...issues” (Tisdale, 1991, p. 11). As a result, all United States citizens should have a minimum level of understanding of agriculture and its impact to make decisions about policies and issues affecting agriculture (Terry, Dunsford, & Lacewell, 1996; Russell, McCracken, & Miller, 1990). Mawby (1984, as reported in Lichte & Birkenholz, 1993) stated “many bad decisions affecting food production can be traced to a lack of understanding about agriculture on the part of the...people who don’t live on farms” (p. 15). “A basic knowledge of agriculture is especially important where it is the major industry in the state and the lack of agricultural knowledge and experience impedes economic development” (Williams & White, 1991, p. 9).

On a more basic level, all Americans are consumers of agricultural products — not just of perishable products they purchase at their local grocery store, but also of cotton and wool clothing, leather goods, cosmetics, etc. Each American should have a basic understanding of the production, processing, distribution, and marketing of these and other agricultural products as well as an understanding of basic nutrition principles (Terry, Dunsford & Lacewell, 1996). However, in a study of Pennsylvania journalists, Stringer and Thomson (1999) found that more than half of respondents did not consider “food access” as agricultural news.

Recent trends indicate that people have become more interested in issues related to agriculture, food, and the conservation of our precious natural resources. However, their beliefs, attitudes, and actions are often misinformed or misguided. (Lichte & Birkenholz, 1990, p. 15)

Americans should, therefore, be agriculturally literate, but are they? Agricultural educators have conducted numerous studies to determine the literacy level of various populations: adults (Frick, Birkenholz, & Machtmes, 1995a), university students (Terry & Lawver, 1995; Flood & Elliot, 1994), secondary school students (Williams & White, 1991; Frick, Birkenholz, Gardner & Machtmes, 1995), and elementary school students (Williams & White, 1991; Horn & Vining, 1986). Researchers have selected specific groups within these populations to determine agricultural literacy levels: radio station news reporters (Howell, 1995), 4-H members (Frick, Birkenholz & Machtmes, 1995b), television reporters (Terry, 1994), and elementary school teachers (Cox, 1994; Terry, Herring, & Larke, 1992). In each study, the researchers determined respondents did not have adequate knowledge of agriculture and had perceptions of the agriculture industry that were inaccurate. Howell (1995) concluded that Oklahoma radio station reporters were knowledgeable about the basics of agriculture, but understood little concerning the technical and policy issues of the agricultural industry. Frick, Birkenholz, and Machtmes (1995a) stated that their research “provides evidence of the need to further educate the general public regarding the industry which produces and markets the food needed to sustain human life” (p. 52).

Agricultural education has focused much effort on creating agriculturally literate young people through programs training all grade levels from kindergarten to eighth

grade with agriculture integrated into general curriculum (math, science, etc.) and from seventh to twelfth grade with formal agricultural education classes (Pope, 1990). It is much more difficult to reach adults to expand their knowledge of the nation's food and fiber system, but much of what adults learn about agriculture is through the mass media (Rogers, 1983).

“The public understands little about the mission or importance of state and federally supported institutions such as the Cooperative Extension Service, colleges of agriculture and United States Department of Agriculture agencies” (Frick, Kahler, & Miller, 1991, p. 42). The researchers also stated “Only through effective communication can we improve the agricultural literacy of our society so it may sufficiently look at agricultural issues and needs in the context of society's broad goals” (pp. 42-43).

Newspapers provide an excellent forum for encouraging dialogue and forging a reconnection between agriculture and the community. Food access, water quality, and land development...can broaden the public understanding of and appreciation for agriculture. (Stringer & Thomson, 1999, p. 10)

“Substantial evidence has been found that indicates the media are a factor in shaping of the public's perception of important issues and in helping to place specific issues on the nation's political agenda” (Sweeney & Hollifield, 2000, p.26). Hays (1993) emphasized the importance of the amount and kind of farm news reported in urban newspapers which have more urban than rural readers. The urban readers “have much more power to elect legislators and to influence other policy-makers who control the direction of agriculture's future” (p. 18).

## Swine Concentrated Animal Feeding Operations

Swine production in Oklahoma changed during the 1990s. In addition to family farm operations, large-scale, corporate-owned swine operations were constructed within the state.

With the explosive emergence of large, semi-automated confinement facilities during the past five years, pork can now be produced where land and labor are cheap. Oklahoma: Hog producer to the world? Get used to the sound of that, because such a scenario is well underway. (Murphy, 1997a, p. 23)

According to the Oklahoma Agricultural Statistics Service, the number of hogs in Oklahoma increased from 590,000 head in December 1994 to 1,920,000 head in December 1998 (Bloyd, 1999). “Enough production capacity is under construction around Guymon, Okla., alone to deliver 10 percent of the total United States production by the end of the decade” (Murphy, 1997a, p. 28). According to Murphy (1997b), United States Department of Agriculture research showed that the number of hogs in Oklahoma had tripled in the two previous years, including swine operations owned by European companies like Vall Co., one of Europe’s largest swine producers.

Rayfield (1995) surveyed Oklahoma swine producers and determined that 24 percent of the respondents marketed 10,000 hogs or more on an annual basis. In addition, the respondents, as a whole, indicated that “corporate involvement increases the likelihood of legal implications and governmental regulations related to swine production” (p. 127). The respondents who were private/independent swine producers in

Oklahoma also indicated that “corporate involvement will decrease the number of family owned swine operations in the state” (p. 153).

The single greatest asset utilized by large-scale swine operations is economy of scale (Murphy, 1997a). In fact, research presented in a 1996 Food and Agricultural Policy Research Institute report stated that United States hog farmers were the lowest-cost producers in the world (Murphy, 1997a). But the environmental impact of large-scale, low-cost operations also has drawn the attention of researchers.

CAFOs’ impact on soil, air and water quality is equally huge, say activists battling their growing hegemony. Since a full-size hog excretes nearly three gallons of waste per day — 2.5 times the average human’s total — 12,000-sow facility produces 100 tons of raw manure each day. (Murphy, 1997a, p. 27)

Corbett (1992) stated that “environmental issues...are often the focus of conflict, especially when community self-interest is involved” (p. 931). In 1997, Oklahoma Governor Frank Keating recognized the importance of CAFOs in the state. In a press release issued from the Governor’s office on May 1, 1997, Keating (1997a) said of Oklahoma’s CAFO regulations: “These rules are a good first step towards protecting Oklahoma’s water supply while balancing economic growth in rural Oklahoma” (p. 1). The Republican governor also wrote in an editorial:

CAFOs are important economic growth assets to many Oklahoma communities. They bring jobs and profits to towns that have seen too few of either for a number of years. Our goal is to find a healthy and sensible balance between regulation and profitability. (Keating, 1997b, p. 6)



In the Oklahoma Concentrated Animal Feeding Operations Act of 1998, the Oklahoma Legislature set forth the purpose of the new law: “To provide for environmentally responsible construction and expansion of animal feeding operations and to protect the safety, welfare and quality of life of persons who live in the vicinity of an animal feeding operation” (1 O.S. Supp 1998 § 9-201, 1998).

### Summary

This review of literature provided an investigation of the use of content analysis in journalism research, objectivity and bias in the media, the delivery of agricultural news, agricultural literacy, and swine concentrated animal feeding operations in Oklahoma.

While everyone forms an individual opinion of the information presented through the media, researchers have turned to content analysis methodology to create a more formal, systematic approach for studying the media’s dissemination efforts. Some content analysis efforts are qualitative; however, Dennis T. Lowry built on the efforts of linguist S.I. Hayakawa to create and validate a quantitative approach to content analysis research. Researchers have used the Hayakawa-Lowry news bias categories to study various topics and media.

Journalistic coverage of all topics, including agriculture, should be written in an objective manner. Although specific definitions of objectivity and bias vary, journalistic professional organizations and publications agree about the need for fairness in reporting and provide journalists with codes of ethics and standards to follow as professional guides. In spite of this agreement, studies show that the majority of news stories to be

unbalanced and that reporters, who tend to have liberal philosophies, believe they might not always be impartial.

While agricultural producers use both agricultural media and the mass media to gather information, consumers are primarily informed about agriculture through mass media sources. However, research has indicated that mainstream media neglect agricultural topics and present a narrow picture of the agricultural industry and its related issues. In coverage of agricultural and other science-based topics, details are often omitted, and, based on studies of the media's limited coverage of agriculture, the information presented is written in a biased manner with primarily negative statements about agriculture.

Whether through the mass media or agricultural education sources, Americans should be knowledgeable about the sources of their food and fiber products; however, based on various agricultural literacy studies, Americans are not knowledgeable. This lack of knowledge can affect public policy that directly affects producers and, ultimately, consumers. Agricultural education programs offer opportunities to learn about agriculture and natural resources, and the mass media can change the public's perception of the industry through accurate coverage of agricultural issues.

One issue covered by the mass media in Oklahoma has been swine concentrated animal feeding operations. Due to the increase of these large-scale operations, swine numbers in the state grew substantially during the late 1990s, prompting legislation to regulate the operations' impact on the environment.

## CHAPTER III

### METHODOLOGY

The purpose of this chapter is to describe the methods and procedures used in developing and conducting this study. The purposes of this study were to evaluate the news published in 1998 about swine concentrated animal feeding operations (CAFOs) by the two largest Oklahoma newspapers and to profile the people who authored that news.

#### Objectives of the Study

To accomplish the purpose of the study, the following specific objectives were established:

1. Identify the news articles published about swine concentrated animal feeding operations (CAFOs) by the two largest Oklahoma newspapers;
2. Determine the level of objectivity in the identified articles;
3. Determine the favorability of judgment statements in the identified articles;
4. Develop a collective profile of the journalists responsible for these articles, including their professional characteristics, agricultural literacy, and perceptions about agricultural topics; and

5. Compare the level of objectivity with the agricultural background of the identified journalists.

#### Institutional Review Board

The policies of Oklahoma State University as well as federal regulations require all research studies involving human subjects be reviewed and approved before the investigators can begin their research. The Oklahoma State University Office of University Research Services, through the Institutional Review Board (IRB), conducts 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 permission to proceed. This research was assigned the following research project number: AG-00-058. A copy of the IRB approval form is presented as Appendix A.

#### Cases and Population

The Daily Oklahoman and the Tulsa World were selected for this study from Oklahoma's 203 newspapers based on the publications' total daily circulation as reported in the 1998 Gale Directory of Publications and Broadcast Media. The Daily Oklahoman (approximately 215,000 Mondays through Saturdays and more than 306,000 on Sundays) and the Tulsa World (approximately 160,000 Mondays through Saturdays and more than 225,000 on Sundays) are the only newspapers in the state that have a daily circulation of more than 100,000. All other daily newspapers reported a circulation of 30,000 or less (Fischer, 1998, p. 3039).

The cases for this study included 40 newspaper articles published in The Daily Oklahoman and the Tulsa World between January 1, 1998, and December 31, 1998, in which the main topic in the news story was swine concentrated animal feeding operations. Riffe, Lacy, and Drager (1996) declared that studies involving particular types of stories are best conducted using a specialized sampling approach, such as purposeful sampling, rather than “constructed” time periods. For the survey portion of this study and to meet Objective 3, the researcher identified the 15 journalists who had written one or more of the articles in the study.

### Data Collection

Content analysis methodology, based on the Hayakawa-Lowry news bias categories (Lowry, 1985), was used to conduct this study.

A linguist and former United States Senator from California, S.I. Hayakawa (1990) said statements can be categorized into three categories: reports, inferences, and judgments. “Reports adhere to the following rules: first, they are verifiable; second, they exclude as far as possible, inferences, judgments, and the use of ‘loaded’ words” (Hayakawa, 1990, p. 23). Hayakawa (1990) further explained that a report’s verification process can be to prove either accuracy or inaccuracy. An inference, according to Hayakawa (1990, p. 24), “is a statement about the unknown based on the known” where a writer or speaker “draws an inference from some set of observable data.”

Inferences may be carefully or carelessly made. They may be made on the basis of a broad background of previous experience with the subject matter or with no experience at all...they are statements about matters that are not

directly known, made on the basis of what has been observed. Generally speaking, the quality of inference is directly related to the quality of the report or observations from which it stems and to the abilities of the one making the inference. (Hayakawa, 1990, p. 25)

Judgments, the third of Hayakawa's categories, are "expressions of the speaker's approval or disapproval of the occurrences, persons, or objects he is describing" (1990, p. 25). A statement in this category "is a conclusion, evaluating a number of previously observed facts" (Hayakawa, 1990, p. 27).

Lowry (1971) expanded on Hayakawa's work and developed the Hayakawa-Lowry news bias categories while conducting his content analysis of television news during the Richard M. Nixon presidency. Based on Hayakawa's categorization, Lowry (1985, p. 574) wrote that "Report sentences are factual and verifiable," "Inference sentences are subjective and not immediately verifiable," and "Judgment sentences contain expressions of the writer's or speaker's favorable or unfavorable opinions about whatever is being described." The Hayakawa-Lowry news bias categories are:

1. Report sentence/attributed;
2. Report sentence/unattributed;
3. Inference sentence/labeled;
4. Inference sentence/unlabeled;
5. Judgment sentence/attributed/favorable;
6. Judgment sentence/attributed/unfavorable;
7. Judgment sentence/unattributed/favorable;
8. Judgment sentence/unattributed/unfavorable; and

9. All other sentences. (Lowry, 1985, p. 574)

Lowry (1985) concluded that “Hayakawa’s distinctions...are indeed perceived by untrained audience members and actually do affect their perceptions of news objectivity” (p. 579).

Lowry (1985) established the construct validity of the above categories, using a two-part study conducted at Liberty University and Ohio University.

The assumptions underlying the Hayakawa-Lowry category system were twice put to the test, and a group of subjects...for the most part evaluated the news stories and sentences as predicted. Thus the results strongly suggest that the differences measured by these categories when used by researchers in content analysis studies are differences that do indeed make a meaningful difference to news consumers. (Lowry, 1985, p. 580)

To achieve Objective 1, the news stories in the two newspapers were identified using the Dow Jones Interactive site on the World Wide Web. A paid subscription site provided through the Oklahoma State University library, the Dow Jones Interactive site allowed a search for all articles containing in their text the words “swine concentrated animal feeding operations” or some combination of the words in that phrase. All word combinations were used to ensure that all cases that fit the research criteria were found. In addition, articles related to swine concentrated animal feeding operations and articles such as obituaries were compared to original newspapers to evaluate the completeness of the database, and therefore, the set of articles to be studied. When articles appeared in the same newspaper twice, as in an Associated Press wire service story, one version was not

included in the study. All articles included appeared only in The Daily Oklahoman or in the Tulsa World, and no story appeared identically in both newspapers.

The articles were copied into a word processing program (Microsoft® Word) for formatting and printing. Items identified or labeled as editorials were excluded from the study because, by definition, editorials are not meant to be written objectively. To achieve Objective 4, the researcher compiled a comprehensive list of the journalists responsible for writing the selected articles. Based on the published bylines on the selected articles, 15 journalists were identified who had written one or more of the selected articles. These 15 identified journalists made up the population for the survey portion of the study.

#### Development of the Instrument

Various data collection methods were considered for obtaining a profile of the journalists who wrote the articles analyzed in the study, including their professional characteristics, agricultural literacy, and perceptions about agricultural topics. A telephone survey using a structured interview was determined to be the most appropriate method to retrieve the needed information to satisfy the objectives of the study.

The instrument was based on the questionnaire used by Robert Terry, Jr., in his 1993 survey of Texas television reporters (Terry, 1994), therefore establishing validity and reliability. This instrument was deemed appropriate to use because of the similarity between this study and Terry's study. As with the current study, Terry's instrument was administered via telephone and was used to collect data from journalists. More importantly, the objectives in the Terry study were similar to this study's objectives



related to profiling the journalists. Members of the researcher's graduate committee reviewed the instrument. It was then pilot tested by agricultural communications seniors in a capstone agricultural communications course at Oklahoma State University.

The instrument was constructed in three parts. Part I contained 13 open-ended questions designed to assess the reporters' general knowledge of agriculture, specifically Oklahoma agriculture. Part II was developed to determine the reporters' perceptions about agriculture. This section consisted of 17 items using a five-point Likert-type scale for reporters' responses: (1 = strongly disagree; 2 = disagree; 3 = neutral or undecided; 4 = agree; 5 = strongly agree). Part III was developed to identify personal and professional characteristics about the reporters and consisted of 15 open-ended, scaled, and yes/no items.

Using the instrument, the researcher collected data by telephone over a three-week period in May 2000.

### Data Analysis

For this content analysis study, two paid assistants in addition to the researcher coded the identified articles to ensure coder reliability. Prior to coding the articles in this study, the three coders were trained by Robert Terry, Jr., to use the coding manual developed by Lowry and to use the codes accurately and consistently. To achieve Objective 2, each sentence of the identified articles was coded using the Hayakawa-Lowry news bias categories:

1. Report sentence/attributed
2. Report sentence/unattributed

3. Inference sentence/labeled
4. Inference sentence/unlabeled
5. Judgment sentence/attributed/favorable
6. Judgment sentence/attributed/unfavorable
7. Judgment sentence/unattributed/favorable
8. Judgment sentence/unattributed/unfavorable
9. All other sentences (Lowry, 1985, p. 574)

The researcher coded all articles, and each assistant coded half of the articles. The two initial coding sets were compared and any discrepancies were noted. The assistants and researcher reviewed the discrepancies until consensus was reached on the code assigned to each sentence.

Descriptive statistics were calculated for each variable. To determine a mean score (level of objectivity) for each story, the researcher valued all report sentences as “1,” all inferences as “2,” and all judgment sentences as “3.” Thus, according to Hayakawa’s procedures, the higher the mean for each story, the less objective (more biased) the story. A mean was calculated for each news story, for all stories written by the same journalist, and by newspaper. In addition, the researcher determined frequencies of positive and negative judgment sentences from the original coding, combining Category 5 with Category 7 (positive toward agriculture) and combining Category 6 with Category 8 (negative toward agriculture). The resulting frequencies and corresponding percentages were used to determine the overall direction of the judgment sentences in order to meet Objective 3.

To achieve Objective 4 and Objective 5, all by-lined journalists for the identified news stories were identified and were contacted by telephone to complete the instrument concerning their agricultural background, literacy, and attitudes.

To accomplish the analysis of the journalists' survey data, descriptive statistics, correlations, t-tests and Chi-square tests were used (Pedhazur, 1997). To create a profile of the journalists (Objective 4), descriptive statistics, specifically frequencies and percentages were calculated for the journalists' responses to instrument. Correlation, t-tests and Chi-square calculations were used to determine any relationships among the data from the content analysis coding and the responses to the survey instrument (Objective 5). Correlations were evaluated based on the level of significance and strength of the relationship. Adjectives used to describe the magnitude of the correlations were "very strong" (.70 or higher), "substantial" (.50 to .69), "moderate" (.30 to .49), "low" (.10 to .29), and "negligible" (.01 to .09) (Davis, 1971). T-tests between the two groups of journalists were used to determine if differences were statistically significant, and an alpha level of .05 was selected as the significance level. A Chi-square test was calculated to compare the number of positive and negative sentences written by each newspaper, and a .05 alpha level was used. Statistical analysis was performed using Microsoft® Excel 97 for Windows.

## CHAPTER IV

### FINDINGS

The purposes of this study were to evaluate the news published in 1998 about swine concentrated animal feeding operations (CAFOs) by the two largest Oklahoma newspapers and to profile the people who authored this news. Five objectives were developed as a means to accomplish the purposes of the study. The first objective was to identify the news articles published about swine CAFOs by the two largest Oklahoma newspapers. The second objective was to determine the level of objectivity in the identified articles. The third objective was to determine the favorability of judgment statements in the identified articles. The fourth objective was to develop a collective profile of the journalists responsible for these articles, including their professional characteristics, agricultural literacy, and perceptions about agricultural topics. The fifth objective was to compare the level of objectivity with the agricultural background of the identified journalists.

#### Findings Related to Objective One

Objective 1 was to identify the news articles published about swine CAFOs by the two largest Oklahoma newspapers, The Daily Oklahoman and the Tulsa World, between January 1, 1998, and December 31, 1998. Forty articles met the criteria of having swine

concentrated animal feeding operations as their main topic. The article titles, their date of publication, and their page placement are presented in Table 1. Of these articles, 36 were news stories while four were identified as feature stories. These data are illustrated in Figure 2.

Table 1

News Articles, Article Placement and Date of Publication

Article	Page	Publication Date
1. Hold Your Nose, But Not Your Breath ...*	1	January 12
2. Top Lawmakers Urge Hog Farm Moratorium ...*	1	January 13
3. County Option on Feedlots Discussed**	6	January 22
4. State Inspector's Job Keeps Her Busy ...*	1	January 30
5. Farm Groups Set Agenda**	1	January 30
6. Lawmaker Expects Moratorium on Animal Operations**	13	January 31
7. CAFOs To Top Agenda**	1	February 1
8. Rally Held for Poultry, Pig Interests**	12	February 4
9. 2 Waste Proposals Trashed**	9	February 11
10. Panel OKs Limits on Feed Operations ...**	17	February 13
11. Seaboard Permits*	2	February 19
12. State Board Approves Fine Against Seaboard*	1	February 19
13. Hog Farm Moratorium Gets Key Backing**	6	February 19

Table 1 – Continued

Article	Page	Publication Date
14. Keating Blames Demos for Hog Moratorium Bill**	12	March 4
15. Letter Favoring Tyson in Moratorium Retrieved ...**	10	March 5
16. EPA Floats Proposal to Regulate Manure*	17	March 6
17. EPA Chief Denies Aim to Punish*	1	March 7
18. Senate Approves OU-OSU/Tulsa Bill**	10	March 11
19. New Legislation is Unlikely to Alter Oversight**	11	March 16
20. Nader to Speak at OU ...*	1	April 24
21. Poultry, Hog Bills Pushed**	1	April 25
22. Water Quality Hearing Set for Guymon*	12	May 10
23. EPA Seeking Public Views on Pig, Poultry Operations ...*	6	May 11
24. Federal Agency Gets Both Sides of Hog Debate*	1	May 16
25. Hog Runoff May Reach Lake ...*	1	June 1
26. Hog Bill Called Nation's Strictest ...*	1	June 11
27. EPA Regulations on Farm Waste to be Updated*	1	July 6
28. Union Chief Sees Problems With Farm Act in Lean Times*	1	July 12
29. Public Hearing Set on Animal Waste Discharge Permit ...**	17	July 18
30. EPA Plans Hearing on Feeding Operations*	15	August 12
31. Wastewater Plan Divides ...*	7	August 14
32. Wasting Time: Hearing Draws Crowd, Diverse Views**	1	August 14
33. EPA Extends Comment Period*	23	August 27
34. EPA Extends Comment Time on Animal Operations**	3	August 29

Table 1 – Continued

Article	Page	Publication Date
35. Hog Farmers in Quandary Over Rules*	1	August 29
36. Federal Plan to Control Waste Runoff Released**	1	September 17
37. Poultry Waste Talk Set**	1	November 14
38. Groups Split on Animal Pollution Plan**	1	November 17
39. Counties Allowed to Regulate Lagoons*	6	November 21
40. Environmentalists Want State to Hire More Farm Inspectors*	5	December 4

Note. Items marked with an asterisk (\*) were published in The Daily Oklahoman. Items marked with two asterisks (\*\*) were published in the Tulsa World.

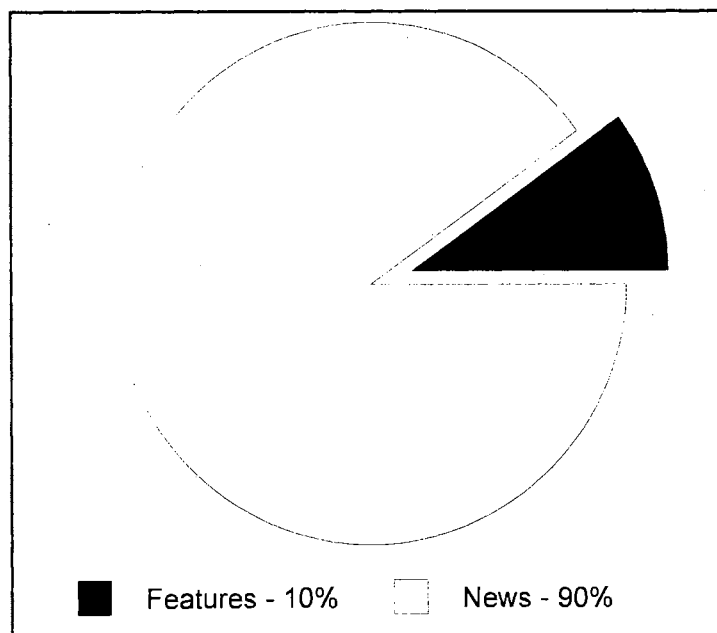


Figure 2. Published articles about swine concentrated animal feeding operations.

## Findings Related to Objective Two

Objective 2 was to determine the level of objectivity in the identified articles. To accomplish this objective, all sentences in the articles were coded using the nine Hayakawa-Lowry news bias categories: “report sentence/attributed,” “report sentence/unattributed,” “inference sentence/labeled,” “inference sentence/unlabeled,” “judgment sentence/attributed/favorable,” “judgment sentence/attributed/unfavorable,” “judgment sentence/unattributed/favorable,” and “judgment sentence/unattributed/unfavorable.” Overall, 394 of the total sentences (36.1 percent) were “report sentence/attributed,” and 300 (27.5 percent) were “report sentence/unattributed.” The “inference sentence/labeled” category had 26 total sentences (2.4 percent) while 139 sentences (12.7 percent) were “inference sentence/unlabeled.” Additionally, 57 sentences (5.2 percent) were “judgment/attributed/favorable,” 94 sentences (8.6 percent) were “judgment/attributed/unfavorable,” 2 (0.2 percent) were “judgment/unattributed/favorable,” and 40 (3.7 percent) were “judgment/unattributed/unfavorable.” The “other” category included 39 of the total sentences (3.6 percent). The number of sentences in each article as well as the frequencies and percentages of sentences in each Hayakawa-Lowry news bias category are presented in Table 2.



Table 2

Content Category Percentages and Story Length for Swine CAFOs Articles

Article	Sentences	Hayakawa-Lowry Categories (percent)								
		RA	RU	IL	IU	JAF	JAU	JUF	JUU	Other
1.	77	24.68	22.08	5.19	7.79	1.3	5.19	0	22.08	11.69
2.	27	40.74	22.22	3.7	11.11	7.41	14.81	0	0	0
3.	14	57.14	21.43	0	14.29	0	0	0	0	7.14
4.	39	23.08	48.72	0	12.82	7.69	2.56	0	2.56	2.56
5.	15	13.33	46.67	20	13.33	0	0	0	6.67	0
6.	37	45.95	18.92	0	8.11	16.22	5.41	0	5.41	0
7.	22	9.09	18.18	4.55	13.64	4.55	18.18	0	27.27	4.55
8.	18	44.44	16.67	0	11.11	16.67	11.11	0	0	0
9.	26	26.92	46.15	0	7.69	0	15.38	0	3.85	0
10.	38	39.47	36.84	5.26	2.63	7.89	7.89	0	0	0
11.	4	25	75	0	0	0	0	0	0	0
12.	24	33.33	33.33	4.17	20.83	0	8.33	0	0	0
13.	26	34.62	46.15	0	7.69	0	11.54	0	0	0
14.	36	36.11	19.44	5.56	2.78	8.33	25	0	2.78	0
15.	37	45.95	18.92	0	13.51	8.11	8.11	2.7	2.7	0
16.	24	41.67	20.83	8.33	12.5	16.67	0	0	0	0
17.	24	50	4.17	0	8.33	16.67	8.33	0	4.17	8.33
18.	18	27.78	38.89	0	16.67	5.56	5.56	0	5.56	0
19.	8	37.5	50	12.5	0	0	0	0	0	0
20.	26	34.62	30.77	0	19.23	0	11.54	0	3.85	0
21.	24	25	29.17	4.17	8.33	8.33	20.83	0	0	4.17
22.	4	25	75	0	0	0	0	0	0	0
23.	36	38.89	30.56	0	22.22	0	5.56	0	0	2.78
24.	58	48.28	12.07	0	22.41	6.9	5.17	1.72	0	3.45
25.	62	38.71	27.42	3.23	8.06	8.06	14.52	0	0	0
26.	37	51.35	27.03	2.7	8.11	2.7	8.11	0	0	0
27.	53	41.51	30.19	3.77	16.98	0	3.77	0	3.77	0
28.	32	68.75	3.13	0	0	6.25	6.25	0	0	15.63
29.	18	11.11	44.44	0	44.44	0	0	0	0	0
30.	7	14.29	71.43	0	0	0	0	0	0	14.29

Table 2 – Continued

Article	Sentences	Hayakawa-Lowry Categories (percent)								
		RA	RU	IL	IU	JAF	JAU	JUF	JUU	Other
31.	22	31.82	22.73	4.55	18.18	9.09	4.55	0	9.09	0
32.	22	45.45	18.18	0	18.18	0	18.18	0	0	0
33.	7	0	1	0	0	0	0	0	0	0
34.	40	40	27.5	0	5	2.5	7.5	0	0	17.5
35.	23	34.78	17.39	4.35	17.39	0	8.7	0	8.7	8.7
36.	33	18.18	42.42	3.03	3.03	3.03	0	0	3.03	0
37.	28	28.57	25	0	32.14	3.57	10.71	0	0	0
38.	21	23.81	23.81	0	9.52	19.05	4.76	0	0	19.05
39.	6	33.33	50	0	16.67	0	0	0	0	0
40.	18	44.44	5.56	0	0	0	38.89	0	0	11.11
Total	1,091	394	300	26	139	57	94	2	40	39
%	100.0	36.1	27.5	2.4	12.7	5.2	8.6	0.2	3.7	3.6

Note: RA = report sentence/attributed; RU = report sentence/unattributed; IL = inference sentence/labeled; IU = inference sentence/unlabeled; JAF = judgment sentence/attributed/favorable; JAU = judgment sentence/attributed/unfavorable; JUF = judgment sentence/unattributed/favorable; JUU = judgment sentence/unattributed/unfavorable.

To determine an objectivity level, all sentences were coded a second time to represent the continuum in Hayakawa's original three categories: reports, inferences, and judgments. Therefore, sentences originally coded as a "report sentence/attributed" or as a "report sentence/unattributed" were coded as a "report" and given a value of "1." Similarly, sentences originally coded as "inference sentence/labeled" or as "inference sentence/unlabeled" were coded as an "inference" and given a value of "2." Sentences

with original coding of “judgment sentence/attributed/favorable,” “judgment sentence/attributed/unfavorable,” “judgment sentence/unattributed/favorable,” or “judgment sentence/unattributed/unfavorable” were coded as a “judgment” and given a value of “3.” Sentences coded as “other” were not considered in this portion of the analysis because they were not in Hayakawa’s original categories and were determined, therefore, to be neutral. As a continuum, with a report sentence being more objective than an inference sentence and an inference sentence being more objective than a judgment sentence, the codes were used as numerical values to calculate a mean objectivity score for each reporter and for each newspaper. The data appears in Table 3.

Table 3

Objectivity Levels for Journalists and Newspapers

Newspaper	Journalist	No. of Reports	No. of Inferences	No. of Judgments	Other	Total	Objectivity Level (Mean)*
	1	31	4	10	0	45	1.53
	2	30	19	2	0	51	1.45
	3	112	24	37	1	174	1.57
	4	69	14	36	3	122	1.72
	5	66	17	17	11	111	1.51
World		302	74	91	14	481	1.55
	6	12	5	4	2	23	1.62
	7	36	10	22	9	77	1.80
	8	63	14	15	0	92	1.48
	9	28	5	5	1	39	1.40
	10	17	5	4	2	48	1.50
	11	139	39	28	0	26	1.46
	12	23	0	4	3	209	1.30

Table 3 – Continued

Newspaper	Journalist	No. of Reports	No. of Inferences	No. of Judgments	Other	Total	Objectivity Level (Mean)*
	13	15	5	4	5	32	1.54
	14	9	0	7	0	24	1.88
	15	29	8	9	2	18	1.57
Oklahoman		392	91	102	15	610	1.50
Overall		694	165	193	39	1,091	1.55

\*Note: 1 = report; 2 = inference; 3 = judgment.

In considering the objectivity means for either a journalist or a newspaper, a lower mean indicates more objective writing in articles. Conversely, a higher mean represents less objective writing.

Of the 1,091 sentences in 40 articles, 694 sentences (63.6 percent) were reports, 165 sentences (15.1 percent) were inferences, 193 sentences (17.7 percent) were judgments, and 39 sentences (3.6 percent) were other (sentence fragments, questions, etc.). The objectivity mean was 1.52.

Of the 610 sentences in The Daily Oklahoman articles, 392 sentences (64.3 percent) were reports, 91 sentences (14.9 percent) were inferences, 102 sentences (16.7 percent) were judgments, and 25 sentences (4.1 percent) were other. The objectivity mean was 1.50.

Of the 481 sentences in the Tulsa World articles, 302 sentences (62.8 percent) were reports, 74 sentences (15.4 percent) were inferences, 91 sentences (18.9 percent)

were judgments, and 14 sentences (2.9 percent) were other. The objectivity mean was 1.55. These data are shown in Figure 3.

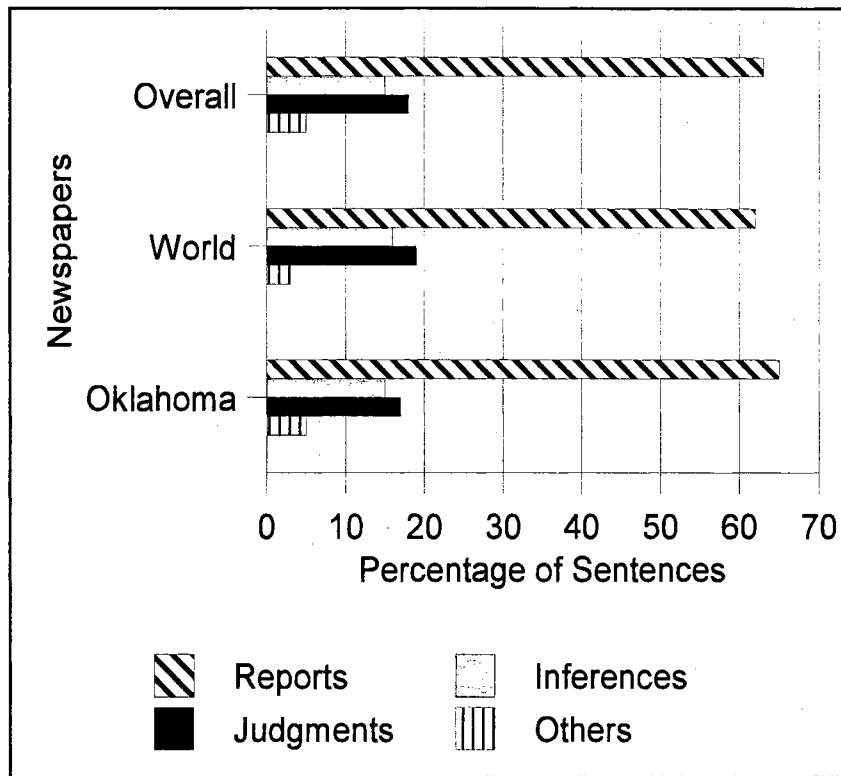


Figure 3. Percentage of sentence categories by newspaper and overall.

### Findings Related to Objective Three

Objective 3 was to determine the favorability of judgment statements in the identified articles. These data are presented in Figure 4.

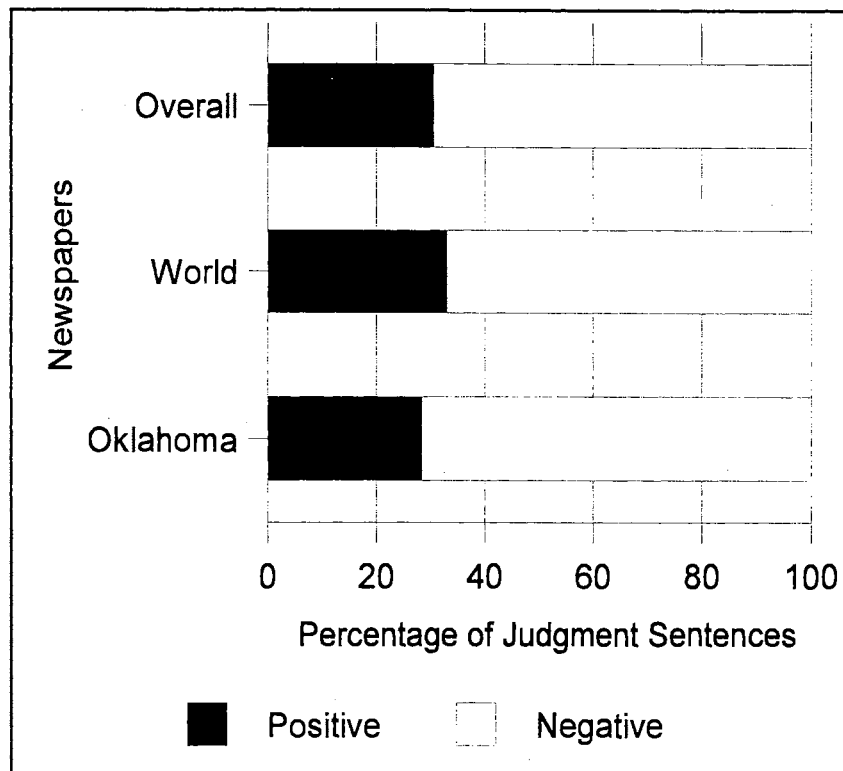


Figure 4. Favorability of judgment sentences by newspaper and overall.

Of the 193 judgment sentences, 59 sentences (30.6 percent) were positive toward agriculture while 134 sentences (69.4 percent) were negative toward agriculture. Of the 102 judgment sentences published in The Daily Oklahoman articles, 29 sentences (28.4 percent) were positive toward agriculture while 73 sentences (71.6 percent) were negative toward agriculture. Of the 91 judgment sentences published in the Tulsa World articles, 30 sentences (33 percent) were positive toward agriculture while 61 sentences (67 percent) were negative toward agriculture.

A Chi square was used to determine if there was a difference between the two newspapers between the frequency of judgment sentences observed and the frequency of

sentences expected ( $\chi^2=.465$ ). The calculated value was less than the tabled value; therefore, the null hypothesis of equity between the newspapers was retained.

#### Findings Related to Objective Four

Objective 4 was to develop a collective profile of the journalists responsible for these articles, including their professional characteristics, agricultural literacy, and perceptions about agriculture. Fourteen of the 15 identified journalists (93.3 percent) responded to the telephone survey. A correct telephone number for the nonrespondent could not be determined, although an extensive search was conducted by the researcher.

As a part of this objective, the paper affiliation and the gender of the journalists also were determined.

#### Professional Characteristics of the Identified Journalists

Paper Affiliation. As reported in Table 4, 15 journalists were identified to have authored or co-authored at least one newspaper article related to swine concentrated animal feeding operations in 1998. The journalists from The Daily Oklahoman represented 66.7 percent of the authors while the Tulsa World journalists represented 33.3 percent. The Daily Oklahoman journalists wrote 21 published articles (52.5 percent) related to swine concentrated animal feeding operations in 1998, and the Tulsa World journalists wrote 19 articles (47.5 percent).

Table 4

Paper Affiliation and Stories Published

Paper	No. of Journalists	%	No. of Stories	%
Daily Oklahoman	10	66.7	21	52.5
Tulsa World	5	33.3	19	47.5
Total	15	100.0	40	100.0

Gender. Of the journalists identified in this study, 12 (80 percent) were male and three (20 percent) were female. These data are represented in Figure 5.

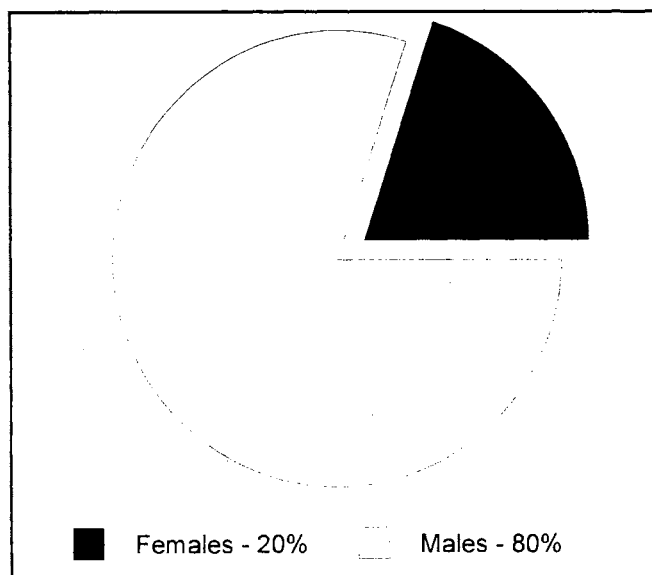


Figure 5. Gender of identified journalists.



Current Employment. In May 2000, 14 of the 15 identified journalists (93.3 percent) were employed at the same newspaper in which their swine concentrated animal feeding operations articles were published in 1998.

Agricultural and Environmental Background. As illustrated in Figure 6, three respondents (21.4 percent) have lived on a farm or ranch. Two (14.3 percent) have taken formal coursework in agriculture — one (7 percent) at the high school level and one (7 percent) at the college level. Two respondents (14.3 percent) have been members of FFA, 4-H, Farm Bureau or other agricultural organization. Five (35.7 percent) have been

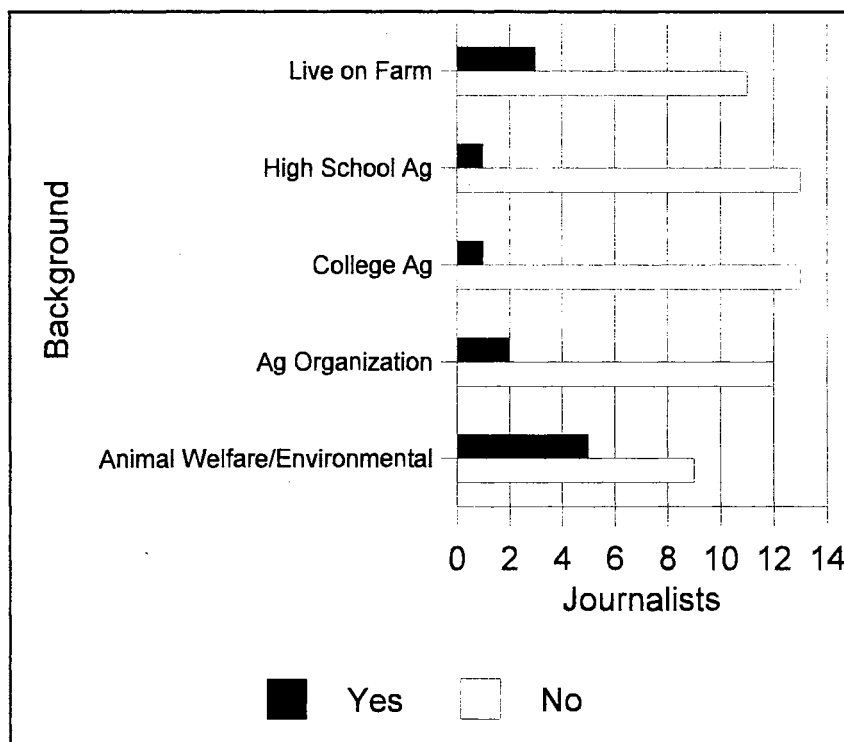


Figure 6. Agricultural and environmental background of identified journalists.

members of People for the Ethical Treatment of Animals (PETA), Green Peace, Sierra Club, or other animal welfare or environmental organization.

Level of Education. Figure 7 was developed to depict graphically the levels of education of the responding journalists. Fourteen respondents (100.0 percent) have received academic degrees above the high school diploma. Twelve respondents (85.7 percent) have earned bachelor's degrees. One respondent (7 percent) has earned a master's degree, and one respondent (7 percent) has earned an associate's degree. Of those respondents who earned a bachelor's degree, eight (66.7 percent) earned a bachelor of arts degree, three (25 percent) earned a bachelor of science degree, and one (8 percent)

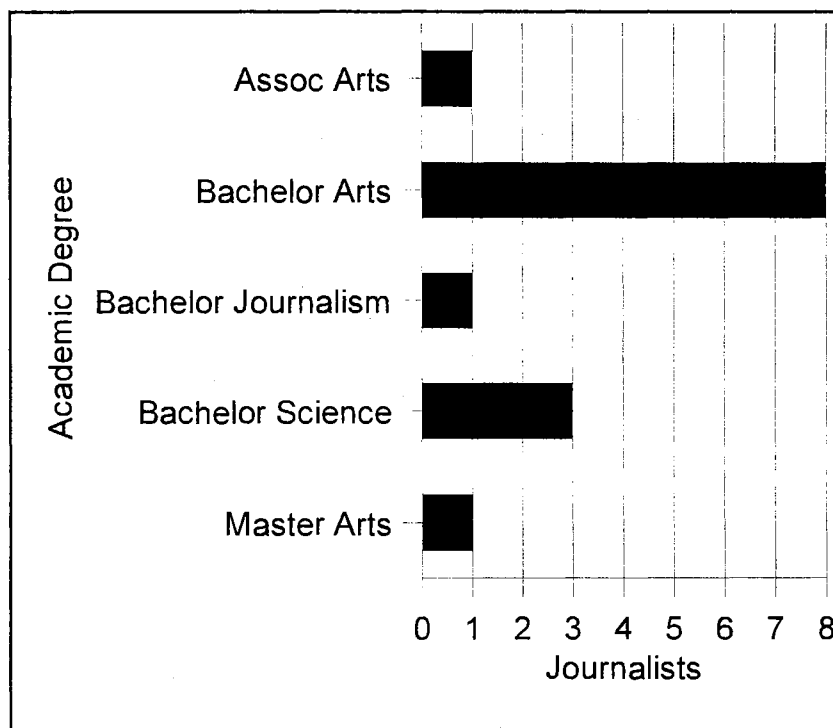


Figure 7. Highest academic degrees of identified journalists.

earned a bachelor of journalism degree. Seven respondents (50 percent) earned their degrees in journalism. Two respondents (14.3 percent) earned degrees in communications. One respondent (7 percent) earned a degree in agricultural journalism. One respondent (7 percent) earned a degree in broadcasting. One respondent (7 percent) earned a degree in history. One respondent (7 percent) earned a degree in psychology. One respondent (7 percent) earned a degree in English.

Reporter Tenure and Assigned Beats. The respondent's average tenure as a newspaper reporter was 21.1 years. Two respondents had 35 years of newspaper experience, and no respondent had less than 13 years of newspaper experience. These data are shown in Figure 8.

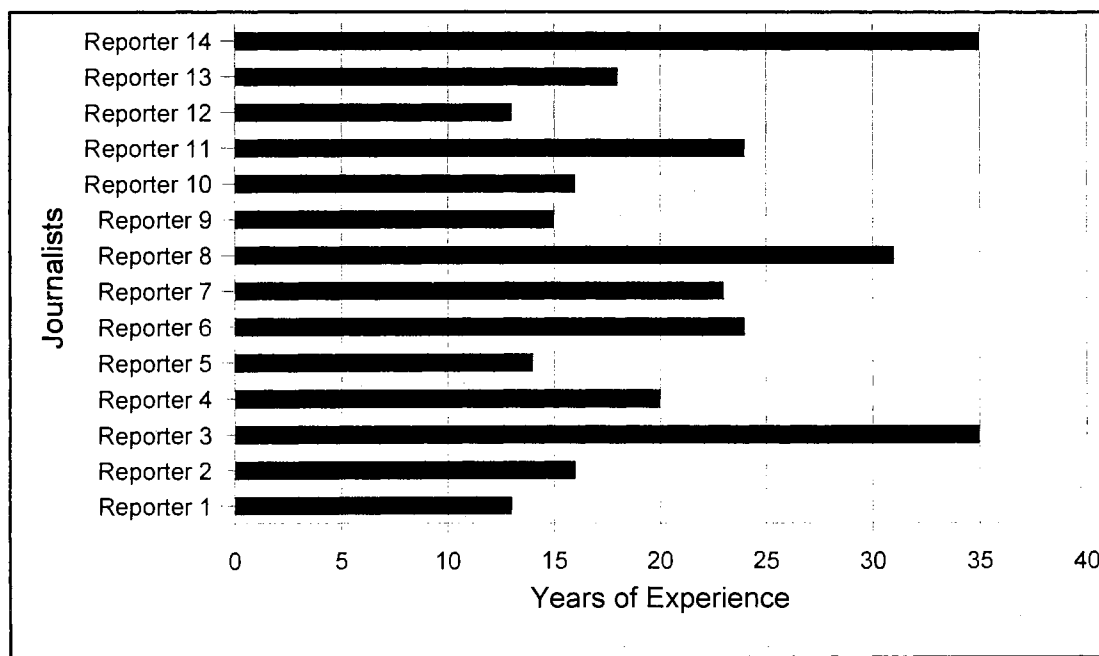


Figure 8. Journalists' years of newspaper experience.

As illustrated in Figure 9, five respondents (35.7 percent) had an assigned beat of government or the state capitol. Three respondents (21.4 percent) had an assigned beat of general news coverage. Two respondents (14.3 percent) had an assigned beat of agriculture. One respondent (7 percent) had an assigned beat of demographics. One respondent (7 percent) had an assigned beat of southwest Oklahoma. One respondent (7 percent) had an assigned beat of the University of Oklahoma and Norman, Oklahoma. One respondent (7 percent) had an assigned beat of Washington, D.C.

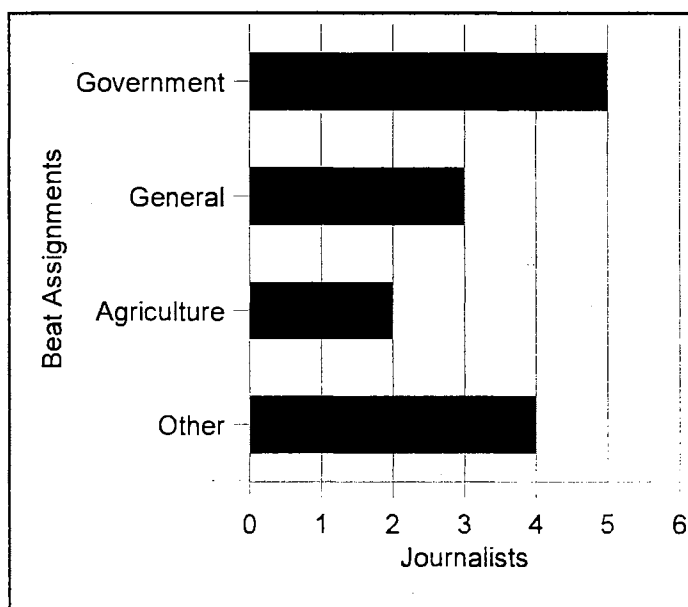


Figure 9. Assigned beats of identified journalists.

Agricultural News Coverage. As shown in Figure 10, the respondents' coverage of agricultural news in the last year ranged from one story to 220 stories. The mean was

35.15 agricultural stories in the past year, and the median was 20 agricultural stories in the past year.

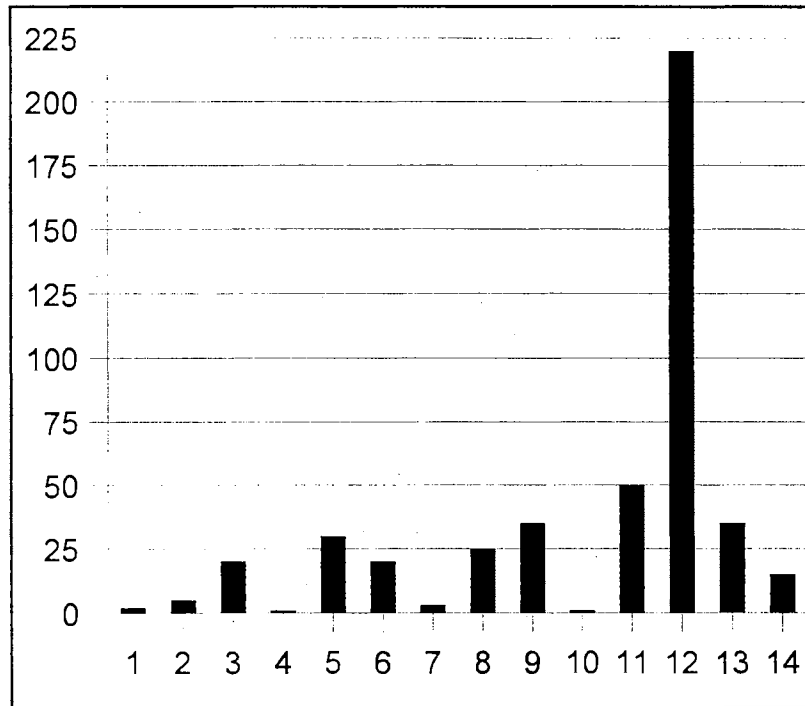


Figure 10. Number of agricultural stories written by journalists.

Respondents were asked to indicate the importance of reporting agricultural news to their readers, using a scale of 1 (lowest) to 10 (highest). The mean was 8.36, and the range of responses was from five to ten. When respondents were asked if they liked to report news involving agriculture, only 13 provided answers. Of those, 10 respondents (76.9 percent) indicated that they liked to report news involving agriculture. When respondents were asked if they felt qualified to report news related to agriculture, there was one nonrespondent. Twelve journalists (92.3 percent) indicated that they felt

qualified to report news related to agriculture. Thirteen journalists responded when asked if they would be interested in participating in a media workshop or seminar related to agriculture. Eleven journalists (84.6 percent) indicated interest in such an activity. These data are shown in Figure 11.

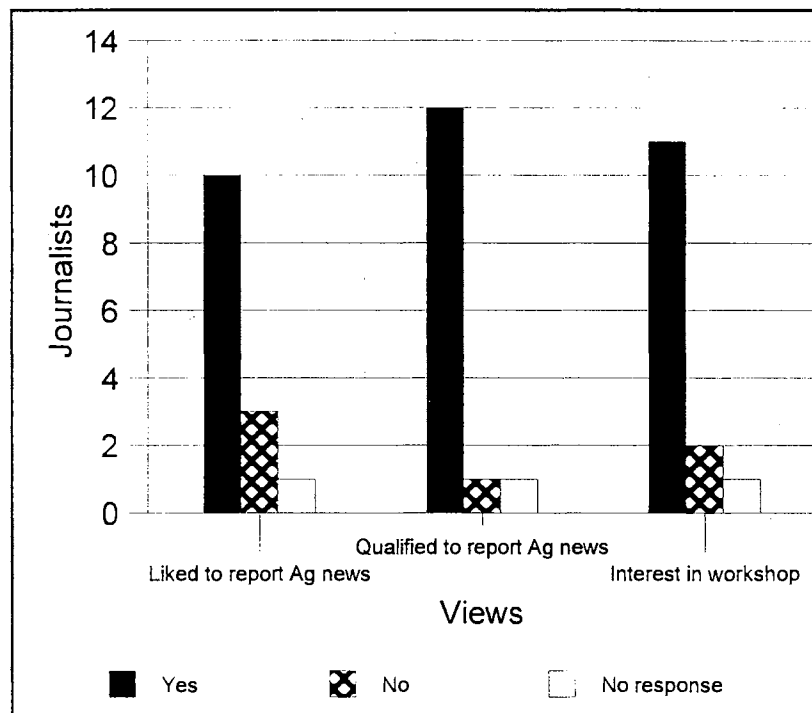


Figure 11. Journalists' views on reporting agricultural news.

#### Agricultural Literacy of Identified Journalists

The instrument included 13 open-ended items primarily concerning agriculture's contribution to society, the economy, and government as well as Oklahoma's commodities and farm size. For questions involving numerical values, acceptable

responses that were considered to be correct answers were those within two percent of the actual correct answer. This range was determined to be appropriate by a panel of experts. Correct responses were valued at one point each. Fourteen of the 15 identified journalists (93.3 percent) responded to the instrument. The following data is illustrated in Figure 12.

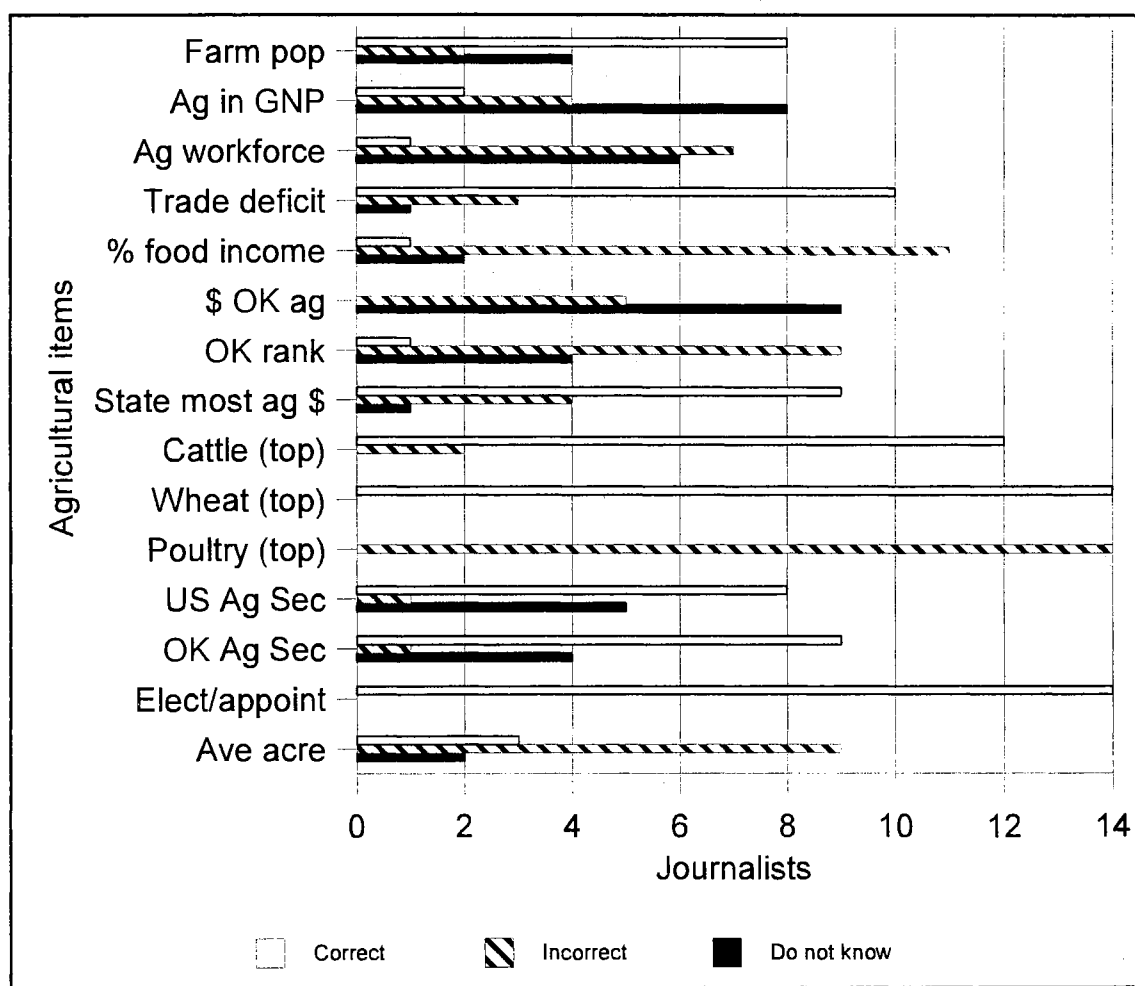


Figure 12. Journalists' responses to questions regarding agriculture.

Question 1 asked respondents for the percentage of the United States population that earns its living by farming and/or ranching. The correct answer is 2.4 percent (Gale & Bowers, 1999). Responses between “1.4 percent” and “4.4 percent” were considered to be acceptable responses. Eight journalists (57.1 percent) correctly answered this question. Four journalists (28.6 percent) answered “I don’t know.”

Question 2 asked respondents to indicate the percentage of the United States gross national product that comes from agriculture. The correct answer is 13 percent (Gale & Bowers, 1999). Responses between “11 percent” and “15 percent” were considered to be acceptable responses. Two journalists (14.3 percent) answered this question correctly. Eight journalists (57.1 percent) answered “I don’t know.”

Question 3 asked respondents to indicate what percentage of the United States workforce is employed in the agricultural industry. The correct answer is 18 percent (Gale & Bowers, 1999). Responses between “16 percent” and “20 percent” were considered to be acceptable responses. One journalist (7 percent) answered this question correctly. Six journalists (42.9 percent) answered “I don’t know.”

Question 4 asked respondents to indicate whether agriculture helps to reduce or helps to increase the United States trade deficit. The correct answer is “reduce” (Whitton, 2000). Ten journalists (71.4 percent) answered this question correctly. One journalist (7.1 percent) answered “I don’t know.”

Question 5 asked respondents to identify what percentage of the average American’s income is spent on food. The correct answer is 10.7 percent (Clason, 2000). Responses between “9 percent” and “13 percent” were considered to be acceptable. One



journalist (7 percent) answered this question correctly. Two journalists (14.3 percent) answered “I don’t know.”

Question 6 asked respondents to indicate how many dollars were generated by Oklahoma agriculture during the previous year (1999). The correct response was \$3.9 billion (Bloyd, 1999). Responses between “\$3.7 billion” and “\$4.1 billion” were considered to be acceptable. No journalist answered this question correctly. Nine journalists (64.3 percent) answered “I don’t know.”

Question 7 asked respondents to indicate where Oklahoma ranks in terms of dollars generated by agriculture. The correct response was 18th (Bloyd, 1999). Responses between “16th” and “20th” (two rankings above and below the correct answer as percentages were not appropriate) were considered to be acceptable responses. One journalist (7.1 percent) answered this question correctly. Four journalists (28.6 percent) answered “I don’t know.”

Question 8 asked respondents to identify the state that earns the most dollars from agriculture. The correct answer was California (U.S. Department of Agriculture, 1999). Nine journalists (64.3 percent) answered this question correctly. One journalist (7.1 percent) answered “I don’t know.”

Question 9 asked respondents to identify the top three agricultural commodities in Oklahoma. The correct answers were cattle and calves, winter wheat, and poultry and eggs. Responses of “cattle,” “cows,” and “wheat” were considered to be correct (Bloyd, 1999). Twelve journalists (85.7 percent) correctly identified cattle and calves as one of the top three agricultural commodities in Oklahoma. Fourteen journalists (100 percent) correctly identified wheat as one of the top three agricultural commodities in Oklahoma.

No journalist indicated poultry and eggs as a top Oklahoma agricultural commodity. The most frequent incorrect answer was pigs/hogs/swine (seven responses). Other answers were soybeans (three responses), cotton (two responses), peanuts (two responses), corn (one response), and marijuana (one response).

Question 10 asked respondents to identify the current United States Secretary of Agriculture. The correct answer was Dan Glickman (Powell, 1999). Responses of “Glickman” were accepted as acceptable answers. Eight journalists (57.1 percent) answered this question correctly. Five journalists (35.7 percent) answered “I don’t know.”

Question 11 asked respondents to identify the current Oklahoma Secretary of Agriculture. The correct answer was Dennis Howard (Bloyd, 1999). Responses of “Howard” were accepted as acceptable answers. Nine journalists (64.3 percent) correctly answered this question. Four journalists (28.6 percent) answered “I don’t know.”

Question 12 asked respondents if the secretary of agriculture positions are elected or appointed. The correct answer is appointed (Oklahoma Department of Agriculture, 2000; Longley, 2000). Fourteen journalists (100 percent) answered this question correctly.

Question 13 asked respondents to identify the acreage of the average Oklahoma farm. The correct answer was 410 acres (Bloyd, 1999). Responses between “400 acres” and “420 acres” were considered to be acceptable answers. Three journalists (21.4 percent) answered this question correctly. Two journalists (14.3 percent) answered “I don’t know.”

The highest possible knowledge of agriculture score was 13 points, and the lowest possible score was 0 points. The journalists’ scores ranged from three points (23.1

percent correct) to 10 points (76.9 percent correct) with a mean of 6.57 points for a mean of 50.5 percent correct. Eight journalists (57 percent) scored more than half of the points possible. Only one reporter was in the upper quartile of points possible.

### Perceptions About Agriculture

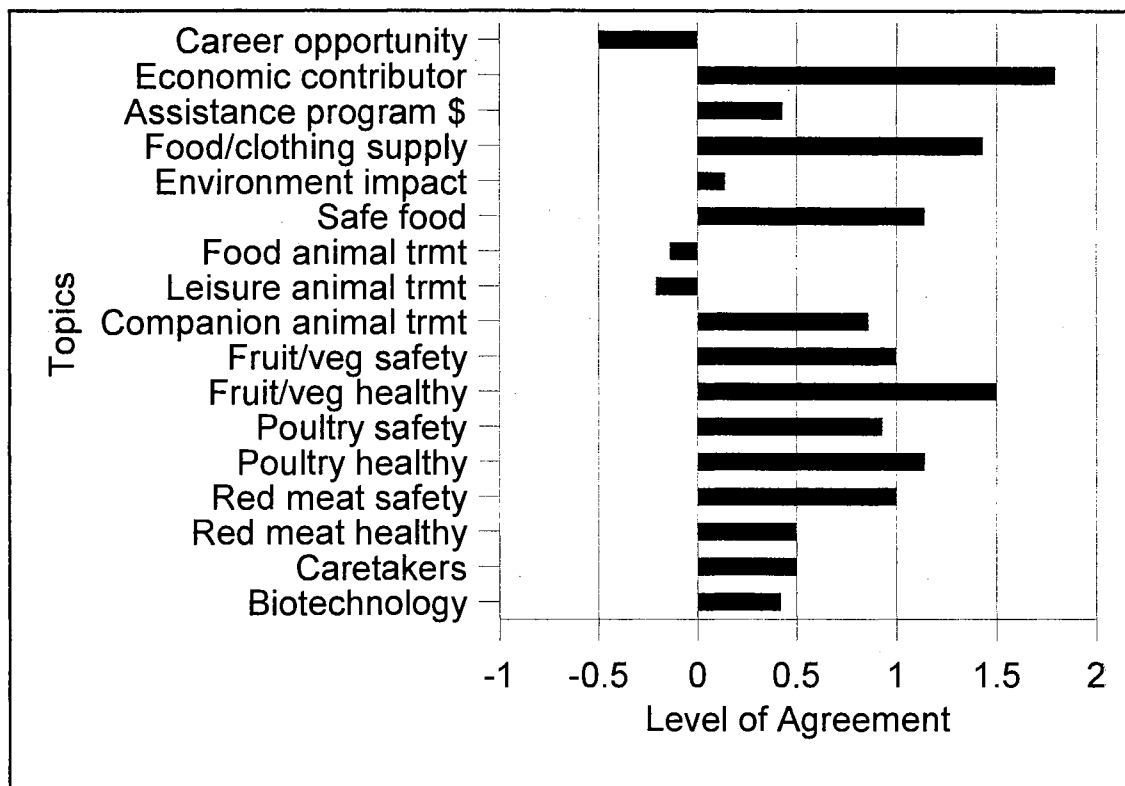
To determine the journalists' perceptions about agriculture, Part II of the instrument presented 17 statements about agricultural issues, including food safety, animal treatment, environmental impact, and economic impact. Respondents were asked to indicate their level of agreement with each statement: 1 = strongly disagree; 2 = disagree; 3 = neutral or undecided; 4 = agree; 5 = strongly agree. For analysis, the researcher used the following values: -2 = strongly disagree; -1 = disagree; 0 = neutral or undecided; 1 = agree; 2 = strongly agree. Therefore, the researcher used the following real limits: -2.00 to -1.51 for "strongly disagree," -1.50 to -0.51 for "disagree," -0.50 to 0.50 for "neutral or undecided," 0.51 to 1.50 for "agree," and 1.51 to 2.00 for "strongly agree." The following data is illustrated in Figure 13.

In response to statement 1 — "There are abundant career opportunities for young people in agriculture." — the mean was -0.5 or "neutral."

In response to statement 2 — "Agriculture is an important contributor to our economy." — the mean was 1.79 or "strongly agree."

In response to statement 3 — "Farmer assistance programs cost taxpayers too much." — the scale was reversed: strong agreement = -2; agreement = -1; neutral or undecided = 0; disagreement = 1; and strong disagreement = 2. This scale better represented the direction of the perception toward agriculture when included with the

other perception items. Therefore, the researcher used the following real limits: -2.00 to -1.51 for “strongly agree,” -1.50 to -0.51 for “agree,” -0.50 to 0.50 for “neutral or undecided,” 0.50 to 1.50 for “disagree,” and 1.51 to 2.00 for “strongly disagree.” The mean, therefore, was 0.429 or “neutral.”



**Figure 13.** Journalists’ perceptions about agricultural topics (mean). For the level of agreement, -2.00 to -1.51 for “strongly disagree,” -1.50 to -0.51 for “disagree,” -0.50 to 0.50 for “neutral or undecided,” 0.51 to 1.50 for “agree,” and 1.51 to 2.00 for “strongly agree.”

In response to statement 4 — “The U.S. has an abundant supply of food and clothing.” — the mean was 1.43 or “agree.”

In response to statement 5 — “Agriculture has a positive impact on the environment.” — the mean was 0.14 or “neutral or undecided.”

In response to statement 6 — “The U.S. food supply is safe to eat.” — the mean was 1.14 or “agree.”

In response to statement 7 — “Animals used for food are treated in a humane way.” — the mean was -0.14 or “neutral or undecided.”

In response to statement 8 — “Animals used for leisure activities such as rodeo and horse racing are treated in a humane way.” — the mean was -0.21 or “neutral or undecided.”

In response to statement 9 — “Companion animals such as dogs, cats, and birds are treated in a humane way.” — the mean was 0.86 or “agree.”

In response to statement 10 — “Fruits and vegetables are safe to eat.” — the mean was 1.00 or “agree.” No journalist disagreed with this statement.

In response to statement 11 — “Fruits and vegetables are healthy to eat.” — the mean was 1.5 or “agree.” No journalist disagreed with this statement.

In response to statement 12 — “Poultry products such as chicken and turkey are safe to eat.” — the mean was 0.93 or “agree.” No journalist disagreed with this statement.

In response to statement 13 — “Poultry products such as chicken and turkey are healthy to eat.” — the mean was 1.14 or “agree.” No journalist disagreed with this statement.

In response to statement 14 — “Red meats are safe to eat.” — the mean was 1.00 or “agree.” No journalist disagreed with this statement.

In response to statement 15 — “Red meats are healthy to eat.” — the mean was 0.50 or “neutral or undecided.”

In response to statement 16 — “People who work in agriculture are good caretakers of the environment.” — the mean was 0.50 or “neutral or undecided.”

In response to statement 17 — “Biotechnology will be good for the food and fiber system in the U.S.” — the mean was 0.42 or “neutral or undecided.”

The overall mean for the perception portion of the instrument was 0.84 or “agree.”

#### Findings Related to Objective Five

Objective 5 was to compare the level of objectivity with the agricultural background of the identified journalists.

To determine if a relationship exists between a journalist’s level of objectivity and his or her knowledge of agriculture, correlation was used (Table 5). Objectivity and knowledge of agriculture produced a “low” positive correlation that was not statistically significant ( $r=.10$ ).

To determine if a relationship exists between a journalist’s knowledge of agriculture and his or her perceptions about agriculture, correlation was used. Knowledge of agriculture and perceptions about agriculture produced a “moderate” positive correlation ( $r=.30$ ). The relationship was not statistically significant.

To determine if a relationship exists between a journalist’s years of experience and his or her knowledge of agriculture, a correlation was used. Years of experience and

knowledge of agriculture produced a “low” positive correlation ( $r=.11$ ). This relationship was not statistically significant.

Table 5

Correlations Between Knowledge of Agriculture and Selected Variables

Variables	Correlation (r)	Category
Level of Objectivity	.10	low
Perceptions about Agriculture	.30	moderate
Years of Experience	.11	low

Note: None of the relationships were significant at the  $\alpha=.05$  level.

To determine if a relationship exists between a journalist’s perceptions about agriculture and his or her level of objectivity, correlation was used (Table 6). Perceptions about agriculture and level of objectivity produced a “moderate” negative correlation ( $r=-.42$ ). This relationship was not statistically significant.

To determine if a relationship exists between a journalist’s perceptions about agriculture and his or her years of reporting experience, correlation was used. Perceptions about agriculture and years of reporting experience produced a “low” negative correlation ( $r=-.22$ ). This relationship was not statistically significant.

Table 6

Correlations Between Perceptions about Agriculture and Selected Variables

Variables	Correlation (r)	Category
Level of Objectivity	-.42	moderate
Years of Experience	-.22	low

Note: None of the relationships were significant at the  $\alpha=.05$  level.

To determine if a difference exists between the two newspapers, t-tests were conducted. The newspapers were compared for differences in the journalists' objectivity, perceptions about agriculture, knowledge of agriculture, and years of experience. None of the t-tests produced a statistically significant result.



## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purposes of this study were to evaluate the news published in 1998 about swine concentrated animal feeding operations (CAFOs) by the two largest Oklahoma newspapers and to profile the people who authored that news. The objectives were as follows:

1. Identify the news articles published about swine concentrated animal feeding operations (CAFOs) by the two largest Oklahoma newspapers.
2. Determine the level of objectivity in the identified articles.
3. Determine the favorability of judgment statements in the identified articles;
4. Develop a collective profile of the journalists responsible for these articles, including their professional characteristics, agricultural literacy, and perceptions about agricultural topics; and
5. Compare the level of objectivity with the agricultural background of the identified journalists.

This study was conducted in two parts. In Part I, the researcher performed a content analysis of the news articles dealing with swine concentrated animal feeding operations (CAFOs) that were published in the Tulsa World and The Daily Oklahoman in

1998. Forty articles were included in the study, and 1,091 sentences were coded according to the Hayakawa-Lowry news bias categories (Lowry, 1985). For Part II, the researcher contacted the journalists who wrote one or more of the selected articles to have these journalists complete a telephone survey. The total number of journalists responding was 14 (93.3 percent).

The instrument used to collect data from the journalists consisted of three parts. The first part was designed to assess the journalists' general knowledge of agriculture, specifically Oklahoma agriculture. The second part was developed to determine the journalists' perceptions about agriculture. The third part was developed to identify personal and professional characteristics about the journalists.

Frequencies, percentages, correlations, t-tests, and Chi-square tests were calculated from the resulting data and used to meet the study's previously mentioned objectives. A summary of the major findings is presented in the following sections.

#### Findings Related to the Identification of Articles about Swine CAFOs

Objective 1 was to identify the news articles published about swine CAFOs by the two largest Oklahoma newspapers, The Daily Oklahoman and the Tulsa World.

1. The vast majority (90 percent) of the swine CAFO articles published by the two newspapers were news articles rather than feature articles.
2. The Daily Oklahoman published slightly more articles (21 articles) about swine CAFOs during 1998 than did the Tulsa World (19 articles).

### Findings Related the Level of Objectivity

Objective 2 was to determine the level of objectivity in the identified articles.

1. The majority (63.6 percent) of the sentences in the articles were report sentences.
2. There were more judgment sentences (17.7 percent) than there were inferences (15.1 percent).
3. The Daily Oklahoman had a higher percentage of report sentences (64.3 percent) than did the Tulsa World (62.8 percent). In relation, The Daily Oklahoman had a lower percentage of inferences (14.9 percent) and of judgments (16.7 percent) than did the Tulsa World (15.4 percent inferences and 18.9 percent judgments).

### Findings Related to the Favorability of Judgment Sentences

Objective 3 was to determine the favorability of the judgment sentences in the identified articles.

1. The majority (69.4 percent) of judgment sentences in the identified articles were negative toward agriculture, with The Daily Oklahoman having the highest percentage of negative judgment sentences.

## Findings Related to Profiling Journalists

Objective 4 was to develop a collective profile of the journalists responsible for these articles, including their professional characteristics, agricultural literacy, and perceptions about agriculture.

1. More journalists at The Daily Oklahoman (10 journalists) published articles related to swine CAFOs than did at the Tulsa World (5 journalists).
2. The vast majority (80 percent) of these journalists were male.
3. The vast majority (93.3 percent) of the identified journalists were still employed by the same newspaper in May 2000 as they were in 1998, when the swine CAFO articles were published.
4. The majority of the identified journalists have never lived on a farm or ranch (78.6 percent), have never had any formal coursework in agriculture (85.7 percent), have never been a member of an agricultural organization (85.7 percent) and have never been a member of an animal welfare or environmental organization (64.3 percent).
5. All of the identified journalists have worked as newspaper journalists for more than 13 years and have earned an academic degree above the high school diploma with the vast majority having a bachelor's degree as their highest academic degree.
6. Although a small number of the identified journalists were assigned to an agricultural beat, as a group the identified journalists view agricultural

news as important to their readers, giving the importance of agricultural news an “8” on a scale of “1” (lowest) to “10” (highest).

7. The majority of the identified journalists indicated they liked to report agricultural news (76.9 percent) and felt qualified to report agricultural news (92.3 percent).
8. The majority (84.6 percent) of the identified journalists indicated they were interested in participating in a media workshop or seminar related to agriculture.

#### Findings Related to Comparing Objectivity with Journalists’ Background

Objective 5 was to compare the level of objectivity with the agricultural background of the identified journalists.

1. A “low” positive relationship exists between a journalist’s level of objectivity and his or her knowledge of agriculture.
2. A “moderate” positive relationship exists between a journalist’s knowledge of agriculture and his or her perceptions about agriculture (i.e., as a journalist’s knowledge of agriculture increases, his or her perceptions about agriculture become more positive).
3. A “moderate” negative relationship exists between a journalist’s perceptions about agriculture and his or her level of objectivity (i.e., as the journalist’s perceptions about agriculture become more positive, his or her writing becomes more objective).

4. A “low” negative relationship exists between a journalist’s perceptions about agriculture and his or her years of reporting experience, (i.e., as the journalist’s years of experience increase, his or her perceptions about agriculture become more negative toward agriculture).
5. A “low” positive relationship exists between a journalist’s years of experience and his or her knowledge of agriculture (i.e., as the journalist’s years of experience increase, his or her knowledge of agriculture increases).
6. Journalists for The Daily Oklahoman and the Tulsa World are equally objective, had similar perceptions about agriculture, had similar knowledge of agriculture, and had similar levels of experience.

### Conclusions

Based on the findings of this study, the following conclusions have been reached.

1. Since both newspapers published about the same number of articles about swine concentrated animal feeding operations and the majority of the published articles were news stories rather than feature stories, it is concluded that these newspapers tend to publish news articles rather than feature articles when informing the public about controversial agricultural issues.
2. As compared to studies of national news periodicals’ coverage of agricultural and environmental issues (Terry, et al, 1996; Whitaker & Dyer, 1998), the percentage of report sentences was higher by both papers.

Therefore, The Daily Oklahoman and the Tulsa World were objective in their coverage of the swine concentrated animal feeding operations.

3. When a judgment sentence was used, issues related to swine concentrated animal feeding operations were portrayed in a negative manner.
4. Based on the number of journalists and their beat assignments, these two Oklahoma newspapers assign multiple journalists to cover swine concentrated animal feeding operations and those journalists assigned to such an issue are often not agricultural beat reporters.
5. The Oklahoma journalists who wrote about swine concentrated animal feeding operations were seasoned reporters who have earned bachelor's degrees in an area of journalism.
6. The Oklahoma journalists identified in this study believe agricultural news is important to their readers.
7. Journalists from the two publications are comparable in terms of their objectivity, their experience, their perceptions about agriculture, and their knowledge of agriculture.
8. While the journalists like to report news about agriculture and feel qualified to do so, few have the background or education normally associated with agriculturally literate persons and few have the appropriate knowledge to inform the public accurately about the agricultural industry.
9. The journalists who responded to this study know little about agriculture but indicate they believe they are qualified to report agricultural news.

10. Although the journalists were more favorable about agriculture overall, they were less favorable about career opportunities in agriculture as well as the treatment of both food animals and leisure animals.
11. The identified journalists tend to be more “liberal” in their views about federal assistance programs for agriculture, the impact of agriculture on the environment, and the effects of biotechnology in the United States. This supports the conclusions of St. Dizier (1989) that journalism students tend to be more liberal in their views about issues such as the environment.
12. Nearly 85 percent of the journalists said that they would participate in a workshop to learn more about agriculture.
13. As a reporter’s perceptions about agriculture became more positive, his or her objectivity increased.
14. There is a positive relationship between a journalist’s knowledge of agriculture and his or her perceptions about agriculture.

### Recommendations

Based on the conclusions presented above, the researcher makes the following recommendations.

1. Based on the conclusion that these journalists do not have agricultural backgrounds, an agricultural course designed for journalism majors should be developed so that future journalists could better understand their topic and accurately inform the public about agriculturally related issues.



2. When considering legislation related to agriculture, legislators and other policy makers should review information from those knowledgeable about agriculture and use newspapers as only one source of information.
3. Citizens should use newspapers as a source of information, but they should not consider every sentence to be factual information stated in a purely objective manner.
4. Agriculturists, especially swine producers, should fully educate themselves about the issues regarding their industry and speak factually about such issues. Furthermore, they should make themselves available to the media for interviews as reporters prepare stories about agricultural issues.
5. Due to the level of interest expressed by the journalists, agricultural communications professionals and agricultural educators should develop a media workshop or seminar designed to teach participants about agriculture and how to report agricultural topics effectively.
6. Organizations, such as the Oklahoma Pork Council, the Oklahoma Wheat Growers Association, and the Oklahoma Cattlemen's Association, and programs, such as the Oklahoma Agricultural Leadership Program, should implement media training programs for agricultural producers and agribusiness professionals.
7. Additional research should be conducted to determine the sources used by journalists when writing about agricultural topics and how those sources are selected.

8. Additional content analysis research should be conducted to determine the favorability of attributed judgment statements made by agriculturists in newspaper articles.
9. In addition to swine concentrated animal feeding operations, media coverage of other agricultural issues and topics, such as poultry concentrated animal feeding operations, should be investigated in future research.
10. As the swine concentrated animal feeding operation topic is a “highly charged” issue, additional research should be conducted to determine the objectivity used by other Oklahoma media (i.e., other publications, radio networks, television networks, etc.) when reporting about this topic.

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## APPENDIXES

## APPENDIX A

## INSTITUTIONAL REVIEW BOARD APPROVAL

OKLAHOMA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD

Date: February 23, 2000 IRB #: AG-00-058

Proposal Title: "1998 NEWS COVERAGE OF OKLAHOMA SWINE CONCENTRATED ANIMAL FEEDING OPERATIONS: A CONTENT ANALYSIS OF THE TWO LARGEST OKLAHOMA NEWSPAPERS"

Principal Investigator(s): H. Robert Terry, Jr.  
Shelly Ruth Peper Sitton

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

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Signature:



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Carol Olson, Director of University Research Compliance

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February 23, 2000

Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modification to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

## APPENDIX B

## SURVEY INSTRUMENT

Reporter Questionnaire

For Reporters who Published CAFO stories in 1998

Code Number of Reporter		
Newspaper in which CAFO article was published: <i>Tulsa World</i> <i>Daily Oklahoman</i>		
Is reporter currently employed by the same newspaper?	Yes	No
Gender of Respondent:	Male <input type="radio"/>	Female <input type="radio"/>

## Reporter Questionnaire

For Reporters who Published CAFO stories in 1998

Hello, my name is Shelly Sitton, and I am studying communications and education at Oklahoma State University. As a part of my research, I am surveying reporters from the *Daily Oklahoman* and *Tulsa World* who wrote articles concerning Oklahoma agriculture in 1998. The information gathered through this research will be used to improve educational programs at OSU. I was wondering if I might ask you a few questions?

It should only take about 10 minutes, and your participation is voluntary. You should be aware that you are free to withdraw your consent and participation at any time. The information you provide will be kept confidential and will not be identifiable to any individuals. If you choose to withdraw your consent, you may contact Dr. Rob Terry Jr. at (405) 744-8141 or the Institutional Review Board at (405) 744-5700. If you participate fully in the study, you will be eligible to win \$50 in a random drawing of those reporters who participate.

For this first set of questions, I will read the question, and then you can state your answer. You may answer "I don't know" if that is appropriate.

What percent of the U.S. population earns its living by farming

and/or ranching? \_\_\_\_\_

What percent of the U.S. gross national product comes from agriculture? \_\_\_\_\_

What percent of the U.S. workforce is employed in the agricultural industry? \_\_\_\_\_

Overall, does agriculture help reduce our trade deficit or increase our trade deficit? \_\_\_\_\_

What percent of the average American's income is spent on food? \_\_\_\_\_

How many dollars were generated by agriculture in Oklahoma last year? \_\_\_\_\_

Compared to all other states, where does Oklahoma rank in dollars generated by agriculture? \_\_\_\_\_

(If previous answer is not #1) What state earns the most dollars through agriculture? \_\_\_\_\_

Based on value of production, what are the top three agricultural commodities in Oklahoma?

Who is the U.S. Secretary of Agriculture? \_\_\_\_\_

Who is Oklahoma's Secretary of Agriculture? \_\_\_\_\_

Are these positions appointed or elected? \_\_\_\_\_

The average Oklahoma farm is approximately how many acres? \_\_\_\_\_

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Next, as I read each of the following statements, please indicate the degree to which you agree with each using the following scale: 1 = strongly disagree, 2 = disagree, 3 = neutral or undecided, 4 = agree, 5 = strongly agree. Again, 1 = strongly disagree, 2 = disagree, 3 = neutral or undecided, 4 = agree, 5 = strongly agree. Do you understand?

There are abundant career opportunities for young people in agriculture. ①②③④⑤

Agriculture is an important contributor to our economy. ①②③④⑤

Farmer assistance programs cost taxpayers too much. ①②③④⑤

The U.S. has an abundant supply of food and clothing. ①②③④⑤

Agriculture has a positive impact on the environment. ①②③④⑤

The U.S. food supply is safe to eat. ①②③④⑤

Animals used for food are treated in a humane way. ①②③④⑤

Animals used for leisure activities such as rodeo and horse racing are treated in a humane way. ①②③④⑤

Companion animals such as dogs, cats, and birds are treated in a humane way. ①②③④⑤

Fruits and vegetables are safe to eat. ①②③④⑤



Fruits and vegetables are healthy to eat. ①②③④⑤

Poultry products such as chicken and turkey are safe to eat. ①②③④⑤

Poultry products such as chicken and turkey are healthy to eat. ①②③④⑤

Red meats are safe to eat. ①②③④⑤

Red meats are healthy to eat. ①②③④⑤

People who work in agriculture are good caretakers of the environment. ①②③④⑤

Biotechnology will be good for the food and fiber system in the U.S. ①②③④⑤

I have just a few more questions.

Have you ever lived on a farm or ranch? Yes  No

Have you ever taken any courses in agriculture? Yes  No

If yes, then at what academic level? \_\_\_\_\_

What was your major in college? \_\_\_\_\_

What is your highest academic degree? \_\_\_\_\_

How long have you been a newspaper reporter? \_\_\_\_\_

What is your regular reporting beat? \_\_\_\_\_

How many stories related to agriculture have you reported on since this time  
last year? \_\_\_\_\_

On a scale of 1 to 10, with 10 being the highest, how important do you believe it is that  
you report news related to agriculture to your readers?

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

Do you like reporting news involving agriculture? Yes  No

Do you feel qualified to report news related to agriculture? Yes  No

Would you be interested in participating in a media workshop or seminar concerning agriculture? Yes  No

Have you ever been a member of PETA, Green Peace, Sierra Club, or any other animal welfare or environmental organizations? Yes  No

Have you ever been a member of FFA, 4-H, Farm Bureau or any other agricultural organizations? Yes  No

Would you be interested in receiving a copy of my research when it is completed? Yes  No

Thank you very much for your time. You will be contacted if your name is drawn to receive the \$50 prize.

## VITA

Shelly Ruth Peper Sitton

Candidate for the Degree of

Doctor of Philosophy

Thesis: 1998 NEWSPAPER COVERAGE OF OKLAHOMA SWINE PRODUCTION  
ISSUES: A CONTENT ANALYSIS

Major Field: Agricultural Education

### Biographical:

Personal Data: Born in Pryor, Oklahoma, November 13, 1965, the daughter of Arthur Harry and Mildred Ruth Peper. Married Ronald Eugene Sitton on October 27, 1990. Mother of Jacob Ross.

Education: Graduated from Adair High School, Adair, Oklahoma, May 1984; received Bachelor of Science degree with a major in Agricultural Communications from Oklahoma State University, Stillwater, Oklahoma, May 1988; received a Master of Science degree with a major in Agricultural Education from Oklahoma State University in July 1989; completed the requirements for the Doctor of Philosophy degree with a major in Agricultural Education at Oklahoma State University in December 2000.

Professional Experience: Informational Representative, Grand River Dam Authority, Vinita, Oklahoma, 1989-1992; Instructor and Academic Adviser in Agricultural Communications, Oklahoma State University Department of Agricultural Education, Communications, and 4-H Youth Development, 1992-present.

Professional Memberships: Agricultural Communicators in Education, Livestock Publications Council, National Association of Colleges and Teachers of Agriculture, American Association for Agricultural Education, Gamma Sigma Delta, Phi Kappa Phi, Agricultural Education Graduate Student Association.