Agricultural Scientists' Perceptions of Fairness and Accuracy of Science and Agriculture Coverage in the News Media

Amanda Ruth
Graduate Student
University of Florida
amruth@ufl.edu

Ricky Telg
Associate Professor
University of Florida
rtelg@mail.ifas.ufl.edu

Tracy Irani
Assistant Professor
University of Florida
irani@ufl.edu

Deanna Locke
Graduate Student
University of Florida
hogswild@aol.com

Department of Agricultural Education & Communication
P.O. Box 110540
University of Florida
Gainesville, FL 32611-0540
(352) 392-0502
FAX: (352) 392-9585

Agricultural Scientists' Perceptions of Science and Agriculture Coverage in the News Media

Abstract

This study examined Southern agricultural scientists' perceptions of the fairness and accuracy of news media reports on agricultural and scientific topics. A stratified random sample of 300 Southern Association of Agricultural Scientists was drawn from the association's online member directory. Sixty-two agricultural scientists responded to the online, Web-based survey, for a response rate of 20.6%. Agricultural scientists' responses tended to fall in the middle of the five-point Likert-type scale on most of the descriptor sets provided to them (fair/unfair, biased/unbiased, trustworthy/untrustworthy, accurate/inaccurate, and balanced/unbalanced). However, the tendency was to be more negative than positive. Respondents were more negative of national news coverage of general scientific topics and topics from their agricultural disciplines, but more positive about local news and agricultural news coverage of science and agricultural stories. Agricultural scientists were also more favorable in their perceptions of coverage of general science topics than of stories in their agricultural discipline.

Key Words: perceptions, accuracy, fair, balanced, reporting, agriculture, news media

Agricultural Scientists' Perceptions of Fairness and Accuracy of Science and Agriculture Coverage in the News Media

Introduction

The reality of science for most people is what they see or read through mass media channels (Nelkin, 1995). Good reporting allows people to evaluate science policy issues and make rational personal choices; poor reporting can mislead a public that is increasingly affected by science (Nelkin, 1995). The news media, therefore, play a critical role as one of the primary means through which scientific issues are brought to the attention of the general public (Malone, Boyd, & Bero, 2000).

Gascoigne and Metcalfe (1997) conducted a study of 178 Australian scientists who participated in media training workshops to find out the scientists' attitudes toward using the media as a mechanism of communicating their research. Scientists said the media are generally neutral or negative when delivering scientific information to the public. The study also indicated scientists, in general, essentially distrust the media and doubt the media's potential to help their field.

Nelkin (1995), who has conducted extensive research on scientist and media relations, wrote that scientists mistrust journalists and criticize the reporting about their fields. Scientists also believe that journalists care little about the truth; reporters, scientists say, are more interested in the story, rather than the facts. Nelkin also has found that scientists complain about inaccurate, sensational, and biased reporting. She indicated a fear among scientists that the media encourages anti-science attitudes.

Hartz and Chappell (1997) found that scientists who are inexperienced in media training are fearful of misrepresentation and inaccuracy. They see the media as exploitive, manipulative, and sensationalistic in their reporting of scientific findings.

Only 11% of the scientists surveyed expressed a great deal of confidence in the media, while 22% said they had hardly any confidence in the media. As for reporting science issues, 30% said national television does a poor job, yet about 50% said the information was fair. Nearly 33% of scientists said national newspapers did a better job of general coverage, and about 50% said the national newspapers did an excellent job of science and technology coverage.

Hartz and Chappell (1997) also surveyed journalists about their perceptions of scientists. Journalists complained about scientists – immersed in their own jargon – as being intellectual and failing to explain their work simply to reporters or the public. Reporters also said scientists needed to communicate the issue that is relevant to the public, because science research is often complex. The survey showed that the majority of journalists had a great deal of confidence in scientists. About 63% said they think scientists want the public to know about their work.

One subset of the scientific community is agricultural science. However, even though agriculture is important to America's economic, environmental, and cultural growth, agricultural news is surprisingly a neglected topic in the mass media (Stringer & Thomson, 1999). Given the importance of providing information to the public through the news media, the question of how scientists – in this case, agricultural scientists – perceive the coverage of scientific and agricultural topics in the news media need to be raised. Agricultural scientists' perceptions about story coverage may impact their willingness to work with the media to get information to the public. Therefore, the purpose of this study was to explore a group of agricultural scientists' perceptions of news media reports on agricultural and scientific news.

Methodology

The target population for this study was agricultural scientists who are members of the Southern Association of Agricultural Scientists (SAAS). SAAS members are agricultural leaders in education and industry who promote the interests of Southern agriculture (Southern Association of Agricultural Scientists, 2002). SAAS is comprised of a diverse group of academics and professionals in the agricultural sector of 13 Southern states.

To conduct the study, a stratified random sample (n=300) of SAAS members was drawn from the association's online member directory. In order to stratify the sample, the entire SAAS membership directory was first grouped according to scientific discipline (agricultural communications, agricultural economics, agricultural education, agronomy, animal science, biochemistry, horticulture, plant pathology, rural sociology, and soil and water conservation). Only members with complete directory information (name, discipline, and e-mail address) were accessed. Every third member from each discipline was selected to randomize the sample.

The study utilized a 17-item, researcher-developed survey instrument that was descriptive in nature. The instrument included sections on scientists' perceptions of news media, their experiences with being interviewed by news media, their level of confidence/need for training in working with the media, and demographics. All items, with the exception of demographics, utilized five-point Likert-type scales for each response stem. The variables focused on for this study were the scientists' perceptions of stories covered by news media (all news media, national news media, local news media, agricultural news media) pertaining to agricultural and general scientific topics.

Participants provided responses about their perceptions, based on the degree of fairness, balance, trustworthiness, accuracy, and bias.

To assure face and content validity, a panel of experts, comprised of media relations experts reviewed the survey, and it was subsequently revised to reflect panel members' suggestions. The resulting instrument was then pilot-tested with a sub-sample (n=17) of SAAS members who were not included in the final study. The results of the pilot study were used to further refine the instrument for use in the actual study.

The survey was developed as an online, Web-based survey instrument, using form development and data collection procedures as outlined by Dillman (1999). To initiate the survey, respondents first received an email cover letter informing them about the Web-based survey and providing them with a respondent code to keep track of respondents and non-respondents. After the initial posting of the survey, respondents were given two weeks to return it. A follow-up reminder was then sent to nonrespondents. A third and final reminder was sent one month later. After data collection, survey response data was utilized to assess reliability of the instrument, resulting in a Chronbach's alpha for the overall scale of .86.

Results

Of the 300 SAAS members surveyed, 62 responded, for a response rate of 20.6%, with 85% (n=53) male and 15% (n=9) female respondents. The majority of respondents had been employed in a university setting for several years; slightly more than half were at the associate professor (20%) or full professor (31%) levels. However, 28% said their job title fell in the "other" category, with most of these stating their titles were

"government scientist" and "Experiment Station director or superintendent." Table 1 shows the number and percentage of respondents by discipline.

Table 1

Respondents According to Academic Discipline

Academic Discipline	*N*	Percent
Agricultural Communications	0	0
Agricultural Economics	13	21
Agricultural Education	1	2
Agronomy	11	17
Animal Science	13	21
Biochemistry	1	2
Horticulture	12	19
Plant Pathology	3	5
Rural Sociology	1	2
Soil & Water Conservation	3	5
Other	4	6
	62	100

Respondents were asked to describe their perceptions of coverage of news reports focusing on their agricultural discipline and of scientific topics in general. Perceptions were assessed by utilizing five sets of bipolar descriptive adjectives, each on a one-to-five-point semantic differential scale. The sets of descriptors were "fair" (1) to "unfair" (5), "balanced" (1) to "unbalanced" (5), "trustworthy" (1) to "untrustworthy" (5), "accurate" (1) to "inaccurate" (5), and "biased" (1) to "unbiased" (5). The respondents also were asked to respond to news media coverage in four categories: <u>all</u> news media (encompassing national, local, and agricultural news), <u>national</u> news media, <u>local</u> news media, and <u>agricultural</u> news media. The term "news media" was defined in the survey as referring "to all of the communication channels through which news travels to the general public (television, newspapers, radio, magazines, Internet)." The mean scores for each news media area (all, national, local, agricultural) are provided in Tables 2-9.

When asked about their perceptions of topics in their agricultural discipline as reported in all news media, respondents perceived that most news media reports were fairly neutral, with most of the responses tending to be slightly more negative on the five-point scale than positive. The respondents felt most strongly that stories were more biased than unbiased. The mean for each response scale item is provided in Table 2.

Table 2

Agricultural Scientists' Perceptions of Topics from Their Agricultural Discipline Reported in All News Media

Response scale item	*N*	*M*	*SD*
Question: In the reporting of topics in your agriculture discipline, stories covered by **all** news media are:			
*Fair (1), Unfair (5)	61	3.16	.711
Balanced (1), Unbalanced (5)	61	3.18	.885
Trustworthy (1), Untrustworthy (5)	61	3.21	.819
Accurate (1), Inaccurate (5)	61	3.26	.835
Biased (1), Unbiased (5)	50	2.44	.884

*Descriptor word sets were on a five-point scale.

Respondents felt that coverage of stories on topics in their agricultural discipline as reported by local news media was more positive, although, again, the tendency was to hover around a neutral stance. The respondents felt most strongly that stories were more fair than unfair. The mean for each response scale item is provided in Table 3.

Table 3

Agricultural Scientists' Perceptions of Topics from Their Agricultural Discipline Reported in Local News Media

Response scale item	*N*	*M*	*SD*
Question: In the reporting of topics in your agriculture discipline, stories covered by **local** news media are:			
*Fair (1), Unfair (5)	62	2.42	.615
Balanced (1), Unbalanced (5)	62	2.76	.824
Trustworthy (1), Untrustworthy (5)	62	2.76	.848
Accurate (1), Inaccurate (5)	62	3.05	.876
Biased (1), Unbiased (5)	61	2.98	.922

*Descriptor word sets were on a five-point scale.

When asked about their perceptions of topics in their agricultural discipline as reported in national news media, respondents indicated that news reports were more negative than positive in each category. Respondents noted that national news reports were more biased than unbiased, untrustworthy rather than trustworthy, inaccurate rather than accurate, unbalanced rather than balanced, and unfair rather than fair. The mean for each response scale item is provided in Table 4.

Table 4

Agricultural Scientists' Perceptions of Topics from Their Agricultural Discipline Reported in National News Media

Response scale item	*N*	*M*	*SD*
Question: In the reporting of topics in your agriculture discipline, stories covered by **national** news media are:			
*Fair (1), Unfair (5)	62	3.37	.854
Balanced (1), Unbalanced (5)	62	3.47	.918
Trustworthy (1), Untrustworthy (5)	62	3.50	.937
Accurate (1), Inaccurate (5)	61	3.49	.924
Biased (1), Unbiased (5)	62	2.40	1.108

*Descriptor word sets were on a five-point scale.

Respondents were generally positive about the coverage of topics in their agricultural discipline as reported in agricultural news media, although only slightly so in the biased/unbiased descriptor set. The mean for each response scale item is provided in Table 5.

Table 5

Agricultural Scientists' Perceptions of Topics from Their Agricultural Discipline Reported in Agricultural News Media

Response scale item	*N*	*M*	*SD*
Question: In the reporting of topics in your agriculture discipline, stories covered by **agricultural** news media are:			
*Fair (1), Unfair (5)	61	2.20	.771
Balanced (1), Unbalanced (5)	61	2.53	.970
Trustworthy (1), Untrustworthy (5)	62	2.29	.837
Accurate (1), Inaccurate (5)	62	2.24	.761
Biased (1), Unbiased (5)	62	3.05	1.137

*Descriptor word sets were on a five-point scale.

In terms of coverage of general scientific topics covered in all news media, respondents perceived that science stories were reported more negatively than positively. The mean for each response scale item is provided in Table 6.

Table 6

Agricultural Scientists' Perceptions of General Scientific Topics Reported in All News Media

Response scale item	*N*	*M*	*SD*
Question: In the reporting of general scientific topics, stories covered by **all** news media are:			
*Fair (1), Unfair (5)	60	3.03	.758
Balanced (1), Unbalanced (5)	61	3.20	.726
Trustworthy (1), Untrustworthy (5)	61	3.28	.636
Accurate (1), Inaccurate (5)	61	3.39	.714
Biased (1), Unbiased (5)	61	2.57	.865

*Descriptor word sets were on a five-point scale.

For local news media's coverage of general scientific topics, agricultural respondents perceived that local news stories were more positive in three descriptor sets, except for biased/unbiased and accurate/inaccurate. The mean for each response scale item is provided in Table 7.

Table 7

Agricultural Scientists' Perceptions of General Scientific Topics Reported in Local News Media

Response scale item	*N*	*M*	*SD*
Question: In the reporting of general scientific topics, stories covered by **local** news media are:			
*Fair (1), Unfair (5)	60	2.53	.700
Balanced (1), Unbalanced (5)	60	2.78	.761
Trustworthy (1), Untrustworthy (5)	61	2.82	.866
Accurate (1), Inaccurate (5)	61	3.07	.892
Biased (1), Unbiased (5)	61	2.97	.823

*Descriptor word sets were on a five-point scale.

Interestingly, respondents were critical of national news coverage of general scientific topics. Perceptions of each descriptor set were generally negative. The mean for each response scale item is provided in Table 8.

Table 8

Agricultural Scientists' Perceptions of General Scientific Topics Reported in National News Media

Response scale item	*N*	*M*	*SD*
Question: In the reporting of general scientific topics, stories covered by **national** news media are:			
*Fair (1), Unfair (5)	61	3.23	.824
Balanced (1), Unbalanced (5)	61	3.46	.848
Trustworthy (1), Untrustworthy (5)	61	3.43	.884
Accurate (1), Inaccurate (5)	61	3.34	.929
Biased (1), Unbiased (5)	61	2.39	.954

*Descriptor word sets were on a five-point scale.

Finally, respondents were asked to provide their perception of general scientific topic coverage in agricultural news media. Respondents' perceptions of story coverage were positive in each category. The mean for each response scale item is provided in Table 9.

Table 9

Agricultural Scientists' Perceptions of General Scientific Topics Reported in Agricultural News Media

Response scale item	*N*	*M*	*SD*
Question: In the reporting of general scientific topics, stories covered by **agricultural** news media are:			
*Fair (1), Unfair (5)	59	2.46	.897
Balanced (1), Unbalanced (5)	60	2.60	.827
Trustworthy (1), Untrustworthy (5)	59	2.47	.897
Accurate (1), Inaccurate (5)	60	2.50	.792
Biased (1), Unbiased (5)	59	3.05	1.090

*Descriptor word sets were on a five-point scale.

Discussion and Conclusions

In general, the members of the Southern Association of Agricultural Scientists who participated in this study had been employed in universities for several years, as indicated by their academic rank, were male, and were more representative of the physical and biological sciences (agronomy, animal science, biochemistry, horticulture, plant pathology, soil and water conservation), than the social sciences (agricultural communications, agricultural economics, agricultural education, rural sociology). A limitation of the study was the relatively low response rate, especially in the social science fields, which limits the generalizability of these findings. This may be due to individuals in these fields not seeing themselves as scientists, but more as academics and researchers. If so, this represents an interesting potential area for future research.

Respondents' answers tended to fall in the middle of the five-point Likert-type scale on most of the descriptor sets (fair/unfair, biased/unbiased, trustworthy/untrustworthy, accurate/inaccurate, and balanced/unbalanced). However, the tendency was to be more negative than positive. Respondents were more negative of all news coverage and national news coverage of general scientific topics and topics from

their agricultural disciplines, but more positive about local news and agricultural news coverage of science and agricultural stories. They were most favorably disposed toward agricultural news coverage and least favorably disposed toward national news media coverage. A possible reason for the favorable perception of agricultural news coverage is that they may believe agricultural news reporters are generally knowledgeable about their disciplines and, thus, can ask the right questions and present the information in such a way as to get the facts correct.

As for the positive perception of local news coverage of scientific and agricultural stories, agricultural scientists may believe that the proximity of local reporters may allow scientists some "control" over the story because reporters can spend more time with scientists and follow up with them with questions. The negative tendency toward national news may be that agricultural scientists see the national news as only printing or broadcasting bad or unfavorable news about any topic; they then translate that into national news outlets reporting bad news about general scientific or agricultural topics. They also may have seen previous stories where national news reporters did a poor job of reporting the facts on complex scientific topics.

Respondents were more favorable in their perceptions of general science coverage than of stories in their agricultural discipline. This may be because respondents have more knowledge of agricultural topics and, therefore, can be more critical of the content of agricultural discipline-specific stories. Respondents were more apt to perceive stories negatively in the biased/unbiased descriptor set than in the four other descriptor sets. They also were more apt to perceive stories positively in the fair/unfair set than in the other sets.

Overall, results indicate that agricultural scientists have neutral to negative perceptions of all news media and national news media. They are more positive about local and agricultural news media. These perceptions could help media relations professionals design and develop workshops to help agricultural scientists work with reporters. If most of the agricultural scientists' interactions will be with agricultural or local reporters, media relations workshops could be designed to strengthen the perceptions scientists already have of these two news media types. Training workshops also could be tailored to help scientists develop messages that could be more positively presented in national news media.

References

Dillman, D. A. (1999). *Mail and Internet surveys: The tailored design method, Second Edition.* New York: John Wiley and Sons.

Gascoigne, T., & Metcalfe, J. (1997). *Incentives and impediments to scientists communicating through the media.* Retrieved February 12, 2003, from http://www.usyd.edu.au/su/fasts/1997/GascoigneMetcalfe.html.

Hartz, J., & Chappell, R. (1997). *Worlds apart.* Tennessee: First Amendment Center.

Malone, R. E., Boyd, E., & Bero, L. A. (2000). Science in the news: Journalists' constructions of passive smoking as a social problem. *Social Studies of Science,* 30(5), 713-735.

Nelkin, Dorothy. (1995). *Selling science: How the press covers science and technology.* New York: W. H. Freeman.

Southern Association of Agricultural Scientists. (2002). *Introduction to the Southern Association of Agricultural Scientists.* Retrieved November 15, 2002, from http://cals.agnis.vt.edu/~saas/navigator/intro.html.

Stringer, S., & Thomson, J. (1999, June 12-16). *Defining agricultural issues: Daily newspapers editors' perspectives*. Paper presented at Agricultural Communicators in Education/National Extension Technology Conference, Knoxville, Tennessee.