Assessing Internet Use in Florida News Rooms

Emily Bisdorf
Tracy Irani
Ricky Telg
University of Florida

Abstract

The Internet has become a major factor in the mass media industry. As a consequence, information sources, including agricultural communicators, are considering the decision to move to Web based publications and publicity dissemination tools. Rural and agricultural audiences, however, have favored traditional media as a source of news and information, creating something of a "rural-urban digital divide." In an attempt to assess how mass media news operations are utilizing the Web as a newsgathering and information source, a statewide descriptive survey was conducted of a random sample (N=300) of local and regional media outlets. Results showed that television, radio, and newspaper newsrooms in the sample were using computers and the Internet extensively not only for receiving information and research but also for disseminating news. Respondents indicated that 95.5% of reporters used the Internet on a daily basis, while 63.3% of news units maintain an online presence. These findings indicate that as media outlets increase their utilization of the Web, agricultural industries and institutions may need to move more to electronic dissemination of information if they want to stay abreast of trends in the newsroom Attempting to respond to newsroom trends while still maintaining ties with rural audiences and their preferences for traditional media will not be easy, however, and this represents one of the biggest challenges ahead for agricultural communicators.

Introduction

In an era in which agricultural institutions of higher education, as well as state cooperative extension services, are facing ever-tighter budgets, many communications heads and administrators are considering the decision to discontinue print-based stakeholder publications in favor of Web-based publications (Wood-Turley & Tucker, 2002). As the Web matures as a media information source, this is a move that is no doubt being contemplated by many general industry and commercial media outlets. Existing research in this area, although limited, indicates, however, that there may be some dissonance between efforts to move news dissemination onto the Web and the preferences of rural and agricultural audiences.

Although previous studies indicate that the general population is turning more and more to the Internet for information (Stempel, Hargrove, & Bernt, 2000), research is also showing that certain audiences, such as more rural, agricultural audiences, may still want news the old-fashioned way. For example, in a study of agricultural landowners, Howell, Habron, Woods (2002) found that respondents overwhelming preferred "conventional" print sources of information rather than online information delivery media. With respect to agricultural media, Wood-Turley and Tucker (2002) found in a recent readership analysis that of the 335 readers surveyed, fewer that one-fourth indicated they would prefer receiving news information electronically. In the extension world, Suvedi, Campo, Lapinski (1999) found that farmers ranked data transmission network (DTN) and Web-based information as their least-popular sources.

Generally, the critical mass needed for adoption of interactive online technology, such as the Internet and the World Wide Web, is being reached much faster than for other forms of media, with a steeper increase rate for the number of users compared to conventional technological innovation adoptions (Garrison, 2001). In 1995, five million Americans reported having online Internet access while only four years later 50 million were connected (Stempel, Hargrove, & Bernt, 2000). However, rural markets have remained relatively underserved by large commercial Internet Service Providers, due to traditionally limited telephone access and isolated geographic location (Clement, Holbrook, & Staman, 1996). Rural lifestyles, traditionally viewed as more oriented to outdoors pursuits and occupations, have also been viewed as a social context in which the benefits of modern communications technologies may not always be apparent.

With the boost in users looking for information in new places, the mass media industry, in general, seems to have moved to keep their audience's attention by increasingly going online to offer news and information. A national survey of media use showed a huge gain in audience use of the Internet from 1995 to 1999, while there was a usage decline for both local and network television news and for newspapers (Stempel, Hargrove, & Bernt, 2000). Garrison (2001) found that

as of 1999 almost 90 percent of U.S. daily newspapers were actively using new online technologies to research for articles and most also boasted their own news Web sites to reach new markets. In the United Kingdom, a recent study reported that all major national newspapers currently provide online versions of some type (Stanyer, 2001).

Journalists are also moving toward the Internet to gather information for their stories. However, as this usage increases, concerns among practitioners are being heard. In a longitudinal study of journalists conducted from 1994-1998, concern was voiced by respondents about verifying facts of online sources, sites containing unreliable information, lack of source credibility, and badly sourced information (Garrison, 2000). The same study also found a need for newsroom training on online research skills. In the academic realm, journalism students entering the profession are also more likely to use the Internet to do research than past reporters. Bressers and Bergen (2000) found in a recent survey of 400 Midwest university students that 47.8 percent use the Internet frequently for reference or research materials.

With respect to agricultural communications, Williams and Woods (2002) found in a research synthesis of the *Journal of Applied Communications* from 1992-2001 that information technology and electronic media were the two top items studied by researchers. This research interest may be one consequence of the so-called "rural-urban digital divide." Hindman (2000) found that rural audiences were in more need of information since they face a "rural penalty" by being greater distances from markets. These audiences, however, are also disadvantaged as they are more isolated from high-speed, broadband networks than those in metropolitan areas (as defined by the U.S. census). " High-speed Internet access providers realize greater return on investment in more densely populated communities than in rural areas," (Hindman, 2000, p. 551). As a consequence, Hindman found that there was a growing gap between urban and rural residents' ability to go online to view the news.

It can be assumed that agricultural communicators, especially, given their responsibility to communicate to rural audiences and clientele, need to be aware of how mass media are currently using the Internet in their newsroom operations, and the extent to which local media outlets are moving to Web-based news and information dissemination. Although research indicates that mass media and the general public, in ever-greater numbers, are utilizing the Internet as an information source, less is known about the specific access and usage patterns among mass media. How are media outlets using the Internet to conduct business and disseminate information? Do media outlets differ in their usage of the Internet, based on factors such as urban/rural location, media type, and/or utility, with respect to newsgathering and collection activities? How many media operations that access and utilize the Web also utilize it to disseminate news information? How useful or beneficial do they find the Internet to be with respect to news collection and dissemination? Based on the above, the following objectives were used to guide this study:

1. To describe access and availability of the Internet as a tool in news collection operations by a statewide sample of news media.
2. To determine perceptions of usage and usefulness of the Internet for news collection purposes.
3. To determine perceptions as to the extent to which the Web is being utilized as a news and information dissemination source.

Theoretical Framework

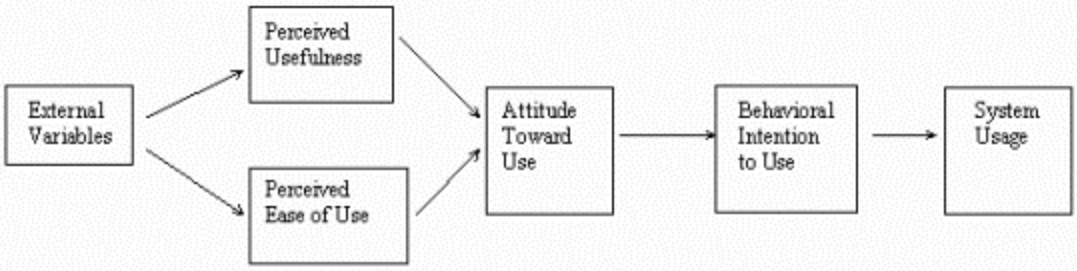
Rogers' diffusion of innovations framework is the acknowledged starting place for studies focused on attempting to describe implementation and usage of a new technology (Rogers & Shoemaker, 1971). In their original conceptualization, Rogers and Shoemaker defined adoption behavior as the relationship between the time at which an individual chooses to adopt a technological innovation and the time at which other members of his/her social system do so. Rogers noted that diffusion of an innovation may not always be univariate and unchanging. Very often, innovations go through a process of reinvention in which the innovation is changed or modified by a user in the process of its adoption and implementation (Charters & Pellegrin, 1972).

Theorists have used the diffusion framework as a stepping-off point in terms of conceptualizing how users implement computer and communications technologies in the workplace. The technology acceptance model (TAM) is a theoretical framework that has been used to look at how perceptions of use and usefulness of a technology affect implementation of that technology. TAM has been described as a theoretical framework that explains the psychological determinants of acceptance behavior and attitudes toward technology in the workplace (Roberts, 1998). TAM is an adaptation of the Theory of Reasoned Action (TORA) (Fishbein & Ajzen, 1975) applied to the business management and technology sectors. The TORA is said to provide the rationale for many assumptions seen in TAM, (Davis, 1993). TAM differs

from the TORA in that it attempts to draw a distinction between attitude toward the object and attitude toward the behavior, (Davis, 1993).

TAM asserts that perceived usefulness and ease of use will represent the beliefs and attitudes that lead to acceptance of a new technology (Lederer, Maupin, Sena, & Zhuang, 1999). The researchers described perceived usefulness as the degree to which a person believes that a particular system will enhance their job performance by reducing their time to complete a task or providing information quickly. Perceived ease of use is the degree to which someone believes using a particular system would be effortless. Other model constructs include attitude toward use and behavioral intention of use. (See Fig. 1).

Figure 1: The Technology Acceptance Model



(Roberts, 1998)

TAM postulates that the impact of other external variables on behavioral intentions can be mediated as well (Yi & Venkatesh, 1999). In his study, Davis (1993) contended that the external stimuli that influence the user's attitude toward a behavior are influenced by their beliefs about the consequences of performing the behavior. In addition, since system design features are external stimuli, they should influence the user's beliefs.

Davis (1993) found in a study of professionals that usefulness exerts more than twice the influence on use than does attitude toward using, and usefulness exerts more than four times the influence on attitude as does ease of use. This supports the argument that technology usage may be motivated extrinsically, by users' concern over gain in performance and associated rewards (Davis, 1993).

Lederer, Maupin, Sena, and Zhuang (1999) also describe research findings that indicate ease of use of the Web is still in question, since many people find problems with downloading or viewing Web pages slowly, or being unable to find a page they know existed, or organizing the pages and information gathered. Yi and Venkatesh (1999) also describe the concept of self-efficacy with respect to understanding users' behavior in accepting technology, contended that an individual who has a strong sense of capability in dealing with computers is more likely to accept new technology, such as the Internet.

Methodology

To conduct the study, a descriptive survey design was utilized. A survey consisting of 22 items adapted from a previous study of statewide Texas media (Phillips, Janish, Fannin, & Mayes, 2002) and the TAM model was constructed and reviewed by a panel of experts for face and construct validity. Items consisted of dichotomous choice items to assess usage factors and demographics, combined with a set of Likert-type five-point scales to assess perceptions of usefulness of specific aspects of Internet technology as used by news media operations. Separate forms of the survey instrument were developed for the three media types, to collect media-specific information. Items were refined based on reviewers' comments, and the final instrument was mailed to a random sample (N = 300) of statewide TV, radio, and newspaper media in Florida, a large southeastern state with four top ten major metropolitan media markets, as well as a significantly large rural agricultural base. Florida is unique in terms of the scale of its commodity production; despite a large urban population base, the state produces over 200 major agricultural commodities and in

2000 ranked as the nation's ninth-largest agricultural state with sales over $7 billion (FFB, 2002).

Findings

Data collection, although still underway, has so far yielded 23 useable responses, for a 13 percent response rate from what is often seen as a particularly challenging population from which to collect survey responses. Additional waves, using Dillman's methodology (Dillman, 1989) are currently being utilized, with a planned qualitative follow-up designed to collect more in-depth responses scheduled at the end of the data collection activity in Spring, 2003.

Demographics for the sample respondents indicated that 60.9% (n=14) were newspapers; 30.4% (n=7) were radio stations and 8.7% (n=2) were TV stations. For the newspapers, 28.6% had circulations between 1,000-5,000, followed by 21.4%, respectively, with circulations between 20,000-50,000 and 50,001-100,000, 14.3% with circulations between 100,001-250,000 and 7.1% respectively with circulations between 5,001-10,000 and 10,001-20,000. Of the newspapers that responded, 57.1% were weeklies; 28.6% were dailies and 14.3% were community news periodicals with monthly circulations. For the radio stations, 83.3% were FM stations and 16.7% were AM. For the TV stations, one was a CBS affiliate, and one did not report affiliation. Finally, with respect to geographic location, 61.9% had a primarily suburban coverage/circulation area, while 19% respectively, had primarily urban and primarily rural coverage/circulation areas.

Internet Access and Accessibility

Of all respondents who answered this question, 66.7% (n=14) had had Internet access in their newsrooms for three years or more; 23.8% (n=5) had had access for between two and three years, and 9.5% (n=2) had had access for between one and two years. In response to a series of dichotomous choice items about Internet access, respondents indicated that, in terms of availability, access to the Internet was fairly widespread in their newsrooms; only 18.2% (n=4) of those respondents who answered this question indicated that access was available from only one computer location. 27.3% (n=6) of those who answered indicated that access was available for clusters of reporters with different Internet accounts, and 72.7% (n=16) stated that access was available to all reporters in the newsroom from their own desktop computer.

In response to a series of dichotomous choice items, respondents reported that use of the Internet was part of the regular work for a wide variety of staffers. (See Table 1).

Table 1
Newsroom Staffers Use of the Internet as Part of Regular Work

Staff Member	Yes		No	
	Percent	*N*	*Percent*	*N*
Librarian	22.7	5	77.3	17
Researcher	45.5	10	54.5	12
Reporters	95.5	21	4.5	1
News artist	58.8	10	41.2	7
Editor	71.4	10	28.6	4
Producer	12	3	88	22

Perceived Internet Usage and Usefulness

In response to a dichotomous choice question, 45% (n=9) of respondents indicated that their newsroom had a policy or philosophy with respect to Internet use by their staff, while 55% (n=11) said they did not. Subsequent open-ended responses indicated that polices ranged from "Christian values" to "Internet use for business only" to "no illegal or immoral activity."

Newsroom usage of the Internet was reported as being fairly extensive, with the majority of respondents indicating usage

for a series of news collection functions. (See Table 2).

Table 2
Internet Usage for News Collection Purposes

Function	Yes		No	
	Percent	*N*	*Percent*	*N*
Information research/background for stories	95.5	21	4.5	1
Queries/interviews with expert sources	68.2	15	31.8	7
Send/receive email	95.5	21	4.5	1
Receive news releases	95.5	21	4.5	1
Exchange viewpoints w. other journalists	59.1	13	40.9	9
Database manipulation	31.8	7	68.2	15
Receive graphics and photos	76.5	13	23.5	4
Find links to add to your Internet site	50	11	50	11

In order to assess perceived usefulness, respondents were asked to rate a series of newsroom-oriented Internet applications/functions according to their usefulness, on a five-point Likert scale ranging from 1= “least useful” to 5 = “most useful,” Responses indicated that survey respondents found most functions of average to above average usefulness, with statistics, background information searches achieving the highest mean (M=4.29, SD = 1.10). (See Table 3).

Table 3
Perceived Usefulness of Internet Newsgathering Functions

Function	N	Mean	SD
Stats, background information searches	21	4.29	1.10
Query/interviews with expert sources	20	3.10	1.29
Transmission of stories for reporters on assignment	19	2.58	1.61
News releases sent from govt. info. or PR offices	22	3.77	1.23
Commercial news services	21	2.81	1.50
News graphics and photos	14	4.07	1.14
Database retrieval	8	2.50	1.69
Newsfeed information	7	2.86	1.57

Perceptions of Email and Computer Assisted Reporting

With respect to specific perceptions as to the usefulness of email and computer assisted reporting as news collection functions, respondents expected internal and external email use by their newsroom staff to increase most substantially over the next five years. On a scale of 1-5, with 5= ”greatly increase” and 1= ”greatly decrease,” the mean for email was M = 4.00, SD = 1.03.

Using a Likert scale ranging from 1= “least useful” to 5=”most useful,” respondents were asked to rate their perceptions of the benefits of computer-assisted reporting. Responses indicated that respondents found most benefits to be of average to above average usefulness, with speed of information gathering achieving the highest mean (M= 4.22, SD= .81). (See Table 4).

Table 4

Benefits of computer-assisted reporting

Function	N	Mean	SD
Track story topics to insure fresh stories	21	3.47	1.24
Get story ideas by reading current trends on various Internet subject groups	21	3.19	1.16
Interact with other journalists	21	2.47	1.32
Stay current with the news industry	20	3.40	1.23
Speed up information gathering	22	4.22	.81
Conduct investigative news projects	21	3.38	1.28
Allow reporters away on assignment to file stories	21	3.28	1.48
Store script copies from previous newscasts	21	3.14	1.55
Edit	20	3.15	1.42
Save costs	22	3.32	1.39

When asked whether they would like to receive news information electronically or via traditional methods (fax or hand delivery), respondents indicated that they would prefer to receive information electronically. Eighty-one percent (n=21) said that they would prefer to receive releases from government information offices electronically; 71.4% (n=21) said they would like to receive releases from public relation firms electronically; 76.9% (n=13) said they would prefer electronic transmission of obituary notices; 81% (n=21) preferred electronic transmission of news items from other local sources; 71.4% (n=14) preferred electronic submission of letters to the editor; and 87.5% (n=16) wanted electronic transmission of news graphics and photos.

Utilization of the Web as a News Dissemination Source

To achieve this objective, respondents were asked a series of dichotomous choice questions about their use of a Web site presence. Of the respondents (n=22) 63.6% indicated that they maintained an online Web presence. Only 1 (7.1%) respondent indicated that their site required visitors to sign up for access, while 92.9% (n=13) said they did not. Of those respondents with Web site presences, most indicated that they maintained a variety of news dissemination features, ranging from programming information to archived news stories. (See Table 5).

Table 5

Web Site News Dissemination Features

Feature	Yes		No	
	Percent	*N*	*Percent*	*N*
Programming information	60	9	40	6
Streamed newscasts	66.7	4	33.3	2
Promotion/advertising	71.4	10	28.6	4
News updates	71.4	10	28.6	4
Feature stories	78.6	11	21.4	3
News links	71.4	10	28.6	4
Archived news stories	64.3	9	35.7	5

In addition to these responses, respondents individually indicated under “other” the following: “standard community information”; “streamed music”; video clips, calendar”; and “weather radar.”

Discussion/Conclusions

The findings of this study indicate, not surprisingly, that Florida media outlets, in general, are using the Web/Internet extensively, for news gathering, collection and dissemination, and that they plan to do so even more in the future. Local and regional newspaper, radio and TV station respondents indicated that they currently utilize the Web/Internet for a wide range of activities, ranging from downloading graphics to receiving email, with the most important/common use cited as conducting research/background for stories. Interestingly, Internet use by newsroom reporters appeared almost universal, and the great majority of media outlets indicated that they preferred to receive information from sources electronically, findings that might not have been the case as recently as five years ago. These results provide support for the argument that the importance of speed in newsgathering and dissemination processes may be fundamentally changing the way news operations do business, a fact that will also have implications for information sources in general.

Based on these findings, it can be argued that agricultural communicators may need to move more to electronic dissemination of information if they want to stay abreast of trends in the newsroom and enhance their chances of publication through packaging information for news media in the most useful manner possible. Increasingly, it appears that the most useful package will be an electronic one. While many agricultural institutions of higher education already are providing news electronically, based on these findings they may also need to move toward preparing information such as photos, graphics, charts/graphs, and video in digital form.

Another implication of this study is that agricultural industries and institutions may need to focus more on ways to stay in contact with reporters electronically, since almost all use the Internet for story research. Internet based publicity tools, such as promotional web sites, online pressrooms and electronic media kits are all ways to maintain a strong online presence with media, and many in agriculture are already exploring these in greater depth.

Through utilization of the Web, agricultural industries and institutions may also have the opportunity to work with media more closely, by having information linked from media outlets' Web sites in order to reach more of the general public, since that is one of the resources mass media sites provide. This could become one more way for the public to get important agricultural information. Unlike other forms of mass media dissemination, in this case the media itself could be utilized as another avenue to get credible agricultural information out to the public.

Although the Internet potentially presents many benefits and opportunities for disseminating news about agriculture and for improving relations with media, media use of the Web will, however, continue to present something of a challenge for agricultural communicators who seek to bridge the rural-urban digital divide. Attempting to respond to newsroom trends toward electronic newsgathering and dissemination while still maintaining ties with rural audiences and their preferences for traditional media will not be easy; charting a course that balances and offsets these two audiences may be one of the biggest challenges ahead for agricultural communicators in the new century.

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Scientists, Silos, or Somewhere In Between? Assessing Image of a College of Agriculture

By
Kristina Boone
Department of Communications
Kansas State University
301 Umberger Hall
Manhattan, KS 66506
kboone@ksu.edu
785.532.1163
FAX: 785.532.5633

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Abstract

The College of Agriculture Image Committee was charged by the Dean to identify the current image of the College among various groups; determine an accurate depiction of the College; and recommend measures to close the gap between the perception and reality. The committee began work in September 2001 and approached the task by collecting data from a variety of groups, influential individuals, and secondary sources.

Data were collected with several different groups. The questionnaires used mostly quantitative questions with discrete answer categories, Likert scales, etc. All questionnaires also included a few open-ended questions as well. Data were collected with KSU underclassmen, faculty and administrators outside the College, Kansas high school students, and other influencers (alumni, parents, legislators, advisory committee members, teachers, agribusiness professionals, agricultural industry leaders, etc.).

Most of the people surveyed in this work identified key strengths of our College in quality academics, friendly atmosphere, outstanding teachers and advisers, strong placement in a broad range of careers, and good salaries, etc.

Findings indicated that “agriculture” is commonly understood to represent production of crops and livestock and a central component of food production. In some audiences, it had a negative connotation, drawing little interest especially among high school students. Other researchers have found agricultural careers to be perceived negatively by urban youth who viewed such careers with disdain or at least apathy.

Despite these positive aspects, the image of the College needs to be improved within the University and beyond. This author found that the College and industry of agriculture are not well understood by the public and students. Further, the College has not promoted its programs in the most meaningful manner, and sometimes the promotions have not reflected of the reality experienced by its students, especially early in their academic careers.

Due to these findings and discussions, the committee made four recommendations regarding strategic communications, promotion of programs and themes, visioning for the future, and evaluating the name of the College.

Introduction

The Kansas State University College of Agriculture Review (Pierzynski et al., 2000) recommended that the College take several steps to enhance its programs in undergraduate, graduate, and distance education. Image was a primary concern in the undergraduate area but cut across others as well. Specifically, the review noted that undergraduates participating in focus groups perceived the College to have an almost exclusive concentration on production agriculture.

The College of Agriculture at Kansas State University is not alone in its concern about image. Colleges of agriculture at other institutions started dealing with image issues in the 1980s. Numerous colleges changed their names; a list of these is presented in the College of Agriculture Review Appendix D. Even while this committee was working, two colleges at other institutions were looking at similar issues and concerns.

To deal with image issues, a committee of faculty, students, and administrators in the College of Agriculture were charged to assess the College's image, determine what it could accurately depict, and prescribe measures to improve the image.

Theoretical/Conceptual Framework

Image issues are not new—land-grant universities have dealt with image concerns since the 1870s (Marcus, 1986). While the percentage of the population involved directly in production agriculture has dropped from more than 70% in the early1800s to less than 2% today, colleges have changed how they define agriculture as well as how they approach the industry. It is arguable that many former colleges of agriculture are hardly recognizable as such today. Also many land-grants today lack strong ties to the agricultural and mechanical arts described in the original legislation guiding their creation.

From the university standpoint, the "pigeon-holing" of a land-grant to its agricultural roots can create problems. Some evidence points to this at K-State. Sensitivity to this issue may be valid because the University constantly deals with the connotation among high school students and perhaps other audiences of being a less sophisticated ("hick," "cowboy," etc.) institution. This creates communications challenges and sometimes recruitment barriers for the institution as a whole. How the University positions the College can be as important as how the College positions itself. Further the College should be knowledgeable about the University's strategy on dealing with changing demographics in a state that is growing more urban and suburban.

Image can be defined as "the entire way in which a brand, a company, or a person is experienced" (Haedrich, 1993, p. 84). Image has both cognitive and emotional components and develops differently for different groups. Thus, an organization may have a particular image among one stakeholder group and a different image among another interested subgroup. The goal, albeit lofty, is to create a consistent image that meets the needs of and communicates well with all relevant subgroups of the public (Haedrich, 1993, p. 91).

Image is best represented when corporate and brand images are complementary and in harmony, not conflicting. In our situation, the College of Agriculture and the programs in it could be equated to brands, while the corporate images are those of Kansas State University and K-State Research and Extension. Perceptions about an organization and its components transfer between these entities. Image transfer can be

positive or negative but should be managed (Haedrich, 1993) and makes integrated communications important. This creates challenges for the College of Agriculture because it is closely associated with two corporate images. Further, its image should be representative of the programs within the College.

Objectives of this imaging work included the following actions:

1) identifying the current perceived image of the College among various groups;
2) identifying an accurate depiction of the College; and
3) recommending measures to close the gap between the perception and reality.

Methods

Below are brief descriptions of the data collection processes with different groups. The questionnaires used mostly quantitative questions with discrete answer categories, Likert scales, etc. All questionnaires also included a few open-ended questions as well.

· KSU underclassmen—Collected at the All-University Majors Fair, October 2, 2001, from 63 respondents.

· KSU faculty and administrators outside the College—Collected during January and February 2002 through an e-mail questionnaire, from 69 respondents out of a sample of 175 (39.4% response rate).

· Kansas high school students—Collected during March and April 2002 through a mail questionnaire administered by high school counselors to students, from 487 respondents (66% response rate).

· Other influencers (alumni, parents, legislators, advisory committee members, teachers, agribusiness professionals, agricultural industry leaders, etc.)—Collected during March and April 2002 through a mail questionnaire, from 304 respondents (37% response rate).

In order to depict an accurate portrait of our College, another task group collected secondary data and analyzed curricula to fulfill this task. This subgroup reviewed data regarding placements, curricula, advising, teaching, and diversity. Some of its sources included the College of Agriculture Review, Office of Planning and Assessment, curricula, Career and Employment Services, College of Agriculture, and Office of Affirmative Action.

Selected Results of Data Collection and Discussion

This section provides an overview of some of the more important findings from the committee's data collection efforts.

KSU Underclassmen

The committee identified three major areas of strengths from the data collected from this group: friendly atmosphere, outstanding faculty, and national reputation in agriculture. Three areas of concern also emerged. Students need more information about agriculture, are unfamiliar with career opportunities in the field, and have a stereotypic image of agriculture.

Of the students answering the questionnaire, 41% were studying in arts and sciences, almost two-thirds of whom were in the open option. Nineteen percent were in business, while another 16% were in engineering. Fewer numbers represented other colleges. Sixty-two percent indicated they were not familiar with the College of Agriculture, but 52% indicated that the College did not have a major of interest to them. Thirty-six percent indicated they had friends studying in the College, and 25% had taken agricultural classes while 22% had interacted with faculty from the College of Agriculture (COA).

When asked what first came to mind when thinking about the College of Agriculture, the answers strongly indicated production agriculture (Table 1). They also indicated that they did not study in the College because

there was no major of interest to them (Table 2). As they are so closely associating the College with production agriculture, it may mean that they are not strongly aware of the majors in the College that are not as focused on production.

Table 1. First thing that comes to mind about the COA

Descriptor	%
Farming	39
Livestock	17
Other	11
Plant science/horticulture	11
Crop production	7
Grain science	4
Vet School	3
Food/meat	3
Agribusiness/management	3
Landscape	1
Animal Science	1

Table 2. Why chose college other than COA?

Descriptor	%
Didn't have major of interest	52
Saw minimal career opportunities	3
Didn't enjoy visit	5
Pressure from family to go elsewhere	5
Didn't feel like fit in	12
Other	23

When asked for what careers College of Agriculture graduates would be qualified, more than 80% indicated the graduate would not be qualified to be a bank loan officer, a legislative aide, a geneticist, or a pharmaceutical sales representative. Surprisingly, almost 50% believed a graduate would be qualified to be a national park manager and 60% felt the graduate could be a food scientist (Table 3). Clearly there was a lack of knowledge of potential careers in many areas.

Table 3 Careers for which graduates from the COA are qualified

Career	% Yes	% No
Farm manager	78	19
Food scientist	60	37
Earthgrains plant manager	60	37
Landscaper	51	46
National park manager	48	49
Golf course manager	40	57
Biotechnologist	29	68
Journalist	29	68
Dietician	22	73
Geneticist	16	81
Pharmaceutical sales	14	81
Chemical engineer	14	81
Med student	14	81
Legislative aide	13	84
Bank loan officer	13	83

Family Counselor	6	89

The respondents were also asked to rate the College on its advising, job opportunities, leadership opportunities, faculty (in general), teaching, friendly atmosphere, and internship placements. On a five-point scale with 5=excellent, none of these indicators received an average less than 3.88. (Table 4). In regard to these characteristics, the College's reputation appears strong.

Table 4. Rating of COA Characteristics

Characteristics	Mean*	s.d.	Missing**
Advising	3.9	.84	17
Job opportunities	3.9	.81	16
Leadership opportunities	4.0	.79	17
Faculty	4.1	.78	18
Teaching/instruction	4.0	.74	18
Friendly atmosphere	4.3	.77	16
Internship	3.9	.85	20

*Scale: 1= poor, 2 = below average, 3 = average, 4 = above average, 5 = excellent
**No response

KSU Faculty and Administrators

In general, faculty and administrators outside the College rated the College above average in advising, job opportunities, leadership, faculty, teaching, friendly atmosphere, and internships (Table 5).

Table 5. Rating of COA

Descriptor	Mean*	s.d.
Friendly atmosphere	3.9	.65
Internships	3.8	.82
Leadership	3.8	.80
Teaching	3.7	.70
Faculty	3.7	.74
Advising	3.6	.69
Job opportunities	3.6	.93

*scale: 1-5, with 5 being strongest rating

They had some recognition of newer programs, such as golf course management and food science. They also noted the College was fundamental to the University and its mission. Interestingly, they perceived the College to have large budgets and more money than other colleges (Table 6).. Among this group there was a lack of understanding of the job opportunities available to graduates. Some respondents perceived the College to sometimes be distant and elitist and the students to be narrow in their interests but hard working.

Table 6. Phrases to describe agriculture

Category	Phrases (open ended question)
General	Agriculture; Farming; Crops; Ranching
Related to Food	Food production; Food supply; Food processing
Related to Qualities	Practical; Respectfully students and faculty
Related to Research	Excellent research; Research $; Funding
Related to University	Valuable; KSU key mission; critical to country

Negative connotations	Students lack skills, narrow, bad attitudes; Isolates self

Forty-three percent of the respondents were from arts and sciences; 17% from engineering; 10% from architecture; 9% from human ecology; 7% from business; and 6% from education. Forty-two percent had been at K-State for 11 or more years and almost two-thirds were male. The careers that they felt graduates could pursue were farm manager (74%), Earthgrains plant manager (74%), and food scientist (70%). More than 50% indicated that graduates of the College could fulfill the following positions: legislative aide, national parks manager, biotechnologist, golf course manager, and landscaper (Table 7). When asked why they did not study agriculture, the majority of responses indicated no interest.

Table 7. Careers for which graduates from the COA are qualified

Career	%Yes
Farm manager	74
Earthgrains plant manager	74
Food scientist	70
National park manager	58
Golf course manager	55
Biotechnologist	54
Landscaper	51
Legislative aide	51
Geneticist	44
Medical student	42
Journalist	42
Pharmaceutical sales	39
Bank loan officer	39
Dietician	33
Chemical engineer	23
Family counselor	13

Kansas High School Students

Strengths about the College of Agriculture at K-State identified by these students included a perception of a friendly environment, quality academics, and strong association with traditional agriculture (Table 8).

Table 8. Characteristics of K-State COA

Descriptor	Mean	s.d.	No Opinion (%)
Friendly environment*	3.7	.90	50
Job opportunities	3.6	.87	50
Internship opportunities	3.5	.86	55
Teaching/instruction	3.5	.85	56
Leadership opportunities	3.5	.84	54
Faculty	3.5	.83	57
Academic advising	3.4	.81	56
Likelihood you would be comfortable here	3.2	1.24	47

*scale: 1-5, 1=Poor, 2=Below Average, 3=Average, 4=Above Average, 5=Excellent

There also was acknowledgement of some broader educational programs within the College and an association with food. However, these students do not understand the breadth or extent of agriculture and do not relate agricultural studies to basic science or business. In general, there was weak awareness of the College and its programs in both rural and urban schools (Table 9).

Table 9. First thing that comes to mind about the COA at K-State

Descriptor	Open Ended Responses
Farming, farmers, crops, livestock	185
Other (purple, Willy, etc.)	50
Nothing	40
Quality	31
Football and other sports	28
Business, ag business	21
Hicks	21
Partying	15
Science	13
No interest in COA	10
Environment	9
Distribution/processing	9
Livestock judging	9
Boring	9
Food	7
Individual programs	7
Vet school/vet med	6
High cost	4
Close to home	3
FFA tie	3

Most of the students answering the questionnaire were juniors and seniors (434). The group was almost evenly split between males and females. About 40% of respondents were from cities more than 100,000 in population, while 22% were from towns with populations between 2,000 and 9,999. Eleven percent hailed from towns with populations less than 2,000 or from farms. Of those indicating ethnicity, more than 80% were Caucasian, non-Hispanic. Seventy-seven percent indicated that they were 80 to 100% certain of attending college. When asked for what careers would agricultural graduates be qualified, more than 50% indicated farm manager, food scientist, landscaper, and national parks manager. All other careers listed fell below this mark (Table 10).

Table 10. Careers for which graduates from the COA are qualified

Career	%Yes
Farm manager	78
Food scientist	61
Landscaper	58
National parks manager	49
Biotechnologist	43
Research assistant	37
Golf course manager	35
Commercial bakery plant manager	31
Chemical engineer	27
Dietician	27
Geneticist	23
Pharmaceutical salesperson	16
Journalist	15
Medical student	15
Bank loan officer	12
Legislative aide	12

Family counselor	10

Other Influencers

The other influencer group sample was drawn from lists of alumni, parents, legislators, advisory committee members, teachers, agribusiness professionals, agricultural industry leaders, etc. They felt that the College was nationally recognized and strongly student focused. They also cited leadership opportunities for students and quality faculty as strengths. Friendly atmosphere and work ethic of graduates also were noted as strengths (Table 11 and 12).

Table 11. Comparison of K-State and COA with like institutions

	Mean*	
Descriptor	K-State	COA
Friendly atmosphere	5.1	5.2
Quality faculty	4.7	4.9
Student focused	4.7	4.9
Career opportunities	4.7	4.9
Leadership opportunities	4.7	4.9
Nationally known	4.6	5.1
Quality teaching	4.6	4.9
Hands-on learning opportunities	4.6	4.9
Academically challenging	4.6	4.7
Quality student advising	4.3	4.7

*scale: 1-6, with 6 being high above others

Table 12. Descriptors of COA students

Descriptor	Mean*
Professional	5.7
Strong work ethic	5.9
Strong decision makers	5.6
Academically talented	5.4
Leaders	5.3
Open to change	5.3
Good communicators	5.2
Open minded	5.1
Team focused	4.7

*scale: 1-7, with 7 as very strong

This group recognized agricultural studies as science based and tied to natural resources (Table 13); however, they strongly felt that the public as a whole misunderstands agriculture. Further, their responses indicated that agriculture “does” and “does not” describe adequately the reach of the College of Agriculture at K-State.

Table 13. Subjects related to COA programs

Subject	Mean*
Science	5.4
Natural Resources	5.3
Environment	5.2
Technology	5.0
Business	5.0
Education	4.6

Communications	4.5
Social services	3.5

*scale: 1-6, with 6 being highly related

More than 60% of the respondents had attended a college of agriculture as an undergraduate; 50% were K-State College of Agriculture graduates. Twenty-two percent had hired graduates from the College. Of those who had not majored in agriculture, 52% indicated they had no interest in the College's programs. This group also believed College of Agriculture graduates to be more eligible for a wider variety of jobs. More than 70% of the respondents were between the ages of 30 and 59, and 72% were male. Also 28% lived on a farm, and another 16% lived in a town with a population less than 2500, indicating this group as very rural based. While this group might have had greater experience with the College, it still considered career options for College of Agriculture graduates more limited (Table 14).

Table 14. Careers for which graduates from the COA are qualified

Career	Mean*
Crop consultant	5.6
Farm manager	5.5
Feedlot operator	5.5
Food safety inspector	5.1
Food/processing plant manager	5.1
Food scientist	5.0
Park ranger	4.9
Landscape designer	4.9
Golf course superintendent	4.8
Commodity broker	4.7
Bank loan officer	4.6
Biotechnologist	4.6
Geneticist	4.5
Legislative aide	4.3
Journalist	4.1
Pharmaceutical salesperson	3.9
Dietician	3.8
Chemical engineer	3.3
Family counselor	2.9

*scale: 1-6, with 6 being highly eligible

Secondary Data

Data collected through secondary sources indicated that our faculty members are professional, accessible, and internationally recognized. Our students have excellent people skills, work ethics, and are well trained in their subject areas. The College has been able to draw students in increasing numbers and has seen positive trends during the past ten years in enrollment, retention, and graduation, although enrollment has declined some in the past two years. About 60% of students coming to the College reside in suburban or urban areas.

Lack of diversity is an issue in our College and on our campus, and minorities and international students face isolation. Also there is a lack diversity among faculty. Another area for improvement is that the production agriculture image does not adequately portray the diversity of opportunities available for studies and job placement. In general the curricula tend to be flexible, which in many instances is a positive but also can result in less academic rigor. Finally and probably the greatest area for improvement is that the College does not communicate its strengths well.

Recommendations/Conclusions

The committee made four recommendations to the College based on these data. The first recommendation was that the College more strongly coordinate promotion of and communications about the College and its departments to audiences seeking information about undergraduate programs and be able to provide some basic information about graduate programs. The College is now revising a communications plan and plans to work with departments for greater coordination.

Most of the people surveyed in this work identified key strengths of the College in quality academics, friendly atmosphere, outstanding teachers and advisers, strong placement in a broad range of careers, and good salaries, etc. These elements should form the basis of key messages, and the College should work to ensure that all communications emphasize these ideas.

Greater support for and coordination of strategic communications is needed. The College should develop and lead a strategic communications plan. The communications plans and products should be integrated and viewed in the context of the University and K-State Research and Extension messages. This is not to suggest that the branding of K-State Research and Extension be changed. There are, however, image transfer issues, and communicators and administrators should be aware of them.

The second recommendation was that the College focus its communications on the promotion of undergraduate programs within the College and central themes about the College and its programs. The strategic communications plan is driving this recommendation.

Coordination of communications should be centralized and must have cooperation and support of departments. However, the actual messages should emphasize programs or themes more strongly than the College as an institution. These communications also must be uniform to a certain extent. Brochures and Web sites should have some common elements. Web communications will be central to conveyance of information, especially to high school students. The Web is a strong communications tool that builds awareness and is accessed by students seeking information (Sevier & Kappler, 2002). Study of informational tags that relate to words commonly used in queries and that can quickly link a prospect to a program in the College is very important. This type of knowledge and usability testing expertise should be utilized.

Targeting audiences and viewing image from the audience's standpoint is very important to the communications effort as well. Brand images should be developed for several target groups and tailored to their needs (Haedrich, 1993).

The third recommendation was that the College develop a vision for its future and modify its current courses and curricula to better address the diversity of our students and their future opportunities. This work is being tied into the five-year strategic planning process for K-State Research and Extension and the College of Agriculture. The plan I sin development and will be announced in January 2004.

Related to the focus on industry needs is the necessity to strategically plan for the future of academic programs and develop vision for our programs. This visioning process should consider identifying niches and areas of excellence and growth, enhancing interdisciplinary interaction, and further increasing interaction among teaching, Extension, and research functions.

Image management and its communication should be considered as the College projects its future. Part of this planning should include discussions and consideration of image. Further, the College should ask "Are we diverse and broad enough in our programs, our faculty, and our students?" If we wish this to be part of our image, we must make it so through changes in substance.

Image is built around substance. Image is critically important but is not more important than substance. If an image does not accurately depict objective facts, it will fail and can appear to be corrupt (Haedrich, 1993; Grunig, 1993).

Image and the substance around which it is built is not solely a function of on-campus activities. Communications with public and private industry need to be maintained and continually used to reflect industry needs in curriculum. Also this reflection should be apparent in individual courses as well. If our programs do relate to a larger field than production agriculture, then our courses should too. Communications with industry has the additional benefit of allowing us an opportunity to explain what we do in our programs and to showcase strong students and faculty.

The final recommendation of the committee was that the College test new names and the current one, determine whether a name change would be beneficial, and, if needed, propose a new College name. This recommendation also is being tied into the five-year strategic planning process for K-State Research and Extension and the College of Agriculture.

Through these data we found that "agriculture" is commonly understood to represent production of crops and livestock and a central component of food production. In some audiences, it had a negative connotation, drawing little interest especially among high school students. Other researchers have found agricultural careers to be perceived negatively by urban youth who viewed such careers with disdain or at least apathy. They did not believe agriculture was connected to technical studies or research (Holz-Clause & Jost, 1995). Negative perceptions can be even stronger among minority audiences (Bechtold & Hoover, 1997).

Further and more substantially, the term "agriculture" as it is commonly interpreted is not representative of the whole of what is offered in this college. The general definition of "agriculture" gives little or no indication of programs such as golf course management, environmental interpretation, landscaping, bakery science, and environmental communications, nor does it communicate areas of emphasis such as business and science. Among the audiences studied, they do associate agriculture with food production, but not with marketing or processing.

The naming of this College or instituting other changes will not be the last changes made. Regardless of the name, continuous maintenance of the image and study of it should be implemented (Haedrich, 1993). A change in the name may provide a broader platform for image management and greater flexibility in communications that address the dynamic needs of our audiences.

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What Do They Want From Us? Communications Programming Preferences Among Extension Users and Non-Users

Kristina M. Boone, Interim Head
Dept. of Communications
Kansas State University
Umberger Hall
Manhattan, KS 66506
785.532.5804
fax: 785.532.5633
kboone@ksu.edu
Linda Sleichter, Marketing Specialist
Dept. of Communications
Kansas State University
Umberger Hall
Manhattan, KS 66506
785.532.5804
fax: 785.532.5633
lsleicht@oznet.ksu.edu
Rick Miller, County Director
Johnson County Extension Office
13480 S. Arapaho Drive
Olathe, KS 66062-1553
913.764.6300
fax: 913.764.6305
rmillller@oznet.ksu.edu

Abstract

To provide effective local programming, county Extension offices must address two key issues: what are the needs of the people, and do they understand who Extension is and how we can help? In a rapidly changing population, finding out these answers is even more difficult. To get a better handle on these issues for clients and non-clients, ten of the most populous counties in Kansas, working with a university researcher, conducted an evaluation to determine views of those groups. What they found is changing their approaches to these groups and is directing they programming and marketing efforts for the future. Findings indicate variability from county to county, but in general non-clients and clients prioritize programming differently and prefer different delivery mechanisms. The findings are being used as a basis for a collective marketing plan, and as a means to achieve agreement among the counties.

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Introduction

The Cooperative Extension Service, like other public institutions, is facing greater pressure for accountability and demonstration of results (Boone & Furbee, 1998; Chapman-Novakofski, Boeckner, Canton, Clark, Keim, Britten, & McClelland, 1997; Radhakrishna , 2002; Rennekamp, Warner, Nall, Jacobs, & Maurer, 2001). Extension is challenged to provide timely, useful service, which has become the organization's hallmark (Greene, 1995). Information regarding the value of an organization is a key aspect that is analyzed by decision makers about such organizations. Both customer service and measurement of

performance based on outcomes are significant to this discussion of value. Using a questionnaire during a series of public meetings throughout Kentucky in 1999, Rennekamp et al. (2001) recommended that Extension focus on several key components that were viewed as important by the citizens whom they studied:

1. Identification of local programming needs and issues.
2. Use of a mix of program delivery methods, including the new and tried and true.
3. Continuation of traditional programs with continued examination of them to ensure their relevance to contemporary needs; development of new programs as needed.
4. Emphasis on the objective nature of the information provided by Extension.
5. Continuation of friendly and courteous service.
6. Improvement in awareness of Extension among the public.
7. Identification of new audiences.
8. Utilization of technology for meeting customer needs.

Meeting clientele needs has become increasingly difficult for Extension, as the audiences have increased and diversified. At the same time, resources have diminished (Smith & Swisher, 1986). Some systems have sought differing solutions to address these issues including building relationships with other service organizations (Martin-Milius, 1994). Studying customer satisfaction can establish how well these solutions work. It can provide a benchmark for future work (Radhakrishna, 2002).

Kansas counties have had strong Extension programming and maintained strong support in general from county boards. However, Kansas has seen increasing urbanization. In 2002, K-State Research and Extension realigned its areas, forming one of its five areas based not on geography but on population. This area is comprises the most populous counties in the state. Prior to the formation of this new area, ten of the most populous counties in the state decided to devise a marketing plan together and to collect data upon which to base that plan. The counties were different in many ways, but facing a common issue: a dramatically changing county population. Kansas population grew 8.5% from 1990 to 2000, but these counties saw growth of 10% on average, indicating that much of the increase in population came from these more populous counties. These counties tended to have higher percentages of ethnicity and Hispanics. The percent of people under 18 years old also is higher in these counties than in the state in general. Income and percent of people living in poverty is variable in these counties with some of the highest and lowest incomes and percentages in the state, further indicating the diversity in these counties. Despite growth in population, agriculture is still the highest land use in these areas (USDA Kansas Agricultural Statistics Service, 2001).

Purpose and Objectives

The purpose of this study was to guide county marketing and planning processes. The specific objectives were to compare Extension users and non-users in regard to their satisfaction with Extension, information sought, perceptions regarding importance of programming areas and communications channels, as well as demographic variable such as sex, and age. In addition, we sought information regarding the awareness of Extension from non-users. The results of this study will provide necessary information to assist the ten counties in making a marketing plan of their own that will meet the specific needs of their counties.

Methodology

Surveys were conducted with both users and non-users in late summer and fall 2002. Questionnaires were developed for both groups and based on prior work conducted with Johnson County. The instruments were tested when the work with Johnson County was conducted in 1996. County offices submitted mailing lists for their users. A random sample of 150 was drawn from each list, and those users were mailed questionnaires. The goal was to receive 50 to 100 responses. For the non-user contacts, a sampling company in Connecticut was contracted to draw random telephone numbers for the 10 counties. The random lists included 450 numbers per county. Again the goal was to receive responses from 50 to 100 people. The telephone survey was conducted by trained data collectors

Data were analyzed in the Department of Communications using the personal computer version of SPSS/PC+. Descriptive statistics were calculated on the findings.

Results

Data were collected from 1,466 known Extension users and 449 people who were randomly sampled from the same counties (referred to as non-users for this report). The summary data are presented here. For both samples, more women responded than men, although the percentage of men responding was not particularly low. In comparing users to non-users, users were generally older and had higher household income levels. More than 40% of non-users were younger than 45, while only 22% of users were under 45. Almost ¼ of non-users had incomes of less than $20,000 per year, while only 6% of users fell into the same category. Thirty-five percent of users had household incomes of $40,000 or less, while 53% of non-users earned $40,000 or less per year (Table 1).

Table 1. Demographic Summary of Users and Non-users

Variable	% User	% Non-user
Age		
18-34	5	22
35-44	17	20
45-54	28	19
55-64	16	15
65-74	19	12
75+	16	12
Gender		
Male	43	32
Female	57	68
Income		
<$20,000	6	24
$20,000-40,000	29	29
$41,000-60,000	27	24
$61,000-80,000	17	9
$81,000-100,000	12	8
>$100,000	9	6

User N = 1466
Non-user N = 449

Among non-users there was significant recognition of the organization, much more so than in previous statewide surveys. Seventy percent had heard of the organization, and 56% correctly identified its affiliation with Kansas State University. Almost 40% indicated they had used the service at one time (Table 2).

Table 2. Non-user Familiarity with K-State Research and Extension

Variable	%
Heard of Organization	
Yes	70
No	30
Used Service	
Yes	37
No	63
University Affiliation	
K-State	56
KU	12
Don’t Know	23

No answer	9
Other university	3

Both user and non-user groups indicated satisfaction with the services/materials they had received from K-State Research and Extension (Table 3). This question was asked only of the non-users who had indicated they had received information/services from the organization. Of the users, 95% indicated that they were very satisfied or satisfied, while 93% of non-users indicated the same.

Table 3. Satisfaction with K-State Research and Extension

Level of Satisfaction	% Users	% Non-users
Very Satisfied	64	71
Satisfied	31	22
Neutral	2	6
Dissatisfied	2	1
Very Dissatisfied	1	0

Data on preferred methods of delivery for educational information are presented in Table 4. For this question, respondents were asked to rate each method on a scale of 1 to 5, with 1 being not very likely to use and 5 being very likely to use. The mean is the average of the ratings, while the standard deviation (s.d.) provides a measure of the dispersion of the data. The mode is the most frequently occurring category, and like the mean, is a measure of central tendency. The ranking based on means is presented as another way to compare the methods.

Among users, newsletters were the most highly rated method, followed by newspaper and classes/meetings. Television, which was not rated highly overall, received ratings of 5 from more than 20% of users, indicating that it is used highly by a portion of the group but not overall. Eighty-five percent of users indicated that they read the county Extension newsletter.

The non-user group rated the methods differently. Newspaper, television, and radio were rated the highest. Classes/meetings were rated lowest. The Internet was rated by 35% of non-users as not very likely to use, but 27% rated it as very likely to use, indicating that they either rely on it heavily or not at all.

Table 4. Preferred Methods of Educational Information Delivery

	User				Non-user			
Method	Mean	s.d.	Mode	Rank	Mean	s.d.	Mode	Rank
Newsletter	4.35	1.11	5	1	2.94	1.43	2	4
Internet	2.65	1.55	1	6	2.92	1.64	1*	5
Newspaper	3.56	1.39	5	2	3.63	1.32	5	1
TV	2.86	1.48	1*	4	3.62	1.27	5	2
Radio	2.83	1.49	1	5	3.28	1.24	3	3
Classes/ Meetings	3.19	1.46	3/5	3	2.52	1.30	1	6

Scale: 1=not very likely to use, 5=very likely to use
*Next most frequently occurring category was 5
Note: Of users, 85% indicated reading the county newsletter

The remaining questions asked both groups about the importance of subject matter areas on which K-State Research and Extension provides information/expertise. The groups were asked to rate the subject areas

based on their importance to the respondents as individuals (Table 5) and their importance to the community (Table 6).

Among users, most subject areas were rated as important, with six subjects with modes of great importance (5). The mode for community development was 3, while the mode for family skills was 4. Family skills might have been rated somewhat lower because the user group was older. While the farming/ranching mode was 5, the next most frequently occurring category was 1, indicating a split distribution. Responses for environmental preservation and family skills clustered around ratings of 3, 4, and 5.

Non-users also rated subject areas highly, with all but farming receiving a mode of 5. Farming/ranching had the lowest mean and mode.

When asked to describe the importance subject areas to their communities, both user and non-user groups showed greater agreement. Standard deviations for every subject area decreased when compared to the data related to importance on an individual basis. Thus, there was less variability and greater agreement exhibited in the data.

Users rated every subject area high for the importance in the community, with each having a mode of 5. Modes for non-users were 5 in each area, except lawn and gardening where they were equally split between 3 and 4. Interestingly, farming and ranching, which had a mode of 1 for individual importance to non-users, had a mode of 5 when the group viewed its importance to the community. This probably relates to the recognition of the economic value of agriculture to the community.

Table 5. Importance of Subject Matter to Individual

	User				Non-user			
Subject Area	Mean	s.d.	Mode	Rank	Mean	s.d.	Mode	Rank
Farming/ranching	3.34	2.44	5*	6	2.60	1.59	1	7
Environmental preservation	3.46	1.36	5**	4	3.70	1.32	5	4/5
Community development	3.15	1.20	3	8	3.70	1.16	5	4/5
Family skills	3.33	1.38	4**	7	3.87	1.26	5	3
Health and safety***	3.63	1.25	5	3	4.13	1.11	5	1
Youth development	3.43	1.46	5	5	3.88	1.25	5	2
Lawn/gardening	4.06	1.11	5	1	3.39	1.34	5	6
Food and nutrition	3.68	1.29	5	2				

Scale: 1=little or no importance to you, 5=great importance to you
*Next most frequently occurring category was 1
**Categories of 3, 4, and 5 all with greater than 20 percent
***Included description of food and nutrition in phone survey

Table 6. Importance of Subject Matter to Community

	User				Non-user			
Subject Area	Mean	s.d.	Mode	Rank	Mean	s.d.	Mode	Rank
Farming/ranching	3.83	1.35	5	6/7	3.47	1.45	5	6
Environmental preservation	3.91	1.15	5	4/5/6	3.83	1.13	5	5
Community development	3.91	1.16	5	4/5/6	4.09	1.04	5	2

Family skills	3.83	1.15	5	6/7	4.00	1.05	5	3
Health and safety*	3.91	1.14	5	4/5/6	4.20	0.96	5	1
Youth development	4.05	1.16	5	1	4.07	1.08	5	4
Lawn/gardening	4.00	1.08	5	2	3.41	1.18	3/4	7
Food and nutrition	3.98	1.12	5	3				

Scale: 1=little or no importance to you, 5=great importance to you
*Included description of food and nutrition in phone survey

Conclusions

Among non-users there was strong awareness of K-State Research and Extension and recognition of the tie to Kansas State University. This indicates success of these identity awareness programs.

Among those who had used K-State Research and Extension, there were high levels of satisfaction, both among users and non-users. Users differ from non-users in several important areas, and some of these are demonstrated by demographics. Users tended to be older and had higher incomes. They also preferred traditional methods of information delivery (newsletters and classes/meetings). Non-users were more oriented to mass media, which might be used to create more awareness and bring them to reliance on newsletters, etc. Among non-users, those who use the Internet rely on it for information but those who do not use the Internet did not value it as an information delivery method, a finding that demonstrates the digital divide.

Respondents rated Extension's subject areas as important for almost every category. Among users, the overall rating of farming/ranching was high, but there was a split in those data, with many users indicating it was unimportant to them. Users also exhibited less agreement on environmental preservation and community development, perhaps because these are considered more societal goods than individual goods.

There was greater agreement about the importance of subject areas to the community, with high ratings to all subjects. These data can be interpreted as community values/benefits. As one writes key messages they may consider positioning messages as individual or community benefits.

From a marketing perspective, these data could be used to build strategies to reach key audiences and reach beyond traditional clientele groups. Mass media may be an important tool for reaching these non-users. Once they have greater awareness of the organization, they may become more reliant on more traditional informational tools, especially newsletters. Given the pace of lifestyles today, it is doubtful that classes/meetings will grow much in popularity, but may be more important for particular hands-on/interactive learning activities or for particular targeted groups. The Internet also holds potential here. It is important as well to remember to provide existing users with the information and informational tools that they value and to continue to serve their needs.

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AN ASSESSMENT OF PROGRAMMING NEEDS AMONG COUNTY AGENTS IN RED IMPORTED FIRE ANT QUARANTINED COUNTIES IN TEXAS

A Paper Presented to the Southern Association of Agricultural Scientists
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Jacqui Haygood
Assistant Professor

Amanda Harman
Graduate Student

Cindy Akers
Assistant Professor

Harlan Thorvilson
Professor
Texas Tech University

Background

ABSTRACT

The advancement of the Red Imported Fire Ant in Texas is causing a growing concern about the lack of awareness about fire ant control. One of the main goals of the Texas Fire Ant Plan is to "develop a strong educational program designed to quickly move new products and procedures into the public and private sectors of both rural and urban environments to effectively manage fire ants."

The purpose of this study was to provide an accurate assessment of the Texas Cooperative Extension communication and educational programming efforts as related to red imported fire ant control. One hundred twenty members of the Texas Cooperative Extension were surveyed using the bimodal survey model. This model uses a combination of electronic and paper contacts to encourage respondents to answer an online or paper questionnaire. An overall response rate of 80% resulted from the use of the 25-day model.

Results of the survey show that 25 of the county agricultural agents have attended more than four fire ant training sessions, while 30 have had no training. Thirty-seven percent ranked themselves of knowing a little more than a novice when asked about fire ant biology, 47.7% ranked themselves as somewhat of experts. The majority of the respondents consider the red imported fire ant to be a major problem in the next 10 years.

When asked about the products currently available for red imported fire ant control, the majority of the participants thought that the products worked most of the time. Broadcast bait, the Texas Two-Step Method and mound treatments were considered somewhat effective by the participants.

The majority of the participants have conducted more than four fire ant programs with the help of the Internet, Texas A&M Website, extension publications, newsletters, "Spring Fling" media kit, the Red Imported Fire Ant Awareness Week Packets, fact sheets, fellow Agricultural agents, Integrated Pest Management Agents, and other state specialists.

This study also determined that fact sheets, news releases, Power Point presentations, kits and information of organizations would be the most useful for future red imported fire ant programming.

BACKGROUND

With the importation of the red imported fire ant (Solenopsis invicta Buren; Hymenoptera: Formicidae) to the United States from South America and its movement into Texas during the 1950s, there is a growing concern for damage caused by the fire ant (Chenault, 1998). There are dozens of fire ant species in South America, but two species reek havoc in the United States, the black imported fire ant and the red imported fire ant. The black imported fire ant, Solenopsis richteri, was imported from Argentina in ship ballast to Mobile, Alabama, in 1918. However, the species that is the most damaging in Texas is the red imported fire ant, Solenopsis invicta Buren that also arrived in Mobile, Alabama, during the late 1920s or early 1930s (Fire Ant Plan, 2000). Because fire ants have no natural competitors, parasites or predators in North America, it only took until the 1950s for the red imported fire ant to reach Texas (Chenault, 1998). "Over the last 76 years, imported fire ants have spread to infest over nine southern states and over 275 million acres within the United States" (Fire Ant Plan, 2000, p.1).

Red imported fire ants cause an estimated $300 million dollars in damage annually in Texas (Parsons & Chenault, 1997). In fact, an estimated $67 million in damage is caused in the beef cattle industry annually. Fire ant damage not only affects rural areas, it affects urban areas as well. Urban residents spend more than $90 million a year to control fire ants in their yards and repair damage caused by the red imported fire ant (Chenault, 1998).

In 1995, the Texas Imported Fire Ant Research and Management Project were developed through line item funding from the Texas Legislature (TX Tell, 2001). Many organizations are working on the Fire Ant Research and Management Plan, including the Texas Agricultural Experiment Station, Texas Cooperative Extension (formerly known as the Texas Agricultural Extension Service), Texas Department of Agriculture, Texas Tech University, University of Texas, Texas A&M University, and the Texas Parks and Wildlife Department (Chenault, 1997). The purposes of the project are: (1) find long-term solutions to the fire ant problem (Parsons, 1997), (2) coordinate research efforts among universities in Texas, (3) explore new technology such as biological control agents and potential weaknesses in the ant’s biology (Chenault, 1997), and (4) to assist curriculum specialists with developing materials to promote fire ant awareness.

Theoretical Framework

“Targeting Outcomes of Programs (Figure 1) focuses on outcomes in planning, implementing, and evaluating programs” (Bennett & Rockwell, 1995, p. 1). Targeting Outcomes of Programs uses this framework to target outcomes in program development and to assess the degree to which the outcome targets are reached. Targeting Outcomes of Programs was used to evaluate the past performance of programs and the future programs presented on fire ant awareness activities by agricultural county agents in quarantine counties.

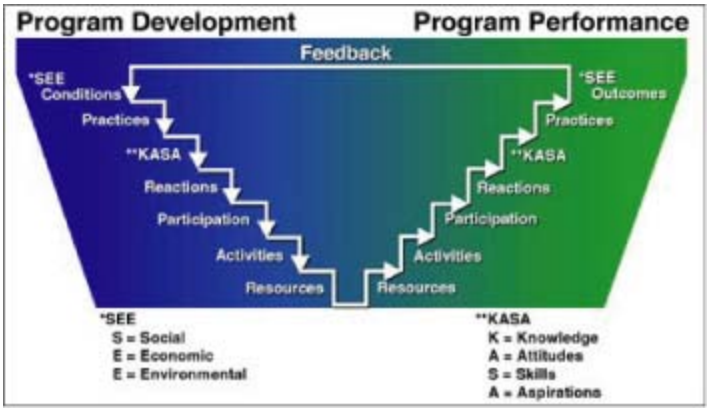


Figure 1. TOP Model (Bennett & Rockwell, 1995).

Statement of the Problem

With the advancement of the red imported fire ant into Texas, growing concern about the lack of fire ant awareness control exists. One of the main goals of the Fire Ant Plan is to "develop a strong educational program designed to quickly move new products and procedures into the public and private sectors of both rural and urban environments to effectively manage fire ants" (Fire Ant Plan, 2000, p.2). The purpose of this study was to provide an accurate assessment of the Texas Cooperative Extension educational programming and communications efforts as it relates to RIFA control. Currently, there is a dearth of information about fire ant educational efforts. Therefore, a study needed to be conducted to determine the effectiveness of fire ant awareness activities in the quarantined counties in the state of Texas.

Purpose and Objectives

The purpose of this study was to provide an accurate assessment of the Texas Cooperative Extension educational programming efforts as it relates to red imported fire ant control. The following objectives were developed to accomplish the purpose of this study:

1. Describe the demographic characteristics of extension agents and extension organization in the fire ant quarantined counties in the state of Texas;
2. Determine the level of fire ant awareness of the extension agent in RIFA quarantined counties in Texas;
3. Ascertain the common RIFA control practices in quarantined Counties in Texas;
4. Describe the current RIFA programming efforts being conducted in quarantined counties in Texas and the outcomes of the programs; and
5. Determine what educational and communications materials need to be developed for future RIFA programming in quarantined counties in Texas.

Method

METHODOLOGY

The research design used for this study was a descriptive survey. This study sought to evaluate the awareness activities of fire ant programming with the help of the county agents in the quarantine counties in the state of Texas. The sample for this study included agricultural county agents (158) and Integrated Pest Management (17) agents from the state of Texas within the fire ant quarantine counties (N=175). The assessable population was derived from the Texas Cooperative Extension Personnel Directory. A sample (n=120) was selected according to the population size (Krejcie & Morgan, 1970).

The researcher-developed survey instrument was used for the collection of data using two formats, a web-based and a paper version questionnaire. The questionnaire determined the level of fire ant knowledge and programming conducted by the county agents in the quarantine counties in the state of Texas. The questionnaire gathered demographic information and program data relevant to the study. Demographic and program data were collected for each subject related to: (a) gender, (b) age, (c) years of experience, (d) rank/level in extension, (e) type of fire ant programming conducted in the county, (f) amount of damage to crops and wildlife in the county, (g) materials used from the fire ant media kit, and (h) materials needed by the agents to help make the public more aware of fire ant control measures.

A panel of experts consisting of university personnel from Texas Tech University and Texas A&M University reviewed the instrument to establish of face and content validity. A pilot test was conducted to determine reliability of the instrument. The pilot test sample (n=34) consisted of county agents in the target population, but not included in the sample. Cronbach's alpha revealed r=.9415 for the questionnaire.

Data collection followed the Bimodal Survey Model as recommended by Hardin (2002). The 25-day process began on June 21, 2002 (day 1) with an e-mail and the final contact came on July 15, 2002 (day 15) when an e-mail thank-you/reminder was again sent to everyone. Following this contact, the researcher waited an additional ten days for late arriving surveys. Ninety-six out of the 120 surveys were returned for an 80% response rate. Three surveys were unusable.

The data were analyzed using SPSS. Descriptive statistics (frequencies, means, and standard deviations) were used to summarize the data pertaining to: (a) the demographic variables of the county agents, (b) their fire ant training, (c) their self-perceived knowledge of fire ants, and (d) their use of the fire ant media kit.

Results

The study sought to determine the demographic characteristics of extension agents and extension organization in the fire ant quarantined counties in the state of Texas. The results of the study show the majority of the respondents were male (94.4%) while only five respondents were female. The agricultural agents age range was from 25 to 59 with the average age being 42. The agents were employed by Texas Cooperative Extension for an average of 16 years with the employment time ranging from less than a year to 33 years.

Most agents (34.2%) were employed at a Level 2, while 28 percent were Level 1 and 26.8% were level 3. Eleven percent were employed at Level 4. The majority (64.7%) of the participants had been employed in their county for less than a year to nine years. The average number of years spent in the current county was 8.8 years. The most time served in the current county was 19 to 27 years (19.5%). Seventy-seven percent of the participants do not have an Integrated Pest Management Agent in the county.

Objective two of the study sought to determine the level of fire ant awareness of the extension agent in RIFA quarantined counties in Texas. The results were split when asked how many fire ant training sessions the participants had attended, 30 (34.5%) have had no training, while 25 (28.8%) have had rather extensive training as they have attended more than four sessions. The average knowledge of the participants about fire ant biology was also split, 37.5% (33) ranked themselves as knowing a little more than a novice and 47.7% (42) ranked themselves as somewhat of an expert. Half of the participants also considered themselves somewhat an expert when it came to knowledge about fire ant ecology and control.

Although most of the participants considered the residential, public, recreational, rangeland, pasture and row crop area damage mild, they believe fire ants will be a major problem in 10 years in their respective counties. Table one shows that participants considered the damage to wildlife (37.9%), livestock (33.3%) and electrical equipment (40.3%) by fire ants less than severe. The damage to crops and human injuries was considered a little more than minimal. The damage caused to the White-tailed deer population was considered minimal, but

the damage done to the Texas horned lizard, Bobwhite quail and other nesting birds was considered more than minimal(Table 1). The majority of the participants considered the damage done to sorghum, soybeans, cotton, wheat, and alfalfa by fire ants as minimal and the damage done to vegetable crops was a little more than minimal (Table 1).

Table 1. Perceived impact damage due to red imported fire ants.

Table 1

Objective three sought to determine the common fire ant control practices in the county. The majority of the participants (68.6%) thought that red imported fire ant products currently available on the consumer market work most of the time. Table 2 shows that participants in the quarantine counties considered Broadcast bait (51.2%), the Texas Two-Step Method (49.4%), and mound treatments (47.8%) as somewhat effective means of control.

Table 2. Percentage of three methods used in red imported fire ant treatment.

Table 2

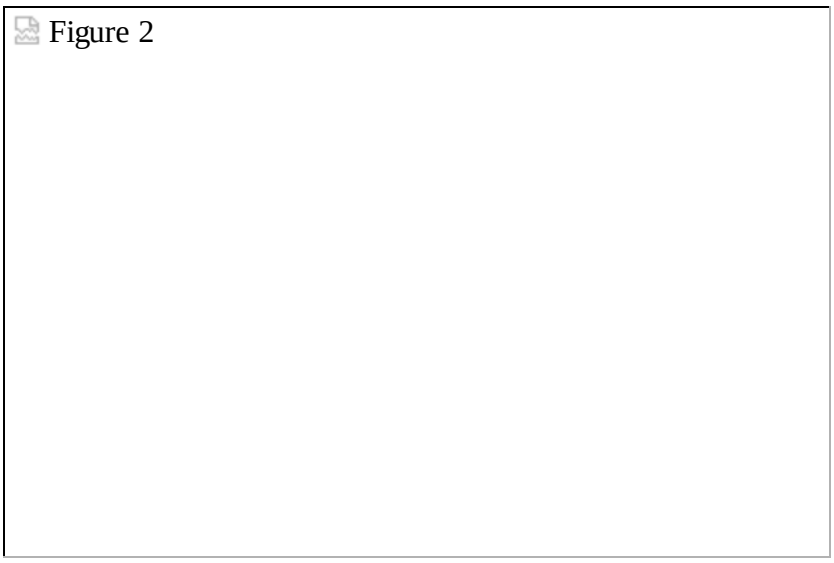
Objective four sought to determine the programming efforts that are being conducted in fire ant quarantine counties and the outcome of the programs. The main environmental concern of agents in the quarantine counties was the use of the least toxic pesticides when treating fire ants (73%). Participants were also concerned about use of toxic pesticides (66.3%), runoff issues (58.4%), the use of organic pesticides (57.3%) and in biological insect control (50.6%) (Table 3).

Table 3. County environmental issues.

Table 3

The majority of the participants currently use other county Agricultural agents, Integrated Pest Management Agents and other state specialists as presenters of fire ant programs. The majority of the participants used university researchers, and pest control professionals before 1998 as presenters for fire ant programs. Half of the participants have done more than four fire ant programs in their county with an average attendance of 85. The majority of the participants currently use the Internet, the Texas A&M Website, extension publications, newsletters, "Spring Fling" media kit, the Fire Ant Awareness Week Packets, fact sheets, and CD's as resources for fire ant programs. The media kit provided by Texas A&M was deemed useful and the items that were the most useful were news releases (6.28), Frequently Asked Questions (5.27) and brochures (5.26) on an 8-point scale. The majority (69%) of the participants agree that the general citizen has some knowledge about fire ant control. The majority (78.5%) of the participants agree that the fire ant control methods are environmentally friendly and incorporate the Texas Two-Step Method into their fire ant control programs.

Objective five sought to determine the educational materials needed for future fire ant programming. This study determined that fact sheets, news releases, Power Point® presentations, kits and organization information would be the most useful for future fire ant programming (Figure 2).



Conclusions

RECOMMENDATIONS

The results of this study show the importance of fire ant programming in fire ant quarantine counties in the state of Texas. The following recommendations were made as a result of this study.

1. Since only 50% of the participants considered themselves somewhat experts when it comes to biology, ecology and control of RIFA, the Texas Cooperative Extension should continue to offer in-service activities for the other 50% of the agents.

2. This survey should be conducted again to gather longitudinal data and to track the progress of RIFA programming. This will ensure that the programming continues to meet the needs of the agents and public in quarantined counties.

3. More fact sheets for new chemicals on the market are needed to keep agricultural agents up-to-date.

4. Agricultural communications specialists should continue to develop presentations aids RIFA programs. They should also continue in their efforts to develop news releases about RIFA research.

5. Companies specializing in treatment methods for RIFA should be invited to speak with extension agents about proper use of chemicals.

6. Agents should use a more diverse group of presenters when offering fire ant programs, such as pest control professionals and university researchers.

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Identifying and Clarifying Kansas State University Research and Extension's Organizational Values

A Paper Presented to the Southern Association of Agricultural Scientists
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Chris Lavergne
graduate student
Texas A&M University

Tracy Rutherford
Assistant Professor
Texas A&M University

Background

On April 25, 2002, K-State Research and Extension issued to its employees five proposed organizational core values including (1) integrity, (2) communication, (3) scholarship, (4) leadership, and (5) inclusion. Each of these values included value statements explaining how to apply individual values to daily tasks. Personnel were encouraged to use each value in their daily workplace procedures.

This study had two objectives. The researchers sought to (1) determine organizational values of Kansas State Research and Extension personnel and add validity to the identified values that will be representative of Kansas State Research and Extension and (2) investigate possible relationships between individuals' expressed values and their age, gender, race, job tenure in K-State Research and Extension Service, level of formal education, program area responsibility, and position within the organization.

Similar studies have been conducted by Extension services in North Carolina (Safrit, 1990), Ohio (Conklin, Jones, & Safrit, 1992), Florida (Williams, 1984), Minnesota (Barker, 1994), and New Mexico (Seevers, 2000).

For the purpose of this study an organization is defined as a collection of (usually) hierarchically-arranged individuals linked in an overall structure characterized by task specialization and horizontal differentiations among individuals to accomplish a series of interconnected tasks (Drasgow & Schmitt, 2002). Measuring and Analyzing Behavior in Organizations states that in researching an organization it is vital to begin with the individuals who make up the organization, and that knowledge of an organization is developed from an accumulated knowledge of individuals (Drasgow & Schmitt, 2002).

Organizational values are important in clarifying what the organization stands for, as well as in creating a clear corporate mission and goals. According to William D. Hitt, every organization is guided by certain beliefs or values. These values communicate to all members "what we stand for" and "what is important to us" (Hitt, 1988).

Milton Rokeach defines a value as a single belief that transcendentally guides actions and judgments across specific objects and situations and beyond immediate goals to more ultimate end-states of existence. A value is a standard or yardstick to guide actions, attitudes, comparisons, evaluations, and justifications of self and others (Rokeach, 1968).

One sign of a healthy organizational culture is congruence between the organization's statement of values and the daily behavior of its members. Conversely, one sign of an organizational culture in trouble is lack of congruence between the organization's statement of values and the daily behavior of its members (Hitt,

1988). The researchers in this study set out to determine if the proposed value statements issued by K-State Research & Extension were congruent with the personal values of the individuals who make up the organization.

A solid values audit should give Kansas State University Research and Extension administrators an idea of how the stated organizational values agree with employee's individual values, and whether employees perceive the organization as demonstrating these values on a day-to-day basis, through policy and practice.

While all organizations have core values, whether stated or unstated, it is important that these values are harmonious with the employee's values. A lack of congruence is a sign of an unhealthy organization. Hitt outlines three examples of discordance in organizational values.
1. Incongruity between the statement of organizational values and the tangible understanding of these values on the part of the members.
2. Incongruity between the values of one unit and those of another unit within the same organization.
3. Incongruity between the statement of organizational values and the behavior of the organization's leaders (Hitt, 1988).

Method

The population consisted of all employees and supporting collaborators listed in the most recent Kansas State University Agricultural Experiment Station and Cooperative Extension Service directory, (N=1,375). The survey was distributed to the complete population to provide an opportunity for participant self-selection. The sample provided a point-in-time perception of the core values. Responses were received from 261 employees, a response rate of 19%. Responses were divided between three primary responsibilities teaching, research, and extension. Fifteen (15) respondents did not specify primary responsibilities; twenty-six (26) responses were received from teaching personnel, forty-two (42) from research personnel, and one-hundred and seventy-eight (178) from extension personnel. Table 1 compares the demographics of the respondents to all KSRE personnel.

Table 1. ***Demographics***

Variable	**Respondents**	**KSRE**
Age (mean)	55.1	45.061
Gender (n)		
Female	**138**	**557**
Male	**111**	**738**
No Response	**12**	
Ethnicity (n)		
American Indian/Alaskan Native	**3**	**15**
Hispanic-American	**4**	

Asian/Pacific Islander	**0**	**69**
White	**243**	**1,178**
Black	**0**	**21**
Other	3	17
No Response	**8**	
KSRE Job Tenure (mean)	12.68	13.18
Education (n)		
Less Than High School Diploma	**0**	**5**
High School Diploma	**8**	**73**
Associates Degree	9	33
Technical School	**0**	**33**
Some College	**43**	**142**
College Degree	**44**	**349**
Some work toward Masters	34	41
Master's Degree	52	250
Some work toward Doctorate	10	0
Doctorate Degree	57	306
Post-Doctorate	0	56
No Response	4	11
Job Classification (n)		
County Extension Agent	55	
District Extension Agent	1	
Instructor	7	
Assistant Professor	7	
Associate Professor	18	
Professor	33	
Office Professional	70	
Unclassified (Faculty)	44	
Program Assistant	7	
Administrative Personnel	1	
Other	3	
Primary Responsibility (n)		
Teaching	26	
Research	42	
Extension	178	
No Response	15	

A survey instrument containing 40 value statements was developed to assess the organizational values. The

questionnaire was similar to the mail questionnaire used in the New Mexico Cooperative Extension study (Seevers, 2000). In section one, two four-point Likert scales were utilized. The respondent was asked to rate the degree to which he/she values the statement and to rate the degree to which they perceive the value to be evident in the organizational policies and procedures. Response categories ranged from 1 to 4, with 1 representing “never value” or “not evident;” and 4 representing “always value” or “extremely evident.”

Section 2 of the instrument provided demographic information of the respondents. This included major program area of responsibility, job classification, tenure with K-State Research and Extension, highest level of formal education, gender, ethnicity, and age (Seevers, 2000).

The Kansas State University Research and Extension intranet, a privately maintained computer network that can be accessed only by employees, was used to provide a convenient and secure method for faculty and staff to complete the questionnaire. Because of the convenience factor and novelty, Internet response rates are typically higher than mail or telephone surveys (Buddenbaum & Novak, 2001). A hard copy was made available for those who requested it. Thirty-one employees opted to use a hard copy.

Two mailings from campus are distributed to county Research and Extension personnel each week. Cover letters were sent to both campus personnel and those off campus on June 5, with a deadline of June 21. Due to low response rates, the deadline was extended to July 3, 2002. Campus mail was utilized for on-campus employees. Reminders were distributed via the Tuesday letter on June 18 and June 25. The Tuesday letter is a weekly update of organizational information sent to all K-State Research and Extension personnel. This e-mail served as a thank you, while referencing the intranet availability and an online PDF version of the survey (Dillman, 2001).

Three challenges faced during the data collection period included (1) many employees did not know how to access their intranet account (2) two departments within the College of Agriculture use departmental servers, and (3) the research project was conducted during the summer, excluding the large number of K-State Research and Extension personnel with nine-month appointments and respondents on vacation during the survey period, causing a potential threat to external validity and experimental mortality. The researchers believe that these three components contributed to the low response rate.

Results

Statistical Package for the Social Sciences (SPSS®) software was used to analyze the returned data. To evaluate objective 1, determine organizational values of K- State Research and Extension personnel and add validity to the identified values that will be representative of K-State Research and Extension the forty value statements were divided into the original five proposed values, (1) integrity, (2) communication, (3) scholarship, (4) leadership, and (5) inclusion.

Table 2. ***Value statements included in five established values***

Value	Value Statement
Integrity	· Honesty and Integrity in our work
	· Maintaining the credibility of our organization.
	· Credibility with client
	· Providing objective, accurate research as a base for new and expanding knowledge.
	· Following through on promises and commitments.
	· Demonstrating our belief in what we say, by behaving consistently with our message.
	· Maintaining high standards of ethical behavior at all times.

Communication	· Recognizing, valuing, and rewarding all program areas, departments, and audiences. · Sharing information, open, honestly and widely across a broad spectrum. · Considering and responding respectfully to those expressing different perspectives on relevant issues. · Recognizing the ideas of others.
Scholarship	· Being a learning organization with a commitment to professionalism, professional development, and promotion of the relevance of our work. · Providing research-based or best practice information for informed decision-making. · Providing learning opportunities through the span of life and across the range of human needs, using diverse and relevant delivery methods.
Leadership	· Developing collaborations and partnerships with other groups who share our goals. · Contributing to a broader community, state, nation, and world.
Inclusion	· Maintaining an organization that is inclusive and respects the diversity of ideals, values, beliefs of co-workers and clientele. · Honoring and building upon differences in intellectual perspectives in addressing complex issues in research and education. · Adopting and implementing hiring practices and other system policies that promote fair and full participation. · Promoting the acquisition of knowledge and cross-cultural competencies by employees and clientele, faculty, staff, and volunteers.

Personal value statements were ranked according to the percentage of respondents that rated the statement as "always value" (Seevers, 2000.) Responses were averaged to determine which value statements received the most "always value" rating. The New Mexico study selected values in which 75% or more of the respondents rated the value as "extremely valued". For this study, values receiving at least a 70% rating were chosen as the most valued statements. Eleven value statements achieved this ranking, with value statement percentages ranging from 72.4% to 93.1%. Of the top 11 statements, the percentage of respondents rating the value as "extremely evident" in K-State Research and Extension policies and procedures ranged from as low as 12.6% to a high of 31.4%.

Table 3. ***Top personal value statements as perceived by personnel***

Rank (Valued)	Identified Organizational Value	Valid % Always Value	Valid % Extremely Evident	Rank (Evident)
1	Honesty and Integrity in our work	93.1	26.4	6
2	Maintaining the credibility of our organization	85.1	31.4	5
3	Maintaining high standards of ethical behavior	81.6	20.7	13

4	Credibility with client	83.1	27.6	9
5	Administrators who demonstrate sensitivity to personal and family responsibilities of employees	77.4	25.3	15
6	Following through on promises and commitments	80.1	12.6	21
7	Good fringe benefits for employees	76.6	20.3	23
8	Unbiased delivery of information	73.6	26.1	10
9	High standards of excellence in educational programming	72.4	29.1	4
10	Helping people help themselves	73.2	26.8	12
11	Adequate resources to perform job responsibilities	73.6	12.6	33

An incongruity existed between K-State Research and Extension personnel's personal values and how they perceived the value demonstrated in organizational policies and procedure. The highest ranked values on the "Personal Value" scale were ranked significantly lower on the "Value Evident in K-State Research & Extension" scale. The highest ranked value statements were represented in the value of integrity.

Spearman's rho was used to determine significant correlations between the values and selected demographic variables (Table 4 & 5). A few significant values were found at the .05 level. (Poindexter & McCombs, 2000).

Table 4. ***Correlations between identified K-State Research and Extension organizational core values and selected demographic variables.***

Selected Demographic Variable	Integrity	Communication	Scholarship	Leadership	Inclusion
Age	-.067	-.004	-.049	-.031	.012
Gender	.008	-.094	-.069	-.069	-.118
Ethnicity	.160	.166	.152*	.015	.168
Job Tenure	.039	-.048	.004	-.046	-.058
Education	.027	-.041	.010	.024	.024
Job Classification	-.112	-.035	-.133*	-.116	-.008
Primary Responsibility	.047	-.022	.109	.025	-.034

*Significant at the .05 level

Table 5. ***Correlations between values evident in policies and procedures and selected demographic variables***

Selected Demographic Variable	Integrity Evident in KSRE	Communication Evident in KSRE	Scholarship Evident in KSRE	Leadership Evident in KSRE	Inclusion Evident in KSRE
Age	-.048	.022	-.012	-.040	.026
Gender	.050	.035	.011	-.024	.028
Ethnicity	.026	.021	.062	-.003	.108
Job Tenure	-.054	-.048	-.088	.000	-.089
Education	-.019	-.038	-.033	-.082	-.132*

Job Classification	-.082	-.022	-.112	-.105	-.035
Primary Responsibility	.034	.013	.112	-.004	.039

*Significant at the .05 level

Although significant correlations existed between ethnicity and scholarship, it should be noted that 93.1% of respondents were classified in the same ethnicity category. A significant, negative correlation existed between job classification and scholarship.

Only one significant correlation existed in the perceived values in Research and Extension policies and procedures. Education and Inclusion had a perfectly negative relationship. This researcher interprets that to mean that personnel with higher educations found less inclusion in policy and procedure. This could be because researchers are less likely to collaborate when they reach the doctoral or post-doctoral level.

Conclusions

There is an incongruity between personnel's individual values and how they perceive the value as being evident in K-State Research and Extension policies and procedures. The eleven highest ranked personal values did not receive as high a rating in the "evident in policy and procedure" category.

In order for the public to have a positive perception of K-State Research and Extension and its values, the employees need to first recognize that what they value is demonstrated in policy and procedure. It is recommended that K-State Research and Extension administrative personnel review the results of this survey and implement action through annual conference, retreats and other gatherings to add validity to the value statements. Focus groups and committees, similar to the organizational core values group, should be formed to determine why some of the values Research and Extension personnel value are not seen in policy and procedure.

Many of the highest rating personal values involved integrity. Employees need to see that their organization values integrity in its day-to-day practices. This can be done through recognition, incentives, and simply walking the talk.

One of the challenges was the lack of employee use of the intranet. Steps need to be taken to make the intranet a valuable resource for employees. Two large departments within the organization, agricultural economics and biological and agricultural engineering, utilize their own server, which results in a lack of intranet use and division in the organization.

In the New Mexico study, a follow-up study was recommended to determine if value priorities have shifted and to assess the extent employees perceive that any discrepancies between perceived values and organizational practices have lessened (Seevers, 2000).

Regarding this study, a follow-up study in three to five years would be beneficial in determining whether current Research and Extension personnel's perceptions of Research & Extension procedure and policy have changed.

U.S. and British Media Framing of Agricultural Biotechnology

Lisa K. Lundy and Tracy A. Irani, University of Florida

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Background

Studies have suggested that most consumers get their information about biotechnology from the media (Hallman and Metcalf 1995; Hoban 1998), while the level of trust in what they learn is very low. According to the National Academy of Science (NAS), it is imperative "to develop a genetically literate public that understands basic biological research, understands elements of the personal and health implications of genetics, and participates effectively in public policy issues involving genetic information" (Armstrong 2000).

This study looked at the framing of biotechnology in the U.S. and British news media, investigating the difference in use of biotechnology frames in the U.S. and Great Britain. The United States has seen far less resistance to biotechnology than have European countries (Peterson 1999). This study also looked at the impact of the tragic events of September 11, 2001 on the framing of agricultural biotechnology in the U.S. and British national print media, whether the threat of terrorism was a frame used in discussing agricultural biotechnology. "Because of 9/11 we now have a couple of new ominous words in our vocabulary - biosecurity and agroterrorism," says LSU AgCenter Chancellor William B. Richardson (2002).

Agricultural biotechnology has the potential to provide more food for more people in a manner that is less harmful to the environment than traditional food production systems. The value of the global market in transgenic crops grew from U.S.$75 million in 1995 to U.S.$1.64 billion in 1998 (Persley and Siedow 1999).

The science of biotechnology is sophisticated, rapidly changing, and hard to understand and communicate to lay audiences. While studies of public attitudes and awareness of biotechnology have reported that many Americans are positive about plant biotechnology (Hoban 1998), consumers have also cited a number of concerns regarding plant biotechnology. Studies have shown (Persley and Siedow 1999) that consumers perceive risks of plant biotechnology to include food and worker safety, increased resistance to pests creating "superweeds," potential decline in genetic and phenotypic variability and biodiversity, fears about expression of genetic material from pathogens causing disease harmful to other plants, animals and humans; and uncontrolled (and perhaps unintended) gene transfer "upsetting nature's balance" (Persley, and Siedow, 1999).

Several studies have shown that consumers get their information on biotechnology from the media primarily (Hallman and Metcalf 1995; Hoban 1998). In a study of teachers of agriculture from three southern states, Iverson (1998) found that the major source for information about biotechnology was the mass media, primarily newspapers.

Researchers have attempted to explain the disparity in public opinion regarding biotechnology in the United States and Great Britain. One study (Gaskell, Bauer et al. 1999), consisting of surveys of attitudes in Europe and the United States, found that knowledge and understanding of biology and science did not explain the greater acceptance among U.S. consumers; Europeans scored significantly higher than Americans on knowledge. However, the same study (Gaskell, Bauer et al. 1999) found that Americans rated their trust in national government agencies considerably higher than did Europeans. Ninety percent of Americans demonstrated trust in the USDA (United States Department of Agriculture) regarding the safety of biotechnology and 84% displayed trust in the FDA (Food and Drug Administration). In contrast, only 4% of European respondents demonstrated trust in their national public bodies regarding the safety of biotechnology.

Gaskell, et al (1999), studying differences between European and U.S. acceptance of biotech foods, argued that the influence of three factors—difference in press coverage, trust in regulatory procedures and level of knowledge—might account for the relatively greater European resistance to agricultural and food biotechnology.

According to Priest (2001), public opinion reaction about agricultural biotechnology is primarily media driven as the "media set agendas for the rest of us and suggest certain interpretations over others" (p. 15). This implies that the information about biotechnology is being framed by the media. In general, framing involves the organization and packaging of information (Simon and Xenos 2000). Goffman (1974 p 21) says, "We actively classify and organize our life experiences to make sense of them."

"Frames are *organizing principles* that are socially *shared* and *persistent* over time, that work *symbolically* to meaningfully *structure* the social world (Reese, Gandy et al. 2001). When a topic is framed or connected to an existing culture frames, the topic's meaning is greatly influenced by the frame (Hertog and McLeod 2001). The way information is framed is the way people come to understand that issue.

According to Entman (1993), "To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described." Frames emerge in the media in the form of present or absent key words or sources of information (Entman 1993).

According to Gitlin (1980), framing is "persistent patterns of cognition, interpretation, and presentation, of selection, emphasis, and exclusion, by which symbol-handlers organize discourse, whether verbal or visual." Framing analysis looks at "how the media create meaning out of an issue or event, define it for the public and direct discussion about it" (Lane 1998). "Journalists organize news stories in ways that provide meaning to related events" (Gamson and Modigliani 1989).

When a topic is framed or related to an existing cultural frame, the topic's meaning is influenced by the frame (Hertog and McLeod 2001). According to Palenchar (2001), "Media frames involve the context, content, topic, coverage and package of news events." The framing process is heavily influenced by rhetoric as the rhetorical positions of interest groups become pervasive in ongoing social debates (Andsager 2000). In framing, rhetoric functions primarily to manipulate the public vocabulary in order to induce social change (Andsager 2000). A rhetorical study of public relations analyzes words and other symbols (Palenchar 2001). The symbolic representation of an issue is influenced by frame choice (Hertog and McLeod 2001). According to Hertog and McLeod (2001), these symbolic representations can include language use, sentence structure, "code" words, and modifiers.

The selection of given words affects the consideration of information and the reaction produced (Van Dijk 1988). Framing can significantly affect the perception of a problem and the evaluation of alternative options (Davis 1995). Frames used by the media give audiences the ability to organize and understand new information (Lane 1998; Tewksbury, Jones et al. 2000). Frames can have powerful effects on audience perceptions and ideas about an issue. A study by Tewksbury (2000) found that exposure to one single news article on a particular issue was influential enough to direct respondent comments on the issue several weeks later.

Rather than promoting one policy or ideology, media often uses frames to limit the choices to which a debate is limited (Lane 1998). Media framing is important because it relates isolated incidents to public issues (Gamson and Modigliani 1989). Journalists can be seen as brokers, "framing social reality and shaping the public consciousness" (Nelkin 1989). Often media go beyond setting an agenda for the public to suggesting validity for certain opinions, interpretations, and definitions of a controversial issue (Pan and Kosicki 1993).

While little is known about how individuals without special technical training in a field come to a conclusion about the level of risk involved (Hornig 1992), the knowledge individuals have is often influenced by mass media content (Einsiedel and Thorne 1999). Many studies of framing involve controversial scientific or medical topics, which are inherently complex (Andsager and Smiley 1998). In communicating risk, what the media states or omits can define issues for the general public (Bridges and Nelson 2000).

The specific objectives of this study were to ascertain (1) patterns in coverage; (2) types of sources used; (3) dominant frames; (4) differences in coverage before and after 9/11/01; and (5) differences in U.S. and British coverage.

The following research questions were formulated to accomplish these objectives:

1. To what extent was agricultural biotechnology covered in the U.S. and British national print media in the three months prior to September 11, 2001, compared to the three months following the event?
2. How did the US and British national print media frame genetically modified foods, or agricultural biotechnology as an issue in the three months prior to September 11, 2001?
3. How did the US and British national print media frame genetically modified foods, or agricultural biotechnology as an issue in the three months following September 11, 2001?

Methods

A textual analysis was conducted to identify the media frames used to cover GMOs in the U.S. and British national print media in the six months surrounding September 11, 2001. Several studies have looked at the framing of biotechnology(Bartels 2002; Whaley 2002). This study aimed to add to the literature base regarding the framing of biotechnology by looking at the framing of biotechnology in the six months surrounding September 11, 2001 to determine whether there was any correlating impact on the framing of biotechnology.

The time frame, specifically, for this framing analysis was June 1, 2001 to December 31, 2001. This time frame included the three months preceding and following September 11. In addition to the broader goal of investigating frames used in representing GMOs, the researcher looked for any changes in coverage that may correlate to the tragic events of September 11, 2001.

This analysis looked at the content of all news, feature, opinion and editorial articles published in three major daily newspapers, specifically *The Washington Post*, *The New York Times*, and London's *The Guardian*. *The Washington Post* and *The New York Time*s represent comprehensive coverage of U.S. and foreign news and are the dominant daily newspapers in the U.S. *The Guardian* was selected to give the British perspective on the framing of GMOs. The *Guardian* is one of Britain's oldest and most read newspapers. The researcher will seek to compare the framing of GMOs from the US and British media perspectives.

Articles were collected via a Lexis-Nexis database search, using the following key words: *genetically modified food*, *genetically engineered food*, *biotech food*, *genetically engineered crops*, *genetically modified crops*, and *genetically altered food* (Whaley 2002). The researcher cross-referenced the resulting articles and removed all duplicates. Articles less than 400 words and articles in which GMOs were mentioned, but were not the main topic of the article were eliminated. This resulted in a population size of 50 articles.

The unit of analysis was the individual article. The researcher examined the stories using a coding sheet. In addition, a faculty member trained in framing research methods was recruited to code 20 percent of the story population in order to establish intercoder reliability. Using the coding sheet, several factors were analyzed within each article. Each article was given an item id number. Also recorded for each article were newspaper name, date, day of week, the type of item (news, feature, opinion, or other), the section of the paper in which

the article appeared, the page number the article appeared on, the length of item (in words), the author's name, the headline of the article, the article's lead and whether or not biotechnology was mentioned.

The coding sheet also recorded information about the topic of the article. Topic categories emerged during article analysis. Tichenor (Tichenor, Donohue et al. 1980) argues that through selecting sources and placing their statements, the media can legitimize one perspective over another. Finally, the coding sheet recorded framing techniques used in the articles, such as the use of key words, phrases, or metaphors.

Results

The collected articles were analyzed in order to answer the research questions. Intercoder reliability was determined with a 55% agreement rating.

RQ1: To what extent was agricultural biotechnology covered in the U.S. and British national print media in the three months prior to September 11, 2001, compared to the three months following the event?

A total of 50 articles were identified as meeting the selection criteria used in the analysis. The majority (76%) of the articles were published in the three months prior to 9/11/01. *The Guardian* published more articles (16) than the *The Washington Post (11)* and *The New York Times (11)* prior to 9/11/01, but coverage was comparable in the three months subsequent to 9/11/01, with the newspapers publishing 5, 3, and 4 articles respectively.

As noted, the *Guardian* published more articles than the *Times* or the *Post* pre-9/11/01. There was also a difference in the number of various types of articles published. The three papers published a comparable number of news articles pre-9/11/01, but the *Guardian* published a higher number of editorials than the U.S. papers. In the three months after 9/11/01, only the Guardian published an editorial about agricultural biotechnology.

RQ2: How did the U.S. and British national print media frame genetically modified foods, or agricultural biotechnology as an issue in the three months prior to September 11, 2001?

Articles from *The Washington Post* and *The New York Times* in the three months prior to September 11, 2001 covered a variety of topics in agricultural biotechnology. These ranged from news articles about StarLink corn in the food supply and its possible effects on human consumers, to editorials regarding the potential of agricultural biotechnology for addressing the use of pesticides and the international food shortage. While there was no single frame that was present in every article, there were several frames that appeared repeatedly.

One of the most prominent frames in the U.S. and British national print media in the three months prior to September 11 was contamination of the food supply. This refers to the notion that genetically modified organisms are prevalent in the U.S. food supply, whether through main or trace ingredients. This frame of contamination communicates that Americans lack control of GMOs in their food supply through repetition of several key words and phrases such as "spreading," "rapidly," "wind-blown," "commingled," "accidents," "seeping," "cross-pollination," "ubiquitous," and "impossible to prevent."

Contamination was mentioned in the *Post* referring to difficulties in keeping modified and conventional crops apart. Many of the references to contamination mentioned StarLink corn. According to the *Post*,

> "The presence of StarLink in a white corn product illustrates how difficult it is to keep genetically modified crops from spreading….But they also said it has proven impossible to prevent some commingling of conventional and modified, as well as white and yellow, corn."

Articles also characterized unintentional crossbreeding as being more common than earlier believed. In the *New York Times*, GMOs are said to be "spreading so rapidly that it has become almost impossible for consumers to avoid them." GMOs are said to accidentally enter the global food supply and easily spread from farm to farm.

Articles from *The Guardian* also contained references to "genetic pollution" and "contamination," saying that GMOs were even finding their way into organic crops. Protesters are quoted as saying they damaged crops to "protect the possible contamination of the environment by GM pollen." However, this "contamination" is framed as a North American problem, something to protect against in Great Britain.

> "If contamination continues to spread in North America, and agribusiness's current push to overturn Brazil's ban on GM seeds is successful, it will become next to impossible to import non-GM soybeans."

Another prevalent frame in the *Post* and the *Times* is the risk to human safety associated with GMOs. While the risk to humans has been negated or challenged by scientists, the uncertainty of this risk is communicated in many of the pre-9/11 articles with such keywords and phrases as "fears," "allergic reactions," "rashes," "anaphylactic shock," and "dangerous to humans."

While most articles acknowledge the lack of evidence for danger to human health, there are consistent reminders of the potential risk through reference to allergic reactions and individuals who have been ill after eating foods containing GMOs. Often, these articles reference sources such as Mark Helm from the Friends of the Earth, an environmental group, saying it was "Borderline irresponsible to say this stuff is safe." While these sources make strong comments on the safety of GMOs, no reference is given to their credentials for making such statements other than the fact that they first brought the StarLink issue to public attention. This frame is found most in articles regarding the StarLink issue and is not a prominent frame in the *Guardian* articles.

Both the *Post* and the *Times* utilized the frame of environmental risk prior to 9/11/01.
Keywords and phrases used are "tinkering with genes," "unforeseen effects," "risky," and "upsetting the environment." Sources say that "genetically engineered corn to repel insects is inherently more risky to the surrounding ecosystems than conventional corn" and that "the general environmental risks of biotech crops have not been fully examined." However, presentation of the potential environmental risk is balanced with other sources saying, "Yes, transgenic crops carry risks… But damage to the Monarch has to be weighed against the prospect that fewer forests will be cleared and fewer children will go hungry." This struggle between environmental risk and the international food shortage is actually a frame in itself. While some articles say, "We have enough food," others are framing agricultural biotechnology as having "promise" for solving hunger. This frame was particularly evident in the editorials.

In the *Guardian*, the world hunger frame is also prevalent. One article quoted critics of British efforts to feed the poor in India with GM crops. While the "poor" and "developing countries" are mentioned in several of the *Guardian* articles, GMOs are not framed as a solution to world hunger. In fact, one article quotes Tom Wakeford, of Sussex University's development studies institute as saying, in reference to the introduction of GMOs to feed the poor in developing countries,

> "At a time when Britain has put a moratorium on the commercial use of GM crops, it seems hypocritical to endorse their use among some of the poorest people in the world. Nobody is listening to what the poor want."

In the *Post*, technology is framed as offering promise for solving disease and hunger problems. In one editorial, the *Post* says, "It's one thing for affluent consumers to eschew transgenic foods. It's another for the affluent to impose their choices on poor people." These quotes represent the frame of supremacy found in several of the articles from the *Guardian*. Citizens in Great Britain are framed as seeing GMOs as inadequate

for their consumption, but fine for consumption in developing nations. Other articles speak to the motivation of agricultural biotechnology companies, saying that most varieties of GMOs are not designed to reduce hunger. Another editorial in the Post says, "Given the promise of biotechnology, you might think that the world would accept the manageable risks associated with it."

Another frame in the *Guardian* that is absent in the U.S. newspapers is the political frame. Some *Guardian* articles present the concept of different groups coming together in opposition to agricultural biotechnology, while others align specific political leaders with support or opposition to agricultural biotechnology. According to one editorial article, "The genetic foods issue has also brought together social conservatives wary about tampering with God's handiwork and left activists worried about destablishing ecosystems and spreading genetic pollution." Another editorial refers to one political leader as having "called for the widespread deployment of GM crops."

All three papers include the frame of protest to agricultural biotechnology. The U.S. papers include such keywords and phrases as, "Scientists and executives being met by an army of protestors," "fear," "violence," "demonstrated," "heavy police presence," "attacking biotechnology," "the biotech industry is seizing control over our bodies, our futures, our food…," and "prospect of violence." The frame of protest is more colorful in the *Guardian*, referring to the GM food lobby as "forces of darkness," and as having "sinister motives." Protestors are reported as having "damaged GMO crops," and "destroying GM maize."

News articles in all three papers contain the frame of scientific progress. They all report on such developments as the "First tomato that can grow in salty water – an advance that could help solve one of the biggest problems in agriculture," the ability to "quickly create crops resistant to salt at much higher levels than traditional breeding could achieve," developing plants that are able to survive drought. Each of the papers had one news article that was primarily about a scientific development.

RQ3: How did the U.S. and British national print media frame genetically modified foods, or agricultural biotechnology as an issue in the three months following September 11, 2001?

After 9/11/01, contamination remained a dominant frame in articles related to agricultural biotechnology. The *Times*, in a December article recounting events of 2001 reads

> This year, the idea of genetic pollution – the idea, that is, that the genes of genetically modified organisms might end up in place we didn't want them to go – became a reality. In September the Mexican government announced that genes engineered into corn had somehow found their way into ancient maize varieties grown there – this despite the fact that genetically modified corn seed has not been approved for sale in Mexico.

This is framed as a growing problem. The *Guardian* quotes Doreen Stabinsky, from Greenpeace USA, as saying "The genetic contamination is likely to multiply through pollen flow and spread further to other traditional varieties and wild relatives growing in the area." This contamination is framed as a threat to genetic diversity and something that is nearly impossible to control. However, it is only framed as a potential source of bioterrorism against the U.S in one *Times* article regarding U.S. concern about the food supply. While this threat is framed as significant, no specifics are giving to threaten the safety of any certain food commodity. Interestingly, just the opposite frame is also evident. One feature article from the *Guardian* quotes an Egyptian newspaper as having accused "the U.S. of crimes against humanity for dropping parcels of genetically modified food on the starving Ahghans."

While the threat of genetic contamination remains a significant frame after 9/11/01, other environmental risks, such as the threat of genetically engineered corn to monarch butterflies, are minimized, with one *Post* article saying that "even the corn's most popular varieties did not appear to be harmful." Accordingly, the protest frame is not dominant after 9/11/01. In fact, the one mention of protesters is in a *Guardian* article

regarding the prosecution of GM protestors.

Conclusion

This study sought to look at the framing of biotechnology in the U.S. and British news media, investigating the difference in use of biotechnology frames in the U.S. and Great Britain, particularly in the sixth months surrounding September 11, 2001. The manner in which biotechnology is framed in the media has the potential to influence public perception as well as policy (Bartels 2002). Biotechnology is relevant to each person's life as everyone has the need for food. Biotechnology has the potential to change the way food is grown as well as access to food. If media coverage of biotechnology has the ability to affect public perception, then it has the potential for affecting policy (Cobb and Elder 1983). As regulations of biotechnology and labeling differ in the U.S. and Europe, this is a powerful influence and one that should be investigated.
The amount of coverage of agricultural biotechnology decreased in the three months subsequent to 9/11/01. This may be due to the increased coverage of 9/11 and the actions taken by the U.S. to combat terrorism. One could have speculated that the opposite would be true, that there would have been an increase in coverage due to the increased threat of bioterrorism. However, no significant connections seem to have been made in the U.S. or British national print media between agricultural biotechnology and bioterrorism.

The dominant frame over the entire six months was contamination of the food supply. While the *Guardian* framed this contamination as something to guard against and prevent, the U.S. national print media framed the contamination as ubiquitous and impossible to prevent. The implication of this finding related to the difference in U.S. and British perceptions of agricultural biotechnology may be that Americans do not necessarily feel more favorably about GMOs, but see them as already present in the food supply. The British coverage seemed to reflect a struggle between keeping GMOs out of their food supply and recognizing their potential to help solve food shortages in developing nations.

As evidence in the article analysis, there seem to be less evident framing techniques used in news articles from the *Guardian* than in the U.S. national print media. However, there are more editorial articles regarding agricultural biotechnology in the *Guardian.* This may point to a difference in the way different voices are heard in the U.S. and British national print media. Where the U.S. newspapers make use of framing devices in coverage of agricultural biotechnology, the British coverage was more deliberate in stating opinions in its use of editorials.

There is great potential for future research in this area. In order to generalize differences in the U.S. and British national print media, it would be useful to look at wider time frame. In addition, it would be useful to look at other print media in the U.S. and Great Britain for a wider array of coverage.

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AGRICULTURAL INFORMATION PREFERENCES OF NORTH CAROLINA FARMERS

A Paper Presented to the Southern Association of Agricultural Scientists

Agricultural Communications Section

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Sandra J. Maddox
NC Department of Agriculture

R. David Mustian
NC Cooperative Extension

David M. Jenkins
NC Cooperative Extension

Background

Over the last 150 years, the United States has emerged from the agricultural era to the industrial age and most recently into the information age. As each entity has moved aside to be surpassed in importance to society by the other (farmers for machines for information), each entity has remained a viable part of the "new age" being entered into. Agriculture, while no longer the driving force of society, still plays a monumental role in the economy and overall prosperity of the American people. No other county in the world rivals the bountiful production of agricultural products at the nominal price and guaranteed safety for consumption that the American public enjoys. Yet the value and importance of this industry is not readily recognized by the demographically diverse society existing in the United States and North Carolina today. Numerous obstacles exist which must be overcome to enable producers to remain viable and productive. In order for this to occur, producers must remain on the cutting edge of production technology and information accessibility.

Not only has agricultural support within the legislature and society as well as subsequent budgetary support has been reduced over the last decade, but the agricultural community itself has experienced change as well. Over the last century, traditionally a three-tiered structure of agriculture has existed in the state and the United States. The tiers were comprised of the small or part-time farmer, the middle-income farmer, and the full-time farmer. Whether family income came exclusively from the farm or was supplemented by off-farm sources as well as the value of sales of the agricultural enterprise determined much of this delineation. Contract farms or integrators have emerged in the state and country primarily in the livestock enterprises, but not exclusively with contract tobacco production on the horizon. This movement to contract farming and the growth of the local market driven diversified agricultural enterprises has resulted in a bi-polarization of the agricultural structure. There appears to be a marked reduction in the middle-income farmer, the traditional audience for information delivery methods employed by public agricultural organizations. This bi-polarization has been noted (Wolf, 1998) to have possibly affected the efficiency and the effectiveness of these organizations to provide the timely and specific information needed by growers in these categories.

The contract growers tend to rely on information received through the vertical integration of the corporate

entities. On the other end of the scale the part-time or small diversified local market driven by agricultural entities are involved in alternative production opportunities which may fill small and site or consumer specific markets. These growers present a challenge as crop specific production practices may be yet un-investigated or the expertise necessary to answer pertinent questions may not exist within the information providing institution. This actually may be the result of organizations' past hesitancy to entertain the needs of less traditional agricultural clientele audiences.

Another emerging issue that has the potential to impact funded agricultural information organizations is the increasing value of information and the increasing interest in involvement in its delivery. The value-added nature of information has been recognized and utilized by traditionally service oriented agricultural entities. This utilization has enabled not only agricultural supply dealerships to supply the needed agricultural products to producers, but the information necessary to assist growers in the use of these materials. The one-stop shopping for product and information enables growers to receive the necessary information in an interpersonal and time conservative manner. This same principle of value-added information has resulted in an enormous expansion of independent and privately funded crop consultants. Growers in the bipolar agricultural structure have favorably received the interpersonal contact and concurrent site-specific information provide on issues or production-specific questions by crop consultants.

Many factors have and will continue to result in changes in both agricultural communications and agricultural organizations. The importance of determining the preferences of the clientele to be served is paramount in these changing and competitive times. The organizations that work the most diligently to determine the needs and preferences of the intended audiences and most importantly direct resources to meet these expressed needs and preferences will survive and excel.

The primary purpose of this study was to obtain information that would assist the NC Department of Agriculture and other publicly funded agricultural information agencies in acquiring additional insight into the preferences of NC agricultural producers for the delivery of pertinent, timely, and crucial managerial information. The information obtained will enable these agencies to more successfully allocate limited resources to the delivery channels that are most utilized and preferred by the state's agricultural community.

METHODS

The research design was a mailed multi-section questionnaire. The population sampled in the study consisted of all agricultural producers in North Carolina recognized within the North Carolina Department of Agriculture and Consumer Services and USDA. The data base consists of producers defined as individuals who have reported income levels of at least $1000 annually from the sale of farm products or animals. Data were obtained from a randomized stratified sample of the population. A telephone call was used to follow up non-responders and those with missing data. Type of farm was conceptualized in 18 groups and subsequently each group was divided into two parts. Type of farm ranged from grains, tobacco, cotton, vegetables, beef cattle, hogs, poultry to aqua-culture. Each group was dichotomized into small and large depending number of acres, animals, or value of product sold. Fifty producers were randomly selected from each of the 36 groups. The total sample size was 1823. Of the total of 1823, only 1646 were potential as 177 producers had gone out of business; 631 potential respondents could not be reached with two mailings and four telephone follow-ups; 308 producers declined to participate; thus there were 707 useable returns for a 43.5 percent response rate. Thus far, only descriptive statistics have been used to analyze the data.

RESULTS

Characteristics of Farmers

The mean age of survey respondents was 57 years of age with a majority of respondents (89.6%) 40 years of

age and over. Eighty-four percent of respondents had achieved a high school degree, GED, or higher educational level. Survey respondents were predominantly white (94.6%) and predominantly male (91.6%). Approximately 5/6 (83.9%) reported that they were operators of the agricultural operation (Table 1). Respondents were asked to identify the type of enterprise that accounted for the majority of their income. About 1 in 5 (17.8%) identified beef cattle as their major source of income; 12.4 percent reported tobacco as dominant income source; 11.0 percent indicated that small grains was their major commodity; and finally 9.5 percent reported other row crops as their chief source of income. Of note is the fact that less than five percent of respondents reported that hogs, cotton, or turkeys were main enterprises. Six and a half percent of the respondents indicated that poultry was a major source of income.

The major types of information currently used by respondents included: production practices (50%); pest problems (49%); marketing (43%); regulatory (42%); and sample analysis (42%) (Table 2). The top five types of information that the respondents reported that they preferred to use were identical to what they were using but the rates ranged from 12 to 17 percent.

In examining what information sources were utilized by the respondents, it is not unusual that the farmers reported the most used source was the NC Department of Agriculture (79.3%). NC Cooperative Extension and Extension Agents were the next most utilized sources of information (76.5 and 76.1 percent respectfully). "Other farmers" were cited as a major source by 75.7 percent of the respondents. Sources of information among the farmers that were never used included: certified crop consultants (66.4%); regional agronomists (66.1%); and commodity groups (62.7%) (Table 3).

Respondents reported that the most important information channels for them were: magazine articles (83.8%); family, friends, and neighbors (83.0%); organizational newsletters (79.1%); bulletins and fact sheets (74.8%); on-farm visits (69.9%); and meetings (69.9%) (Table 4).

In considering the communication channels that were never used by respondents, findings include: video conferences (77.7%); computer software (68.3%); tours (57.0%); radio (52.4%); and computers for use with web/internet (52.3%) Table 5).

Table 1. Distribution of Farmers by Socio-demographic and Farm Characteristics

Age	**N**	**%**
20-29	4	.7
30-39	56	9.7
40-49	136	23.5
50-59	146	25.2
60-69	125	21.6
70+	112	19.3

Education	**N**	**%**
Less than High School	48	6.8
Some high school	62	8.8

High school graduate	225	32.0
Some college	198	28.2
BS or BA	114	16.2
Graduate degree	56	8.0

Ethnic Background	**N**	**%**
American Indian	16	2.3
African American	18	2.6
White	663	94.6
Other	4	.5

Gender	**N**	**%**
Male	641	91.6
Female	59	8.4

Position	**N**	**%**
Operator	593	84.0
Hired manager	20	2.8
Partner	80	11.3
Other	13	1.9

Type of Enterprise	**N**	**%**
Beef cattle	205	17.8
Tobacco	143	12.4
Grains	126	11.0
Other crops	109	9.5
Poultry	75	6.5
Vegetables	66	5.7
Nursery	61	5.3
Hogs	52	4.5
Aqua-culture	43	3.7
Fruit trees	41	3.6
Other animals	40	3.5
Cotton	37	3.2

Floriculture	32	2.8
Dairy	29	2.5
Turkeys	25	2.2
Sheep, goats	23	2.0
Equine	23	2.0
Broilers	19	1.7

* Respondent could choose more than one type of enterprise

Table 2. Percentage Distribution of Farmers by Types of Information Currently Used and What They Prefer to Us

Types	Currently Use %	Prefer to Use %
Production Practice	50	15
Pest Problems	49	17
Marketing	43	17
Regulatory	42	13
Sample Analysis	42	12
Animal Health	39	12
Research	33	12
Training	21	4
Financial	16	7
Advertisement	15	5
Human Resources	10	3

Table 3. Distribution of Respondents by Information Sources Utilized

Source	Often (Weekly)	Frequently (monthly)	Sometimes (1/6mos)	Seldom (1/12mos)	Never
		Percentage			
NC Department of Agriculture	3.8	32.3	28.5	14.7	20.7
NC Cooperative Extension	5.1	34.8	24.7	11.9	23.5
NC Farm Bureau	1.7	25.5	20.5	8.9	43.4
USDA(FSA, NCRCS,etc.)	1.8	17.4	27.9	13.5	39.4
Certified Crop Advisor	.8	3.3	22.8	6.7	66.4
Fertilizer/Chemical Dealers	4.1	14.3	29.6	13.6	38.4
Extension Agents	5.8	27.7	28.9	13.7	23.9

Regional Agronomists	1.1	2.5	21.8	8.5	66.1
Other Farmers	22.8	24.8	22.7	5.4	24.3
Commodity Groups	1.4	6.0	23.1	6.8	62.7

Table 4. Distribution of Respondents by Their Perceived Level of Importance of Each Communication Channel

Communication Channel	Most Important	Somewhat Important	Least Important
Newsletters (organizational)	22.8	56.3	15.9
Computer (web/internet)	13.5	44.0	42.5
Television	12.3	50.4	37.3
On-farm Visits	23.6	46.3	30.1
Meetings	15.2	54.7	30.1
Radio	6.3	41.1	52.6
Family, friends, neighbors	34.1	48.9	17.0
Bulletins and Fact Sheets	20.9	53.9	25.2
Telephone Consultations	17.8	44.6	37.6
On-Farm Tests	18.5	45.7	35.8
Field Days	9.0	49.3	41.7
Magazine Articles	24.6	59.2	16.2
Demonstrations	11.2	48.4	40.4
Computer Software	5.0	37.3	57.7
Tours	5.3	46.4	48.3
Office Visits	14.3	45.1	40.6
Video Conference	1.3	34.0	64.7
Newspaper	17.9	52.0	30.1
Printed Dealer/Sales Materials	11.5	55.7	32.8
Farm Organizations/Associations	19.5	51.0	29.5

A similar pattern was discovered when respondents reported the information delivery channels that they preferred to use. The top five channels included: newsletters (60%); magazine articles (46%); bulletins/fact sheets (45%); family and friends (42%); and on-farm visits (36%)(Table 6).

Delivery channels were summed to arrive at major dimensions: personal, printed materials, groups/organizations, computer-based channels, and electronic channels. The most preferred delivery channel when the farmer wanted information about new farm management practices were personal channels (55%). Printed materials was the second most preferred (29%) for learning about new farm management practices (Table 7). The preferred channel of farmers for making day-to-day decisions was similar: personal (60%), and

printed materials (28%) (Table 8). And the pattern was consistent when farmers identified that the most preferred channels for adopting new farm management practices were personal (62%) and printed materials (23%) (Table 9).

Table 5. Distribution of Respondents by Frequency of Use of Each Communication Channel

Communication Channel	Often (Weekly)	Frequently (monthly)	Sometimes (1/6mos)	Seldom (1/12mos)	Never
		Percentage			
Newsletters (organizational)	8.2	48.4	22.6	7.2	13.6
Computer (web/internet)	11.6	11.6	18.7	5.9	52.3
Television	26.3	9.4	22.3	10.6	31.4
On-farm Visits	4.4	10.1	32.6	17.3	35.6
Meetings	1.7	11.4	36.4	18.3	32.1
Radio	13.0	6.4	17.6	10.6	52.4
Family, friends, neighbors	32.1	25.1	18.3	6.0	18.5
Bulletins and Fact Sheets	6.7	32.3	25.1	8.6	27.3
Telephone Consultations	7.3	12.1	27.1	12.3	41.2
On-Farm Tests	2.1	8.3	24.4	19.7	45.5
Magazine Articles	10.3	46.7	21.0	4.7	17.3
Computer Software	2.1	4.4	16.9	8.3	68.3
Tours	.6	2.0	22.6	17.8	57.0
Office Visits	1.3	8.7	30.7	13.9	45.4
Video Conference	.3	1.0	14.6	6.4	77.7
Newspaper	31.3	12.7	17.2	9.0	29.8
Printed Dealer/Sales Materials	6.4	22.4	29.6	11.7	29.9
Farm Organizations/Associations	3.0	20.1	29.4	11.7	35.8

Table 6. Distribution of Respondents by Information Delivery Channels They Prefer to Use

Communication Channel	Percentage
Newsletters	60
Magazine Articles	46
Bulletins/Fact Sheets	45
Family/Friends	42
On-farm Visit	36
Newspaper	34
Farm Organization/Association	32
Television	31

Dealer/Sales Materials	28
Meetings	26
Computer (web/Internet)	26
Demonstrations	25
On-farm Tests	25
Field Days	23
Radio	19
Telephone Consultations	19
Tours	17
Office Visits	15
Computer Software	12
Tele-Conference	4

Table 7. Most Preferred Communication Channel Information About New Farm Management

Communication Channel	Percentage
Personal	55
Printed Materials	29
Groups/Organizations	7
Computer Based	6
Electronic	3

Table 8 Most Preferred Communication Channel Information When Making Day-to-Day Decisions

Communication Channel	Percentage
Personal	60
Printed Materials	28
Computer Based	5
Groups/Organizations	4
Electronic	3

Table 9. Most Preferred Communication Channel Information When Adopting New Farm Management Practice

Communication	Percentage

Channel	
Personal	62
Printed Materials	23
Groups/Organizations	7
Computer Based	6
Electronic	2

Summary and Discussion

This study investigated the viability of the utility of various communication channels and\sources for the delivery of traditional and practical agricultural information. While technological advances have emerged as the information delivery channels of the 21st century, it is apparent that this may not be the preferred method of information access by all users. Communication channel preferences reported by those seeking agricultural information were in the form of personal and printed methodologies. This study implies that while the assumptive position is that communication and information transfer is best accomplished through "high tech" channels of delivery, research results indicate that "high touch" is the more effective means of information transfer. Most importantly revealed by this study is the need for organizational entities providing information to agricultural producers to understand the implications of this information. To ignore the obvious is to ensure continued inability to satisfy the needs and preferences of potential users and to ineffectively utilize monetary and human resources.

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Biotechnology: What's in a Name?

A Paper Presented to the Southern Association of Agricultural Scientists
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Jefferson D. Miller
Assistant Professor
University of Arkansas

Mamane Annou
Research Associate
University of Arkansas

Eric J. Wailes
Professor
University of Arkansas

Background

One of the most significant dilemmas among agricultural communications researchers and practitioners lately is how best to inform and educate the public about agricultural biotechnology. As with previous technological advances of national and international importance involving public perceptions of risk, mass media play an important role in the public's attitude regarding agricultural biotechnology. Hoban and Kendall (1996) advised that public communication and education is especially vital to public acceptability of agricultural biotechnology because people perceive the technology to affect the food they eat.

Researchers internationally in both academe and industry have been working on this communications dilemma since the mid-1980s. Survey and focus group research to determine public opinions about biotechnology-related issues has been common and has served to guide public communications and education efforts about biotechnology in the food and agriculture industry. This body of research points to two important premises: (1) Mass media play a key role in developing public opinion regarding biotechnology (Gaskell et al., 1999; Gunter, Kinderlerer, & Beyleveld, 1999; Priest, 2000; IFIC, 2001, Marks, 2001); and (2) Though both consumers and journalists are becoming more informed (IFIC, 2001; Vestal and Briers, 2000), they generally have limited knowledge on which they can form their own attitudes about biotechnology, so they rely on peripheral cues to help in forming opinions (Wasnik and Kim, 2001). This second premise conforms to the Elaboration Likelihood Model (ELM) of Persuasion developed by Petty and Cacioppo (Nai-Hwa, 2001).

The ELM demonstrates a commonly applied theory of information processing and persuasion that when consumers can't or won't make decisions based on a sound understanding of a new technology, they resort to peripheral cues. These cues are small bits of information not necessarily related to scientific facts about the technology but nonetheless memorable and understandable to the lay consumer. The simplicity of the cues makes them easy to apply in the opinion-forming process.

In the case of biotechnology, one key peripheral cue for consumers may be the connotations associated with the name of the technology. In other words, as Wasnik and Kim (2001) suggest, consumers may form opinions according to their linguistic evaluation of the word used to symbolize biotechnology and food products resulting from biotechnology. This poses obvious problems for public communicators and educators, but it also causes potential problems for public opinion and public perception researchers, who must ensure that the connotations of the terms used in their survey questions and focus group discussion schedules don't affect the

tone of participants' responses.

Recent studies point to the importance of linguistics in determining public perceptions of biotechnology. In their analysis of biotechnology marketing, Wasnik and Kim (2001) concluded the following: "Biotechnology is a branding issue. It is providing a clear, systematic, vivid, focused message that is potentially important to consumers … the powerful visuals that are associated with names such as "FrankenFoods" and "Super Weeds" leave little wonder why the public is able to latch on to such bumper-sticker philosophies of skeptics and be moved" (p. 10). Wasnik and Kim (2000) also reported on a 1991 European survey that found twice as many respondents thought that "genetic engineering" would make their lives worse than those who thought "biotechnology" would (p. 18).

Additionally, focus group research by Levy and Derby (2000) concluded that consumers in Maryland, Vermont, Washington, and Missouri found the terms "genetically engineered," "genetically modified," and "bioengineered" to be reasonably descriptive. However, the researchers also reported that connecting the concept of engineering with food had negative implications for some participants, that the term "modification" was seen as a vaguer, softer way of saying engineered, and that the "bio" sparked positive images for some participants. Terms such as "product of biotechnology," or "bio technology" had the least amount of negative implication, while acronyms such as GM and GE were unfamiliar to most participants and were not viewed favorably by participants. Most participants were unfamiliar with the term "genetically modified organism" and considered it to be an inappropriate name for bioengineered foods, possibly because it implied that foods are organisms or contain organisms, which some people think is inaccurate and unappealing.

Also, in a recent survey of college students' perceptions, Sohan, Waliczek, and Briers (2002), found that students' unfamiliarity with technical terminology affected their responses to survey questions about biotechnology.

The results of these recent studies imply that inconsistent and unfamiliar terminology in public communications and in public perception survey instruments is problematic. Even a cursory glance at news articles, journal articles, and survey instruments related to biotechnology would reveal that there is no agreed-upon lexicon for the concept of biotechnology and its many applications among communicators, educators, and public perception researchers.

Purpose and Objectives

Because consumers lean heavily on mass media for information to help them form opinions about biotechnology, an analysis of the relationship between terminology and tone in mass communication efforts could lead to a better understanding of how terminology affects consumer perceptions. The purpose of this study was to build upon previous research about terminology related to biotechnology in working toward a common lexicon that can be applied more purposefully in public communications and survey research efforts. The study was guided by the following objectives:

1. Analyze textual content from agricultural biotechnology-related articles in selected national and regional newspapers and trade publications to determine primary issues addressed and overall tone of the article.

2. Determine the terminology used in the articles' first reference to biotechnology or biotechnology-related products.

3. Determine possible relationships between the various terms most commonly used in first references to biotechnology and the perceived tone of the article.

Method

Initial Qualitative Analysis

A purposively selected collection of 137 articles was developed, including articles from three national news publications—The Washington Post, USA Today, and the New York Times; one regional news publication--The Des Moines Register; three national agricultural trade publications--Farm Journal, Progressive Farmer, and Soybean Digest; one regional agricultural trade publication--Delta Farm Press; and one agricultural marketing trade publication--Agri Marketing. To be eligible for this study, an article must have contained some mention of agricultural biotechnology or products of agricultural biotechnology. The selected articles included opinion pieces and commentaries, news reports, and feature stories. Articles examined appeared in print between January 1, 2000 and July 1, 2002.

An initial qualitative analysis, which involved a team of coders working to develop a visual hierarchy of major themes, characteristics and definitions, led to development of a coding sheet to be employed by three trained coders. Emergent themes included Tone (positive, negative and neutral), Balance (balanced or not balanced), Length (number of words in article), Section (e.g., News, Business, Real Estate, Agriculture), Sources (people or organizations referred to or quoted in the article), Central Issues (socio-economic, political, and physical science), Secondary Issues (specific topics related to the central issue) and First-Reference Terminology (e.g., biotechnology, genetically engineered, or genetically modified).

For the purposes of this study, only information from the Central Issues, Tone, and First Reference Terminology categories were analyzed to determine relationships. Definitions for these characteristics agreed upon by the coders were the following:

Central Issue: The overarching theme under which the majority of information in the article fits.

Tone: The extent to which an article as a whole, through rhetorical stance, approves or disapproves of biotechnology.

First Reference Terminology: The first mention in an article of biotechnology or of concepts related to biotechnology. (Popular terms and their close variations were grouped. For example, "genetic modification" was grouped with "genetically modified.")

Coder Training and Interrater Reliability

Three coders each read the first 50 randomly selected articles in sets of 10, using the coding sheet to characterize each article. The coders compared and discussed their characterizations at length, working toward consensus on the characterization of each article, until their characterizations reached an acceptable level of agreement (k=.80) according to Cohen’s (1960) index of interrater reliability.Acceptable agreement occurred at the conclusion of the fifth rating session. With a clear understanding of the group’s consensus, two of the three coders characterized the balance of the articles. Frequent discussions and peer critiques among the coders helped to further ensure interrater reliability.

Frequencies of codes related to tone, issues, and first-reference terminology were recorded and analyzed for emerging patterns and relationships. The results constituted the findings of this study.

Results

Primary Issues Addressed

Socio-economic issues dominated the selection of articles. Nearly half of the 137 articles focused on a broad range of issues under this category. Among them were numerous articles related to consumer and producer

costs and benefits, agricultural industry concerns and actions, and environmental concerns. Political issues were second in frequency and focused on regulation, public opinion, and international politics. A relatively smaller number of the articles fit into the physical science category, which included stories about genetic science methods and biotechnology products.

Overall Tone Characteristics

Seventy percent of the 137 articles were positive or neutral in tone, with 36% coded as having a positive rhetorical stance with regard to biotechnology and 34% coded as neutral. Thirty percent were coded as having a negative tone toward biotechnology.

Table 1

Overall tone of biotechnology articles (N=137).

	Positive	Neutral	Negative	Total
Tone Frequencies	50 (36%)	46 (34%)	41 (30%)	137 (100%)

Common Terms for Biotechnology

Three terms used to describe biotechnology and products of biotechnology were clearly used more than any others. "Genetically modified" was used in the first reference to biotechnology in 35% of the 137 articles. "Genetically engineered" was the first-reference term used in 30% of the articles, and "biotechnology" (including "biotech") was the first-reference term in 19% of the articles. Other terms and acronyms, such as "bio-engineered," "GMO," and "Genetically altered" were used on first reference much less frequently.

Interrelationships among Issues, Tone, and Terminology

Issues and Tone

Issues and article tone appeared to have a definite relationship. The 66 socio-economic articles were noticeably polarized, with 39% having a positive tone and 35% having a negative tone. Political articles found the middle ground, with 46% being coded as neutral. Fifty-eight percent of the physical science articles had a positive tone.

Table 2

Relationship between issues and tone in biotechnology articles (N=137).

	Socio-Economic	Political	Physical Science
Positive	26 (39%)	13 (25%)	11 (58%)
Neutral	17 (26%)	24 (46%)	5 (26%)
Negative	23 (35%)	15 (29%)	3 (16%)
Totals	66 (100%)	52 (100%)	19 (100%)

Tone and Terminology

A clear majority (54%) of the articles employing "biotechnology" as the first reference to the technology had a positive tone; 23% were negative, and 23% were neutral. Articles using the term "genetically engineered" as the first reference to biotechnology also were predominantly positive, with 46% positive, 32% neutral, and 22% negative. Nearly half (48%) of the articles using "genetically modified" were neutral, yet 29% were negative and only 23% were positive.

Table 3

Relationships between tone and terminology in biotechnology articles (N=137).

	Positive	Neutral	Negative	Totals
Biotech/Biotechnology	14 (54%)	6 (23%)	6 (23%)	26 (100%)
Genetically engineered	19 (46%)	13 (32%)	9 (22%)	41 (100%)
Genetically modified	11 (23%)	23 (48%)	14 (29%)	48 (100%)
Other	6 (27%)	4 (18%)	12 (55%)	22 (100%)
GMO	2	0	1	3
Transgenic	0	0	1	1
Cloning/cloned	1	0	0	1
Bio-engineered	1	2	6	9
Gene-/Genetically altered	1	2	4	7
Genetic Technology	1	0	0	1

Terminology and Issues

In articles that focused on socio-economic issues, "genetically engineered" was the most popular choice of first-reference terminology. Thirty-three percent of the socio-economic articles used "genetically engineered" upon first reference. "Genetically modified" was also a common first-reference term in socio-economic articles (30%). "Biotechnology" was used in 21% of the articles. "Bio-engineered" and "genetically altered," which were identified in only a few articles, were used most often in socio-economic pieces (7% and 6%, respectively).

Articles about political issues were more uniform in their use of terminology. Forty-eight percent of the political articles used "genetically modified" as the first reference to the technology.

"Genetically engineered" was the choice term by journalists who wrote physical science articles. Fifty-two percent of the physical science articles first referred to biotechnology with this term.

Table 4.

Relationship between terminology and issues in biotechnology articles.

	Socio-Economic	Political	Physical Science

Biotech/Biotechnology	14 (21%)	9 (17%)	3 (16%)
Genetically engineered	22 (33%)	9 (17%)	10 (53%)
Genetically modified	20 (30%)	25 (48%)	3 (16%)
Other	10 (15%)	9 (17%)	3 (16%)
GMO	1	1	1
Transgenic	0	1	0
Cloning/cloned	0	0	1
Bio-engineered	5	4	0
Gene-/Genetically altered	4	2	1
Genetic Technology	0	1	0
Totals	66 (100%)	52 (100%)	19 (100%)

Conclusions and Discussion

The findings point to some important preliminary concepts regarding the interrelationships between journalistic tone, issues, and terminology that deserve more thought and investigation. This qualitative study, performed from the perspective of inductive thought, could set the stage for further analysis with a larger, more representative sample and a more deductive approach.

The characterization of the tone of biotechnology coverage examined in this study is congruent with recent content analysis studies claiming that coverage by U.S. journalists has been neutral, if not positive (IFIC, 2001). During the analysis, it became evident that some publications—the regional news and national trade publications specifically—were more likely to publish biotechnology articles with positive or at least neutral tones. Though differences among publications in terms of tone and issues covered was beyond the scope of this study, more work will be done to describe this interrelationship.

The biotechnology lexicon among the authors of the articles in this study, was not as disorganized as some may have predicted. The terms “genetically modified,” “genetically engineered,” and “biotechnology” were clearly the most common first-reference terms, and therefore are likely the most recognizable to consumers. Additionally, during the data analysis, it became clear that individual publications were relatively consistent in their use of first-reference terminology (though many articles employed alternative terms deeper into the story). Whether this represents consistent choices by copy editors or authors is uncertain, and could also be the focus of more investigation.

Terminology’s relationship to tone is evident in the findings. However, the causality of the relationship remains unclear and will require more investigation. “Genetically modified” appears to have been the most popular term among journalists, and it also appears to have been the term of choice for journalists who wrote neutral stories about biotechnology. Meanwhile, “genetically engineered,” the second most popular term, appeared as the first-term reference to biotechnology in the highest percentage of physical science articles, which were mostly positive. However, “biotechnology” was clearly related to the highest percentage of positive stories. This supports Levy and Derby’s (2000) findings that “biotechnology” is the least negative term and that though “genetically engineered” is descriptive enough, “genetically modified” may be a gentler, less emotionally charged term. Because of its popularity in mass media and because it seems to be the most benign of the three most popular terms, “genetically modified” and closely related terminology should serve both communicators and survey researchers who are searching for a neutral term, recognizable by consumers,

to use in reference to many types of biotechnology and biotechnology products. When the situation calls for a more positive term, "biotechnology" might be the best fit. Also, for those searching for a term with more negative connotations, the less popular and more negatively-charged terms "bio-engineered" and "genetically altered" might serve as appropriate choices.

Differences in journalists' terminology choices among articles with focuses on socio-economic, political, and physical science issues also were evident. Physical science writers most commonly chose the term "genetically engineered," which was found to be less positive than "biotechnology." However, physical science articles were often supportive of the technology, which presents a slight contradiction and raises the question of whether science journalists are aware of the connotations of the terminology they choose. In political articles, which were relatively neutral, journalists used "genetically modified" nearly three times as often as any other term. This finding supports the description of "genetically modified" as a relatively neutral term. In socio-economic articles, which were obviously polarized, "genetically engineered" was used nearly as commonly as "genetically modified." Whether the use of these terms is directly related to the polarity of socio-economic articles is unclear and should be the focus of further analysis.

Finally, because this study was preliminary and exploratory, some methodological lessons became evident during the data collection and anaylsis phases. Choices of keywords used to identify biotechnology-related articles in various databases possibly influenced the findings. It was apparent that journalists normally used a few--sometimes several--different terms to refer to the technology after the first reference (though the first-reference terms hold the most rheotical weight) so a more inclusive keyword search string would add reliability to similar studies of this nature.

This study indicates that relationships may exist among tone, issues, and terminology in journalistic articles about agricultural biotechnology. A better understanding of these relationships is necessary for journalists and public communicators in all facets of the issue as well as for public perception researchers in academe and industry. More studies on these relationships are necessary to support or refute the conclusions of this exploratory study and to help communications practitioners and researchers make informed decisions in their choices of terminology representing biotechnology and products resulting from biotechnology.

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Out with the Old and in with the New:

Or, Why Would We Want to Trade Horses Anyway?

Donald W. Poucher
Assistant VP: Marketing
IFAS, University of Florida

Introduction

In 1999, as a part of the long-range planning effort, the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) engaged nearly 1,000 stakeholders from throughout Florida for discussions of the IFAS strengths and weaknesses and opportunities for serving the state's food and agriculture, the life sciences, and natural and human resource interests over the next decade. The planning process identified forces for change affecting Florida's engaged and future stakeholders to articulate UF/IFAS program imperatives for enhancing Florida's economic, environmental, and social positions over the next decade. The stakeholders also identified a major UF/IFAS crosscutting need: to expand efforts in enhancing the public awareness of UF/IFAS among its varied audiences through an analytically sound institutional marketing program. The planning effort resulted in a rolling five-year strategic plan: Florida FIRST, **F**ocusing **I**FAS **R**esources on **S**olutions for **T**omorrow.

UF/IFAS also launched a major institutional marketing program geared to its strategic plan. The program positioned UF/IFAS as "putting Florida FIRST" through its various efforts in agricultural, natural and human resources. Institutional marketing program objectives included the following:

a. Short-range, developing an awareness of subunit linkages to the IFAS parent and creating IFAS program brand awareness among IFAS supporters and clientele.

b. Long-range, positioning IFAS as the provider of choice among those clientele with an awareness of the IFAS linkage; helping public decision-makers develop a commitment to support IFAS with necessary resources at local, state, and national levels; and helping secure a private-sector commitment for generating public support of the programs.

Historical Perspective

UF/IFAS public awareness began to dwindle in the late 1970's as institutional public information efforts began to shift from popular media (radio, television, major dailies/weeklies) to agricultural/industry/commodity specific press. Given a rapidly declining farm population, such press reached much smaller audiences than did the popular press.

By: Donald W. Poucher, Assistant Vice President, Marketing and Communications, University of Florida: Institute of Food and Agricultural Sciences; Southern Association of Agricultural Scientists: Communications Section; February 3, 2003; Mobile, Alabama.

Also, by the late 1970's as Florida became increasingly urban, almost no farm-oriented broadcasting opportunities existed in Florida. Most of the external information efforts of UF/IFAS were therefore directed to the trade or commodity print media.

Furthermore, the UF/IFAS central administration mandated a shift in the public information output to a decentralized effort at the county and research center level. This deliberate shift, coupled with the redirected media targets, resulted in a significant

loss of public exposure for UF/IFAS. By 1983, the external media function within IFAS had declined to less than 40 external press releases per year being generated out of Gainesville.(1)

Even to the casual observer, it became obvious that a loss of active output to the popular media resulted in reduced institutional awareness among the general audience. The emphasis on the trade and commodity press could not make up for the loss in public exposure for UF/IFAS as a result of shifting away from an emphasis on targeting the popular audiences.

Furthermore, decentralized media efforts by counties and centers did not identify local programs with either the University of Florida or with UF/IFAS. In 1983, fewer than 5% of the newspaper clips from daily and weekly publications identified the programs as being part of UF/IFAS. Thus, while UF/IFAS programs were well known locally, little or no local linkage existed between those programs and the UF/IFAS parent organization.

In 1984, UF/IFAS recognized the need to try to recapture some of the lost awareness among the general public. Efforts to restart centralized media activity from Gainesville were resisted by some of UF/IFAS middle management. The loss of popular media contacts also contributed to restart problems of UF/IFAS, as did the resistance of top management to initiate and enforce UF/IFAS identity policies at every level.

Nevertheless, by 1988, the level of local use of UF/IFAS identity was back on the rise from less than 5% of the clips with UF/IFAS identity to 13% of weekly and daily newspaper clips throughout the state. In 1989, UF/IFAS regained television exposure throughout the state through the weekly half-hour *Florida File* program series on Florida public television. The television exposure, along with increased print media activity generated by intensified Gainesville-based centralized news production activities, and a quarterly popularized science publication *Impact* helped UF/IFAS begin to recapture much of the lost exposure of the late 1970's - early 1980's as the varied media activities began to complement each other, and the UF/IFAS identity began to develop a consistent resonance throughout the state.

However, as public awareness for UF/IFAS began to rise, the gains were nullified by two significant factors: a reduction in television emphasis by UF/IFAS central administration and the selection of a new University of Florida president.

In the mid-1990's, despite a measured weekly television audience of nearly 1,000,000 viewers and effectiveness studies reflecting a positive knowledge impact on the lives of those viewers, UF/IFAS top administration reduced its support for the statewide television series. Television outreach was limited to video news production, which became very closely monitored and regulated by University of Florida central administration. The few video news releases generated from Gainesville and aired on a random, catch-as-catch-can basis by Florida television stations could not ameliorate the loss of nearly 1,000,000 viewers per week generated by the weekly television series, *Florida File,* which aired in guaranteed weekly time slots on eight public stations from Miami to Pensacola. A shrinking television news hole along with increasingly fierce competition for time contributed to the low usage of UF/IFAS video releases.

The second major factor affecting UF/IFAS exposure was a UF Presidential mandate that the UF/IFAS name identity take a back seat to the UF identity in news, signage, and other visual and graphic representation. In 1998, a restudy of the use of the UF/IFAS name in newspaper clips indicated a use rate of 15%, a 10-year net growth of only 2%. In addition, the UF/IFAS identity on television has been virtually nonexistent since the mid 1990's.

In 1999, as a prelude to the launching of the Florida FIRST strategic plan's institutional marketing program, UF/IFAS commissioned a research project to benchmark levels of UF/IFAS awareness among the Florida general audience. The project provided a statistically significant correlation between levels of media use and audience awareness.

The 1999 Research Base

The Florida FIRST marketing plan was based on the 1999 study by Breeze and Poucher conducted in conjunction with the UF/IFAS strategic planning effort.(2) The Breeze-Poucher study was conducted through a random digit-dialing telephone survey of Florida households conducted in early July 1999. The questionnaire was developed by UF/IFAS faculty and faculty in the UF Department of Political Science. Questions focused on awareness of UF/IFAS and its major programs, and opinions on the importance and quality of UF/IFAS programs. Six-hundred and one interviews were completed by trained staff of the Florida Survey Research Center in the Department of Political Science. The 95% confidence level on primary variables was approximately ±2.5%. The study documented several important observations about UF/IFAS public awareness, as follows:

1. Very large majorities, 65% to 98%, said programs in core UF/IFAS program areas are important. On a scale of 1 to 5, with 5 being most important, programs in the environment, energy, and food safety, were evaluated as ranging from 4.74 to 4.82. Family, youth, and community issue programming was evaluated as ranging from 4.38 to 4.67. Home gardening issues were evaluated at a 3.56 rating.

2. Only small minorities of the population were familiar with UF/IFAS and were aware that the core programs are part of UF/IFAS.

3. The association between UF/IFAS and local extension programs was tenuous.

4. In aided recall, respondents expressed moderate preference for UF/IFAS as an information source on the range of core topics as previously outlined.

Respondents were given the opportunity to identify UF/IFAS as the source of programs in the core areas through both unaided and aided recall.

The unaided recall question asked, "Of what organizations are you aware that conduct programs in agriculture, forestry, family, youth, and community issues?"

In the unaided response, 10.1% of the respondents identified the University of Florida as the source of programs in the core areas, as compared to 5.9% for county/cooperative extension, 3% for UF/IFAS, and 81% for other federal, state and municipal agencies, education institutions, NGO's, etc.

In aided recall, respondents were asked to identify from a list of organizations including those IFAS units conducting research in the core program areas. In the aided recall, respondents selected UF/IFAS units (58%) at about the same frequency as they mentioned the University of Florida (60%). Some 40% of the respondents continued to mention the county extension office as the source of local programs.

Thus, as reflected in the data, even with aided recall, UF/IFAS ownership of programs was secondary to

ownership of the programs by UF and county extension among respondents.

A very significant observation: better than 81% of the respondents identified the programs with entities other than University of Florida or UF/IFAS in unaided recall. The level of University of Florida and UF/IFAS identity nearly doubled when respondents were aided in their answers.

The major conclusion: UF/IFAS must work to aggressively overcome the lack of identity throughout the state and increase public awareness of its ownership of programs, which as many as 98% of the public believe are important, but who do not necessarily identify as coming from UF/IFAS.

The Breeze-Poucher study provided a research base for a formalized institutional marketing program as a part of the UF/IFAS strategic plan.

The Need for Change

By 2002, in the fourth year of the Florida FIRST strategic plan, UF/IFAS began a transition away from "putting Florida FIRST" to new positioning. Concurrent with the need for new positioning, the University of Florida's Board of Trustees began to question the name of UF/IFAS. Some believed that the words *Institute of Food and Agricultural Sciences* were no longer relevant to the organization's expanded mission.

Was it time to completely start anew? Why would UF/IFAS want to trade horses anyway?

This paper explores the need for a change in positioning, the resulting institutional marketing program for UF/IFAS, and the decision on the name of the organization.

The UF/IFAS Identity Crisis

At the beginning of 2002, UF/IFAS continued to suffer from an identity crisis. The crisis resulted from several factors: lack of adherence to UF/IFAS identity standards; central University mandates for UF identify dominance; and historically, a lack of administrative support for enforcing the identity standards.

Thus, UF/IFAS began to incorporate into its institutional marketing program an important element missing in previous years: explicit top administrative endorsement of the need for uniform and consistent identity standards and the enforcement of those standards. Administrative endorsement came in the form of an internal management directive which mandated identity standards for all UF/IFAS units.[(3)] The mandate was accompanied by an administrative sanction of faculty and staff (including administrators) evaluation based in part on the implementation of the identity standards unit by unit, program by program, person by person.

At a benchmark for the evaluation process, several internal surveys were conducted on web sites, news clips, and telephone answering patterns. One study reflected that all unit and program web sites generally comply with UF/IFAS identity standards. Another study showed that units and programs still are lax in the UF/IFAS identify process, to wit: (1) there was still only a 25% rate of news clip identity with UF/IFAS; (2) more UF/IFAS units identified themselves with the University of Florida than with UF/IFAS (41% versus 10.5%)[(4)]; (3) a larger number of offices (44%) identified themselves with neither University of Florida nor with UF/IFAS[(5)].

The plan for increasing the marketing effort was also based on the comments by urban stakeholders during 2002 UF/IFAS Strategic Plan listening sessions reflecting the need for increased and enhanced institutional marketing. The need to shift the UF/IFAS positioning away from the Florida FIRST concept began to emerge as an undercurrent of the urban listening sessions. Of a total of 235 comments at the listening sessions, all but

four were related directly to UF/IFAS support of the agriculture and natural resource industries. Some 227 comments (97%) were directed toward the theme of UF/IFAS putting "science to work" to protect and enhance the viability of agriculture and natural resource industries, which generate some $54 billion annually for Florida's economy. Even among those comments relating to human resource issues, respondents spoke from a perspective of community development and viability of local economies through IFAS working for the enhancement and involvement of human resources.

In addition, during 2002, UF/IFAS conducted five strategically-located meetings with agricultural industry leaders. A compilation of the leaders' comments reflect that in their opinion, UF/IFAS has experienced a major culture shift. For the food and agricultural industry, the comments reflect a lack of organizational commitment to the "customer-driven" concept in which UF/IFAS, as a land grant institution, prided itself in the past. In no uncertain terms, industry leaders provided a clear mandate for UF/IFAS for both regaining its traditional culture and rethinking its market position.

The need for increased customer clientele orientation is reflected in several key indicators as follows:

1. Clientele say programs need improvement, and they need to be more proactive to industry needs.

From economics to production, to policy issues and specific disciplinary needs such as water quality, soil fertility, pest disease control, trade and marketing, and commodity breeding programs, leaders say programs suffer from major deficiencies. Most notable, the comments reflect the belief that UF/IFAS is not sensitive to the needs of production agriculture and that UF/IFAS has shifted its focus to urban areas and environmental regulatory issues.

2. UF/IFAS is no longer clientele centered.

Comments include lack of clientele focus in commodity breeding programs (tomatoes), that scientists are anti-agriculture, lack of program-shift with changing needs, that faculty believe scholarly publications (and promotion and tenure) are more important than industry needs, agents no longer can relate to industry needs, advisory committees are no longer engaged, and faculty are not engaged directly with farmers.

3. UF/IFAS clientele have lost access to UF/IFAS programs.

Comments include lack of publication availability, lack of industry feedback mechanisms, lack of ability to contact faculty directly, need better ways to access information.

4. UF/IFAS organizational factors inhibit customer-driven mentality.

Issues include regionalization versus local service, a need for highly trained specialists, need for more multi-county agents, misdirected programs, REC leadership deficiencies, and poor Gainesville faculty linkages with field faculty as major problems.

Among the industry leaders, the need to recapture a customer-driven perception became the major priority of the UF/IFAS marketing plan. Comparisons of the comments from industry leaders with those from predominantly urban audiences further reflects on the need to consistently reposition UF/IFAS among all audiences. While the Florida FIRST positioning of 2000 and 2001 struck a major chord with urban/suburban audiences, such positioning created dissonance and discord with industry leaders. Generally, industry seemed to regard UF/IFAS as *putting Florida FIRST and agriculture second.*

Thus, UF/IFAS shifted its positioning to reflect the needs/views of all audiences: UF/IFAS should work to keep our economy strong and dynamic and enhance our natural resources. The external positioning is

captured in a single message: ***UF/IFAS works for you.*** A natural progression is for the positioning to move toward *UF/IFAS works for me!*

The *works for me* phrase is key to UF/IFAS positioning in that it advances the notion that the organization is relevant to the public at large and to specific target groups. For the general audience, UF/IFAS must develop specific benefits on how UF/IFAS is working to meet the needs of consumers, homeowners, and the public at large. Among specific groups, UF/IFAS must also develop specific benefits in each of three general target groups to demonstrate how programs work to meet the needs of agriculture, natural resources, and human resources. The benefits of program impacts which fulfill audience/customer needs provide the basic response-directed positioning message: *UF/IFAS works for me*.

UF/IFAS Works for Me

The *works for me* plan was developed in consultation with the private sector marketing unit of the Burger King organization.

The *works for me* plan is divided into internal and external objectives. Internal objectives are designed to reinvent a customer-driven orientation among administration, faculty and staff, and transmit that orientation to external audiences through a unified, consistent positioning of UF/IFAS identity and image. Internal strategies include internal audits to determine levels of customer orientation with training and empowerment activities as appropriate. Concurrent internal strategies are vested in an integrated marketing communications program. The customer-driven audit and training activities are not directly addressed in this paper. This paper addresses the concurrent internal integrated marketing program strategies. Those internal strategies form the primary marketing thrust, as follows:

- implementing identity standards compliance through performance evaluation;
- training programs to inform students, faculty, staff, and administrators of the identity standards;
- initiating a brand management program in conjunction with training programs;
- conducting publications and video evaluations programs geared to the identity standards and the positioning needs;
- resurrecting a marketing grant program for faculty.

External strategies are centered on communicating the *UF/IFAS works for me* positioning to target customers and potential customers. Ongoing print and electronic media activity should be complemented with the following strategies:

- developing new UF/IFAS television programming and public service announcements;
- continuing special events such as grand openings, dedications, local and regional listening sessions, etc., and a UF/IFAS tie to local communities and the state as a whole;
- exploring means of developing support for paid print and electronic media advertising and for cooperative programs with commodity groups and non-governmental organizations (NGO's).

Identity Standards Compliance

Every effort should be made to engage all the UF/IFAS personnel in the identity/branding/positioning exercise. UF/IFAS must emphatically insist that all units and programs identify themselves in every possible way with the UF/IFAS parent. The 2003 program will develop and implement faculty/staff/administration evaluation criteria based on the utilization of and engagement with UF/IFAS identity standards, policies, and tools. In every case, UF/IFAS will clearly identify its UF connection.

Identity Standards Training Programs

At least three identity standards workshops should be conducted throughout the state on a regional basis. In addition to communication skills training, these workshops will include exercises in utilizing UF/IFAS identity tools and standards, as well as spokesperson training. These workshops will target students, faculty, staff, and administration.

Formalizing a Brand Management Program

The brand management program includes an update of an internal identity audit which will document and benchmark current levels of UF/IFAS identity standards used throughout the organization. As a result of the branding audit, Marketing will establish a cadre of brand coordinators, which will be primarily composed of members of the UF/IFAS Marketing and Communications Council. These brand coordinators will work with senior managers in the various units to translate brand positioning to faculty and staff and demonstrate the use of various tools available to them for helping brand IFAS programs. The brand management effort will overlap and complement the training effort.

Publications and Video Evaluation Programs

Marketing will develop and implement a UF/IFAS Communication Awards Program. These standards will be primarily aimed at publications, video productions, and web page efforts. Medals will be awarded in all categories to the very best of the communication tools that most clearly engage and utilize the UF/IFAS identity and positioning standards. These awards will also serve as a means for identifying entries in the University's Golden Gator program.

Marketing Grant Program

As a part of the plan, Marketing will solicit proposals from County Extension and Research and Education Center faculty and staff for collaborative proposals to implement a local and/or regional marketing program based on UF/IFAS identity standards and marketing objectives. Each of four successful applicants will receive a single $8,000 grant for one year and should propose collaborative efforts between extension offices and research centers, students, and stakeholders. Proposals should also include at least a 50% cash match from local sources.

Developing a UF/IFAS Television Program

The 2002 listening session comments directed toward increased marketing included a significant number of suggestions that UF/IFAS must re-energize an external television effort geared at the general audiences. During 2003-04, Marketing will develop a concept for a new UF/IFAS television effort and will develop a pilot program to be utilized in developing distribution channels. Based on comments from the stakeholder listening sessions, highlighting volunteer efforts on behalf of UF/IFAS throughout the state in the various volunteer programs (such as Master Gardeners, Florida Yards and Neighborhoods, 4-H, Family and Consumer Sciences Efforts, Master Naturalists, and others) could be very helpful in demonstrating a direct stakeholder involvement with and support of UF/IFAS. Public service announcements demonstrating local linkages and various impacts should also be developed to use throughout the state.

Special Events

Grand openings, dedications, regional and local listening sessions, and an IFAS-wide convocation highlighting UF's 150th anniversary are special events that UF/IFAS Marketing will support during the upcoming year.

Paid Advertising

A special effort should be made to explore means for developing private support to support ongoing activities and to purchase time and space from state media outlets in order to guarantee increased UF/IFAS public awareness. UF/IFAS will also develop cooperative advertising programs with commodity groups and NGO's.

The UF/IFAS Name

Germane to the UF/IFAS marketing plan is the question of the UF/IFAS name. Some have suggested that the name *Institute of Food and Agricultural Sciences* (IFAS) is no longer relevant to the organizational mission, which also includes natural and human resources and targets urban dwellers and businesses, as well as rural residents and the food and agricultural industry.

A proposal to change the IFAS name, at least on the surface, has some merit. A clean slate is often more desirable than to have to deal with repositioning an existing name.

However, there are some disadvantages to changing the IFAS name, as follows:

1. Cost #1:

The cost of determining, through group interaction or surveys, the appropriate words to use in a new name will be expensive, as will the media effort required for its rollout in Florida, which is comprised of several of the top 100 national television markets.

2. Cost #2:

The cost of a name change associated with the IFAS infrastructure (signage, letterhead, forms, business cards, etc.) would be staggering when applied to all IFAS locations.

3. The loss of identity with stakeholders and gatekeepers:

The IFAS name is a recognized name among many traditional stakeholders, which comprise between one-third and one-half of the present IFAS audience. Furthermore, IFAS appears to have better name recognition than ever before among legislative audiences. To change the name would mean a loss of a substantial number of audience members who have at least a cursory awareness of the IFAS name and that for which it stands.

4. Who cares what I-F-A-S means?

There is demonstrated private industry success that bespeaks to the notion that the actual words in a "name" acronym is irrelevant. For example,

> who knows (or cares) about the meaning of IBM, KFC, 3M, AT&T, MGM, IT&T, NASDAQ, and many others? What matters is the branding of the name and its positioning among customers and potential customers.

Full Bore for IFAS

What may be more important than a name change where IFAS awareness is concerned is the intensity of the effort, the need for support from UF and top IFAS administrators and faculty for the effort, and the fiscal commitment to the effort. No matter what the name, a full court press with print news, television programming and psa's, the quarterly *IMPACT* magazine, and paid media if possible, will be required to secure improved name recognition. At least with "IFAS," about half of the audience already knows about the

organization. Materials and infrastructure already exist to facilitate the identify effort. Further, UF administration must accede to the use of the IFAS identity and its branding efforts. However, no matter what the name, units, subunits, programs, and faculty must identify with the parent organization.

What Can UF/IFAS Afford?

Finally, it is important to recognize that given finite resources, it will not be possible to gain universal UF/IFAS identity recognition. An important strategy may be that of carefully identifying (beyond stakeholders) what segments of the total potential audience are important to UF/IFAS and targeting messages and media to reach these specific segments.

Into the Future

UF/IFAS has commissioned the 2003 replication of the previous public awareness study conducted in 1999. The results of the public awareness replication study will provide a significant report card for the UF/IFAS awareness effort and a road map for the future directions of the *works for me* marketing plan.

Footnotes

1. Comprehensive Review Syllabus, Educational Media and Services Institute of Food and Agricultural Sciences, University of Florida; September 1996; p. 24.

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Distance Education Training for Distance Education Trainers

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Rebekah Raulerson
Grant Project Coordinator
University of Florida

Ricky W. Telg
Associate Professor
University of Florida

Lori L. Moore
Ph.D. Student
University of Florida

Kim E. Dooley
Assistant Professor
Texas A&M University

Background

Offering support for technology-based faculty training and development efforts is a key issue facing many institutions of higher learning. In general, according to the 1999 Campus Computing Survey, "Assisting faculty efforts to 'integrate information technology into instruction' remains the single most important information technology (IT) issue confronting American colleges and universities" while "providing adequate user support" ranked second (p. 1). As one of the tenets of their mission to provide "life-long learning," land-grant universities and many other agricultural institutions have been at the forefront in developing extensive infrastructures to facilitate distance education delivery of courses to a diverse community of learners, both traditional and non-traditional (Miller & Pilcher, 1999). Most of these programs involve technological delivery of distance education coursework in a variety of majors at both the graduate and undergraduate levels utilizing teleconferencing, videotape, and the Internet. In fact, a study by the National Center for Education Statistics (1998) lists agriculture within the top ten disciplines in terms of development of distance education at the post-secondary institutional level.

Over time, many of these institutions have developed some form of faculty training for distance education, but their programs vary considerably in terms of potential factors such as structure and focus, size, centralization within the wider institution, and degree of flexibility and customizability of programmatic offerings (Irani & Telg, 2001). However, few institutions have invested in the training and development of instructional designers or educational technologists assigned to assist faculty develop distance education courses (Telg, 1995). Research in this area is still limited, perhaps due to the challenges associated with developing an assessment framework that can accommodate faculty training and development programs that differ widely as to resource allocations, institutional support and philosophical direction, and disciplinary content.

However, as might be expected, more than a technological infrastructure is necessary to effectively encourage and train faculty members to teach at a distance. Other components, primarily focused on providing institutional support to assist a faculty member's development, such as teaching incentives,

instructional design support, and technology training, have been shown to be necessary in creating successful distance education training and development programs (Berge, 2001).

According to Garrison (1990), the use of telecommunication technologies in distance education marks a new generation in designing the educational transaction. Researchers have said this next generation calls for new knowledge and skills for instructors to teach effectively by distance education (Beaudoin, 1990; Brigham, 1992; Dillon, Hengst, & Zoller, 1991; Shaeffer & Farr, 1993; Willis, 1993; Wolcott, 1993). But technology skills alone are not enough (Thach, 1993). Early researchers such as Levinson-Rose and Menges (1981) felt that faculty training in the development of the concepts of teaching and learning was as important, if not more so, than skill-based training. Beaudoin (1990) wrote that distance education theory and practice should be mandatory as a condition of employment for new and continuing faculty. King (1999) wrote that distance education training helps provide faculty with a "reservoir of ideas" to teach and encourage critical thinking skills in students (p. 170). Spotts (1999) indicated that if instructors are expected to use instructional technologies – including distance education technologies – they need technical support and training. However, these two questions still remain: who provides the technology skills and instructional design training and support for faculty? And are these staff members adequately prepared to train and support the faculty?

A study of 14 land-grant universities (Irani & Telg, 2001) found that nearly two-thirds (61.5%) of distance education faculty training was conducted by staff instructional designers – with no faculty appointment. Also, 64.3% of instructional designers actively working with faculty had had no prior training or knowledge of instructional design methods used in distance education before working at their universities. Twelve of the 14 respondents said they had learned distance education instructional design methods while "on the job."

These findings mirror a previous study of video production specialists who support their universities' distance education effort. Telg (1995) found that the video production specialists had learned distance education instructional methods while on the job. Because much learning – on the part of production personnel – still is being done on the job, according to Telg's 1995 study and the Irani/Telg (2001) study, it is important for the instructional designers and technology specialists to be knowledgeable about not only the latest technology, but also the educational methods to use that technology. Telg (1996a) recommended that a training curriculum be developed to teach television-production-specialist-turned-instructional-designers the information and skills – particularly knowledge of instructional design – that they needed to perform their jobs, so they can subsequently support faculty members' efforts. Because then, as now, much of the on-the-job learning took place in the video production specialists' situated environment, a hands-on approach to learning instructional design methods was identified to best suit their needs (Telg, 1996b). Particular areas of instructional design that video producers needed more knowledge in included the following: audience identification and needs, adult education theory, adapting content to the technology, distance education theory, interaction methods in distance education, and evaluation techniques in distance education (Telg, 1996c). Because technology changes so rapidly, instructional designers must be provided means to learn about how to apply these information technologies in learning environments and about learning theories in distance education. Instructional designers must be adequately prepared in order to assist faculty, so that faculty can effectively teach undergraduate and graduate distance courses.

In response to this need, six universities – University of Florida, Texas A&M University, Texas Tech University, the University of Idaho, the University of Missouri-St. Louis, and Iowa State University – are collaborating on a project titled Training the Trainer: The Distance Education Instructional Designer Project. This project is funded by a USDA Challenge Grant and seeks to develop effective materials and innovative approaches to better prepare instructional designers at land-grant universities and other universities with agricultural academic programs to support their universities' distance education teaching programs. The project will have far-reaching impact in the land-grant system across disciplines because it will provide distance education instructional designers – who may be learning instructional design theory and practice on the job – with skills and knowledge to more effectively help faculty members developing distance education

courses.

Method

To assess this specialized population, the project development team has partnered with Agricultural Communicators in Education's Distance Education and Instructional Design (ACE DE&ID) special interest group and ADEC: American Distance Education Consortium. These two organizations encompass most of the instructional designers working in distance education in the land-grant system. The audience, therefore, has already been selected and is interested in this project. This project is being developed in three phases: research design, implementation, and evaluation. Each will be discussed in the results section.

Results

Research Design
The research design phase was completed with a needs assessment of ACE DE&ID and ADEC members. The purpose of the needs assessment was to help identify key characteristics of this virtual training project. An online questionnaire was sent to ACE DE&ID and ADEC listservs, with an e-mail reminder being sent one week later. A total of 24 individuals responded to the online needs assessment. A summary of the needs assessment results follows:

· Respondents were generally interested in participating, saw the project as useful, said they would have the time to complete the training program, wanted to be certified as effective instructional designers upon completion of the program, and preferred asynchronous delivery methods.
· When asked to rate their understanding of distance education technologies on a scale from 1 to 5, with 1 being "poor" and 5 being "excellent," 0.3% responded with a 1, 16.7% responded with a 2, 26.1% responded with a 3, 43.5% responded with a 4, and 13% responded with a 5. (All of the following results are based on the same 1- to 5- point scale.)
· When asked to rate their understanding of distance education instructional design, 4.2% responded with a 1, 16.7% responded with a 2, 33.3% responded with a 3, 41.7% responded with a 4, and 4.2% responded with a 5.
· When asked to rate their ability to apply distance education technologies, 21.7% responded with a 2, 8.7% responded with a 3, 43.5% responded with a 4, and 26.1% responded with a 5.
· When asked to rate their ability to apply distance education instructional design, 25.0% responded with a 2, 8.3% responded with a 3, 45.8% responded with a 4, and 20.8% responded with a 5.

Respondents reported being from 1862 and 1890 land-grant institutions, as well as 1994 tribal colleges. Degrees held ranged fairly evenly with bachelor's, master's, specialist, Ed.D, and Ph.D degrees. Respondents' position titles included training specialists, administrators, information technologists, instructors, academic deans, faculty members, extension agents, and Web developers.

Respondents were also asked what training they felt they were most in need of in the areas of instructional design and development. Their responses included design for asynchronous learning, engaging and designing content for adult learners, distance education best practices, and creating manageable segments for learners. When asked about previous training in distance education instructional design, training, and development, most had had some technology and software training, but said that instructional design principles were self-taught.

As a follow-up, five non-respondents from the ADEC listserv were contacted and asked to answer questions from the needs assessment questionnaire during telephone interviews. Overall, non-respondents' answers were similar to original respondents' comments. They reported general interest in the program and saw the project as useful.

Implementation

Following the research phase, implementation of the project began. The project team has opted to go with the theme Roadmap to Effective Instructional Design, which guides participants in instructional design methods and delivery. Each of the modules, then, will be called destinations. WebCT will be the delivery format. Plans also include a small amount of time spent in synchronous chats at the end of several destinations. The University of Florida serves as the project coordinating institution. Iowa State University will lead the development of the WebCT course. Texas A&M University is also responsible for the certification process during the course.

Much of the actual program design is based on the needs assessment results. In the original USDA grant proposal the program's individual modules were to have been delivered every other month, meaning it would take 12 months to complete the six modules. Respondents in the needs assessment said they wanted a much shorter timeframe in which to complete the program. Therefore based on the findings, there will be six, online four-hour asynchronous virtual sessions, delivered in a much shorter timeframe. As to stay consistent with the results of the needs assessment, the six destinations will be offered once per month starting in mid- to late September 2003 and going through November 2003. Then, a break will be given for December and January to compensate for holidays and increased workload of instructional designers at the beginning of a semester. The last three destinations will resume in February of 2004 and go through April 2004. The six destinations (modules) and the universities in charge of developing the content and interactive components are as follows (in order of when the destinations will be delivered): 1) Effective teaching principles--September 2003, University of Florida 2) First-time course development--October 2003, University of Florida 3) Technology issues in training--November 2003, Iowa State University 4) Advanced teaching methods--February 2004, University of Idaho 5) Assessment and evaluation--March 2004, University of Missouri-St. Louis 6) Instructional designer competencies--April 2004, Texas A&M University / Texas Tech University.

Enrollment is limited to 75 participants to allow for easier management of the project. Each of the six collaborating institutions will select 10 participants from their own university. Then, the remaining 15 slots will be opened up to ACE and ADEC members on a first-come, first-in basis. Since each of the collaborating institutions has ACE or ADEC members, the majority of the 60 pre-selected participants most likely will be ACE and ADEC members. A marketing plan will be completed in early spring 2003, and promotional pieces will be developed to use as the project is discussed with potential participants at the various institutions. Part of the marketing plan will include advertising at the 2003 ACE Conference.

Once all 75 participants are registered, they will be divided into groups for the remainder of the project. The teams will be made up of around seven participants per team. The purpose of the team concept is for team members to serve as accountability partners throughout. One team exercise will take place within each destination to give teams a chance to discuss matters. Also, there will be a microproject that each individual will complete at the end of each destination. The team members will critique the microproject and provide feedback to each person on the team. Ideally, the team's structure will reflect diversity. The process for randomly assigning participants to groups has not yet been decided. The use of the microprojects for evaluation and certification will be discussed later.

Another aspect of the implementation phase of this project is the development of an "exemplar" database of exceptional undergraduate and graduate distance education courses that the participants have worked on or know about at their universities. Participants will be asked to share the Websites of exemplary distance education courses and provide a synopsis of the design and development aspects of the courses, including the subject matter area of the courses, the instructional design approaches, the media used, evaluation methods used, and the positives/negatives in the courses' development.

In addition to the creation of the database, another major purpose of this project is to provide Web-based training materials to the participants to use free of charge in the training of their faculty members. These

materials, which will be based on the Distance Education Faculty Training Program (DEFT) at the University of Florida's College of Agricultural and Life Sciences (http://training.ifas.ufl.edu/deft), will provide in-depth information on instructional design methods, technologies, and resources. Downloadable files and video clips of professors who have effectively taught distance education courses and interactive segments will be found interspersed throughout the materials that the participants can adopt and adapt to their individual institutions' needs.

Evaluation
There are three parts to the evaluation phase: evaluation of the participants, certification, and evaluation of the project.

Evaluation of the participants will be based largely on the microprojects discussed in the previous section. The microprojects that the participants develop at the end of each destination will build on each other in each destination, so that the participant has a complete training product at the end of the last destination. The collaborating institution in charge of a given destination will ensure that the microproject for that particular destination is evaluated correctly. Rubrics will be used for the participant to self-assess the microproject and for the teams to peer-evaluate the microproject., while the collaborating institution serves as facilitator.

The overall outcome of this project is for participants to be certified as effective instructional designers, based on six core competencies identified in previous research (Thach, 1994). The six core competencies, along with characteristics of each competency, are as follows: 1) Adult learning theory--Philosophy of teaching, adult learner characteristics, learning styles 2) Technological knowledge--Web development tools, videoconferencing, computer hardware/software, communication tools (e-mail, threaded discussion) 3) Instructional design--Course planning and organization, gaining attention, writing instructional objectives, active learning strategies, evaluation 4) Communication skills--"Presenting" content, questioning and facilitation, feedback, collaboration/teamwork 5) Graphic Design--Formatting visuals for TV display, design considerations for Web pages, multimedia components 6) Administrative issues--Support services, copyright/intellectual property, technology access, financial considerations.

The six microprojects will reflect each core competency. Example microprojects that reflect these competencies might include requiring participants to complete the following (numbers in parentheses also reflect the core competency identified in Table 2): (1) determine their learning philosophy, (2) determine what technology to use to teach the lesson, (3) write objective statements for the lesson they will teach, (4) integrate interactive learning methods, (5) develop a graphic that would be used in the lesson, and (6) develop an assessment tool that would be accessible to people with disabilities. The six microprojects – culminating in a final training product – will be a Web-based "train-the-trainer" piece to deliver to the participants' clientele. The teams, mentioned previously, will serve as the students of the training product, field-test the lesson, and provide feedback. Texas A&M University's Center for Distance Learning will confer the certificate for instructional designers completing the program.

At the completion of this program, an exit survey will be sent to all participants, where they will be asked for their perceptions of what they learned and how the overall Roadmap to Effective Instructional Design program was structured and delivered. Results will be used to strengthen the program when it is delivered to others in the future.

Conclusions

As discussed earlier, there is a need for this type of project. This project addresses the issue of providing adequate support for people developing distance education courses (Campus Computing Survey, 1999).

Participation in this project will allow instructional designers to be more adequately prepared so that they can assist faculty, who in turn, can teach undergraduate and graduate courses more effectively. Based on a collaborative effort of six universities (University of Florida, Texas A&M University, Texas Tech University, Iowa State University, the University of Idaho, and the University of Missouri-St. Louis) with well-recognized and respected distance education programs, Training the Trainer: The Distance Education Instructional Designer Project will raise the level of the type of work done by distance education instructional designers. The certification process will play a major role in helping distance education instructional designers raise their own stature for the positions they hold at their respective universities.

Interest in this project already has exceeded expectations. Potential participants are being asked to join a waiting list of instructional designers who are ready for the destinations to begin in September 2003. This project is being used as a pilot for future training. Plans are being underway to expand this training to 1890 and 1994 institutions, based on the needs assessment results. Interest has also been generated with instructional designers and distance education specialists outside of the land-grant university system. Over the next year though, collaborators see this as a tool that will improve the land-grant system by fulfilling a need for training distance education trainers. Overall, this project will better prepare instructional designers at land-grant universities to support their universities' distance education teaching programs.

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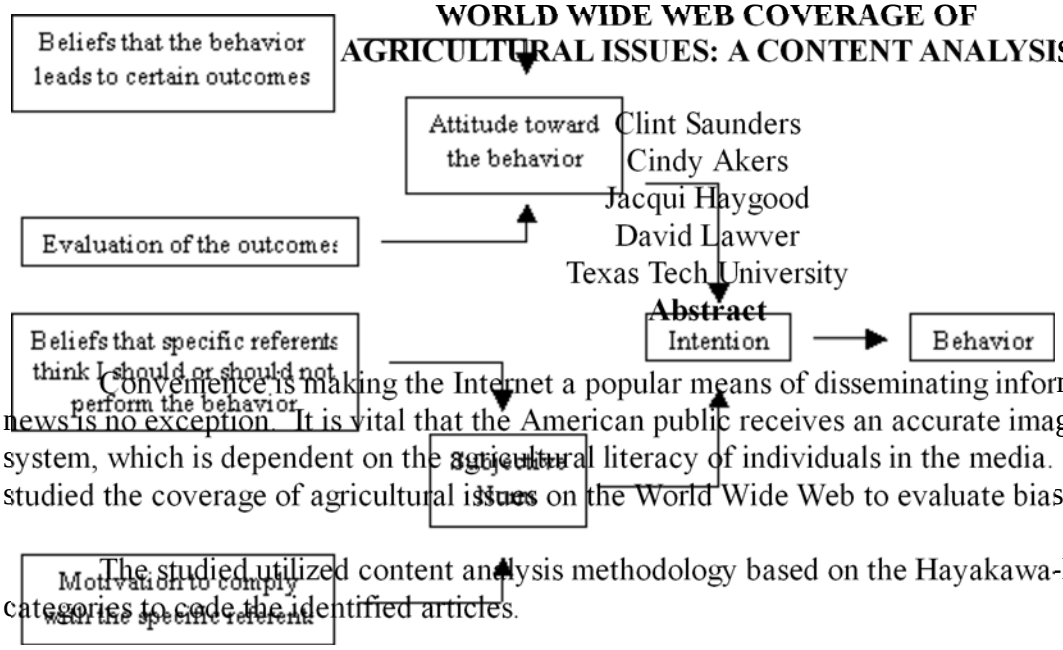
WORLD WIDE WEB COVERAGE OF AGRICULTURAL ISSUES: A CONTENT ANALYSIS

Clint Saunders
Cindy Akers
Jacqui Haygood
David Lawver
Texas Tech University



Abstract

Convenience is making the Internet a popular means of disseminating information, and agricultural news is no exception. It is vital that the American public receives an accurate image of the food and fiber system, which is dependent on the agricultural literacy of individuals in the media. Therefore, researchers studied the coverage of agricultural issues on the World Wide Web to evaluate bias.

The studied utilized content analysis methodology based on the Hayakawa-Lowry news bias categories to code the identified articles.

The majority (55%) of these articles proved to be report sentences, which are factual and verifiable sentences. Thirty-seven percent of the sentences were judgment sentences, which are expressions of the writer's or quoted speaker's opinions. Only 5% of the sentences were categorized as inference sentences, which are subjective and immediately verifiable sentences.

Results of this study show the importance of agricultural literacy in the media field in order to better report about the industry. More factual statements by reporters will help provide a more accurate image of the agricultural industry.

Introduction and Theoretical Framework

Someway, somehow, agriculture affects everyone's life on an everyday basis. However, Terry and Lawver (1995) stated that a substantial amount of attention has been given to the fact that the American society is "agriculturally ignorant." With each passing generation, this country has become one step further removed from direct ties to production agriculture (Flood & Elliot, 1994).

Today's world is becoming more and more technologically advanced, and agriculture is no exception. These changes, and many more, are propelling agriculture to new levels. Because of these changes, and many more, the need for agricultural literacy is becoming more important. According to the USDA Agricultural Statistics Service (2001), the percent of the U.S. population involved in production agriculture was 1.8% in the 1990s, compared to 16% in the 1950s.

Due to dramatic decreases in the farming and ranching population, it is vital that the general public has accurate perceptions about agriculture, because of its impact on our society, the economy, the environment, and personal health (Terry & Lawver, 1995). "Reporters must strive to be neutral observers, collecting information and reporting it to let readers form their own opinions" (Baker-Woods et al., 1997, p. 73). Writers should present their stories by portraying both sides of the issue equally and excluding their personal opinion of the subject (Sitton, 2000). Numerous studies have been conducted investigating the role and impact of the press in delivering agricultural news and information.

> Journalists have a responsibility to report news both accurately and fairly. If they fail in their duties, responsible reporting and consumption of agricultural news will not occur. Likewise, misinformed individuals may make important decisions affecting the food and fiber industry. (Whitaker & Dyer,

1998, p. 445)

Journalists have many different means of disseminating information: newspapers, television, radio, and the World Wide Web. According to the Office of the U.S. Press Secretary (2000), almost one-half of all American households now use the Internet, and more than 700 new households connect every hour.

A simplified version of the Theory of Reasoned Action is shown in Figure 1. Since 1967, researchers have utilized this theory to explain and predict a variety of human behaviors. Based on the premise that humans are rational and that the behaviors being explored are under volitional control, the theory provides a construct that links individual beliefs, attitudes, and behavior (Fishbein, Middlestadt, & Hitchcock, 1994).

The theory of reasoned action depicts the process a person goes through to reach a desired outcome or behavior. This process is extremely important to those studying the perceptions of agriculture. The theory of reasoned action will help to form a person's attitude or perception, which in turn leads to a specific behavior or no behavior at all.

Figure 1: Theory of Reasoned Action Model (simplified version). Source: Adapted from Ajzen and Fishbein (1980, p. 84).

Purpose and Objectives

The purpose of this study was to evaluate the coverage of agriculture available by popular agricultural websites on the World Wide Web for one calendar month. The following objectives were formulated to accomplish the purpose of this study:

1. To identify all the articles written about agriculture on the most popular agricultural websites on the World Wide Web for a selected month;
2. To categorize World Wide Web articles into agricultural literacy concept areas;
3. To categorize the sentences in the identified articles using the Hayakawa-Lowry News Bias Categories and;
4. To determine bias of judgment statements in the identified articles.

Methods

A descriptive research design was used for this study. Ary, Jacobs, and Razavieh (1996) state that descriptive research asks questions concerning the nature, incidence, or distribution of educational variables and relationships among these variables. This study sought to evaluate agricultural articles taken from popular agricultural websites; thus, a descriptive design was deemed the most appropriate.

In 2001, AgWeb conducted market research by surveying several hundred randomly selected farmers and ranchers regarding their Internet use (M. Gibson, personal communication, December 4, 2001). They found the most accessed news sites included AgWeb.com, AgDayta.com, and Agriculture.com. Therefore, those three websites were used for the purpose of this study.

All articles, market reports, weather reports, etc. posted under the news section of each of the three websites were downloaded for January 2002, totaling 1,132 items. Results from this particular month should not be inferred to other months of the year.

A panel of three then sorted through the items and selected news articles. For the purpose of this study news articles was defined as an article that tells a story for the purpose of informing. All market reports, weather reports, links, and other items that did not fit the definition of news article were deleted from the population.

The population of the study consisted of all news articles retrieved from the three chosen websites for January 2002 (N=821). A systematic random sample (n=262) was selected (Krejcie & Morgan, 1970) according to the population size.

To conduct this study, a content analysis based on the Hayakawa-Lowry news bias categories was used.

S.I. Hayakawa (1940) developed a system to analyze sentences in news articles. He placed the sentences into one of three categories: (a) report sentences, (b) inference sentences, and (c) judgment sentences.

Lowry (1971) expanded Hayakawa's method, which includes six new sentence categories, making a total of nine categories for the Hayakawa-Lowry method. Lowry took into consideration attribution of the information and reporter bias. The nine categories include:

Reported Attributed Sentences—Information which is factual and attributed to the source (Lowry, 1971).

Report Unattributed Sentences—Information which is factual without citing someone as the source (Lowry, 1971).

Inference Labeled Sentences—Statements about the unknown based on the known. These are often interpretations or generalizations of events. Labeled inferences use "tip-off" specific words such as appear, could, may, perhaps, possible…to let the reader know the information is subjective to some extent (Lowry, 1971).

Inference Unlabeled Sentences—Statements about the unknown based on the known. Often interpretations or generalizations of events, without "tip-off" words. Considered to have more bias because the "tip-off" is not used to "warn" the reader (Lowry, 1971).

Judgment Attributed, Favorable Sentences—Statements of the writer's approval or disapproval of an event, person, object, or situation that are attributed to a source and favorable toward the subject (Lowry, 1971).

Judgment Attributed, Unfavorable Sentences—Statements of the writer's approval or disapproval of an event, person, object, or situation that are attributed to a source and unfavorable toward the subject

(Lowry, 1971).

Judgment Unattributed, Favorable Sentences—Statements of the writer's approval or disapproval of an event, person, object, or situation that are not attributed to a source, but are favorable toward the subject (Lowry, 1971).

Judgment Unattributed, Unfavorable Sentences—Statements of the writer's approval or disapproval of an event, person, objective, or situation that are not attributed to the source, and unfavorable to the subject (Lowry, 1971).

Other Sentences—All other sentences. These sentences normally include rhetorical questions and introductory statements (Lowry, 1971).

Lowry used a two-part study at Liberty University and Ohio University to successfully establish the construct validity of the Hayakawa-Lowry News Bias Categories. Lowry (1985) stated:

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

Lowry dealt with problems of inter-rater reliability through the development of a tested rater manual (Terry et al., 1996). Figure 2 shows how sentences are classified using the Hayakawa-Lowry method.

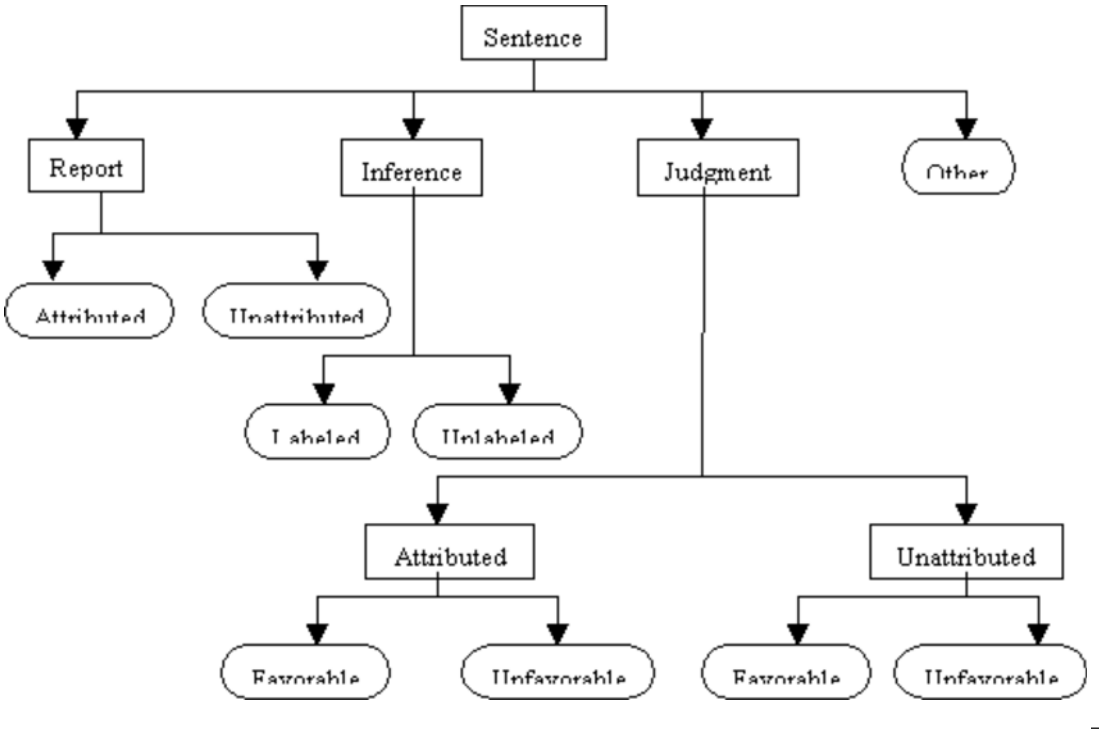


Figure 2: Hayakawa-Lowry Method. Source: Haygood, Hagins, Akers, and Kieth 2002.

A panel of three experts was used to code the identified articles to ensure coder reliability. The experts were trained in the Hayakawa-Lowry News Bias Categories. Each sentence of the identified articles was coded using the Hayakawa-Lowry News Bias Categories. Each expert coded all identified articles. All coding was compared. Experts reviewed discrepancies until a consensus was reached on the code assigned to each sentence.

The agricultural literacy concept areas developed by Terry et al., (1996). All were used to categorize

the articles into separate groups.

Descriptive statistics were used. Statistical analysis was performed using Microsoftâ Excel.

Results

Objective One Findings

Agricultural news articles were collected during the month of January 2002, for a total of 821 articles. The average number of agricultural news stories posted daily was 35.7. The number of articles varied daily.

AgWeb posted the highest number of agricultural news articles (434), AgDayta posted the second highest (222), and AgOnline posted the least (165).

The sample size, which was determined by a systematic random sampling procedure, used for this study was 262. AgWeb (n=152) posted the largest number of agricultural news stories for the month of January 2002, representing 58% of the sample size. AgDayta (n=61) had the second most agricultural news stories, with 23% of the sample size. AgOnline (n=49) represented 19% of the sample size.

Table 1 indicates the amount of agricultural news stories that were randomly selected from each of the three websites. The total number of sentences is also included in the table.

The total number of sentences in the selected articles was 3,360. The average number of sentences per article was 12.82.

Table 1: Number of Agricultural News Articles Selected from each Website

Website	Number of Articles	%	Number of Sentences
AgDayta	61	23	497
AgOnline	49	19	545
AgWeb	152	58	2,318
TOTAL	262	100	3,360

Objective Two Findings

All 262 articles were placed into primary and secondary concept areas. The largest category in the primary concept area was the marketing category (n=69), which consisted of 26% of the stories. The plant science category was the second largest primary concept area (n=44), representing 17% of the agricultural news stories. The animal science category (n=43) consisted of 16% of the stories in the primary concept area. The natural resources category (n=36) contained 14% of the news stories, while the public policy group (n=34) consisted of 13% of the news stories. The significance category (n=26) contained 10% of the news stories, and the processing category (n=10) had the least amount with 4% of the agricultural news stories.

In the secondary concept area, the significance category (n=99) had the most agricultural news stories with 38%. The plant science category (n=61) represented 23% of the news stories. The animal science category (n=44) characterized 17% of the news stories, while the marketing category (n=36) was indicative of 14% of the sample. The smallest categories were the natural resources category (n=10), the processing category (n=7), and the public policy category (n=5), representing 4%, 2%, and 2% respectively. Table 2 indicates this information.

Table 2: Concept Areas According to Terry et al. (1996)

Category	Primary	%	Secondary	%
Significance	26	10	99	38
Animal Science	43	16	44	17
Plant Science	44	17	61	23
Natural Resources	36	14	10	4
Public Policy	34	13	5	2
Marketing	69	26	36	14
Processing	10	4	7	2
TOTAL	262	100	262	100

Objective Three Findings

Report sentences (n=1,856) represented 55% of the total sentences, inference sentences (n=154) represented 5% of the total sentences, and judgment sentences (n=1,245) represented 37% of the total sentences. Hayakawa states that reporters who write judgment sentences usually use bias in their writing. Judgment sentences can be attributed, unattributed, favorable, and/or unfavorable. The other sentences (n=105) represented 3% of the total sentences. Table 3 shows the breakdown of sentence types.

Table 3: Sentence Types

Sentence Type	Number of Sentences	%
Report	1,856	55
Inference	154	5
Judgment	1,245	37
Other	105	3
TOTAL	3360	100

Nine different categories make up the subcategories of the original categories: report, inference, judgment, and other (Lowry, 1971). Report attributed sentences (n=755) represented 22% of the total sentences. The largest category was the report unattributed sentences (n=1,101), representing 33% of the total sentences. The inference labeled sentences (n=66) represented 2% of the total sentences, the smallest of the nine categories. Inference unlabeled sentences (n=88) represented 3% of the total sentences. The judgment attributed, favorable sentences (n=620) represented 18% of the total sentences. Judgment, attributed, unfavorable sentences (n=351) consisted of 10% of the total sentences. Judgment unattributed, favorable sentences (n=190) represented 6% of the total sentences. The judgment unattributed, unfavorable sentences (n=84) category comprised 3% of the total sentences. Other sentences (n=105) represented 3% of the total sentences in the agricultural news stories. Table 4 shows the breakdown of the nine sentence categories.

Table 4: Categories of Sentences

Sentence Categories	Number of Sentences	%
Report Attributed	755	22
Report Unattributed	1,101	33
Inference Labeled	66	2
Inference Unlabeled	88	3
Judgment Attributed, Favorable	620	18
Judgment Attributed, Unfavorable	351	10
Judgment Unattributed, Favorable	190	6

Judgment Unattributed, Unfavorable	84	3
Other	105	3
TOTAL	3,360	100

Objective Four Findings

Judgment sentences (n=1,245) represented 37% of the total sentences. Judgment attributed, favorable sentences (n=620) represented the largest percentage of judgment sentences with 50% of the total judgment sentences. Judgment attributed, unfavorable (n=351) had the second largest percentage of judgment sentences, representing 28% of the total judgment sentences. Judgment unattributed, favorable (n=190) consisted of 15% of the total judgment sentences. Judgment unattributed, unfavorable (n=84) was the smallest category, representing 7% of the total judgment sentences found in the agricultural news stories.

Overall, 78% of all judgment sentences were attributed to a source, leaving 22% of the total sentences unattributed. Also, 65% of all judgment sentences were favorable to the subject. Therefore, 35% of the total judgment sentences were unfavorable towards the subject. Table 5 shows the breakdown of judgment sentences.

Table 5: Judgment Sentences

Judgment Sentences	Number of Sentences	%
Attributed, Favorable	620	50
Attributed, Unfavorable	351	28
Unattributed, Favorable	190	15
Unattributed, Unfavorable	84	7
TOTAL	1,245	100

Conclusions

Objective One Conclusions

1. On average, there were about 7 articles a day posted on the selected websites.
2. AgWeb provides the most agricultural coverage out of the three agricultural websites. AgWeb posted 434 articles in January 2002. AgDayta posted the second most articles with 222 articles in January 2002. AgOnline posted 165 articles in January 2002.

Objective Two Conclusions

1. There is a diverse range of topics written about agriculture and posted on the selected websites.
2. The most frequently written about topic during January 2002 was the marketing category, with 26% of the articles representing this category.
3. The least frequent written about topic during January 2002 was the processing category, with 4% of the articles representing this category.

Objective Three Conclusions

1. A majority of the sentences were report statements, which are factual and verifiable sentences. Report sentences characterized 55% of the total sentences. These sentences are desirable, and report sentences should become more frequent.
2. Inference sentences, which are subjective and immediately verifiable sentences, represented a mere 5% of the total sentences. These sentences should be avoided when writing about

agricultural topics.

3. Agricultural reporters are using their opinions when writing agricultural articles, and these are referred to as judgment sentences; expressions of the writer's or quoted speaker's opinions. Thirty-seven percent of the sentences were judgment sentences. Agricultural reporters should refrain from including their personal opinions when reporting about agricultural issues in order to paint a more accurate picture of agriculture.
4. The "other" sentence category represented a small portion of the sentences. Only 3% of the total sentences were included in the "other" category, which are normally rhetorical questions and introductory statements.
5. The agricultural reporters that wrote the articles used in this study wrote more report sentences than any of the other categories. Therefore, a factual image of agriculture is being conveyed.
6. In the report category, there were more report sentences not attributed to a source than were attributed to a source. Twenty-two percent of the total sentences were report attributed, while 33% of the total sentences were report unattributed. More sentences should be attributed to a source.
7. The inference labeled and inference unlabeled categories were very close, representing 2% and 3%, respectively. These sentences should be avoided. Agricultural reporters are limiting the use of inference sentences.
8. The most frequently used sentence type in the judgment category was judgment attributed, favorable, representing 18% of the total sentences. Therefore, there were more attributed judgment sentences than there were unattributed judgment sentences. Also, there were more favorable judgment sentences than there were unfavorable judgment sentences.

Objective Four Conclusions

1. Agricultural reporters are using their personal opinions when writing about agriculture.
2. This study concluded that agricultural reporters are writing more positive bias towards agriculture than negative bias. Half (50%) of the judgment sentences were attributed and favorable. Sixty-five percent of all judgment sentences were favorable, while 35% were unfavorable.
3. Also, agricultural reporters are attributing to a source more often than not. Seventy-eight percent of all judgment sentences were attributed to a source.

Recommendations

1. Reporters should be aware of the accuracy of the information they report so that they provide the general public with factual information by writing report sentences and attributing to a source.
2. This study should be replicated every other year in order to stay current on the progress of agricultural reporters.
3. This study should be expanded into other modes of the media, including radio, television, newspaper, etc.
4. This study could additionally expand to other industries, for example, the medical industry.

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