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# 'Who's out there?' — Strengthening Internet Commu- nication for Agriculture Through Consideration of Audience Di- mensions and User Needs



**Margot  
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## **Abstract**

Success in Internet publishing and communications has less to do with mastery of HTML and listserv management than with using a set of skills agricultural communicators already have in abundance: understanding of audience, the forms of content that audience wants, and how best to deliver it to them. Yet a 1997 study found these issues unresolved in much of the Internet activity by state agricultural experiment stations. Careful thought about audience, measurement, and medium can help agricultural communicators enhance the effectiveness of their on-line activity and capitalize on new opportunities presented by emerging global data centers for agricultural information.

One of the Internet questions asked most frequently of agricultural communicators used to be "Are you on the Internet yet?" Today the answer is usually an enthusiastic "Yes!" The good news is that most extension and experiment station communicators are eagerly delving into cyberspace, "firing off" E-mail and posting information on listservs, mail lists, and Web sites. And reflective of the communicators' growing expertise, Web sites representing agricultural units show increasing sophistication, with many rivaling commercial sites in terms

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New ACE member Margot Emery is a publications editor at the Tennessee Agricultural Experiment Station and a doctoral student in communications and information sciences at the University of Tennessee. This study began as a project for an advanced seminar in information sciences issues and was presented in earlier form in the Agricultural Communications Section at the 1998 Conference of the Southern Association of Agricultural Scientists.

of the quality of graphics, expanding content, and inclusion of such sought-after features as search engines and downloadable data.

Somehow in the tumult of testing out the new medium of cyberspace, though, two important questions are not being asked or, arguably, not asked enough: "What are you doing on the Internet, and why?" A 1997 study of Web sites representing agricultural research communications units found that the fundamental issues embodied in the questions above – who is the audience, what do they need or want, and what form do they need it in? – were getting lost in the excitement and challenge of HTML editors, graphics programs, server options, and other dynamics of instant Internet communication. Too often, a rush to "get something up there" appears to be the driving force of Internet usage rather than a careful consideration of goals, objectives, and audience. Just as frequently, thought appears not to be given to how differences of the Internet demand differently structured information from that of traditional paper-based publications.

This paper aims to encourage agricultural communicators to take a creative time-out for evaluation and analysis. With Web sites representing agricultural units now typically in their third or fourth generation of development, now is a good time to pause and consider the Internet activity in context with some of the larger and broader issues that shape communication in cyberspace. This paper seeks to facilitate that consideration by examining some of the challenges confronting Web publishers. Through a list of ideas and guidelines distilled from good Internet practice, the paper offers agricultural communicators a set of tools to use in evaluation and planning of their Internet operations. Finally, the article explores some of the ideological differences that have challenged agricultural communicators, examining them in light of the Internet's capabilities with the belief that the new medium is uniquely positioned to help bridge some of the competing ideas and transform them into powerful new forms of agricultural communication.

## **Who's Out There, and What Do They Want?**

Operating a Web site or moderating an Internet-based mailing list is fraught with unknowns. Identifying the audience and providing them with content they want in a format they prefer is a challenge encountered by every Web publisher. Evidence of this can be found in the innumerable books available on Web publishing and equally innumerable discussions of Web publishing issues on the Internet.

A study by this author found the issues to be challenging agricultural communicators, as well. In April 1997, I set out to examine how Web sites representing the Agricultural Experiment Stations were faring with regard to audience dimensions and other aspects of Internet usage. This focus on research communications was chosen, in part, to see how provisions of the Hatch Act of 1887 were faring in cyberspace. The legislation as amended mandates printing and dissemination of research conducted for the public good to an array of stakeholders, and the Internet would appear to offer a powerful tool and medium for such activity. While the study initially appeared to exclude The Extension Service's communications Internet operations, the survey data gathered indicated that some Extension communicators were as active as agricultural research communicators in placing research information at the Web sites; and at several universities, Extension served as the center for Web publishing for both areas of operation — thus the study's sample represents some joint Extension and research communications programs. The possibility that other Extension communications programs are quite different in their Internet operations is noted; however a general census of Web sites conducted at the outset of this study found greater numbers of similarities than differences between Extension and agricultural research sites.

This study began when a sample of Web sites representing 25 experiment station communications operations and agricultural-focused research centers within United States colleges or institutes of agriculture was established. The Web sites were identified using search engines, links at regional associations of experiment station directors, and searches of Web sites of land-grant institutions. With the initial sample in place, the study explored dimensions of Web publishing from three directions. In the first phase a survey was E-mailed to the Webmaster or designated E-mail point of contact for each site, and the responses were evaluated both for their speed of reply and the answers participants provided to a set of 11 questions about their Web site, its purpose, evaluation, and perceived effectiveness. The second phase consisted of a content analysis of each Web site. The final phase was the use of three popular search engines to test the effectiveness of locating information representing key research areas of each station.

Problems emerged immediately. Of the 25 individuals surveyed, nine did not reply, one had an invalid E-mail address, one returned a consent form but not the survey, and two others responded days

beyond the requested response period of seven days – a situation that indicated low attentiveness to communication from site visitors. From these results, the study sample became the Internet operations of the 12 individuals who did respond to the survey within the requested one-week period of reply.

These 12 identified themselves as agricultural communications professionals and said maintenance and development of the Web sites was part of their job responsibilities. Most shared the work with a support staff member, and some had teamed with computer personnel. Time on a weekly basis committed to the Web varied from two hours minimum oversight to up to “50 people hours” by others on their staff.

In their survey responses, the maintainers and site administrators said the top challenges of their Internet activity were in identifying audience, measuring effectiveness, and justifying effort. The chief purpose or role of the sites was overwhelmingly said to be to provide general information about the station to a broad audience (selected by 10 respondents), followed by an aim to share detailed information with research affiliates and research users. The target audience for the sites was primarily the general public, specified by seven respondents, although researchers, legislators, and prospective students also figured prominently. Individuals at two units simply noted the audience for their sites was either unknown or generally defined to be anyone outside their organization.

Evaluation of Web site performance and justification of the effort to establish and maintain the sites was said to be problematic. Although one-half of the sample indicated they were monitoring statistics of site usage, no one attached much value to the figures, noting problems of determining precisely what is being counted. One-half of the sample, including some who monitored statistics, said no formal evaluations of their sites were conducted. Instead one-third of the sample said effectiveness was judged subjectively by their unit leader and other administrators or through anecdotal responses such as E-mail from site visitors.

To borrow terms from the information science theorist S.D. Neill (1992), these Webmasters found themselves dealing with dilemmas of the unknown, specifically, an undetermined audience, vague measures of effectiveness, information overload (the challenge of managing information in an information society), and most broadly, dilemmas of method: a means by which to determine what is and is

not appropriate for their Web sites in content, investment of effort, and return on the value.

To veteran agricultural communicators, such ambiguity probably comes as little surprise. Issues of audience and evaluation have long been problematic for the field and are prominent in debates over whether agricultural communications should focus on marketing or service, on rural or broader needs, or function in a manner that is high tech or high touch (Whiting, 1996). These issues exist at the applied level, as well. In literature associated with training and development needs for agricultural communicators, Lionberger and Gwin (1991), Agunda (1989), and Richardson (1989) are among the practitioners who have called for greater attention and sensitivity to the needs of end-users. Their call has been repeated more recently by MacKenzie (1997); Rohan, Randall, Shulman, Tsai and Watt (1996); Knecht (1996); Beck and Cilley (1994); and Browning and Anderson (1989) in literature about the need to master and integrate electronic forms of information dissemination into agricultural communications programs.

## **Cutting Through the Confusion**

The key to reducing ambiguity associated with Internet operations that support agricultural or any other area of professional communication lies in realizing, as Carl Carter, APR (Accredited in Public Relations), phrases it, that the Internet is not a “computer thing” but a “communications thing.” In dialogue on the on-line forum PR Issues, Carter (1997) advises practitioners that “we still have to identify various publics to be reached and set objectives for each, rather than just throwing everything out there.” Writing on the public relations value of Web sites for universities, Crockett (1997) argues the most important aspects of Web publishing lie in :

articulating a concept and a mission, developing the content, and presenting information in an attractive, easy-to-read format. Anyone who's put together a broadcast spot, edited an alumni magazine, or developed a series of pitch letters has these skills. (p. 16-17).

When asked by this author to identify criteria for judging the public relations value of Web sites, members of the listserv PRFORUM supported Crockett's statement, saying the factors for judging effectiveness are the same for any public relations venture: identifying

organizational goals, objectives, and the target audience, and serving audience needs in personalized, interactive ways (J.S. Punk, personal communication April 28, 1997; L. Pollard, personal communication April 27, 1997).

Most Web sites, and particularly those representing nonprofit organizations, evolve over time. Many of the sites representing agricultural communications units are now in their third or fourth permutation, if not beyond it. Such an evolutionary path of development can lead to broad, unfocused Web sites that grow in many directions as needs and opportunities occur. Now that most sites have been in operation for more than a year, it is time to stop and rethink what is being done with respect to purpose, audience, and evaluation. The following 10 points are intended to encourage readers to think critically about their Web sites and Internet operations and, most importantly, to ask questions about the process. The points are distilled from a variety of sources, among them articles about “good” Web publishing practices, core concepts from public relations and journalism literature, and the author’s own experience in crafting a Web publishing policy and guidelines for a technological university and serving as the central Web publishing resource for its faculty, staff, and students.

## **A Checklist for Internet Operations**

1. **Audience: Who’s Your Target?** Consider the many stakeholders of your operations and define the target groups of your Web site, listing them by priority. Then look at the site and see if the content is organized to serve their needs. Users click through a site in paths. Are the “click paths” that serve your constituents clear and easy to navigate? Place yourself in their position and use the site. Consider asking a stakeholder to visit your site and allow you to watch the process.
2. **Define User Needs and Organize Content Accordingly.** What do users want from your site? And, turning the question another way, what do you want users to take away from your site in terms of information and impressions? Ask these questions about each target audience, then look at the site and see if the content is there to achieve those aims and whether it is organized clearly enough that messages do not get lost in other text, images, and indirect paths through linked documents. Just as with a printed publication, a Web site should directly and clearly convey messages that you want to send.

3. **Be Interactive.** Many organizations use the World Wide Web passively, treating it like a bulletin board on which to tack information. But as a communicator, you are smarter than that. The beauty of the Web and the Internet in general are their interactivity. Use that power. Encourage visitors to your site to tell you their thoughts and ask questions. Make the invitation for comment obvious by playing it up big on the index page and echo the call for comments elsewhere at the site. At Apple Computer's sprawling Web site, key pages ask users to indicate whether the pages met their needs or not – a user-friendly approach that facilitates communication and continuous improvement of site organization. At a minimum, make sure each page at your site has a designated maintainer and a way to communicate with that person using a "mailto" link. Provide an E-mail directory of your staff. And because many people use the Web as a reference source, list key telephone and mail addresses, as well.
4. **Provide Leadership.** Many Web sites began as student projects or were launched by support staff members willing to help out where needed. Such support can be invaluable in maintaining and growing Web operations. But as a communications professional, you have insight and perspective into user needs that needs to be invested in the effort. Provide vision and direction to the effort, help your maintainers integrate Internet operations with the unit's other communications programs, and join these staff members to form a Web team.
5. **Target Messages, Not Access.** Web content should be accessible to as broad an audience as possible. To this end, avoid optimizing your site for performance on specific browsers. You want users of Netscape, Internet Explorer, and text-only browsers such as Lynx all to have a positive experience. To ensure they do, look at the site yourself using different computer platforms and browsers. If a text-only interface like Lynx shows missing content and messages of <inline>, <link>, <image> and <ISMAP> without content choices, then there's need for work, specifically the thoughtful use of ALT tags, which substitute words in place of images. Also keep in mind that some users still struggle with low modem speeds and poor quality telecommunication lines, particularly in rural areas and for international users, who often also are challenged by bandwidth limitations. For such

users, bandwidth intensive pages, such as those laden with tables and large graphics, are slow to load and can create problems. Aim for lean pages with graphics that are small in file size and load quickly. Also keep a listening ear tuned to positive and negative evaluations of Web trends. Frames caught on quickly, but many find them unwieldy to use, and Web designers at many large commercial sites, among them ones representing The Baltimore Sun, Detroit Free Press, and The Mining Company, have dropped them entirely. Strive for usability and design with your audience in mind: Are they adolescents seeking Web experiences that mimic the frenzy and excitement of video games, or is your audience older and more traditional? The answers should have bearing on site design, content, and structure.

6. **Put Away That Shovel!** The Web is not a printed brochure or magazine, and people do not read it like a book. For that reason, content should be organized differently from printed pieces. (For a good tutorial on this issue, see Nielsen 1999.) Lengthy pages that require users to scroll generally are best avoided, and there is need to help users find their way through complex documents or sites. One of the best approaches is with indexes that allow users to understand at a glance what is available and then follow the path that best fits their needs. For large sites, provide search engines. Even though PageMaker and other programs can now export print-based projects as HTML, resist the temptation of shovelware, the act of placing print publications “as is” on the Internet, rather than adapting them for a different medium. Instead, organize information in ways that mirror user behavior. How do you use the Web? Your patterns of use and those of your target audiences hold important clues about how to organize Web material. (See Nielsen, 1999, for a good treatment of this issue.)
7. **Justify, Justify, Justify.** Java scripts, animated gifs, and customized background tiles can be fun to play with, but when they get in the way of information access and meeting user needs, they impair the effectiveness of your communication. Consider every image and bit of information at your site, as well as how the material is structured. Each image should have a purpose and reason for being there. Otherwise, lose it; and likewise for information. In this regard, the similarity to good editing of print publications is striking.

8. **Keep Content Fresh.** Use your site dynamically to encourage users to make return visits. Post alerts of breaking or upcoming events on the site's main page. Share information about current projects or initiatives. Keep news archives timely. And watch for little things, such as images of outdoor scenes that are asynchronous with the season, or E-mail links that are no longer current with your staff or server addresses. It is also good practice to refrain from promoting content that is not ready. Keep it, and the pervasive "under construction" icons, unlinked from your pages until the material is ready. Otherwise, promises of what is coming can cloud what is actually there. Such messages are not found on corporate and other top-performing Web sites, with good reason.
9. **Think Beyond the Web: Cross Promote.** The Internet is more than the World Wide Web, and its other functions can be powerful tools to reach your audiences. Many users may prefer to receive news of your operations directly by E-mail and, for you, listservs and electronic mailing lists can be great ways to ensure they receive important messages. Both types of lists can be organized from the general topic area (agricultural Extension) to the very specific ("no-till" farming methods), and they can be used in tandem with your Web site. For instance, sending out E-mail that alerts people that a popular annual bulletin of seed trial results is available at your site, will get the word out quickly and may help reduce demand for paper copies. Explore the possibilities and be sure to promote your Web site and Internet operations in your paper correspondence, printed publications, and interpersonal interactions. Of course you can also cross-promote on the Internet, which some of the most strategic relationship marketers routinely do. If your site adds a subsection devoted to research on fruit trees, find listservs and Usenet News groups related to the subject and alert members to your new content. Routinely registering your site and its significant content areas with search engines also is smart practice.
10. **Evaluate Creatively.** Sure, there is no single tool or widely accepted procedure used to evaluate Internet operations, but is the absence of standardization really a problem? Piece together your own evaluation program and tailor it to your specific needs. Use site statistics to track the number of different machines that visit your site and to understand which areas of your site are experiencing the heaviest traffic – a useful

indicator of the content visitors find most interesting. Keep a log of E-mail received from users, recording both number and purpose of communication. Note the growth and use of listservs and mailing lists and the frequency and substance of comments from colleagues or constituents about your Web site. Other resources are at your disposal, as well. For example, focus groups composed of individuals representing your target audiences can be an excellent source of evaluation and ideas.

This set of points is intended to get readers thinking creatively about their Internet operations. While most of the items focus on the process of communications, that is, the fundamentals of day-to-day operations, the issues they touch upon are also part of a larger picture of how agricultural experiment station and Extension operations communicate with their publics. The Internet's new tools and functions give communicators the ability to dramatically change how they pursue their work and, for that reason, a broader consideration of the Internet at the conceptual level seems worthwhile.

## **The Big Picture: The Internet, Agricultural Communications and Interactivity**

In conference presentations and in publication, Larry Whiting, Head of Communications and Technology for the College of Food, Agricultural, and Environmental Sciences at The Ohio State University, has distilled some of the different, sometimes competing, points of view about how agricultural communicators conduct their work. Whiting summarized the perspectives in a list that he named "The Ten Great Paradoxical Challenges That Face Extension, Research, and the Land Grant System" (Whiting 1996).

Questions regarding communication are central to many of the dilemmas on Whiting's list, including the ongoing debate about whether agricultural programs should strive to build greater awareness of their services among citizens or concentrate on serving traditional stakeholders through existing Extension and research communications programs. The nature and form of agricultural communications also appear to be in debate. Specifically, should interactions with stakeholders be one-way in nature, or interactive, and should communicators continue working with people on an individual or small group status through workshops, meetings, and educational print-based material; or should they instead shift to a focus on mass communication? Questions about communication are also

evident in debate over agricultural units' image and competitiveness; about whether the units should be proactive or reactive in assessing the needs of the public and addressing them through education and research; and in the "local versus global" debate over the focus of Experiment and Extension operations; that is, should they focus strictly on clients and users in their home states, or is there justification in pursuing a broader reach?

Historically, the views held by communicators and their administrations on these issues led to clear directions for the day-to-day operations of agricultural research and Extension communications programs. The situation led some units to focus on brochures, posters, and interpersonal networking while operations elsewhere emphasized video and teleconferencing, and still others plunged into international programs.

Through the Internet, many of the differing views that have traditionally divided the work of agricultural communicators can now be served simultaneously in ways that demand little if any additional work by communications staffs. Building interactivity into Web and Internet operations is the key, allowing what has been in many ways a one-directional flow of information to become more interactive and dynamic. This approach is strongly supported by a leading model of organizational communication in the field of public relations, a classification system proposed by Dozier, Grunig and Grunig (1995) for organization-based communications and public relations programs. The system developed from a three-nation study of communication practices conducted for the International Association of Business Communicators, in which the researchers found the most persuasive communication practices to consist of a two-way flow of communication that (a) invites stakeholders to express their opinions, evaluations, and ideas of the services the organization provided; and (b) then evaluates the organization's actions and programs in light of the comments received. The approach enables communicators to manage conflict and promote mutual understanding and shared goals by collecting information from audiences and integrating their viewpoints into organizational decision making. According to Dozier, Grunig and Grunig, this model of responsive communication enables "communication and public relations [to] make valuable contributions to society as a whole" (p. 13).

Although the Internet was just beginning to be used in business operations at the time of Dozier, Grunig and Grunig's study, the

network's ability to support two-way flow of communication is clear, and forms of interactivity can easily be adopted into Internet operations representing agricultural Extension and Experiment units. Ways to do this include soliciting comments from site visitors and posting those comments along with your responses to the Web site, evaluating Web site performance through site statistics that identify popular areas of content, and using listservs to communicate electronically with various stakeholders. The result of such practices is a heightened flow of communications between organizations and their intended audiences that can clarify a great deal of the ambiguity associated with Internet operations while offering communicators an evaluative tool to refine the performance of all of their operations regardless of medium.

Interactive communication is also central to a growing trend of establishing electronic centers aimed at sharing agricultural research and information across state and national borders. These "cyber-centers" offer individual experiment station and Extension communications units an opportunity to link information representing their operations into wide-ranging resource centers that aim to be a first source of reference for on-line agricultural information. The organizations that maintain the central sites handle the time-intensive work of organizing information and furnishing search engines and other tools to access it. The only demand on individual units is to contact site maintainers and help them link to on-line material they want to include at the clearinghouse.

In the past year, two such efforts have gotten underway. One named "E-Answers" is operated by the Agricultural Communicators in Education (ACE) and resides at <http://www.e-answers.org>. E-Answers functions as an information retrieval service representing land-grant institutions in the U.S. and abroad. Users can consult the site for pointers organized by subject and location to agricultural information at specific institutions. A second effort with similar goals but broader scope is being developed by the World Bank in cooperation with National Agricultural Research Systems (NARS) and the Consultative Group on International Agricultural Research (CGIAR). Under the World Bank's leadership, the organizations are working to launch an Electronic Global Forum on Agricultural Research, named EGFAR. The initiative aims to establish a global center where participants can explore needs and opportunities for agricultural research, post information, establish virtual libraries, and create partnerships (Consultative Group on International Agricultural Research 1997). A

prototype of the site can be accessed at <http://wbln0018.worldbank.org/egfar/shared.nsf>

In conceptualization, EGFAR resembles a shopping mall, with kiosks that belong to international constituency groups within the global agricultural community. Initial groups include regional forums of national agricultural research systems, nongovernmental organizations, farmers' organizations, the private sector, advanced research institutions, universities, and CGIAR. Kiosks may be organized by their maintainers into two rooms: the first, a traditional library where constituents place and access digital information relevant to the forum and where individuals browsing the holdings may submit requests about information they are seeking; the second, a room of "conference tables," with each devoted to a topic of interest to the constituency group. Visitors can sign in, agree to follow a standard protocol for participation, and then take part in ongoing discussions.

The effort demonstrates the range of services and global sweep that is possible to achieve with Internet operations. It also is a useful example of how the network can be used for local, state, and regional agricultural communication. The technological potential for these uses is there. The challenge can be in realizing it and finding meaningful ways to use the Internet for experiment and station communications. Again, the solution may be found through consideration of audience needs and interests.

## Summary

The Internet was created to bring people and information together. As such, it exists as a powerful tool for agricultural communications, and it is clear that Experiment and Extension communications operations have been quick to recognize the opportunity. Through attention to audience dynamics, care in evaluation, and strategic use of the full abilities of the Internet, agricultural communicators can heighten the effectiveness of their on-line efforts and, through the process, enhance their interactions both with traditional constituents and new audiences. Such interactivity has the potential to bring rich rewards with benefits that spill over to non-Internet areas of activity. The Internet already is proving itself to be an important tool. Using their innate skills, communicators have the ability to refine that tool and use it to benefit their organizations as well as the many people who depend upon them for agricultural information and research.

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