

EDITOR PREFERENCES FOR THE USE
OF SCIENTIFIC INFORMATION
IN LIVESTOCK PUBLICATIONS

By

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CHAPTER I

INTRODUCTION

Background and Setting

It is not surprising Fortin and Pierce (1998) observed the rate of acquisition of information by individuals is doubling every year, as Walker (1969) recognized nearly four decades ago that communication – listening, speaking, reading, and writing – took up 70 percent of the average American’s waking hours. Agriculture is not immune to the global trend toward becoming an information society, and information has become one of agriculture’s most valuable resources (Maddox, 2001). Information is critical to decision-making processes (Ortmann, Patrick, Musser, & Doster, 1993), and agricultural producers’ demands for information have increased with increased market instability, increased complexity in production technologies, and an increased need for financial planning and control (Ortmann et al.).

The role of agricultural organizations in the agricultural information society is to organize, analyze, and transform available data into accessible, usable information (Maddox, 2001). Farmers need timely information about topics such as issues and technology to establish a knowledge base that will better prepare them to accomplish their goals (Brown & Collins, 1978; Bruening, 1992). To meet their information needs,

farmers and ranchers use sources of agricultural media an average of 6.2 hours per week, with one in four using media 10 or more hours per week (Harris Interactive, 2005).

The types of media and other information sources preferred by agricultural producers are as diverse as the types of agricultural production they pursue, although print sources have consistently received high rankings as information sources (Gloy, Akridge, & Whipker, 2000; Harris Interactive, 2005; Maddox, 2001; Suvedi, Campo, & Lapinski, 1999). Print information was one of the sources preferred by producers in Michigan (Suvedi et al.), and North Carolina agricultural producers reported using print sources more than interpersonal sources of important and timely managerial information (Maddox). Specifically, magazines have been shown to be an important source for various types of agricultural information across demographic and socioeconomic groups (Brown & Collins, 1978; Gloy, Akridge, & Whipker; Harris Interactive; Maddox; Suvedi et al.; Ortmann et al., 1993).

Agricultural magazines and newspapers are read by nearly all farmers and ranchers at least once a month, and agricultural producers ranked magazines among the most credible, timely, knowledgeable, and respected sources of information (Harris Interactive, 2005). Supporting results were reported by Brashear, Hollis, and Wheeler (2000); Bruening (1992); Gloy et al. (2000); Jones, Sheatsley, and Stinchcombe (1979); Maddox (2001); Ortmann et al. (1993); and Suvedi et al. (1999). North Carolina agricultural producers ranked print sources, including newsletters, magazine articles, and bulletins and fact sheets, as their second most important sources of information (Maddox), while general farm magazines were consistently ranked as the most important source of print information by Michigan farmers (Suvedi et al.). Large corn belt farmers

also reported spending 94 percent of cash expenditures on acquisition of information sources on farm magazines (Ortmann et al.).

Magazines are an important source for meeting the diverse but specific information needs of farmers, including marketing, production technology, weather, business management, and public policy (Brown & Collins, 1978). Specialized farming magazines or newsletters were the main sources of production and marketing information for 35 percent of North and South Dakota farmers (Jones et al., 1979) and were the second most useful source of production and marketing information for Ohio commercial farmers (Schnitkey, Batte, Jones, & Botomogno, 1992). Magazines were given high rankings as sources of information for production decisions by large corn belt producers, although they were given a low ranking as sources of information for marketing decisions (Ortmann et al., 1993). Agricultural magazines, along with the Internet, also were used more than other sources for researching and purchasing new products (Harris Interactive, 2005), and popular publications were important sources for learning about new technologies for 89.7 percent of small pork producers, 100 percent of medium and large pork producers, and 80 percent of corporate enterprises in the pork industry (Brashear et al., 2000). Overall, farm magazines have been ranked the highest and used frequently for all types of information in various studies (Brown & Collins; Ford & Babb, 1989).

The type, usefulness, and sources of agricultural information that reaches farmers is determined by gatekeepers, who are the individuals or the sets of routine procedures that determine whether items pass a series of decision points as they move through information channels (Shoemaker, Eichholz, Kim, & Wrigley, 2001). Lewin (1947) originally identified certain people through which information or goods must pass as

gatekeepers, who in turn influenced the flow of ideas through society. The gatekeeping concept was expanded on and applied to the media by White (1950), who investigated the subjectiveness of a wire editor's decisions about what news reaches newspaper readers. White concluded the editor's background influenced his decisions, thereby affecting the picture of reality presented to society. These findings are supported by evidence that gatekeepers are influenced by their age, education, organizational position, relations with colleagues, personal values, and community integration (Johnstone, Slawski, & Bowman, 1972). Other forces affecting news selection decisions include publisher attitudes (Donohew, 1967) and the routines of news work, which may be stronger forces than individual factors (Shoemaker et al.).

In the magazine industry, the influence of the editor as a gatekeeper may be particularly strong, as magazines typically have smaller staffs. Magazine editors also tend to be more cognizant of what information they want a specialized magazine audience to receive (Fowler & Smith, 1981). This makes magazine editors an ideal subject for use in gaining insights into perceptions about the use of specific information for selected audiences, which can then be used to refine the media's role in inducing images, perceptions of reality, and individual uses of information (Wiegman, Gutteling, Boer, & Houwen, 1989).

Statement of the Problem

The need for agricultural information is growing as agriculture becomes a more information-intensive industry, and the press needs to provide complete information about complex topics to help people understand them.

The importance of farm magazines as a source for information about such diverse topics in agriculture indicates the important role they play in farmers' decision-making processes, and the agricultural media must strive to provide usable information to producers.

Significance of the Study

Insights into the use of scientific information by livestock publications and the gatekeeping criteria used by editors to judge the value of scientific information will contribute to a greater understanding of the agricultural media's perceptions about the usefulness of research-based information to livestock producers. The data collected in this study will establish the value of scientific information and sources of scientific information to editors.

By determining the importance of scientific information to those responsible for delivering it in a useful format, this study will assist editors, writers, and sources of scientific information in coordinating an efficient flow of information from scientific professionals to livestock producers.

Purpose

The purpose of this study was to determine the use of scientific information in monthly livestock magazines through a survey of editor perceptions of the amount, type, and sources of information used.

Objectives

1. Determine the importance of selected scientific topics to editors of livestock publications.
2. Determine what gatekeeping criteria editors of livestock publications used to determine the use of scientific information.
3. Determine editors' preferences for the use of sources of scientific information.
4. Determine editors' perceptions of the amount, type, and sources of scientific information published during 2005.
5. Determine demographic characteristics of editors of livestock publications.

Scope of the Study

The scope of the study included all editors-in-chief of livestock publications that were 2005 publication members of the Livestock Publications Council (Livestock Publications Council, 2006).

Assumptions

The study was conducted under the following assumptions:

1. Editors of livestock publications make decisions about the content of the publication, including the use of scientific information.
2. Editors will honestly and accurately report their perceptions of scientific information and gatekeeping strategies for its use.

Limitations

The following limitations were identified for this study:

1. The results of the study cannot be generalized beyond the population of editors used for the study.
2. This study does not reflect all variables that contribute to the editor's role as a gatekeeper.

Definition of Terms

The following terms were defined operationally for use in this study:

Article – A complete piece of writing, as in a newspaper or magazine (Agnes et al., 2003), that, for the purposes of this study, included objective scientific information.

Gatekeeper – Any person involved in the gatekeeping process who selects stories for publication (Dimmick, 1974).

Gatekeeping – The process by which the vast array of potential news messages are winnowed, shaped, and prodded into those few actually transmitted by the news media. It may be considered a series of decision points at which new items are either continued or halted as they pass along news channels from source to reporter to a series of editors (Shoemaker et al., 2001).

Livestock – Domestic animals raised for use and sale (Agnes et al., 2003), including but not limited to, for the purposes of this study, cattle, sheep, hogs, poultry, and horses.

Livestock publications – Publications that devote at least 50 percent of their average contents to the livestock industry and publish at least four issues a year (Livestock Publications Council, 2006).

Livestock publication editor – Person who gives assignments to writers and who makes decisions concerning story selection, content, and publication (Cartmell, 2001).

Science – Systemized knowledge derived from observation, study, etc. (Agnes et al., 2003).

Professional – Of or engaged in a profession (Agnes et al., 2003).

Science professional – Person who has earned a bachelor's, master's, or doctoral degree in a science field.

Scientific – Based on, or using, the principles of and methods of science (Agnes et al., 2003).

Information – Something told or facts learned; news or knowledge (Agnes et al., 2003).

Scientific information – Information derived directly from 1) a scientific research study or formal experience or 2) professional training conducted by parties in either the public or private sector.

Chapter Summary

The agricultural media should strive to provide accessible, useful information to agricultural producers as their demand for information increases. Information needs of agricultural producers must be met to provide the best opportunity for continued success and growth of agricultural operations.

This study was conducted to establish the value of scientific information and sources to editors, which will help facilitate an efficient flow of useful scientific information to livestock producers.

CHAPTER II

REVIEW OF LITERATURE

In 1969, Walker recognized the average American spends 70 percent of his or her waking hours communicating. Nearly 30 years later, Fortin and Pierce (1998) recognized the rate of acquisition of information doubles each year. As today's information society evolves at a rapid rate, many Americans undoubtedly spend greater than 70 percent of their time communicating, and communication has developed into a concept essential to the structure and success of American society. The functions of communication include surveillance, correlation of the various segments of society in responding to events, and the transmission of community traditions (Shoemaker & Reese, 1996). Wright (1986) also recognized communication plays a vital role in entertainment, further increasing the role of communication in an information society.

The definitions of communication, information, and knowledge are varied and fluid. Soreno and Mortenson (1970) defined communication as a process by which senders and receivers of messages interact in given social contexts. Following in this vein, Low (2000) defined information as any transmittable and reproducible experience or contact that adds new meaning or somehow changes events, lives, or experiences. Value-added information is created by combining knowledge, specific data, and an understanding of a specific audience and applications of information to decisions

facing that audience (Boehlje & King, 1998). The media use such value-added information to link discrete pieces of a fact-hungry society. In fact, the emergence of national networks in communications, transportation, and higher education have provided equal access to the images and information of society from coast to coast (Lichter, Rothman, & Lichter, 1986). Images and information, however, are subject to many influences in the media system. For example, personal characteristics, backgrounds, and experiences shape a communicator's personal attitudes, values, and beliefs, which then mold the communicator's professional backgrounds and experiences (Shoemaker & Reese, 1996). In turn, professional experiences influence professional roles and ethics, which directly affect mass media content (Shoemaker & Reese).

Regardless of the influences on mass media content, the overarching goal of information organizations should be to provide knowledge that will educate a changing society, not to influence the knowledge base of the public (Maddox, 2001). For agricultural organizations, an important element in the provision of knowledge is to organize, analyze, and transform data into information that can be distributed in an accessible and usable form (Maddox). Information is one of agriculture's most valuable resources (Maddox), and mass media, including farm papers, farm magazines, newspapers, radio, and television often are the first sources of knowledge for farmers (Wilkening, 1956). Therefore, communication in the agricultural media needs to be based on facts and allow for cultural, socioeconomic, and value-based changes (Maddox).

Importance of the Agricultural Media

Development of the Agricultural Press

The agricultural press has maintained its status as an important resource for farmers since the late 19th century, despite drastic decreases in the farm audience (see Figure 1). One hundred fifty-seven farm periodicals were published in 1880 for a combined circulation of about 1 million subscribers. By 1920, farm periodicals increased to more than 400 with a total circulation of more than 17 million (Evans & Salcedo, 1974), and more than 14 million of a 24 million farm population subscribed to general farm magazines in 1951 (Reber, 1960). The farm population began to decrease during the 1950s, leaving a farm press audience of about 21 million by 1959 and less than 4 million in 1990 (U.S. National Agricultural Statistics Service, 2004). In today's agricultural press, approximately 500 periodicals serve a farm population of 2.1 million (Karges, 2005).

Readership studies performed by *Wallace's Farmer* and the *Wisconsin Agriculturist* led Murphy (1960) to believe the apparent stability of the farm press may be due largely to habit, as farmers who grew up in households that received farm magazines continued to subscribe to those same magazines. Murphy also recognized that providing timely information would draw in readers and successful farm publications would need to look five to 10 years in the future to accurately meet audience needs. Murphy's opinions concurred with Reber's (1960) statement that a publishing firm's primary objective is to maintain a desired level of readership, and Gans (1979) indicated audience attention to media is best held by diversity. Balanced media sources, consequently, should present a

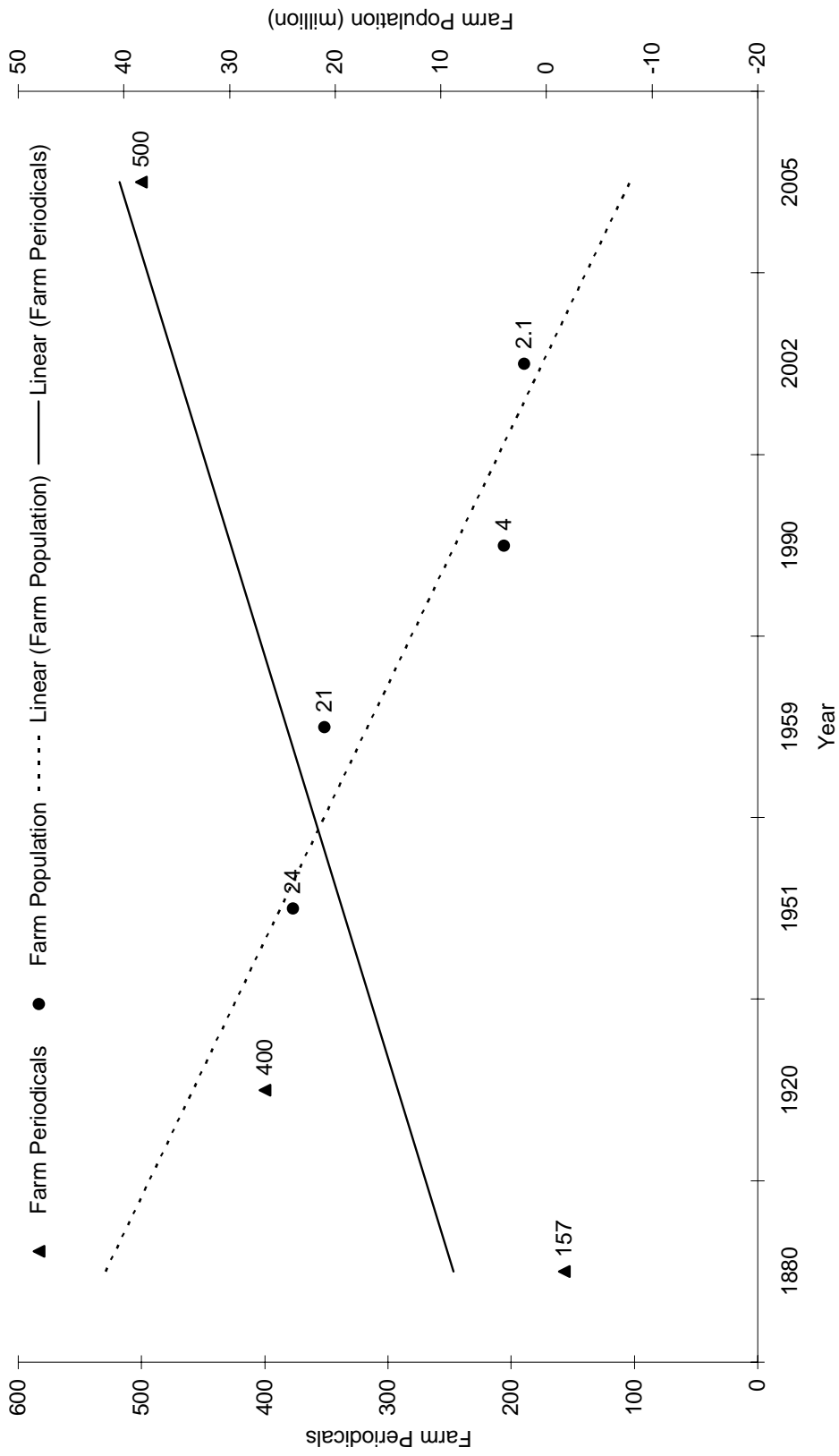


Figure 1. Decline of the farm population and growth of the farm press.

diverse proportion of stories, subjects, geographic focus, demographic targets, and political representation (Gans).

Farmers do rely consistently on chosen sources, as farmers did not foresee a change in preferred sources of information five years in the future (Richardson, 1989). Similar findings were reported in a survey sponsored by the American Business Media Agri Council of 7,000 members of agricultural organizations, in which more than half of the respondents indicated they read the same number of agricultural magazines and newspapers in 2005 as they did in 2001 and 2002 (Harris Interactive, 2005). Thirty percent of the farmers and ranchers surveyed did report reading more agricultural publications, while only 16 percent indicated they read fewer publications (Harris Interactive). Farmers and ranchers were found to use all sources of agricultural media an average of 6.2 hours per week, while one in four were heavy users of media at 10 or more hours per week (Harris Interactive).

The agricultural media, and in fact the media as a whole, have evolved to provide an assortment of information sources for better-educated producers who farm larger tracts of land than previous generations (Boehlje & King, 1998). With this growth, agriculture has become a more information-intensive organization (Sonka, 1984), as demonstrated by farmers' increasing demands for information with increases in market instability and more complex production technologies (Ortmann et al., 1993). As the media have developed and the information needs of producers have increased, publications continued to influence the opinions of farm families (Reber, 1960), although increasing diversity in the farm population has resulted in varied preferences for sources and methods of information delivery (Gamon, Bounaga, & Miller, 1992).

Information Needs of Agricultural Producers

The broad area of agricultural science news includes news information in the agricultural industry related to research, markets, advice, topics, and issues (Elefson, 1989), and providing such news to producers in a usable form is one of the main roles of the agricultural media. The focus of producer groups within agriculture varies, and producers have consistently indicated outside information plays a major role in decision making (Chavas & Pope, 1984). In fact, 67 percent of farmers and ranchers reported agricultural media are important sources of information when making purchase decisions, while 72 percent used agricultural magazines or newspapers to learn about new agricultural products (Harris Interactive, 2005). Farmers have long recognized the need for information about specific topics, including the handling and feeding of livestock, market prospects, current grain and livestock markets, field crops, farm accident prevention, federal farm programs, fertilizers and rotations, and weed and insect control (Murphy, 1960). Needs identified by large-scale family farmers included information about marketing and production technology, weather, business management, and public policy (Brown & Collins, 1978). Idaho dairy farmers were equally aware of their needs, reporting they sought outside advice about animal health products, disease prevention and vaccination, genetics and reproduction, and herd nutrition (Foltz, Lanclos, Guenther, Makus, & Sanchez, 1996). Idaho dairy farmers also recognized a lack of available information about nutrition and mastitis control (Foltz et al.).

Addressing the diverse information needs of farmers and ranchers falls to the media and a variety of sources that differ in the kinds of information supplied. It can be assumed that different sources are used to obtain different types of information, and

information source selection is primarily influenced by the way the source is perceived by the individual seeking the information (Wilkening, 1956). Farmers and ranchers then would be expected to use both public and private information sources, which differ in availability and the type of information they offer. Publicly generated information tends to be more generic and broadly applicable than private information, as its development is often driven by the perception that it needs to appeal to a broad taxpayer audience (Boehlje & King, 1998). Private information sources, however, can and should provide information targeted to the changing needs, interests, and demographics of their audiences (Murphy, 1960). Such private information sources include agricultural magazines and other mass media, which are primarily privately owned businesses in the United States (Lichter et al., 1986).

Media Preferred by Agricultural Producers

In a study of Kansas homemakers' use of extension information, Boone & Zenger (2001) found extension clientele prefer information dissemination methods that target information to specific groups using a variety of channels. A connection exists between this extension audience and the audience of farmers and ranchers targeted by all types of agricultural media, as studies (Adams & Parkhurst, 1984; Gloy et al., 2000; Harris Interactive, 2005; Lichter et al., 1986; Ortmann et al., 1993; Suvedi et al., 1999; Wright, 1976) have shown agricultural producers tend to prefer agricultural and general mass media sources of information that address their needs. Several studies have demonstrated different sources of information are important at several stages in the adoption-diffusion model outlined by Rogers (2003), which includes steps taken in the process of making a

decision, adopting components of the decision, and further diffusion of developments in agriculture. Outside of agriculture, it has been demonstrated that newspapers and magazines are the most effective forms of print media for reaching decision makers (Lichter et al.), and parallels can be drawn toward the role of livestock publications in providing knowledge to producers about scientific topics in their industry.

A trend has been observed that farmers are using available sources of information less (Suvedi et al., 1999), but other studies have found conflicting results. As previously mentioned, a recent survey found farmers and ranchers spend an average of 6.2 hours per week using all sources of agricultural media and read the same number of agricultural magazines and newspapers as in the previous three to four years (Harris Interactive, 2005). These findings are supported by studies demonstrating the reliance of agricultural producers on information sources, particularly the mass media. A longitudinal study of how agricultural producers access Michigan State University Extension information and other farm-related information found the majority of farmers surveyed used mass media, such as newspaper, radio, and television, as information sources in both 1996 and 1999 (Suvedi et al.).

The same study showed general farm magazines were the most important source of print information for Michigan farmers, and extension publications ranked second (Suvedi et al., 1999). Agricultural newspapers and general daily and weekly newspapers also were used as information sources by Michigan farmers, while their use of farm organization newsletters decreased over time (Suvedi et al.). Nebraska farmers and ranchers indicated similar preferences for agricultural media usage, reporting farm magazines were more important than other channels of communication in conveying

information necessary to implement a significant change in their primary enterprises (Adams & Parkhurst, 1984). Large corn belt farmers reported spending 94 percent information source cash costs on farm magazines, followed by agricultural newspapers and newsletters, consultants, and computerized information services (Ortmann et al., 1993). Commercial producers also ranked general farm publications and specialized crop and livestock publications as their two most useful media sources of information (Gloy et al., 2000).

In contrast to commercial producers' preference for specialized publications (Gloy et al., 2000), nearly one-fourth of Michigan farmers were not likely to use specialized farm magazines as sources of information in 1996 and were even less likely to use them in 1999 (Suvedi et al., 1999). However, Idaho dairy and potato farmers preferred receiving managerial information via newsletters (Foltz et al., 1996), compared to the decreased use of newsletters noted by Suvedi et al. Idaho farmers also relied on articles in farm and ranch magazines, but rated newspaper feature stories, news articles, and individual consultation equally as sources of information (Foltz et al.).

Further supporting agricultural producers' use of mass media, particularly print media, were the results of the comprehensive survey of members of agricultural organizations, which found the average farmer or rancher spends four hours per week reading agricultural magazines and newspapers (Harris Interactive, 2005). More specifically, agricultural magazines and newspapers are read by nearly all farmers at least once a month, with usage varying from two to three times per week for 36 percent of respondents to once a month for 6 percent of respondents (Harris Interactive). Twenty-five percent of respondents reported reading agricultural magazines and newspapers at

least once a day, in comparison to the one percent of respondents who reported never reading agricultural print publications (Harris Interactive). Also in conflict with the observation of Suvedi et al. (1999) that farmers' use of information sources was declining, the survey found 21 percent of farmers and ranchers thought their use of agricultural newspapers and magazines would increase, and 37 percent thought their Internet usage would increase over time (Harris Interactive).

Producers' preferences for print media were well documented in the study of Michigan farmers, who indicated radio and television were less important than print or personal sources in 1996 and 1999 (Suvedi et al., 1999) and in other studies (Harris Interactive, 2005; Foltz et al., 1996). Many conclusions may be drawn about preferences for print media in agriculture, but differences seem to be based on producers' perceptions of credibility, timeliness, and objectivity of the different types of mass media (Harris Interactive, 2005; Lovejoy & Napier, 1986; Wright, 1976).

Studies of mass media often have indicated their selection as useful sources of information is due to currency and availability (Lovejoy & Napier, 1986), and rural Wyoming residents did in fact criticize radio and television for not providing agricultural information at times correlated with the availability of farmers and ranchers to listen (Wright, 1976). Rural Wyoming residents also cited media other than magazines as lacking in important details and indicated specialization of agricultural magazines was a reason they considered them more valuable resources than other media. Magazines were recognized as being more believable than other forms of mass media, potentially because of a belief that magazines take more time to produce and allow more opportunity to check details (Wright). Low availability of television in some rural areas also may

contribute to the importance of magazines to agricultural families (Wright). Nearly 30 years later, however, farmers and ranchers across the nation continued to indicate magazines and newspapers were the most credible and timely sources of mass media information (Harris Interactive, 2005). In addition, farmers and ranchers rated magazines and newsletters highly on their knowledge of agricultural markets, and half of survey respondents considered magazines to be very objective sources of agricultural information (Harris Interactive).

Magazines Meet Information Needs

Magazines, particularly agricultural magazines, seem to be more adept at targeting their audiences' needs and providing more useful information to agricultural producers than other mass media. Reber (1960) recognized the nature of magazine content and the extent of its readership invariably dictate its influence on the reader, and agricultural magazines have maintained constant levels of readership by providing a variety of pertinent information to their audiences. A majority of rural Wyoming residents and Oklahoma farmers listed magazines as their most important sources for agricultural news and information (Oskam, 1995; Wright, 1976), and magazines were also reported to be primary sources for information about specific agricultural topics.

Three-fifths of Wisconsin farmers said farm magazines and newspapers were used more than general newspapers to learn about new ideas in farming (Wilkening, 1965), and popular publications, including *Hogs Today*, *National Hog Farmer*, and *Pork Press*, were also found to be used by 89 percent of small pork producers, 100 percent of large and medium producers, and 80 percent of corporate hog-producing enterprises to learn

about new technologies (Brashear et al., 2000). General and specialized farm magazines have been ranked highly as sources of information for production decisions (Schnitkey et al., 1992), although they have been ranked lower than other media for marketing and financial information (Ortmann et al., 1993). Some producers did report relying on specialized farm magazines or newsletters as their main sources for production and marketing information before other mass media, government agencies, and interpersonal sources (Jones et al., 1979), although producers in other studies often ranked magazines as important media sources for marketing information ahead of extension service personnel but behind radio, newsletters, and other interpersonal information sources (Batte, Schnitkey, & Jones, 1990; Schnitkey et al.).

The popularity of written information for sales and production decisions may be due to the increased complexity of information and the need to create applicable principles for producers (Ford & Babb, 1989). Similar details may be required for producers dealing with conservation, water quality, and health and safety issues. Farm magazines consistently were reported as primary sources for current and future conservation information (Gamon et al., 1992; Korsching, Hoban, & Maestro-Scherer, 1985; Lovejoy & Napier, 1986), although they were not ranked highly on convenience, trustworthiness, knowledge, and local relevance (Korsching et al.). Concerns about the credibility of magazines as sources of information about water quality issues also were raised by Pennsylvania farmers, who noted they considered magazines a reliable source if they were not promoting a product but still preferred confirmation by multiple sources of magazine-provided information (Bruening, 1992). Despite credibility concerns, however, Pennsylvania farmers consistently ranked magazines as primary sources of water-quality

information (Bruening). Magazines were the primary and preferred sources of Oklahoma farmers for health and safety information, followed by videos, television, newspapers, and radio (Oskam, 1995).

Notwithstanding the popularity of agricultural magazines as sources of information about production, technology, marketing, supply purchasing, farm policy, public policy, and business management (Brown & Collins, 1978; Ford & Babb, 1989; Murphy, 1960), agricultural producers consistently have turned to the broader mass media for general news and information. Television has been shown to be the greatest source of news for Americans since 1960 (Lichter et al., 1986), and agricultural producers are the average American in this respect. Magazines were ranked last as a source of general news by rural Wyoming residents, behind television, radio, and newspapers (Wright, 1976). Oklahoma farmers had similar preferences, reporting television as their primary source of general news and information, although magazines were ranked above newspapers and radio (Oskam, 1995).

Science Journalism in Agriculture

Importance of Providing Scientific Information in Agriculture

The print media are nonscientists' primary sources for news about science, making science writers crucial links in the interpretation of scientific information to a diverse public (Dunwoody, 1986). Agriculture and the general public may be alike in this respect, and both may require scientific information to understand progress in a wide range of fields, from technology to nutrition to finances. Lionberger and Gwin (1991) observed traditional knowledge is not enough to move forward in today's society of

specialties, including the continually diversifying industry of agriculture, creating a need for current and evolving information. This need was not recognized during the growth of science in the early 20th century, as Swinehart and McLeod (1960) observed wide circulation of news about science was not likely to affect reading habits or attitudes toward scientific topics. In agriculture, however, the effective diffusion of scientific knowledge played a major role in the significant increase in agricultural productivity that occurred in the 1960s and 1970s, and the function of agricultural journals in the dissemination of scientific information has continued to be to bring the most valuable items to subscribers' attention (Schlebecker, 1983). Magazines can be particularly proficient in this task because their subscribers are often limited by commodity interest, methodological interest, or geography, and they can point subscribers to more in-depth information if needed (Schlebecker).

The first information development and distribution system in the United States was the agricultural college research and extension system, which was built on the assumption that the information and technology farmers and ranchers need to succeed in modern agriculture is research-based (Lionberger & Gwin, 1991). Other public organizations and private information providers also recognized this need and now compete with universities as sources of information for agricultural producers (Boehlje & King, 1998). Magazine readership has been correlated with specific uses of time (Grunig, 1980), and this creates a path to success for magazines specialized for farmers, consumers, and other users. Grunig observed that specialized media are the most effective means of communication to audiences seeking information, and the level of involvement with a particular subject may explain why people use scientific information

for dealing with a practical situation, such as farmers and ranchers looking for research-based guidance to choose an efficient feeding program for their cattle. Professional communicators, such as newspaper and magazine editors, also have been acknowledged as more capable than university and county extension personnel of recognizing the problems and constraints of both scientists and farmers in providing and receiving information (Lassahn, 1967). Regardless of the competition for readers and the possibility people will choose to ignore complex topics (Bandura, 1994; Gregory, 2000), communicators in agriculture need to write for both specialized and general audiences (Grantham & Irani, 2004).

The importance of agricultural magazines as information sources for farmers and ranchers has been established, and magazine content may be one of the major influences on this preference. In readership studies performed by *Wallace's Farmer* and the *Wisconsin Agriculturist*, Murphy (1960) explained that the content of articles about agriculture was more influential in gaining readership than stylistic characteristics of writing, use of color, or readability level. Funkhouser and Maccoby (1971) reported similar results in a study of articles preferred by college students, where they found the articles most effective in conveying information tended to be the ones that were most liked, produced the most favorable attitudes, and gave rise to the greatest tendencies among readers to seek further information. Schlebecker (1983) provided further support for the careful selection and value of content, particularly scientific information:

Agricultural journals of any sort serve as vehicles for the transmission of scientific and technological information. They always give the source of their information so that any reader may get the technical publication where the

information first appeared. Unlike the elusive electronic media, the journals made a permanent record of what had been done and what was to come. (p. 133)

Science Information for Agriculture

Media science writers must do more than simply process information from scientific agencies. A primary part of their responsibilities as science communicators is to discern the relevance of scientific information to society (Grunig, 1980) and reduce its abstractness to lay terms meeting the wants and needs of audiences, editors, and sources (Storad, 1984). The best science writers explain and interpret more than the average communicator (Broberg, 1973), whether writing in the general or agricultural mass media. When writing for an agricultural audience, however, it is of particular importance to provide information at a level usable by producers with a range of agricultural, scientific, and educational experiences (Grantham & Irani, 2004). Studies have shown exposure to science coursework at the college level enhances a reader's understanding of scientific terms (Grantham & Irani; Grunig), although other factors do influence interest in scientific information and the ability to comprehend and apply it. Science audiences often are specialized, such as agricultural producers, and they tend to be more educated, have higher incomes, and be consistent users of the media, particularly print media (Grunig). Content, as previously indicated, is essential in gaining readers' attention, so relevant, applicable scientific information should be provided in agricultural publications (Funkhouser & Maccoby, 1971; Grunig; Murphy, 1960; Schlebecker, 1983).

In a study of the content of agricultural journals, Schlebecker (1983) made several noteworthy observations about the topics and depth of scientific information published

over time: 1) Genetics and biochemistry were the scientific subjects covered in the majority of material printed, with variation in the amount of scientific information provided by each publication; 2) While the *Guernsey Breeders' Journal* focused on genetics in upholding excellence in breeding and dairying, a broader range of science topics was included in *The Cattleman*, *Hoard's Dairyman*, and *Progressive Farmer*; 3) *The Cattleman* carried a large selection of scientific and technical articles plainly written and relevant to the interests of ranchers and stockmen, but *Hoard's Dairyman* devoted more total space to scientific and technological matters than any other journal; and 4) *Progressive Farmer* covered the broadest range of scientific and technological topics. Schlebecker's observations supported the emphasis placed by the dairy press on science being relevant to agricultural production. When asked about changes in the subjects covered by dairy publications during 25 years and what would be covered in the future, the topics mentioned most by editors of independent dairy publications and dairy breed journals included artificial insemination, disease eradication, use of production records, business management, production technology, nutrition, bull testing, and embryo transfers (Evans, 1981).

Despite the highly technical nature of articles in agricultural journals, Schlebecker (1983) also observed that scientific and technical articles were written in understandable English conducive to comprehension of scientific principles. Some research has shown that shorter sentences and simpler words do not consistently improve explanations of scientific information to laymen (Fewster, 1966; Funkhouser, 1969; Murphy, 1960), while other evidence supports using a clear, concise style of writing that provides examples of science's relevance to real life (Funkhouser & Maccoby, 1971). Research

also has shown the inclusion of tables, graphs, diagrams, and nonscience information may aid in effectively communicating scientific information to the average person (Funkhouser & Maccoby; Powers, 1966). Even in the readership studies summarized by Murphy that demonstrated content is the most important factor in gaining reader attention, somewhat technical livestock articles showed slightly higher readership by those farmers with more education. Ultimately, content and ease of reading will play significant roles in the attraction of readers and their ability to apply scientific information in their lives, and the primary determinant in what type and level of information reaches an audience is the group of gatekeepers through which information passes before it reaches the public (Broberg, 1973; Fewster; Funkhouser & Maccoby; Grunig, 1980; Murphy; Powers; Schlebecker; Storad, 1984).

Theoretical Framework

Gatekeeping

Lewin (1947) first proposed the concept of gatekeeping during his post-World War II research on social change, through which he suggested that items are selected or rejected as they pass through channels due to specific influences in those channels. Lewin was also the first to recognize that the theory of gatekeeping could be applied to the flow of news, and that idea was initially expanded through a study of a wire editor's selection of news items for publication (White, 1950). In terms of the media, gatekeeping is defined today as the process by which the vast array of potential news messages are winnowed, shaped, and prodded into those few that are actually transmitted by the news media (Shoemaker et al., 2001). In addition, it can be described as a series of decision

points at which news items are either continued or halted as they pass along news channels from source to reporter to a series of editors, and it includes how messages are shaped, timed for dissemination, and handled (Shoemaker et al.).

Within the gatekeeping theory, then, gatekeepers are defined as any person involved in the gatekeeping process who selects stories for publication. Specifically, potential gatekeepers include reporters, editors, news executives, or managers who select stories for publication or broadcast (Dimmick, 1974). The role of the gatekeeper in shaping the messages of the mass media is illustrated in a model adapted by Cartmell (2001) from the Westley and McLean (1957) model of communication (Figure 2). In the

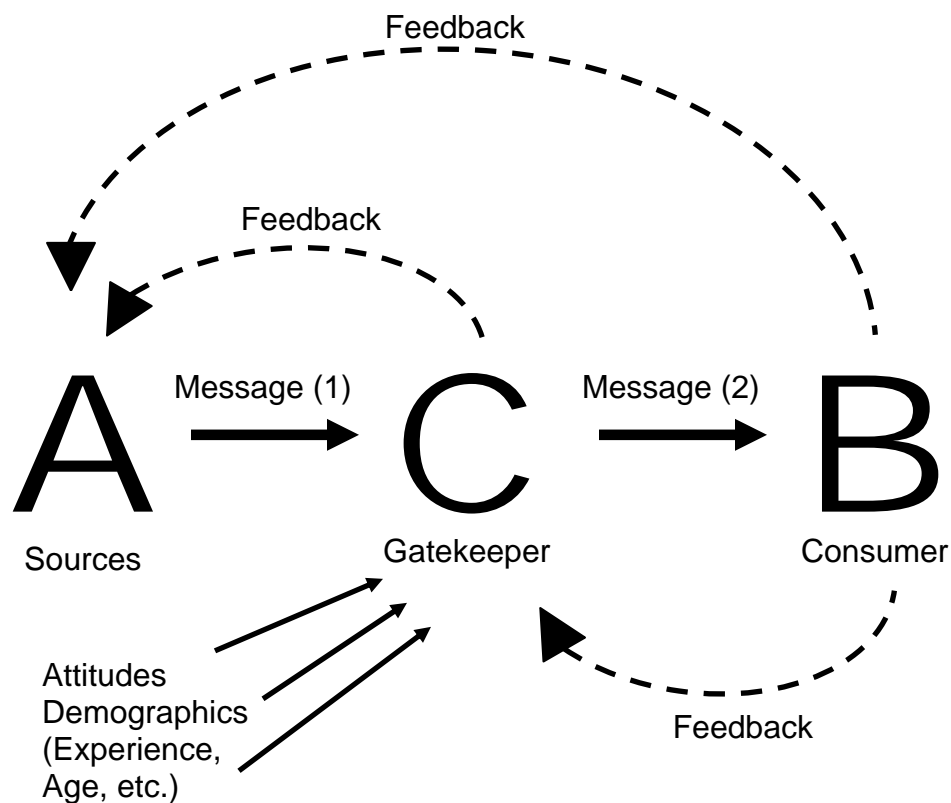


Figure 2. Cartmell (2001) model adapted from Westley and McLean (1957).

model, information is presented to a journalist (A), who then passes it to the gatekeeper (C). The decision to include or exclude information is made by the gatekeeper (Cartmell; Stringer, 1999), who is influenced by a variety of factors.

Influences on Gatekeepers

Gatekeepers are products of their environments, making their decisions inextricably linked to their personal experiences, among other factors (Fowler & Smith, 1981). Specific factors influencing gatekeepers' decisions include personal opinions, newsroom schedules and technicalities, news sources, social control, and audience needs (Trotter, 1975), reflecting the juggling of multiple criteria by editors in the process of selection of news and events for publication (Dimmick, 1974). Open-mindedness in gatekeepers may be instilled through years of experience in journalism (Black, Bock, Barney, VanTubergen, & Whitlow, 1980), but research has demonstrated that organizational forces often have more influence on gatekeeping decisions than individual forces (Shoemaker et al., 2001). For example, editors make decisions about what is newsworthy, while journalists decide on the appropriate sources for news (Powers & Fico, 1994; White, 1950). Selected sources do supply reporters with facts and information that direct public thought (Stringer, 1999) and the public's perception of social reality (Shoemaker et al.), but editors and publishers make the ultimate decisions about what reaches the public.

An underlying assumption in journalism is that the newsman must be responsible to audience needs (Trotter, 1975), but studies have shown that many gatekeepers are not attuned to audiences' perceptions of their needs. Donohew (1967) found perceived public

opinion did not alter gatekeeping behavior, although his findings may have been due to the reflection in editors' decisions of congruence between the publisher and audience. Donohew did establish publisher attitude is an important force in the news channel. Similar results were obtained by Trotter, who showed editors were in tune with publishers' preferences for news, but were not oriented as strongly with the audience if the publisher was not in agreement with the audience. Editors also believed that both the publisher and audience would rank news stories very similar to themselves, but this perception was not accurate (Trotter). In fact, the audience was segmented in terms of agreement with editor selections of news, with the type of audience agreeing most with editors' choices being of the highest education level and believing publications were edited for people like them (Trotter).

The Role of Magazine Editors

In the magazine industry, editors may be expected to exert more influence and direct control over operations because their staffs are smaller (Fowler & Smith, 1981), but they still must be accountable to the publisher's wishes. Magazine publishers probably maintain final control on item use, allowing them to affect item selection through established policies and guidelines or through socialization of gatekeepers to their methods and perceptions (Breed, 1960; Donohew, 1967; Trotter, 1975). The main roles of the magazine editor do remain to be deciding what kinds of materials they want to publish, arranging to obtain those materials, and presenting the materials in a pleasing manner (Fowler & Smith). Their decisions, however, often are dictated by formulas that specify amounts of information to be included that will appeal to specialized audiences

(Fowler & Smith). The involvement of editors in finalizing editorial content of magazines does vary, but it may be predicted by whether content meets the personal standards of the editor (Fowler & Smith). Editors are more likely to be personally involved in magazine activities with smaller staffs, as is often found with agricultural publications (Fowler & Smith).

The most useful magazine editors in agriculture are those who have the ability to look a few years ahead and prepare readers to accept the future or perhaps to modify it (Murphy, 1960). They should know more about agriculture than the gatekeepers they supervise, and they should understand how U.S. agriculture fits into national and global affairs (Murphy). Despite the belief that editors in the general mass media are the weak link between scientists and the public due to a lack of interest in science and a lack of understanding of its relevance to the public (Grunig, 1980; Nunn, 1979), the importance of scientific information is recognized by some editors of agricultural publications: “Top-flight journalistic techniques will be required to translate increasingly complex technical information into interesting, readable, ‘usable’ articles” (Evans, 1981, p. 939). Editors are, therefore, an important group to study for gaining an understanding of how public reality is created and influenced, as indicated by Lewin (1947), “Understanding the functioning of the gate becomes equivalent to understanding the factors which determine the decisions of the gatekeepers and changing the social process means influencing or replacing the gatekeeper” (p. 37).

Chapter Summary

Agricultural magazines are important sources for a variety of information sought by farmers and ranchers, particularly scientific information that could significantly influence production practices. The responsibility for meeting this need lies with the gatekeepers, mainly editors, who select information for publication.

Due to significant advances in the science and technology of agriculture, a recent measure of the provision of scientific information in livestock publications is necessary. This study was conducted to help construct a picture of editor perceptions of the importance and use of scientific information in the livestock industry.

CHAPTER III

METHODOLOGY

This study is a description of the preferences of gatekeepers at livestock publications for using scientific information and the use of scientific information in livestock publications. Magazines are an important source of information for agricultural producers (Brown & Collins, 1978; Gloy et al., 2000; Harris Interactive, 2005; Maddox, 2001; Ortmann et al., 1993; Suvedi et al., 1999). The purpose of this study was to determine the use of scientific information in monthly livestock magazines through a survey of editor perceptions of the amount, type, and sources of information used.

This study focused on the criteria and preferences of editors as gatekeepers in the flow of information from scientific professionals to agricultural producers, including criteria used to determine the usefulness of scientific information, preferred type and number of sources, and type and depth of scientific information.

Institutional Review Board

Oklahoma State University policy and federal regulations require approval of all research studies that involve human subjects before investigators can begin their research. The Oklahoma State University Office of University Research Services and the Institutional Review Board conduct this review to protect the rights and welfare of human subjects involved in biomedical and behavioral research. In compliance with that policy,

this study received review and was granted permission to proceed. The IRB assigned the number AG0618 (see Appendix A) to the study assessing the preferences of editors for the use of scientific information in livestock publications.

Purpose

The purpose of this study was to determine the use of scientific information in monthly livestock magazines through a survey of editor perceptions of the amount, type, and sources of information used.

Objectives

1. Determine the importance of selected scientific topics to editors of livestock publications.
2. Determine what gatekeeping criteria editors of livestock publications used to determine the use of scientific information.
3. Determine editors' preferences for the use of sources of scientific information.
4. Determine editors' perceptions of the amount, type, and sources of scientific information published during 2005.
5. Determine demographic characteristics of editors of livestock publications.

Research Design

This study used descriptive survey methodology to determine the use of scientific information in livestock publications. Data describing editor preferences for publishing scientific information were collected via an online survey.

Survey Instrument Design

Survey responses were obtained from editors using a Web-based questionnaire designed according to the principles of the Dillman Tailored Design Method (2000). Questions were adapted from a survey of daily newspapers about the publication of agricultural information by Cartmell (2001), a literature review of sources of information preferred by agricultural producers, and the investigator's professional knowledge in the field of animal science. The survey instrument was reviewed by a panel of experts (see Appendix B) and pilot tested (see Appendix C) using editors of weekly livestock publications that were 2005 publication members of the Livestock Publications Council.

The Web-based survey used in this study (see Appendix F) was created using FreeOnlineSurveys.com, which charges students and teachers \$9.99 per month. The service includes an unlimited number of questions per survey, download of individual responses in text and numeric format, storage of up to 1,000 responses, and password protection of surveys and responses.

Two of the editor preferences were measured using interval scales. An interval scale includes ordered items between which "equal units or intervals are established in the scale such that a difference of a point in one part of the scale is equivalent to a difference of one point in any other part of the scale" (Wiersma & Jurs, 2005, p. 323). A scale of one to five with a midpoint of three was used. For this survey, three was considered the most desirable response.

Validity

A panel of experts including personnel in the Department of Agricultural Education, Communications and 4-H Youth Development and members of the agricultural media (see Appendix B) reviewed the instrument to establish face and content validity.

Reliability

Following review by the panel of experts, a pilot test (see Appendix C) was conducted using weekly publications that were 2005 members of the Livestock Publications Council. Editors were contacted by telephone on Jan. 9, 2006, and Jan. 10, 2006, to explain the survey and encourage participation. E-mails were sent immediately following the conversations to editors who confirmed they would complete the survey. Reminder e-mails were sent to editors on Jan. 16, 2006, and Jan. 17, 2006. The pilot survey was suspended on Jan. 23, 2006.

Pilot test data were used to calculate a Cronbach's alpha for Q7 and Q8, which were the only questions containing scaled data. The Cronbach's alpha coefficient is a measure often used to estimate the internal consistency of attitude scales. The coefficient for the pilot test was 0.86.

Population

Editors of monthly magazines registered as 2005 publication members of the Livestock Publications Council and publishing more than six issues per year were selected for this study. The source list for the population was the 2005 Livestock

Publications Council membership list. The population size was 56 publications and 54 editors, as a result of two editors being responsible for multiple magazines. A census was used due to the small population size. Editors of the publications in the population were surveyed using the Web-based instrument.

Data Collection

Editors were initially contacted via telephone on Jan. 26, 2006; Jan. 27, 2006; and Jan. 30, 2006, to request participation in the online survey and copies of 2005 issues of their respective publications (see Appendix D). Editors who verbally agreed to complete the survey were sent a personalized e-mail (see Appendix E) on the day of the call further explaining the survey and providing the link to the survey (see Appendix F). Following the procedures recommended by Dillman (2000) to maximize response rate, a personalized e-mail reminder (see Appendix G) was sent to editors on Feb. 7, 2006. The initial data collection period ended on Feb. 23, 2006. Thirty-nine responses were obtained during the data collection period for a response rate of 72 percent.

Nonresponse error was controlled for by comparing the characteristics of early and late respondents to the survey, using the later 50 percent of respondents as the late respondents (Lindner & Wingenbach, 2002). No visual differences in the means of selected items were found between the early and late respondents.

Data Analysis

Quantitative data were analyzed using the Statistical Package for Social Sciences 11.0 for Mac OS X. Descriptive statistics, including means, standard deviations, modes,

ranges, frequencies, and percentages, were used to interpret the data and describe the editors' responses.

Questions 1 and 20: Means and standard deviations were generated for each of the items contained in questions 1 and 20 and used to rank items within their respective questions. As 1 was equal to most important for each scale, lower means indicated higher rankings.

Questions 2, 4, 5, 9, 14, 15, and 16: Percentages were used to determine the rankings of sources and topics preferred by editors and used during 2005, as well as the proportions of male and female editors, editors with specific experience in the livestock publications industry, academic experience, and general livestock experience. Using 100 percent as ideal, higher percentages indicated selection of items by more editors and resulted in higher overall rankings within the respective lists of each question.

Questions 3, 6, 7, and 8: Modes and percentages were used to establish the average sources encouraged by editors and used during 2005, the average depth of scientific information published during 2005, and the estimated frequency of use of scientific information during 2005. As a measure of the most common answer, modes indicated the preference of most editors for use of sources and information, while percentages were used to rank selected answers. Higher percentages indicated selection of items by more editors and higher overall rankings.

Questions 10, 11, 12, 13, and 17: Means, ranges, and medians were used to describe the age and experience of editors, and the circulation of responding publications.

Questions 18 and 19: Modes were used to establish the most common types of circulation area and types of publication ownership.

CHAPTER IV

FINDINGS

This study was an examination of the value of scientific information and sources to editors of livestock publications. Agricultural producers rely heavily on magazines as sources of information (Brown & Collins, 1978; Gloy et al., 2000; Harris Interactive, 2005; Maddox, 2001; Ortmann et al., 1993; Suvedi et al., 1999), making it important to ensure that accessible, useful information is provided in the media. The purpose of this study was to determine the use of scientific information in monthly livestock magazines through a survey of editor perceptions of the amount, type, and sources of information.

The content of magazines is determined by a series of gatekeepers, including editors (Cartmell, 2001; Dimmick, 1974; Lewin, 1947; Shoemaker et al., 2001; Stringer, 1999; White, 1950). In this role, editors of magazines may have significant influence on published content, which makes their perceptions of audience needs, significance and accuracy of information, and usefulness of a variety of information sources important indicators of the flow of research-based information from scientists to producers.

In this study, editors of monthly livestock publications were surveyed using a Web-based instrument to gain greater understanding of their preferences for the use of scientific information in their respective publications. The survey instrument was based on a survey of daily newspaper editors (Cartmell, 2001), a literature review of sources of information preferred by agricultural producers, and the investigator's professional

knowledge in the field of animal science. Reliability and validity of the instrument was determined by a panel of experts (see Appendix B) and pilot survey (see Appendix C) of editors of weekly livestock publications.

Editors were initially contacted via telephone (see Appendix D) and were sent a personalized introductory e-mail (see Appendix E) containing an Internet link to the survey if they consented to participate. The population comprised 54 editors of monthly publications that were members of the Livestock Publications Council in 2005. After finding no differences in early and late respondents, the final survey response rate was 72 percent.

Purpose

The purpose of this study was to determine the use of scientific information in monthly livestock magazines through a survey of editor perceptions of the amount, type, and sources of information used.

Objectives

1. Determine the importance of selected scientific topics to editors of livestock publications.
2. Determine what gatekeeping criteria editors of livestock publications used to determine the use of scientific information.
3. Determine editors' preferences for the use of sources of scientific information.
4. Determine editors' perceptions of the amount, type, and sources of scientific information published during 2005.

5. Determine demographic characteristics of editors of livestock publications.

Population

Monthly magazines registered as 2005 publication members of the Livestock Publications Council and publishing more than six issues per year were selected for this study. The source list for the population was the 2005 Livestock Publications Council membership list. The population size was 56 publications and 54 editors, as a result of two editors being responsible for multiple magazines. A census was used due to the small population size. Editors in the population were surveyed using a Web-based instrument.

Response Rate

Survey responses were collected from Jan. 27, 2006, through Feb. 23, 2006. Thirty-nine responses were obtained from a population of 54 editors, resulting in a 72 percent response rate.

Findings Related to the Importance of Scientific Topics to Editors

Survey respondents were asked to rank the importance of 14 potential scientific topics (see Table 1). All editors who responded to the survey answered this question.

Animal health was the most important topic with a mean of 3.42, and it was ranked first, second, or third by 23 editors. Editors ranked management as the second most important topic overall with a mean of 3.83, although it was tied with the third most important topic, breeding and genetics, for the most first-place rankings with nine editors placing it first. The mean of breeding and genetics was 3.91.

Table 1

Importance of Scientific Topics

Topic	<u>M</u>	Order
Animal health	3.42	1
Management	3.83	2
Breeding and genetics	3.91	3
Animal nutrition	4.97	4
Marketing	5.34	5
Commercial production	6.06	6
Research	7.36	7
Financial	7.41	8
Policy/regulatory	8.66	9
Training/education	9.14	10
Food safety	9.31	11
Animal welfare	9.50	12
Worker/employee safety	10.36	13
Human nutrition	11.31	14

With a mean of 4.97 and no rankings higher than second, animal nutrition was fourth overall on the list of topics ahead of marketing. Marketing was selected as the most important topic by three editors but received a mean of 5.34. Commercial production also received a rank of one by five editors but remained sixth overall with a mean of 6.06.

The seventh most important topic selected by editors was research, with a mean of 7.36. Eleven editors gave research a ranking of six or better, with one editor ranking it first. As the eighth most important topic, financial information closely followed research with a mean of 7.41 and was ranked sixth or better by 11 editors, but it was not ranked first by any editor. The 8.66 mean of policy/regulatory information placed it ninth on the list, although it did receive a ranking of one from three editors.

Information about training/education earned a mean of 9.14 and was 10th on the list, while food safety information followed in 11th with a mean of 9.31, and animal welfare ranked 12th with a mean of 9.50. Worker/employee safety information ranked near the bottom of the list with a mean of 10.36, and the least important topic to editors was human nutrition with a mean of 11.31.

Findings Related to Gatekeeping Criteria

Editors responding to the survey were asked to rank the importance of eight gatekeeping criteria to their decisions about the use of scientific information in their publications (see Table 2). All survey respondents answered this question.

The most important criterion identified as the first used by 12 editors was accuracy of content, which had a mean of 2.64. Accuracy was followed closely by trustworthiness of sources with a mean of 2.85, and nine editors ranked trustworthiness first. With a mean of 3.79, interest to the audience was the third most important criterion, and it was ranked first by eight editors.

Table 2

Importance of Gatekeeping Criteria

Criteria	<u>M</u>	Order
Is the content accurate?	2.64	1
Do I trust the source(s) of the information?	2.85	2
Is the content of interest to the audience?	3.79	3
Does the content have an impact on the industry?	4.05	4
Is the content timely?	4.76	5
Does the content improve the quality of information provided to the audience?	5.05	6
Is the content well-written?	6.21	7
Is space available?	6.67	8

The fourth-most important criterion was the impact of content on the industry with a mean of 4.05, with seven editors selecting it as their primary criterion. Timeliness of content was the fifth most important criterion with a mean rank of 4.76. None of the editors ranked timeliness first, although it was ranked second or third by 18 editors.

Whether content improved the quality of information provided to the audience ranked sixth on the list with a mean of 5.05, although it did receive a rank of one by two editors.

The criteria ranked seventh and eighth were quality of writing and availability of space, respectively. Quality of writing had a mean of 6.21 and was ranked first by one editor. Availability of space also earned one first-place ranking, but it was ranked eighth

by 18 editors and remained last on the complete list of gatekeeping criteria with a mean of 6.67.

Findings Related to Editors' Preferences for Sources of Scientific Information

Editors were asked to estimate the average number of sources (see Figure 3) they recommend a writer use when reporting scientific information and to identify what sources they would suggest to a writer seeking scientific information (see Table 3). All respondents answered both questions.

Editors most often ($n = 26$) recommended two to four sources be cited in a scientific story. Eight editors recommended a minimum of one source, while four indicated an average number of sources were not always encouraged. One editor noted the number of sources was left to the judgment of the writer.

All editors selected university faculty or staff as a source of scientific information. The second most selected source was Cooperative Extension, including extension agents

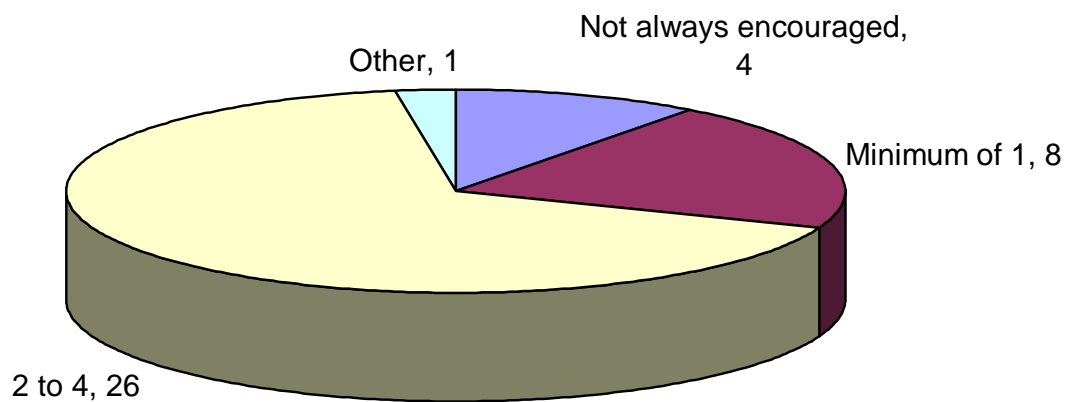


Figure 3. Average number of sources suggested by editors for a scientific story.

Table 3

Sources Suggested for Use in a Scientific Story

Source	n	%
University faculty or staff	39	100.0
Cooperative Extension (Extension Agent/Specialist)	36	92.3
Veterinarian(s)	35	89.7
USDA	33	84.6
Industry participant(s) or producer(s)	23	59.0
Breed organization(s)	21	53.8
Agribusiness(es)	19	48.7
Independent consultant(s)	17	43.6
Commodity group(s)	14	35.9
Nonbreed industry organization(s)	11	28.2
Private interest group(s)	7	17.9
Other	2	5.1

and specialists, which were chosen by 36 respondents. Veterinarians and the USDA were the third and fourth most selected sources of information, respectively, with 35 (89.7 percent) editors selecting veterinarians and 33 (84.6 percent) selecting the USDA.

Industry participants or producers were selected as a source of scientific information by 23 editors, followed by breed organizations (n = 21), agribusinesses (n = 19), independent consultants (n = 17), commodity groups (n = 14), nonbreed industry

organizations (n = 11), and private interest groups (n = 7). One editor indicated the sources of scientific information suggested to writers would depend on the subject matter.

Findings Related to the Publication of Scientific Information during 2005

Editors were asked to report the topics (see Table 4), number (see Figure 4) and types of sources (see Table 5), depth (see Figure 5), and overall use of scientific information (see Figure 6) in their publications during 2005. Thirty-seven editors indicated which topics were covered, the types of sources used, and the depth of scientific information published during 2005. All editors indicated how many sources were used per scientific story during 2005, and 38 editors indicated the overall use of scientific information during 2005.

Topics

The topic most covered by the responding livestock publications during 2005 was breeding and genetics, which was covered by 38 publications. Animal health was second with 36 publications including information, followed by animal nutrition (n = 33), research (n = 30), management (n = 29), commercial production (n = 27), and marketing (n = 25).

Policy/regulatory information was included by 19 publications, followed closely by 18 magazines that published animal welfare information and 17 publications that included food safety or financial information. Fourteen publications included information related to training/education, 13 included human nutrition information, and 11 included worker/employee safety information.

Table 4

Topics Published during 2005

Topic	n	%
Breeding and genetics	38	97.4
Animal health	36	92.3
Animal nutrition	33	84.6
Research (animal; ongoing or specific)	30	76.9
Management	29	74.4
Commercial production	27	69.2
Marketing	25	64.1
Policy/regulatory	19	48.7
Animal welfare	18	46.2
Financial	17	43.6
Food safety	17	43.6
Training/education	14	35.9
Human nutrition	13	33.3
Worker/employee safety	11	28.2
Other	2	5.1

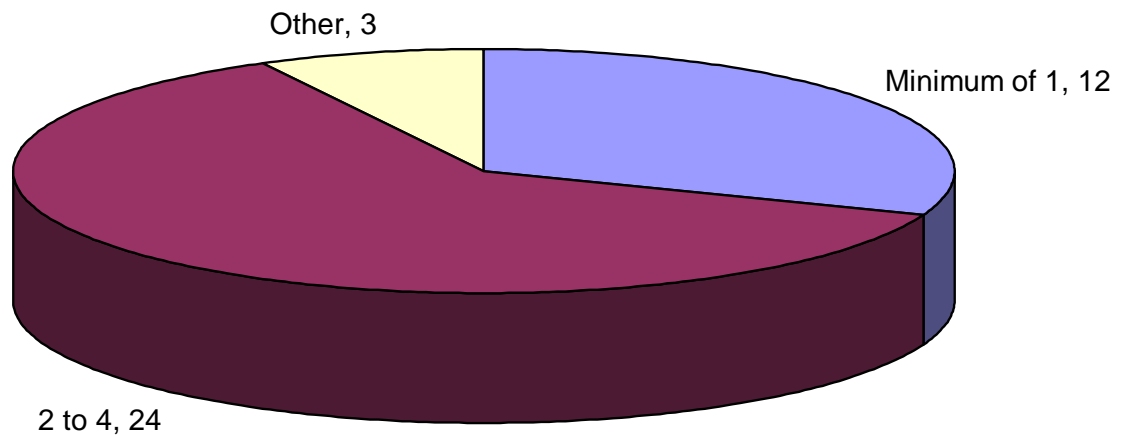


Figure 4. Average number of sources cited in scientific stories published during 2005.

One editor indicated “mainly news” as the topics covered in his or her publication, and one editor noted his or her magazine published no information about any of the topics on the list.

Sources of Information

Twenty-four editors indicated two to four was the average number of sources cited by writers whose content was published in their respective publications during 2005. Twelve editors indicated a minimum of one source was used by writers published during 2005, while three indicated they either did not know or sources were not used.

Editors reported all options for sources of scientific information were used during 2005. University faculty or staff were cited in 36 publications, followed closely by citations of Cooperative Extension, including extension agents or specialists, in 35 publications. Veterinarians were referenced in 28 publications, followed by the USDA (n = 27), industry participants or producers (n = 23), agribusinesses and/or breed organizations (n = 22), nonbreed industry organizations (n = 17), independent consultants

Table 5

Sources Used in Scientific Stories Published during 2005

Source	n	%
University faculty or staff	36	92.3
Cooperative Extension (Extension Agent/Specialist)	35	89.7
Veterinarian(s)	28	71.8
USDA	27	69.2
Industry participant(s) or producer(s)	23	59.0
Breed organization(s)	22	56.4
Agribusiness(es)	22	56.4
Non-breed industry organization(s)	17	43.6
Independent consultant(s)	15	38.5
Commodity group(s)	14	35.9
Private interest group(s)	9	23.1
Other	2	5.1

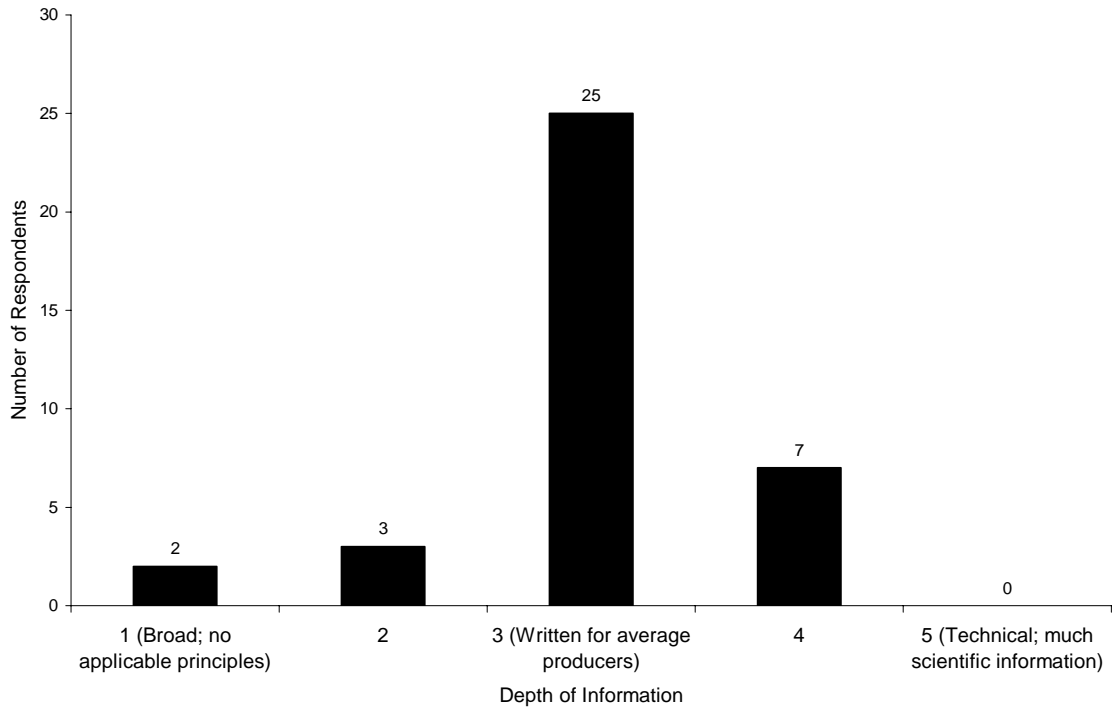


Figure 5. Average depth of scientific information published during 2005.

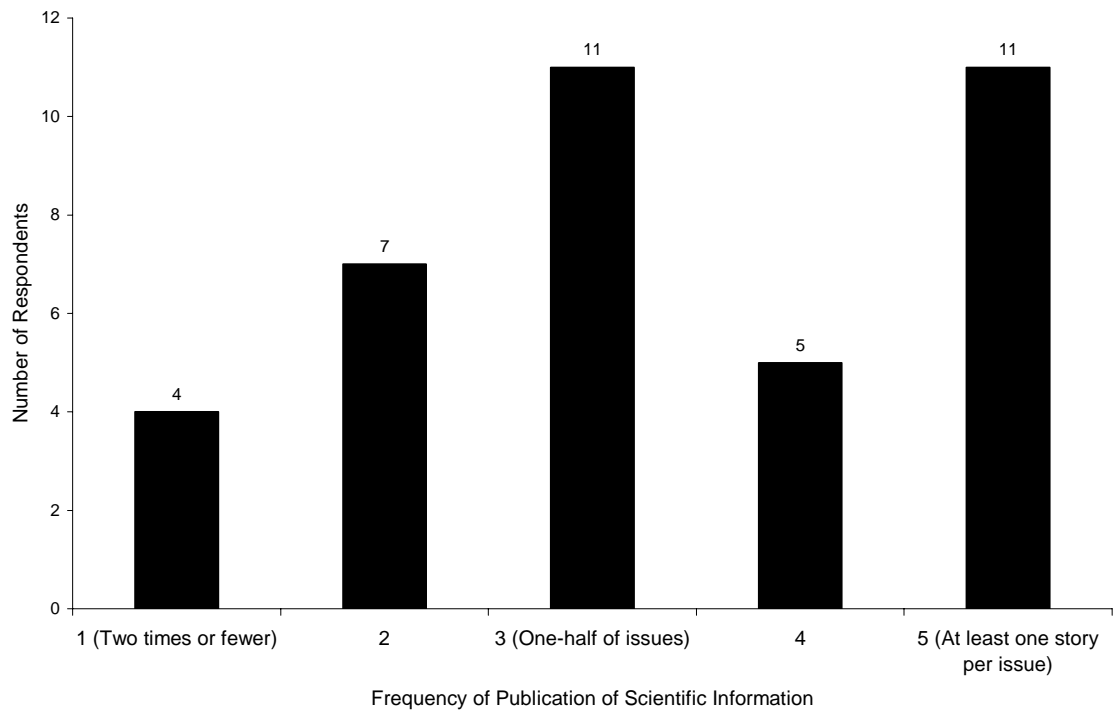


Figure 6. Use of scientific information during 2005.

(n = 15), commodity groups (n = 14), and private interest groups (n = 9). One editor replied government sources were used, and one indicated none of the sources were used.

Depth of Information

When asked to estimate the average depth of information used in scientific stories published during 2005, 25 editors indicated information was “written for average producers” and “included technical information in a format average producers can apply in their operations.” Seven editors indicated information was more technical than information written for the average producer, and three replied information was written in a format broader than information that could be applied by the average producer. Two editors indicated published scientific information was “broad, included few details, and did not outline specific principles for use by the producer.” Two editors did not respond to this question, and none of the editors indicated information was technical and included “a significant amount of scientific information.”

Overall Use of Information

Eleven editors reported scientific stories were published in approximately half of their issues during 2005, and 11 editors also reported at least one scientific story was published in each issue during 2005. Seven editors indicated scientific information was published in fewer than half of their issues, but more than twice during 2005, while five editors reported scientific information was published in more than half of their issues but not in every issue. Four editors indicated scientific stories were published two times or fewer during 2005. One editor did not respond to this question.

Demographics

General Background

Of the 39 survey respondents, 53.8 percent were male and 41.0 percent were female. Two editors chose not to respond to the gender question. The mean age of the respondents was 46, with a range of 27 to 70 years of age.

A large majority of the editors responding to the survey earned college degrees, with 37 holding at least a bachelor's degree. Master's degrees were earned by 10 respondents, while one respondent held a doctorate. Two respondents did not have a college degree.

Media Experience

Editors were asked to report their years of experience as a journalist, editor, editor of livestock publications (see Figure 7), agricultural journalism positions held, and positions held in the livestock publications industry (see Figure 8).

Years as a Journalist

The mean number of years of journalism experience reported by respondents was 21, with a range of four to 46 years. Two respondents did not report years of experience.

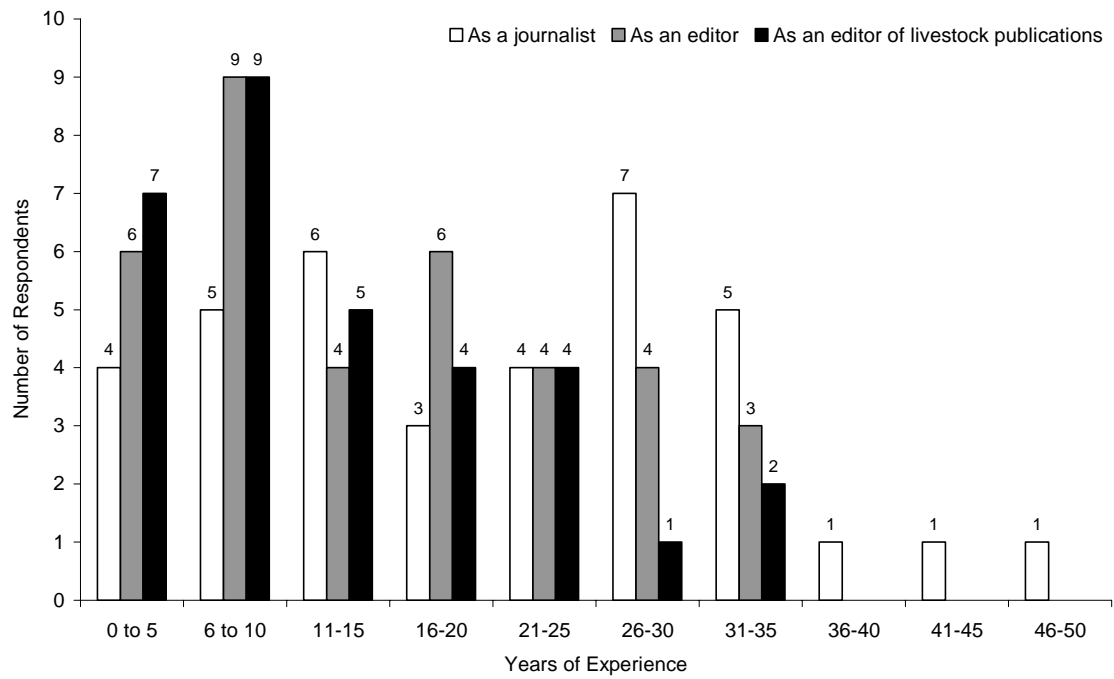


Figure 7. Years of editor experience as a journalist and an editor.

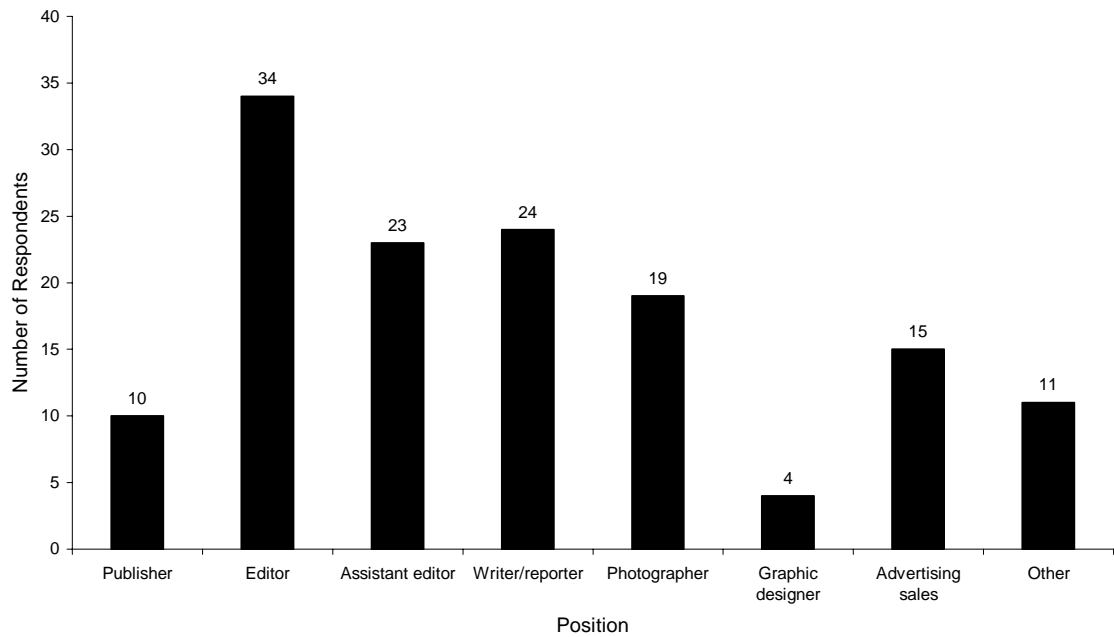


Figure 8. Positions editors held in the livestock publications industry.

Years as an Editor

The mean total years of editorial experience of respondents was 16, with a range of 35 years. The mean years of respondents' experience as an editor of livestock publications was 13 years, with a range from two to 33 years.

Agricultural Journalism Positions Held

The mean number of agricultural journalism positions held by respondents was 2.3, with a range of six positions. The mode and median for the number of agricultural journalism positions held was two.

Of the respondents reporting experience in the livestock publications industry, 34 held editor positions and 23 reported holding the position of assistant editor. Twenty-four also reported experience as writers/reporters, while 19 had experience as photographers. In addition, 15 respondents had experience in advertising sales; 11 reported experience in other editorial and advertising positions, public relations, bookkeeping, Web site management, and proofreading; and 10 had experience as publishers. Four respondents reported experience as graphic designers.

Experience in the Livestock Industry

Editors were asked to report the experiences they had in the livestock industry (see Table 6). The most common type of livestock industry experience of editors responding to the survey was living on a farm or ranch, with 33 reporting this experience. Paid work experience was selected by 29 respondents, followed by 27 who reported taking college livestock courses and 26 who worked on a farm or ranch. Twenty-five

Table 6

Sources of Editor Experiences in the Livestock Industry

Type of Experience	n	%	Order
Live(d) on a farm/ranch	33	84.6	1
Paid work experience	29	74.4	2
College livestock course(s)	27	69.2	3
Work(ed) on a farm/ranch	26	66.7	4
Live(d) in a rural area	25	64.1	5
Unpaid work experience	25	64.1	5
Own(ed) a livestock business	23	59.0	7
High school livestock course(s)	22	56.4	8
Extension workshop(s)	22	56.4	8
Work(ed) for a livestock business	21	53.8	10
Own(ed) a farm/ranch	18	46.2	11
Work(ed) in a rural area	15	38.5	12
Other	2	5.1	13
None	0	0	14

respondents lived in a rural area and/or had unpaid work experience in the livestock industry. Twenty-three respondents owned a livestock business. Twenty-two reported having high school livestock courses or participating in extension workshops, while 21 respondents worked for a livestock business. Eighteen respondents owned a farm or ranch, and 15 worked in a rural area. Two reported other livestock industry experience,

including a family-owned ranch and participation in industry workshops. None of the editors reported having no experience in the livestock industry.

Publication Demographics

Circulation

The mean of the annual circulations reported by editors responding to the survey was 38,777, with a range from 1,300 to 620,000 (see Figure 9). Seven publications had circulations of less than 5,000, and 13 publications had circulations between 5,000 and 10,000. Six publications had circulations between 10,000 and 20,000, and seven publications had circulations between 25,000 and 70,000. Three publications had circulations of about 100,000. One publication had a considerably higher circulation than the others at 620,000. The annual circulations of two publications were not reported.

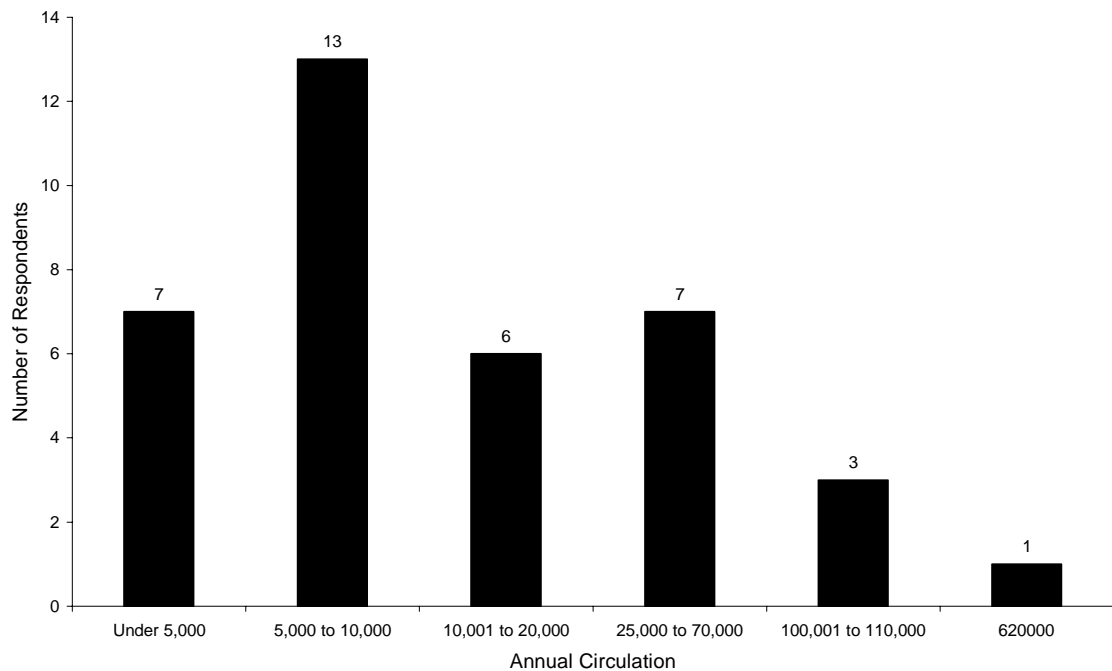


Figure 9. Circulation of publications.

Circulation Area

The circulation area reported most often by respondents was national, with 14 publications (see Figure 10). International circulation was reported for nine publications. Of the remaining publications, six covered a statewide area, five were multi-state publications, and three reported limited international circulation to Canada or a combination of state and regional circulations. The circulation area of two publications was not reported.

Ownership of Publication

Nearly one-half, or 19, of the publications were owned by associations, followed closely by 17 owned by private companies (see Figure 11). Only one publication was owned by a public company. Two respondents did not report publication ownership, and none of the respondents reported ownership by a public institution.

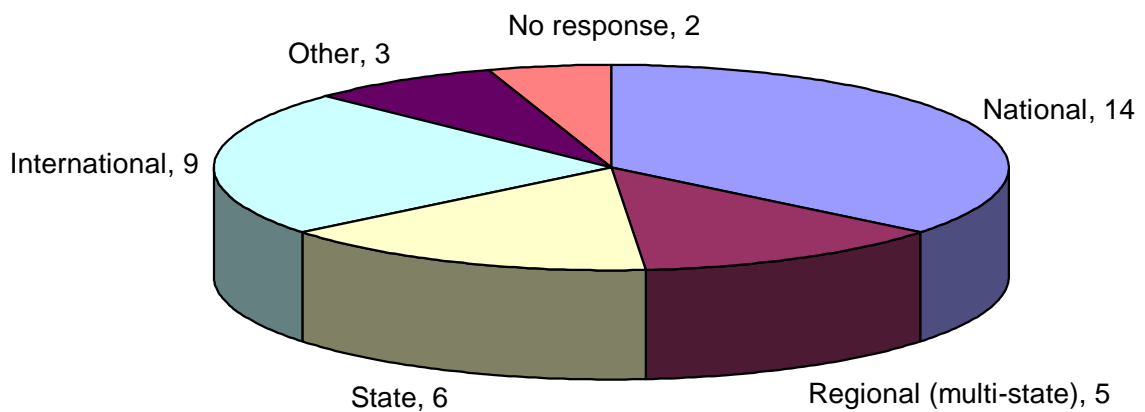


Figure 10. Circulation area of publications.

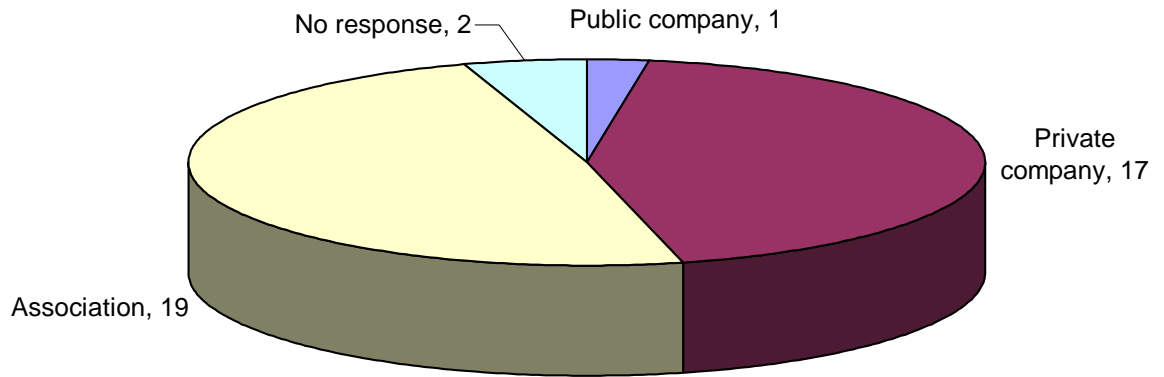


Figure 11. Ownership of publications.

CHAPTER V

CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

The need for agricultural information is growing as agriculture becomes a more information-intensive industry (Sonka, 1984). As with all issues and in all types of media, the press needs to provide complete information about complex topics to help people understand them (Friedman, Villamil, Suriano, & Egolf, 1991).

Farm magazines are often ranked the highest overall and used frequently as sources of information (Ford & Babb, 1989; Gloy et al., 2000; Harris Interactive, 2005; Maddox, 2001; Ortmann et al., 1993; Suvedi et al., 1999). Brown and Collins (1978) identified farm magazines as the most important source of farmers' information about public policy; their second most important sources of information about production technology, marketing, supply purchasing, business management, and farm policy; and their third most important sources for weather information.

As gatekeepers who determine the content of magazines, editors may have significant influence on the published content of magazines (Cartmell, 2001; Dimmick, 1974; Lewin, 1947; Shoemaker et al., 2001; Stringer, 1999; White, 1950). Due to this role, editors' perceptions of audience needs, significance and accuracy of information, and usefulness of a variety of information sources serve as indicators of the flow of research-based information from scientists to agricultural producers.

The importance of farm magazines as a source for information about such diverse topics in agriculture indicates the important role they play in farmers' decision-making processes, and the agricultural media must strive to provide usable information to producers.

Purpose

The purpose of this study was to determine the use of scientific information in monthly livestock magazines through a survey of editor perceptions of the amount, type, and sources of information used.

Procedures

In this study, editors of monthly livestock publications were surveyed using a Web-based instrument to gain greater understanding of their preferences for the use of scientific information in their respective publications. The survey instrument was based on a survey of daily newspaper editors (Cartmell, 2001), a literature review of sources of information preferred by agricultural producers, and the investigator's professional knowledge in the field of animal science. Reliability and validity of the instrument was determined by a panel of experts (see Appendix B) and pilot survey (see Appendix C) of editors of weekly livestock publications.

Editors were initially contacted via telephone (see Appendix D) and were sent a personalized introductory e-mail (see Appendix E) containing an Internet link to the survey if they consented to participate. Survey responses were collected from January 26

through February 23. The population comprised 54 editors of monthly publications that were members of the Livestock Publications Council in 2005.

Data were analyzed and interpreted using descriptive statistics, including means, standard deviations, modes, ranges, frequencies, and percentages. After finding no differences in early and late respondents, the final survey response rate was 72 percent.

Summary of Findings

Findings Related to the Importance of Scientific Topics to Editors

Editors were asked to rank the relative importance of 14 potential scientific topics. Animal health was ranked first overall and received a ranking of one, two, or three from a majority of the editors. Management was ranked second and received the same number of first-place rankings as breeding and genetics, which was third. Following breeding and genetics were, in order of importance based on means, animal nutrition, marketing, commercial production, research, financial, policy/regulatory, training/education, food safety, animal welfare, worker/employee safety, and human nutrition.

Findings Related to Gatekeeping Criteria

Editors were asked to rank the importance of eight gatekeeping criteria to their decisions about the use of scientific information in their publications. Accuracy of content was the most important criteria for 30.8 percent of editors and ranked first according to the means, followed closely by trustworthiness of sources. Interest to the audience was the third most important criterion, followed by impact of content on the

industry, timeliness of content, whether content improved the quality of information provided to the audience, quality of writing, and availability of space. Timeliness of content was the only criterion that did not receive a ranking of one from at least one editor.

Findings Related to Editors' Preferences for Sources of Scientific Information

Editors were asked to estimate the average number of sources they recommend a writer use when reporting scientific information.

A majority of editors recommended two to four sources be used in a scientific story, although some editors recommended only a minimum of one source or indicated an average number of sources was not always encouraged. One editor noted the number of sources to be used was left to the judgment of the writer.

Editors also were asked to identify from a provided list of sources those they would suggest to writers seeking scientific information. Sources were ordered based on the number of editors selecting them. University faculty or staff were selected by all editors as a source of scientific information followed closely by Cooperative Extension, veterinarians, and the USDA. The top four sources were selected by more than 80 percent of editors. More than half of editors selected industry participants or producers and breed organizations, which were followed by agribusinesses, independent consultants, commodity groups, nonbreed industry organizations, and private interest groups. One editor indicated sources of information recommended would depend on the subject matter.

Findings Related to the Publication of Scientific Information during 2005

Editors were asked to report the topics, number and type of sources, depth, and overall use of scientific information in their publications during 2005.

The topic covered by the largest number of publications was breeding and genetics, followed by animal health, animal nutrition, research, management, commercial production, and marketing. More than half of the magazines included information on these topics during 2005. Slightly less than half of the publications included information about policy/regulatory, animal welfare, financial, and food safety; and about one-third of the publications covered training/education, human nutrition, and worker/employee safety. Two publications indicated information was provided about other scientific topics.

A majority of editors indicated two to four sources were cited in scientific stories published during 2005, while about one-third of the editors reported a minimum of one source was used. Three editors did not know how many sources were used or indicated sources were not used.

All sources of scientific information in the provided list were used during 2005, according to the editors. University faculty or staff were used in the most publications, followed by Cooperative Extension, veterinarians, the USDA, industry participants or producers, agribusinesses and/or breed organizations, nonbreed industry organizations, independent consultants, commodity groups, and private interest groups. One editor indicated government sources were used, and one indicated none of the sources listed were used.

A majority of the editors indicated scientific information published during 2005 was “written for average producers” and “included technical information in a format

average producers can apply in their operations.” Seven editors indicated information was more technical than information written for average producers, and three indicated information was written more broadly than information that could be applied by the average producer. Two editors indicated published scientific information was broad and included few details, and none of editors reported publishing scientific information that was technical.

Slightly less than one-third of editors reported publishing scientific information in approximately half of their 2005 issues, and slightly less than one-third of editors reported at least one scientific story was published in each issue. Seven editors indicated scientific information was published in fewer than half of 2005 issues, while five reported publishing scientific information in more than half of issues but not in every issue. Four editors indicated scientific stories were published two times or fewer during 2005.

Findings Related to Demographics of Editors and Publications

A slight majority of the editors of livestock publications were male. The average age of the editors was 46, although ages ranged from 27 to 70 years. Nearly all of the editors held at least a bachelor’s degree, while about one-quarter held a master’s degree and one editor held a doctorate. Two editors did not have a college degree.

The mean number of years of journalism experience reported by editors was 21, with a range of four years to 46 years. The mean total years of editorial experience of respondents was 16, while the mean years of respondents’ experience as an editor of livestock publications was 13 years. The mean number of agricultural journalism positions held by respondents was 2.3. Nearly all respondents reported holding editorial

positions in the livestock publications industry, while other livestock publications experiences included writing/reporting, photography, advertising sales, public relations, bookkeeping, Web site management, proofreading, and graphic design. Ten editors reported experience as publishers.

A majority of editors had experience in the livestock industry through living on a farm or ranch, paid work experience, college livestock courses, working on a farm or ranch, living in a rural area, unpaid work experience, owning a livestock business, high school livestock courses, extension workshops, or working for a livestock business. Slightly less than half of editors owned a farm or ranch, and even fewer reported working in a rural area. Other livestock industry experiences reported included a family-owned ranch and participation in industry workshops. None of the editors reported having no experience in the livestock industry.

The mean of the reported annual circulations was 38,777, with a range from 1,300 to 620,000. A majority of the publications had circulations under 70,000, while one publication had a circulation considerably higher than the others at 620,000. Slightly more than one-third of the publications circulated nationally, while smaller percentages reported international, statewide, multi-state, limited international, or a combination of state and regional circulation. Nearly all publications are owned by either associations or private companies, while one publication is owned by a public company.

Conclusions

Conclusions Related to the Importance of Scientific Topics to Editors

Editors' identification of animal health, management, and breeding and genetics as the most important topics on the provided list and their lower ranking of financial information indicated agreement of editors with audience perceptions of information needs and previous studies of information provided by agricultural journals. Despite the close relationship between financial and general management information, editors also have separated these topics similar to audiences in previous research. Nonetheless, editors' lower rankings of policy and worker/employee safety information contradicted the importance of magazines identified by audiences in previous studies.

Agricultural audiences have long acknowledged magazines as important sources of information, particularly related to management, production practices, and policy (Batte et al., 1990; Brashear et al., 2000; Brown & Collins, 1978; Foltz et al., 1996; Ford & Babb, 1989; Jones et al., 1979; Harris Interactive, 2005; Murphy, 1960; Ortmann et al., 1993; Schnitkey et al., 1992). In addition, Oklahoma farmers used and preferred farm and ranch magazines as their primary sources for health and safety information originating from university sources, although magazines were not a widely used medium for information dissemination (Oskam, 1995). Specific information needs consistently recognized by farmers and ranchers include animal nutrition, animal health, markets, management, technology, and genetics and reproduction (Foltz et al.; Murphy), although magazines have not been identified as a primary source for current financial information (Ortmann et al.).

Agricultural producers' more frequent selection of topics such as animal health and nutrition as information necessities could decrease the relative importance of policy/regulatory and worker/employee safety information, leading to respective rankings of ninth and 13th on the list of 14 topics. The ranking of policy/regulatory lower in the list also may be due to a perception by editors that policy information is not as scientific as the topics ranked above it, although science often plays a key role in the establishment of policies that impact agricultural producers. Similarly, safety information may not be perceived as important scientific information by editors, but its ranking lower than topics not noted in previous audience studies may indicate an oversight of its significance to producers. A more recent study of agricultural audience information needs may, in fact, demonstrate an increase in the demand for scientific information related to policy and safety as principles of science and technology continue to become important in agriculture.

In general, editors appear to possess a strong understanding of livestock audience information needs. The six topics editors considered most important encompass subjects often designated as important by agricultural producers, in contrast to older research that concluded editors in the general mass media inaccurately perceived audience needs (Patterson, Booth, & Smith, 1969; Tannenbaum, 1963; Trotter, 1975).

Trotter (1975) demonstrated audiences who most agree with editors tend to believe publications are edited for people similar to themselves, which would hold true for livestock publications that are generally limited by commodity or geographical interest (Schlebecker, 1983). Organizational forces, such as definitions of news and

relationship to specific industries, also exert more influence on the selection of topics than editors' individual perceptions and experiences (Shoemaker et al., 2001).

Communicators in livestock organizations, therefore, are more likely to have accurate perceptions of specialized livestock audiences due to their respective organizations' positions within the livestock industry and their personal industry experiences. Livestock publications editors may, however, underestimate the importance of livestock magazines in the flow of certain information from research origins to applicable concepts.

Conclusions Related to Gatekeeping Criteria

The importance of certain gatekeeping criteria to editors mirrors the values of accuracy and newsworthiness found in journalism, as well as editors' perceptions of their livestock audiences' information needs. Editors appear to realize the influence sources have on the value of a story to the audience, while the positioning of interest to the audience and industry impact of information relative to other criteria show livestock publication editors grasp the concept of providing useful information to agricultural producers. Criteria ranked lower in relation to other provided choices also demonstrated that supplying useful information in agriculture is more important than whether information conforms to the inherent constraints of print media.

A high standard of accuracy is expected in the larger field of science journalism (Blum & Knudson, 1997), and trustworthiness of sources is closely related to accuracy of content. Source credibility often dictates the caliber of a story (Blum & Knudson), and earlier studies demonstrated audience responses to scientific information increase as

relevance to the reader and timeliness increase (Grunig, 1980; Murphy, 1960). The weight given by editors to the value of scientific content to the audience and industry may result from routine views intrinsic to agricultural organizations (Shoemaker et al., 2001), although editors' decisions are ultimately based on their entire collection of experiences, both personal and organizational (Fowler & Smith, 1981). Fowler and Smith also observed the decisions of magazine editors may carry more influence than those of gatekeepers in other mass media because the staffs of magazines are typically smaller and provide for more direct interaction between editors and the selection of magazine content.

Based on these observations, editors' experiences in agriculture and specifically the livestock industry may influence their opinions of the importance of providing content connected to audience needs. As the staffs of many livestock publications are considerably smaller than staffs found in the mainstream media, the role of individual experiences and opinions increases in the livestock publications industry and appears to have led editors to consider stylistic, quality of writing, and space constraint concerns less important than the relevance of information.

Editors' lower ranking of timeliness in comparison to accuracy and source credibility corresponds to previous observations that agricultural communicators should strive to educate audiences, although ranking timeliness below other criteria may reduce its apparent impact on gatekeeping decisions. The importance of timeliness above quality and space availability demonstrates its role in providing effective information.

Maddox (2001) observed communicators should educate, rather than influence, agricultural audiences by providing information that includes facts placed in context to allow readers to form individual opinions. Murphy (1960), however, observed magazines

should be concerned with the timeliness of information. Murphy also indicated stylistic concerns were less important than the usefulness of information to the producer.

The numerically close means of accuracy and trustworthiness of sources illustrated the nearly equal importance of some gatekeeping criteria and supported previous research that demonstrated more than one criterion is often employed simultaneously in gatekeeping decisions (Dimmick, 1974). Likewise, the comparable means of interest to the audience and impact, timeliness and quality of information, and quality of writing and space availability demonstrated gatekeeping criteria may be considered as groups resembling tiers in the decision-making process, with individual criteria on a tier being of similar importance at that level of decision-making.

Editors' awareness of livestock audience information needs is reflected not only by their accurate perceptions of the importance of scientific topics but also by the levels of criteria used to select information to be distributed about those topics. Discerning the value of pieces of information about an assortment of topics is often complex and is further complicated by the need for and use of criteria that are nearly equivalent in importance.

Conclusions Related to Editors' Preferences for Sources of Scientific Information

The number and sources of information preferred by editors coincided with the value of accuracy and trustworthiness of sources as criteria for using scientific information. The specific sources most preferred by editors also demonstrated the orientation of editors with other gatekeepers and the audience in selecting appropriate

information for publication, and the worth of certain sources of scientific information is validated by their use in both livestock publications and the mainstream media.

A majority of the editors recommended two to four sources be used in a scientific story, which allows for confirmation of information by multiple sources and could ensure all potential aspects of a story are presented. By requiring multiple sources, editors may also diminish readers' doubts about objectivity, and the citation of two to four sources allows for use of more than one of the editors' preferred sources of scientific information. Further support for using sources in scientific stories was provided by editors who chose a minimum of one source or indicated that a specific number of sources was not always encouraged. One editor also indicated the number of sources used was left to the discretion of the writer. None of the editors, however, indicated sources were discouraged or that stories without sources were acceptable.

In this study, editors showed a considerable preference for the top four sources, including university faculty or staff, Cooperative Extension, veterinarians, and the USDA. University faculty or staff was selected by all editors in this study, and those sources have been highly ranked by audiences and gatekeepers in previous research. The preference of editors for the USDA as a source of information conflicts with previous research about gatekeepers' preferences but agrees with the value placed on government information sources by audiences.

Similar to editors in this study, large-scale family farmers (Brown & Collins, 1978) and newspaper editors and reporters demonstrated preferences for university faculty or staff as sources of information by ranking them first on accessibility and tendency to explain information without making judgments (Stringer, 1999). Cooperative

Extension also was ranked highly by newspaper editors and reporters (Stringer) and farmers (Suvedi et al., 1999). Editorial staffs of agricultural publications, farm radio and television, and general newspapers previously reported relying on Cooperative Extension materials as sources of a variety of information (Brown & Collins). In comparison, newspaper editors and reporters ranked the USDA last on accessibility (Stringer), although the USDA was an important source for editors in this study. Government agencies also have been cited by farmers as important sources of information (Brown & Collins; Jones et al., 1979).

Most of the sources selected less by editors, including industry participants or producers, breed organizations, agribusinesses, consultants, commodity groups, nonbreed industry organizations, and private interest groups, have been indicated over time as important information sources by large-scale family farmers (Brown & Collins, 1978), Ohio commercial farmers (Batte et al., 1990), large corn belt farmers (Ortmann et al., 1993), and members of agricultural organizations (Harris Interactive, 2005). Similar to the results of this study, sources other than educational institutions and government agencies were ranked lower by news and agricultural periodicals (Whitaker & Dyer, 2000), although industry groups were the primary sources for food and nutrition information in the mainstream media followed by scientists and government officials (International Food Information Council Foundation, 1998). Editors of modern livestock publications also differed from Reber's (1960) earlier study of the farm press, which showed five of eight magazines surveyed drew more than half of their editorial content from private and non-tax-supported sources, and contemporary farmers and ranchers who ranked agricultural dealers and retailers highly on credibility, timeliness, and knowledge

of agricultural markets (Harris Interactive). However, newspaper editors and reporters ranked private interest groups lower than other sources (Stringer, 1999), in agreement with livestock publication editors in this study.

In general, editors of livestock publications appear to be in agreement with audiences and gatekeepers about the value of university and government sources of information. As the roots of many modern agricultural production methods can be found in university research and Cooperative Extension education programs, some bias toward these sources of information may exist in agriculture similar to bias observed as science writers formed relationships with scientists (Mazur, 1981). Some variance was observed concerning the usefulness of non-tax-supported sources, which may be explained by the goal for objectivity in journalism and requirements for meeting information needs that vary with commodity interest and geography. Ultimately, the successful flow of scientific information from sources to producers will be facilitated by agreement on the value of those sources between gatekeepers and audiences.

Conclusions Related to the Publication of Scientific Information during 2005

Editors' responses about the topics and sources of information published during 2005 were similar to their rankings of topic importance and preferences for the number and types of sources writers are encouraged to use. The reported depth and overall use of scientific information during 2005 also supported the importance of delivering understandable scientific information to their agricultural audiences.

The topics most covered by responding livestock publications during 2005 were similar to the editors' relative rankings of their importance, as the top seven topics and

bottom seven topics remained the same but varied in ranked order. Based on the rankings of topic importance, editors' seemed to be aware of audience information needs, and the topics published during 2005 reinforced the apparent accuracy with which editors understand their audiences. The importance of specific topics to editors and in publication also agrees with earlier work by Evans (1981), in which editors of dairy publications listed breeding technologies, animal health, production practices, animal nutrition, and management as important themes about which their publications needed to provide information. The similar rankings of importance and publication of topics despite variations in responding publications' audiences also indicated a diverse general livestock industry audience has similar information needs, and editors' high rankings of interest to and impact of content on the audience as gatekeeping criteria indicated meeting these needs with accurate, credible information was a priority in the livestock publications industry.

Similar to editors' reported preferences for the use of sources in scientific stories, a majority of editors reported two to four sources were used in stories published during 2005. The number of editors indicating at least a minimum of one source be used did increase for information published during 2005, although three editors did report they did not know or sources were not used. Publications reporting sources were not used during 2005 also indicated they published little or no scientific information. The use of multiple sources for scientific stories in 2005 further supported the importance of objectivity and providing appropriate context for information so readers can be educated rather than influenced.

Editors' preferred sources for information paralleled sources reported to be used during 2005 with one variation. Nonbreed industry organizations were used more than consultants and commodity groups during 2005, although they were ranked lower than these sources by editors. All sources were cited during 2005, according to the editors. The reliance of editors and writers on these sources may be due to the nature of the topics and the need for accessible, unbiased information. Breeding and genetics, animal health, animal nutrition, and research information may be best explained by the originators of the information or perceived experts, such as universities or veterinarians. Gatekeepers with backgrounds or experience in agriculture, such as those working for a livestock publication, also may tend to rely on traditional sources of agricultural information, as demonstrated by the preferences of editors for those sources and the use of those sources during 2005.

A majority of editors reported scientific information published during 2005 was written for the average producer and included technical information in a format applicable in livestock operations, which agrees with the observation of Grantham and Irani (2004) that information should be provided at a level usable by producers with average educational backgrounds. Specialized audiences, such as livestock producers, may understand scientific terms better than broader audiences due to their more frequent use of such information, but communicators of abstract, complicated information should strive to provide concepts in lay terms that meet audience needs and accurately portray information. In the livestock industry, this can be achieved by providing context for information and creating applicable principles for producers, which the majority of livestock publications attempted to do.

The reported overall use of scientific information in livestock publications during 2005 supported editors' grasp of audience needs; the importance of using multiple sources to provide usable, reliable information; and the importance of providing content important to the livestock industry. A majority of publications used scientific information in more than half of 2005 issues, while only four published scientific information two times or fewer during 2005. Variation in the use of scientific information resulted from differences in the purpose of the publications, although their role in providing modern, usable information agrees with Schlebecker's (1983) observation that the function of agricultural journals is to bring timely, valuable items to the attention of readers. These results demonstrated the significance of science in the livestock industry and editors' comprehension of what information will best help their audiences.

Conclusions Related to Demographics of Editors and Publications

The demographics of livestock publications editors and their magazines showed similarities and differences to the earlier farm press, other gatekeepers and science communicators, and the mainstream media. This was expected, as livestock publications developed from the early, more general farm press and often function under different organizational routines than other mass media.

A slight majority of livestock publications editors in this study were male, and most held bachelor's degrees. Editors also were an average of 46 years old with 21 years of journalism experience. In comparison, the typical mainstream U.S. journalist of the 1990s was 36 years old with 12 years of journalism experience (Weaver & Wilhoit, 1996).

Most of the editors in this study reported holding at least two agricultural or livestock journalism positions during their careers, with experiences ranging from graphic design to Web site management to writing and editorial. In addition, all editors reported having experience in the livestock industry beyond their current positions, further strengthening their understanding of and ability to communicate with their audiences. Science communicators in mainstream media typically only have a basic background in science and science communication (Treise & Weigold, 2002), in contrast to the editors of livestock publications.

Livestock publications in this study were owned primarily by either associations or private companies, which is somewhat similar to the mainstream mass media (Lichter et al., 1986). The role of private companies in ownership of livestock publications also resembles publication ownership in earlier days of the farm press, as Reber (1960) found that one individual or family controlled more than half of the stock in four of the eight publications he surveyed. In the livestock publications industry, it is not surprising that nearly half of publications are owned by associations because these organizations play significant roles in the livelihoods of producers and the industry.

Recommendations

Recommendations Related to the Importance of Scientific Topics to Editors

A comparison of editors' rankings of the importance of scientific topics with information needs identified by audiences shows editors of livestock publications are more in tune with audience needs than editors in the mainstream media, and gatekeepers in the livestock media need to maintain their awareness of these needs. Perceptions of

audience needs may be enhanced through strong connections with the livestock industry, although editors must preserve objectivity to continue providing complete, accurate information to readers. The best editors will look to the future of their industries and provide information producers need to reach production goals successfully.

In selecting topics for publication, the role of magazines in the decision-making processes of farmers and ranchers should be considered to ensure information needs are met. Editors may be unaware of their publications' importance in the livestock industry relative to other media, so a review of industry studies may be useful to many gatekeepers.

Organizations responsible for distributing information throughout the livestock industry should be aware of the impact organizational routines and philosophies have on the decisions of gatekeepers. Institutional perceptions will become a part of editors' personal opinions and experiences, and editors and organizations should be aware and take steps to ensure objectivity in gatekeeping decisions is maintained.

Recommendations Related to Gatekeeping Criteria

Accuracy and providing useful content appeared to be the primary goals of editors' gatekeeping decisions, and editors should continue to ensure accuracy of content and avoid appearances of bias through careful selection of sources. Credibility is a key issue for many producers, and avoiding inaccuracies and bias will aid in diminishing producers' doubts about external influences, including advertisers, on magazine content.

Providing useful content also should continue to be a primary goal for gatekeepers in the livestock publications industry. Agricultural organizations, including livestock

magazines, should continue operating under the goal of providing knowledge to producers rather than trying to influence producers. This goal may be refined and manipulated to meet the objectives of associations and other organizations that own particular publications, but such groups should continue to provide impactful information with enough context to allow producers to develop their own attitudes.

Editors should be conscious of various organizational and personal influences on their gatekeeping decisions. Prior experiences in agriculture or the livestock industry may be particularly strong influences on editors' selection of topics and sources, and employing a system of multiple criteria for making decisions will help editors overcome innate personal biases.

Recommendations Related to Editors' Preferences for Sources of Scientific Information

The caliber of any story ultimately rests on its perceived accuracy, which is strongly influenced by audience perceptions of source credibility. Therefore, sources perceived as credible by the audience should be used to sustain the trust of magazine readers. Gatekeepers should be cautious in the selection of sources, however, to avoid tendencies arising from their agricultural roots so producers are presented with information they may find useful but would not normally seek.

The use of multiple sources in stories is an important tool for ensuring objectivity and gaining readers' trust, as agricultural producers previously indicated a preference for confirmation of information by more than one source. In addition, a variety of sources should be included in scientific stories to add extra dimensions to information that create a complete picture incorporating both context and principles producers can apply in their

operations. Editors need an understanding of how best to achieve this, along with an understanding of audience perceptions of sources, to facilitate efficiently the flow of information from scientific sources to producers.

Recommendations Related to the Publication of Scientific Information during 2005

As demonstrated by the type and number of sources used in scientific stories during 2005, editors of livestock publications should continue using a variety of multiple sources audiences perceive as credible to provide information about important topics in the livestock industry. Information needs to be provided in a format usable by average producers, and applicable ideas should be created in stories whenever possible.

Appropriate, objective context also should be provided so producers can determine how information may help them reach production goals.

The use of scientific information during 2005 reported by editors also demonstrated the significant impact science has in the livestock industry, further supporting the need to provide pertinent scientific concepts to producers. Specialized publications may not focus on topics directly related to science, but as an industry, livestock publications need to ensure producers receive adequate information to uphold the competitiveness of U.S. livestock production.

Recommendations Related to Demographics of Editors and Publications

All editors in this study reported having some type of experience in the livestock industry, and their apparent understanding of audience needs may be due largely to those experiences. Consequently, gatekeepers and other communicators involved with livestock

publications should aim to gain experiences in the livestock industry not directly related to their jobs as communicators. These experiences may enhance gatekeepers understanding of and ability to communicate with livestock audiences.

Recommendations Related to Further Research

As livestock and other agricultural industries continue to grow and advances in technology continue, the importance of science to agriculture and the role of magazines in disseminating the most advanced information to producers will only increase. A gap exists, however, in research about the information needs and value of scientific information to producers. This gap has created a need for more studies of producers' information needs, although the media preferred by producers has been well established.

Implications

Despite numerous studies of agricultural producers' preferences for sources of information, few studies have examined agricultural gatekeepers' preferences for use of specific types of information and the basis for their gatekeeping decisions. With this study, a beginning comparison now can be made between livestock publications editors and their audiences.

This study has important implications for livestock publications and their gatekeepers. Editors of livestock publications may be able to compare their own practices for making gatekeeping decisions and learning about their respective sectors of the larger livestock industry to the information provided by their peers. It also may create a greater awareness of the influences on their decisions, as well as how those decisions coincide

with previously reported preferences of producers for topical information and sources of information.

This study creates a foundation for additional studies of agricultural gatekeepers and audiences, particularly if and how information needs are being met in the face of rapid advancements in the science and technology of agriculture. As communicators involved in all types of agricultural media consider both the positive results of this study and the deficiencies it revealed, steps can be taken to ensure information flows efficiently from scientists to producers to bring the greatest possible benefits throughout agriculture.

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APPENDICES

APPENDIX A

INSTITUTIONAL REVIEW BOARD

Oklahoma State University Institutional Review Board

Date: Tuesday, January 03, 2006
IRB Application No AG0618
Proposal Title: Editor Preferences for the Use of Scientific Information in Livestock Publications
Reviewed and Processed as: Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 1/2/2007

Principal Investigator(s)

Traci Naile
4304 W. 44th St.
Stillwater, OK 74074

Dwayne Cartmell
436 Ag Hall
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 415 Whitehurst (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,



Sue C. Jacobs, Chair
Institutional Review Board

APPENDIX B

PANEL OF EXPERTS

Craig Edwards
Oklahoma State University
456 Agricultural Hall
Stillwater, OK 74078

Diane Johnson
Livestock Publications Council
910 Currie St.
Fort Worth, TX 76107

Benjamin Richey
National Institute for Animal Agriculture
1910 Lyda Ave.
Bowling Green, KY 42104

Shelly Sitton
Oklahoma State University
435 Agricultural Hall
Stillwater, OK 74078

APPENDIX C

PILOT TEST

Editor Preferences for the Use of Scientific Information in Livestock Publications



Thank you for helping us by completing this survey!

The questionnaire should take approximately 15 minutes to complete. Your responses will remain confidential. This survey is designed to determine the use of scientific information in monthly livestock magazines based on editors' decisions as gatekeepers. If you have any questions about this survey or research project, please call Traci Naile at (405) 880-6451 or e-mail her via tnaile@okstate.edu, or call Dwayne Cartmell, Ph.D. at (405) 744-0461 or e-mail him via dwayne.cartmell@okstate.edu.

INSTRUCTIONS

In filling out this survey, please use the following definition of scientific information:

Scientific information: Information derived directly from 1) a scientific research study or formal expert or 2) professional training conducted by parties in either the public or private sector.

Please answer the questions as indicated by each question type.

Section 1: Sources of Scientific Information

1) Please rank from 1 to 8 the following gatekeeping criteria in the order you would use them in making decisions to use scientific information in your publication.

Do I trust the source(s) of the information?

Is the content accurate?

Is the content timely?

Is space available?

Is the content of interest to the audience?

- Is the content well-written?
- Does the content have an impact on the industry?
- Does the content improve the quality of information provided to the audience?
-

2) Which of the following sources would you use or suggest a writer use in seeking information for a scientific story? (Check all that apply.)

- Cooperative Extension (Extension Agent)
- University faculty or staff
- Breed organizations
- USDA
- Commodity groups
- Private interest groups
- Agribusiness(es)
- Industry participants or producers
- Independent consultant(s)

Other (Please Specify):

3) What is the average number of sources you encourage a writer to cite in a scientific story?

- Not always encouraged
- Minimum of 1
- 2-4
- 5 or more
- Other (Please Specify): _____

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Editor Preferences for the Use of Scientific Information in Livestock Publications



Section 2: Scientific Information Published during 2005

4) Please mark all topics on which your publication has included scientific information during 2005.

- Management
- Financial
- Marketing
- Commercial production
- Breeding and genetics
- Animal health
- Animal nutrition
- Food safety
- Human nutrition
- Worker/employee safety
- Animal welfare
- Training/education
- Research (animal; ongoing or specific)
- Policy/regulatory

Other (Please Specify):

5) Please mark all sources of scientific information used in articles published during 2005.

- Cooperative Extension (Extension Agent/Specialist)

- University faculty or staff
- Veterinarian(s)
- Breed organization(s)
- Non-breed industry organization(s)
- USDA
- Commodity group(s)
- Private interest group(s)
- Agribusiness(es)
- Industry participant(s) or producer(s)
- Independent consultant(s)

Other (Please specify):

6) Please indicate the average number of sources of scientific information cited by writers whose content was published in your magazine during 2005.

- Minimum of 1
 - 2-4
 - 5 or more
 - Other (Please specify):
-

7) Please indicate the average depth of information used in scientific stories published during 2005.

- 1 (Scientific information is broad, includes few details, and does not outline specific principles for use by the producer)
 - 2
 - 3 (Written for average producers; includes technical information in a format average producers can apply in their operations)
 - 4
 - 5 (Technical; includes a significant amount of scientific information)
-

8) Please indicate the use of scientific information by your publication during 2005.

- 1 (Scientific stories were published two times or fewer in 2005)
- 2
- 3 (Scientific stories were published in approximately one-half of the issues of your publication)
- 4
- 5 (At least one scientific story was published in each issue of your publication)

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Editor Preferences for the Use of Scientific Information in Livestock Publications



Section 3: Demographics

9) What is your gender?

- Male
 - Female
-

10) What is your age?

|

11) How many years have you been a journalist?

|

12) How many years have you been an editor?

total
of livestock publications

13) How many different full-time agricultural journalism positions have you held in your career?

14) Which of the following positions within the livestock publications industry have you held? (Check all that apply.)

- Assistant editor
- Editor
- Graphic designer
- Photographer
- Publisher
- Writer/reporter
- Advertising sales

Other (Please specify): |

15) What college or university degrees have you earned? (Please mark all that apply.)

None (please write "None")

Associate (major)

Bachelor's (major)

Master's (field of study)

Education Specialist (major)

Professional (field/discipline)

Doctorate (field of study)

Other (please specify)

<input type="checkbox"/>
<input type="checkbox"/>
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<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

16) Please mark all types of experience you have had in the livestock industry.

- None
- Paid work experience
- Unpaid work experience
- Live(d) in a rural area
- Live(d) on a farm/ranch
- Own(ed) a farm/ranch
- Work(ed) in a rural area
- Work(ed) on a farm/ranch
- Work(ed) for a livestock business
- Own(ed) a livestock business
- High school livestock course(s)
- College livestock course(s)
- Extension workshop(s)

Other (Please Specify): _____

17) What is the circulation of your publication?

18) Which of the following best describes your publication's circulation area?

- State
 - Regional (multi-state area)
 - National (United States)
 - International
 - Other (Please Specify):
-

19) Which of the following best describes the ownership of the publication where you are employed?

- Public company
- Private company
- Association
- Public institution (university, etc.)
- Other (Please Specify):



20) Below is a list of scientific topics. Please rank from 1 to 8 the importance of each topic .

- Management
- Financial
- Marketing
- Commercial production
- Breeding and genetics
- Health
- Nutrition
- Food safety
- Worker/employee safety
- Animal welfare
- Training/education
- Research (ongoing or specific)
- Policy/regulatory

21) What is the name of your publication?



APPENDIX D

TELEPHONE SCRIPT

Hello, may I please speak to (Editor)?

Hello, my name is Traci Naile. I'm a graduate student at Oklahoma State, and I am calling to talk to you about a survey I plan to send to you as part of the research for my master's degree.

For my research, I'm examining the use of scientific information in monthly livestock publications.

I'm asking the editor of each monthly publication on the 2005 Livestock Publications Council membership list to complete an online survey that will provide half of the data for my thesis project. The survey includes questions about your preferences for including scientific information in your publication, the use of scientific information by your publication during 2005, and demographics.

I will e-mail you a link to the survey within the next week. It will take approximately 15 minutes to complete.

I would appreciate your participation because I feel this project will help us develop insights into our abilities as communicators to provide research-based information to producers.

Are you willing to complete the survey?

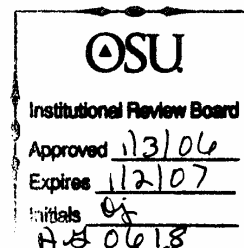
(Negative response): I understand. Thank you for your time. I can be contacted at (405) 880-6451 or osuboiler@aol.com if you choose to complete the survey at a later time.

(Positive response): Thank you. There is also another piece to my project, which entails completing a content analysis on the 2005 issues of your publication to provide an objective ranking of the scientific information used. What arrangements can we make so that I can obtain those issues for use in this part of my project?

Please send the publications to Dwayne Cartmell, Oklahoma State University, 436 Agricultural Hall, Stillwater, OK 74078. Dr. Cartmell's assistant, Sheri Ishmael-Waldrop, may be reached at 744-5130 for any additional information needed on shipping.

Thank you for your time and help in completing this project. I look forward to receiving your survey responses and your publications.

Good bye.



APPENDIX E

INTRODUCTORY E-MAIL

To: Editor
Subject: Oklahoma State University needs your assistance

Dear (Editor):

As I mentioned in our phone conversation, I need your help! As an editor, you have an important role in deciding the information provided to numerous livestock producers. Your views of the quality and sources published in monthly livestock magazines are vital to helping other agriculturists provide appropriate information to members of the agricultural media. You are one of a limited number of agricultural editors selected to participate in this study.

The primary purpose of this study is to determine the use of scientific information in monthly livestock magazines. The results of this study will be valuable in evaluating the quality and usefulness of information provided to the agricultural media by public and private sources. In addition, media members will have important information on industry views about the value of scientific information to livestock producers.

This survey will take approximately 15 minutes to complete. Please respond to the questions in terms of your views. Your responses will be treated confidentially. If you are not the appropriate contact for filling out this information, please pass this note on to the appropriate person so your publication is represented in this study.

To access the online survey, please use your Internet browser of choice and go to:

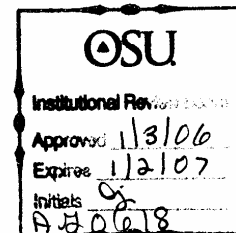
<http://freeonlinesurveys.com/rendersurvey.asp?id=124704>

If you have trouble accessing the online survey, please e-mail me at tnaile@okstate.edu, and I will mail a copy of the instrument for your completion. Your immediate response is greatly appreciated.

Thank you for taking time from your busy schedule to complete this online questionnaire. If you should have any questions about this research project, please feel free to contact Traci Naile at (405) 880-6451 or Dwayne Cartmell at (405) 744-0461. For additional information regarding human participation in research, contact the Oklahoma State University Institutional Review Board office at (405) 744-1676.

Sincerely,

Traci L. Naile



APPENDIX F

EDITOR SURVEY

Copy of Editor Preferences for the Use of Scientific Information in Livestock Publications



Thank you for helping us by completing this survey!

The questionnaire should take approximately 15 minutes to complete. Your responses will remain confidential. This survey is designed to determine the use of scientific information in monthly livestock magazines based on editors' decisions as gatekeepers. If you have any questions about this survey or research project, please call Traci Naile at (405) 880-6451 or e-mail her via tnaile@okstate.edu, or call Dwayne Cartmell, Ph.D. at (405) 744-0461 or e-mail him via dwayne.cartmell@okstate.edu.

INSTRUCTIONS

In filling out this survey, please use the following definition of scientific information:

Scientific information: Information derived directly from 1) a scientific research study or formal expert or 2) professional training conducted by parties in either the public or private sector.

Please answer the questions as indicated by each question type.

Section 1: Sources of Scientific Information

1) Please rank from 1 to 8 (1 = most important) the following gatekeeping criteria in the order you would use them in making decisions to use scientific information in your publication.

- Do I trust the source(s) of the information?
- Is the content accurate?
- Is the content timely?
- Is space available?

- Is the content of interest to the audience?
- Is the content well-written?
- Does the content have an impact on the industry?
- Does the content improve the quality of information provided to the audience?
-

2) Which of the following sources would you use or suggest a writer use in seeking information for a scientific story? (Check all that apply.)

- Cooperative Extension (Extension Agent/Specialist)
- University faculty or staff
- Veterinarian(s)
- Breed organization(s)
- Non-breed industry organization(s)
- USDA
- Commodity group(s)
- Private interest group(s)
- Agribusiness(es)
- Industry participant(s) or producer(s)
- Independent consultant(s)

Other (Please Specify): _____

3) What is the average number of sources you encourage a writer to cite in a scientific story?

- Not always encouraged
- Minimum of 1
- 2-4
- 5 or more
- Other (Please Specify):

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Copy of Editor Preferences for the Use of Scientific Information in Livestock Publications



Section 2: Scientific Information Published during 2005

4) Please mark all topics on which your publication has included scientific information during 2005.

- Management
- Financial
- Marketing
- Commercial production
- Breeding and genetics
- Animal health
- Animal nutrition
- Food safety
- Human nutrition
- Worker/employee safety
- Animal welfare
- Training/education
- Research (animal; ongoing or specific)
- Policy/regulatory

Other (Please Specify):

5) Please mark all sources of scientific information used in articles published during 2005.

- Cooperative Extension (Extension Agent/Specialist)

- University faculty or staff
- Veterinarian(s)
- Breed organization(s)
- Non-breed industry organization(s)
- USDA
- Commodity group(s)
- Private interest group(s)
- Agribusiness(es)
- Industry participant(s) or producer(s)
- Independent consultant(s)

Other (Please specify):

6) Please indicate the average number of sources of scientific information cited by writers whose content was published in your magazine during 2005.

- Minimum of 1
 - 2-4
 - 5 or more
 - Other (Please specify):
-

7) Please indicate the average depth of information used in scientific stories published during 2005.

- 1 (Scientific information is broad, includes few details, and does not outline specific principles for use by the producer)
 - 2
 - 3 (Written for average producers; includes technical information in a format average producers can apply in their operations)
 - 4
 - 5 (Technical; includes a significant amount of scientific information)
-

8) Please indicate the use of scientific information by your publication during 2005.

- 1 (Scientific stories were published two times or fewer in 2005)
- 2
- 3 (Scientific stories were published in approximately one-half of the issues of your publication)
- 4
- 5 (At least one scientific story was published in each issue of your publication)

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Copy of Editor Preferences for the Use of Scientific Information in Livestock Publications



Section 3: Demographics

9) What is your gender?

- Male
 Female

10) What is your age?

|

11) How many years have you been a journalist?

|

12) How many years have you been an editor?

total
of livestock publications

13) How many different full-time agricultural journalism positions
have you held in your career?

14) Which of the following positions within the livestock publications industry have you held? (Check all that apply.)

- Assistant editor
- Editor
- Graphic designer
- Photographer
- Publisher
- Writer/reporter
- Advertising sales

Other (Please specify): |

15) What college or university degrees have you earned? (Please mark all that apply.)

None (please write "None")

Associate (major)

Bachelor's (major)

Master's (field of study)

Education Specialist (major)

Professional (field/discipline)

Doctorate (field of study)

Other (please specify)

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

16) Please mark all types of experience you have had in the livestock industry.

- None
- Paid work experience
- Unpaid work experience
- Live(d) in a rural area
- Live(d) on a farm/ranch
- Own(ed) a farm/ranch
- Work(ed) in a rural area
- Work(ed) on a farm/ranch
- Work(ed) for a livestock business
- Own(ed) a livestock business
- High school livestock course(s)
- College livestock course(s)
- Extension workshop(s)

Other (Please Specify): _____

17) What is the circulation of your publication?

18) Which of the following best describes your publication's circulation area?

- State
- Regional (multi-state area)
- National (United States)
- International
- Other (Please Specify):

19) Which of the following best describes the ownership of the publication where you are employed?

- Public company
- Private company
- Association
- Public institution (university, etc.)
- Other (Please Specify):



20) Below is a list of scientific topics. Please rank from 1 to 8 (1 = most important) the importance of each topic .

- Management
- Financial
- Marketing
- Commercial production
- Breeding and genetics
- Animal health
- Animal nutrition
- Food safety
- Human nutrition
- Worker/employee safety
- Animal welfare
- Training/education
- Research (animal; ongoing or specific)
- Policy/regulatory

21) What is the name of your publication?



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APPENDIX G

REMINDER E-MAIL

To: Editor
Subject: Oklahoma State University survey reminder

Dear (Editor):

Just a reminder that I need your help! A week ago, I e-mailed you a link to a short online survey that will help us learn about your views of the information published in your magazine. The primary purpose of this study is to determine the use of scientific information in monthly livestock magazines.

The survey will take approximately 15 minutes to complete. Please respond to the questions in terms of your views. Your responses will be treated confidentially. To access the online survey, please use your Internet browser of choice and go to:

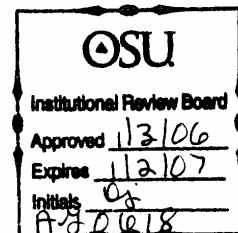
<http://freeonlinesurveys.com/rendersurvey.asp?id=124704>

If you have trouble accessing the online survey, please e-mail me at tnaile@okstate.edu, and I will mail a copy of the instrument for your completion. Your immediate response is greatly appreciated. If you are not the appropriate contact for filling out this information, please pass this note on to the appropriate person so your publication is represented in this study.

Thank you for taking time from your busy schedule to complete this online questionnaire. If you should have any questions about this research project, please feel free to contact Traci Naile at (405) 880-6451 or Dwayne Cartmell at (405) 744-0461.

Sincerely,

Traci L. Naile



VITA

Traci Lianne Naile

Candidate for the Degree of

Master of Science

Thesis: EDITOR PREFERENCES FOR THE USE OF SCIENTIFIC INFORMATION
IN LIVESTOCK PUBLICATIONS

Major Field: Agricultural Communications

Biographical:

Personal Data: Born in Franklin, Indiana, June 2, 1979, the daughter of Peggy Naile.

Education: Graduated from Indian Creek High School, Trafalgar, Indiana, in May 1997; received Bachelor of Science degree in Animal Science from Purdue University, West Lafayette, Indiana, in May 2001 and Master of Science degree in Animal Science from Oklahoma State University, Stillwater, Oklahoma, in December 2003. Completed the requirements for the Master of Science degree with a major in Agricultural Communications at Oklahoma State University, Stillwater, Oklahoma, in May 2006.

Experience: Raised in a rural area near Trafalgar, Indiana; interned for Purdue Cooperative Extension Service from 1999 to 2001 and Oklahoma State Fair in 2004; employed as a graduate assistant by Oklahoma State University in Animal Science by Oklahoma State University from 2001 to 2003, graduate assistant for Career Services from 2004 to 2005, graduate assistant in Journalism from 2004-2005; employed by O'Neill Marketing Communications, 2005.

Professional Memberships: American Registry of Professional Animal Scientists, American Society of Animal Science.

Name: Traci L. Naile

Date of Degree: May 2006

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: EDITOR PREFERENCES FOR THE USE OF SCIENTIFIC
INFORMATION IN LIVESTOCK PUBLICATIONS

Pages in Study: 124

Candidate for the Degree of Master of Science

Major Field: Agricultural Communications

Scope and Method of Study: The purpose of this study was to determine the use of scientific information in monthly livestock magazines through a survey of editor perceptions of the amount, type, and sources of information used. Editors of monthly livestock publications were surveyed using an online instrument. Reliability and validity of the instrument was determined by a panel of experts and pilot survey of weekly livestock publications. The source list for the 54-editor population was the 2005 Livestock Publications Council membership list. A census was used. Editors were initially contacted via telephone, then sent an introductory e-mail followed by a reminder e-mail. Survey responses were collected from January 27 through February 23. Data were analyzed and interpreted using descriptive statistics. After finding no differences in early and late respondents, the final survey response rate was 72 percent.

Findings and Conclusions: Editors' identification of the most important topics agreed with audience perceptions of information needs and previous studies of information provided by agricultural journals, although lower rankings of policy and worker/employee safety information contradicted the importance of magazines identified by audiences in previous studies. The importance of certain gatekeeping criteria to editors reflected the general standards of accuracy and newsworthiness found in journalism, as well as editors' perceptions of their livestock audiences' information needs. The number and sources of information preferred coincided with source characteristics as criteria for using scientific information. The specific sources most preferred by editors also demonstrated the orientation of editors with other gatekeepers and the audience in selecting appropriate information for publication. Scientific information published during 2005 was similar to editors' rankings of topic importance and source preferences. The depth and overall use of scientific information during 2005 also supported the importance of delivering understandable scientific information to their agricultural audiences. The demographics of livestock publications editors and their magazines show similarities and differences to the earlier farm press, other gatekeepers and science communicators, and the mainstream media.

ADVISER'S APPROVAL: D. Dwayne Cartmell
