

Developing an International Framework and Agenda for Agricultural Communications Research

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Abstract

Timely, effective research is becoming a vital tool for communicators to use in the dynamic setting of the information age. Increasingly, it can support effective communications and decision-making related to agriculture. The authors report results of their recent efforts as members of a national project to envision a framework and agenda for agricultural communications research during the next 5 years. Noting the emergence and dynamics of the information age, they emphasize the centrality and resilience of agriculture. They observe how the agriculture-related sectors—food, fiber, natural resources, bio-based energy, nutrition and health, rural development, and others—tend to transform themselves and adapt over time and across societies. Similarly, the roles of communicators are adapting beyond that of the historical “town crier.” Increasingly, communicators are helping people gather and share information, deliberate, sort through the mountains of information, select what they need, and make decisions. The authors identify 4 research priority areas and 18 key questions for research that communicators can use to address such challenges. They also suggest agricultural knowledge management as an integrative, international framework for strengthening this research agenda.

Now more than ever, research opportunities are needed to support effective agricultural communications. Interrelations throughout the food industry—from farm to fork—are becoming more complex and vital. Producers, citizens, and other decision-makers who need information about this broad-based endeavor are becoming more diverse and global. The ever-increasing volume of information they require is becoming more specialized and changing more rapidly. The emergence of new electronic technologies is creating new channels for information distribution.

This dramatic development has not happened suddenly, nor is it confined to agriculture. Since Fritz Machlup’s 1962 book *The Production and Distribution of Knowledge in the United States*, philosophers, business leaders,

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and communicators have been discussing the information age, its impact on the acquisition and management of knowledge, and their roles in our future economy. In his book *The Effective Executive* (1967), Peter Drucker predicted that major changes in society would be brought about by information, and that knowledge workers would become the largest working group. In his book *The Coming of Post-Industrial Society* (1973), Daniel Bell noted that the United States was moving from being a producer of goods to a service economy, and predicted that theoretical knowledge, technology, and information would become our major commodities. Bell added that those who know how to create, assemble, and disperse information are more valued than labor. Alvin Toffler's *The Third Wave* (1980) heralded a new culture based on information that is more than just technology—it includes social, cultural, institutional, moral, and political dislocations during our transition from a brute force industry society to a brain force economy.

One of the clear challenges in this information age is managing the information before us and converting it to knowledge that will serve our decision-making and problem-solving processes. As Naisbitt stated in his book *Megatrends* (1982):

We are drowning in information but starved for knowledge. This level of information is clearly impossible to be handled by present means. Uncontrolled and unorganized information is no longer a resource in an information society; instead it becomes an enemy. (p. 24)

This situation exists internationally within the food, agriculture, and natural resources sectors. It is easy to see the information challenges that are generated not only by an increasingly complex global food industry, but also through the use of increasingly complex information systems, technologies, and processes. There are also difficulties and inequities with regard to sharing agricultural information within the food industry—locally to globally, and among diverse stakeholders. Further, in some countries, the decline in the number of people involved in production agriculture has resulted in a general lack of agricultural awareness among citizens, leaders, and others involved in decisions about food, agriculture, natural resources, and related societal interests.

These trends reflect the changing landscape of the food and agriculture industries. They also highlight the difficulties involved in providing information that can help societies find the vital balance between change (for progress) and constancy (for stability) in their endeavors related to food, agriculture, and natural resources. More than 25 years ago, Naisbitt (1982) described both the problem and the steps societies need to take to move forward through these changing times:

The problem is that our thinking, our attitudes, and consequently our decision making have not caught up with the reality of things... the level of change involved is so fundamental yet so subtle that we tend not to see it, or if we see it, we dismiss it as overly simplistic, and then we ignore it....But we have to release this death grip on the past and deal with the future. We must understand this new information society and the changes it brings. We need to reconceptualize our national and global objectives to fit the new economics of information. (p. 13)

What does this societal change mean for agriculture? Bertels and Savage (1999) pointed to the United States' transition from the industrial era to the knowledge era, noting that during the 50 to 150 years required to move from the agricultural era to the industrial era, agriculture did not die; rather, it was transformed to the point where less than 5% of the population now farms, as opposed to 65% when the transformation began. During this same time period, the scope of agriculture broadened from its original food and fiber focus to include natural resources, environment, nutrition and health, rural interests, and other related sectors, such as energy.

As societies continue to change in this information age, so, too, will agriculture. The key to the success of this transformation will be the ability to create, process, and use information to advance agriculture and societies as a whole.

A Golden Age Is Unfolding

A golden age of agricultural communications could emerge through this transformation if we are ready to meet the challenges in store for us. Increasingly, our role involves helping people think critically and operate more efficiently while they sort through the mountains of information available to them. For communicators, this transition requires focusing on settings, states of mind, dialogue, and relationships as much as we focus on communication techniques and technologies. Our effectiveness as communicators is revealed through much more than numbers of releases or broadcasts produced, brochures created, or "hits" on a Web site. Increasingly, we measure our effectiveness in terms of behavior responses, impacts of decisions made, and returns on efforts and funds invested.

According to Selltiz, Wrightsman, and Cook (1976), agricultural communications research could have an important role in shaping this golden age:

Social science research not only corrects perception; it expands it....
When social change occurs, the current practices may no longer

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work. But if we know why they worked in the first place, we also know why they no longer work.... In a time of rapid social change and increasing permeability of institutions, general explanations are wanted more than ever. Thus, by generating new concepts and explanations, social science can heighten our awareness of where things fit in a larger framework. (p. 5)

Throughout the history of agricultural communications, research and evaluation efforts both within and outside the profession have helped to advance our general understanding and improve the way we deliver content to a wide variety of stakeholders. However, funding challenges often limit those efforts. Also, past efforts reveal a scattershot pattern of research that has understandably been shaped by information needs of the place and time, individual interests, funding opportunities, and a wide array of other factors. Focusing our research efforts to make better use of those resources and finding ways to expand our efforts in a coordinated way can help us achieve the future we desire.

Developing and Framing a Research Agenda

In December 2005, a 27-member development team met in Orlando, Florida, to begin developing a research agenda for agricultural education and communications. The outcomes envisioned for this project included:

- a document to guide our collective research efforts,
- a vehicle to clearly communicate our priorities to external groups and funding agencies,
- a greater synergy within the broader profession,
- a focal point for research discussions within special interest groups,
- more focused, programmatic research centered on priorities, and
- more active research teams throughout the profession.

This project was the culmination of an effort that had been gaining momentum for several years. According to Ed Osborne, project coordinator and chair of the Department of Agricultural Education and Communications at the University of Florida, the idea for the project first surfaced 8 years ago at a meeting with representatives of several extramural funding agencies, including the USDA and the National Science Foundation (NSF), in Washington, DC. During that meeting, the funding agencies suggested that agricultural education and communications researchers could benefit by collaborating on a research agenda focused on research priorities by specific area of interest (E. Osborne, personal communication, 2006).

The development team that convened in Orlando included officers and representatives from all of the major professional agricultural education, leadership, Extension, and communications associations (including ACE), the agriculture industry, and the National Research Council. Individuals were organized into 5 teams, each pursuing 1 of 5 dimensions of the research agenda: agricultural communications, agricultural leadership, agricultural education in community settings, agricultural education in university settings, and agricultural education in schools.

At the end of the 3-day meeting, a first draft of a 5-year research agenda had been created. The report was completed during the following year, then endorsed by the professional bodies involved and published in early 2007. It was introduced to ACE members during the 2007 conference in Albuquerque, New Mexico, and formally ratified by the organization later that year. Funding support for the meeting and report dissemination came from the National Research Council (NRC), the American Association for Agricultural Education (AAAE), and the USDA.

An Agenda and Framework for Agricultural Communications Research

The 5-member team charged with envisioning a research agenda for agricultural communications began by identifying topics for such an agenda. Team members found themselves working to identify a framework that would reflect the breadth and dynamics of this field. In addition, the team wanted to create a framework and agenda broad enough to serve agricultural communications research needs and opportunities in any society, including internationally. Team members wanted an agenda that would be focused on improving the effectiveness of public and private decision-making and problem-solving throughout the agricultural, food, fiber, and natural resource industries in all levels of society. They also wanted an agenda that would position agricultural communications at the forefront of the knowledge era.

Discussion led team members to consider knowledge management as a potentially helpful framework for research in agricultural communications during these changing times. The growth of information technology and computing has made it possible for organizations, including land-grant institutions, to utilize information and acquire knowledge in new and different ways, which gave rise to the concept of knowledge management. Knowledge management evolved in the for-profit sector as a conceptual framework for the creation, management, and utilization of information in the form of data, especially data used to make decisions (McElroy, 2000). Industry has long seen the utilization of knowledge as significant in maintaining competitive advantage. Technology has provided the impetus

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for a focus in the corporate sector on knowledge management as a set of methods, techniques, and practices to manage an organization's intellectual capital (Center for Ledelse, 2002). However, there have been relatively few studies of knowledge management, and those that exist have been primarily conducted in large corporations.

Within agriculture, knowledge management has been the subject of research primarily in the agricultural development context, where a strong connection to Extension outreach and communication is typically made. Leeuwis and Van den Ban (2004), for example, drew a connection between knowledge management, rural innovation, and communication, arguing that communicative strategies must be used to foster change and development in agriculture and natural resource management based on knowledge management principles. This agricultural knowledge management framework is commonly used internationally—often within the context of communications support for agricultural and rural development (e.g., Boateng [2006]; Hinton [2003]; James [2006]; Linking Local Learners [2006]; Rangi, Day, & Asaba [2006]; Rivera, Alex, Hanson, & Birner [2006]). Its emphasis on discovery, creation, flow, selection, management, and uses of information seemed promising, as did the concepts of information sharing, networking, and collaboration across all settings.

Within the agricultural knowledge management framework, the team identified 4 areas of research priority and 18 key research questions. The team also identified nearly 60 sample research initiatives to address those questions. This work by no means represents all potential research questions and initiatives. However, it serves as a helpful starting point.

Priority Area 1: Enhance Decision-Making Within Agriculture

Who are the relevant audiences for agriculture with respect to high-priority issues?

Developing knowledge management systems that enhance the decision-making and problem-solving abilities of the various stakeholders within the agriculture industry requires a deeper understanding of diverse audiences, their behaviors, and their needs. Sample research initiatives include developing and using tools for identifying and analyzing audiences and situations, as well as assessing awareness and knowledge levels, attitudes, practices, information needs, and information-seeking behaviors among producers and other relevant stakeholders.

What are the most effective ways to identify and communicate information that has economic and social value?

In the industrial era, we focused on raw materials. In the knowledge era, we are working not just with raw materials, but also raw ideas (Bertels

& Savage, 1999). Value will lie not only in explicit knowledge (such as what we can read, see, or hear), but also in tacit knowledge. Sample research initiatives include assessing viewing and listening patterns, readership, and information sources; analyzing the development and effectiveness of communications organizations, technologies, and methods; strengthening guidelines for using coordinated rather than piecemeal approaches; and examining the economic and social returns of agricultural information.

What information do various stakeholders need to make informed decisions?

Knowledge management is a conscious strategy of getting the right information to the right people at the right time so they can take action and create value (O'Dell & Grayson, 1998). Sample research initiatives include evaluating message content and presentation, including specific media skills involved; providing guidelines for information sharing, networking, and collaboration; and identifying ethical issues and information asymmetries and imperfections.

Priority Area 2: Within and Among Societies, Help the Public Participate Effectively in Public Decision-Making Related to Agriculture

How do we reach, create awareness within, and constructively engage the public in high-priority agricultural issues?

Informed decision-making is important for both the citizens of a democracy and the leaders in government and industry whose decisions influence the health and welfare of communities, the nation, and agriculture. Sample research initiatives include analyzing levels and dynamics of public participation, providing guidelines for building networks and coalitions, developing case studies of risk communications, and improving incentives and methods for mediation and conflict management.

How do we identify, assimilate, disseminate, format, and evaluate relevant information that facilitates public decision-making about high-priority agricultural issues?

Informed decision-making requires holistic thinking. Most issues relating to agriculture are complex and include varying degrees of risk. Provided with reliable information and given solid tools with which to process it, people become better able to make decisions that are good for themselves, society, and the world. Sample research initiatives include assessing the quality and adequacy of information available for public decision-making about specific issues related to agriculture, understanding how the public interprets and values information about specific issues, and analyzing the value and effectiveness of participatory approaches.

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How do we improve the amount and quality of mass media coverage of agricultural issues?

The mass media are one of the major sources of information for most individuals and groups. Therefore, the ability of the media to present detailed, accurate, and balanced information on a variety of agricultural issues is critical for informed public decisions. Sample research initiatives include examining the amount and effectiveness of media coverage of agricultural topics, identifying constraints and developing strategies to increase the amount of media coverage of such topics; developing new tools and concepts to improve accuracy, completeness, and quality of media reporting; and testing in-service training methods to help media professionals improve their skills in covering agriculture.

How will emerging technologies affect public participation in the flow of agricultural information?

Place, time, and position no longer limit the flow of information as they did in the past. The impact of digital and wireless technologies on knowledge management behaviors is currently unknown and calls for research. Sample research initiatives include identifying, adapting, and testing new information technologies to encourage and increase public participation, as well as improving applications of new and traditional media in engaging the public.

Priority Area 3: Build Competitive Societal Knowledge and Intellectual Capabilities

How do we improve thinking processes and problem-solving capabilities through the effective use of information systems?

Information only comes alive by our interpretation; we create meaning by distinguishing and valuing information. Understanding the interplay among data, information, and meaning will require much more than sophisticated models of data storage and will force us to understand the process of creating meaning (Bertels & Savage, 1999). Sample research initiatives include monitoring flows of agricultural information and developing ways to improve them, along with identifying and analyzing the forces behind cultural change as a guide for improving agricultural information systems.

How does information and media delivery affect thinking processes, problem-solving, and decision-making related to agriculture?

The task is not just to structure the information, but to structure the whole process of acquiring, processing, and sorting out this information and discovering its meaning. In other words, we need to put whole systems together so that we can effectively see patterns and act in a timely manner

(Bertels & Savage, 1999). Sample research initiatives include analyzing past and current information-processing systems related to agriculture; developing new ways, through information, to improve critical thinking and problem-solving skills among specific audiences; and identifying trends, implications, and options related to the globalization of agricultural information and media convergence.

How can we gather and make available the widely scattered literature about agricultural communications?

In *Megatrends*, Naisbitt (1982) stated that "uncontrolled and unorganized information is no longer a resource in an information society" (p. 24). The capturing and sharing of information in a useable format is critical to the future of the food and agriculture industry. Sample research initiatives include seeking ways to strengthen the efforts of the Agricultural Communications Documentation Center and other places that identify and provide such literature, as well as developing ways to capture and share expert knowledge related to effective agricultural communications.

How do we use communications networks, linkages, and approaches more effectively in agricultural knowledge management?

Digital communications methods now allow the sharing of information beyond the traditional communication boundaries of place and time. These new patterns have the potential to create value and generate new ideas. It is critical to implement new, flexible technologies and systems that support and enable communities of practice and other informal and semiformal networks of individuals and organizations. Sample research initiatives include experimenting with knowledge management tools, such as shared-interest networks, and identifying and fostering relationships with existing international professional agricultural communicator organizations.

What sectors of society contain our most valuable ideas and knowledge related to agriculture?

No one person has all the insight needed to be successful in every task and venture he or she undertakes. Real value can be found when individuals and organizations build upon and share their diverse backgrounds and experiences. Sample research initiatives include examining if and how knowledge gains value when shared with others, determining ways to encourage sharing information among agricultural interests and related stakeholders, and analyzing cultural diversity as an element in communications effectiveness.

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What strategies can we apply to prepare today's organizations for expected shifts in agricultural knowledge management?

We live in a global marketplace, and its effects are visible everywhere. Matching local competence with global ideas calls for participation and communication across functional, organizational, and cultural frontiers (Bertels & Savage, 1999). Sample research initiatives include examining the responses of individuals and organizations at different times and in different locations in terms of their patterns of information sharing, networking, and collaborating.

How do we weave the idea of knowledge and its value into agriculture and remain able to function in the present business situation?

Toffler (1980) noted that information is more than technology because it includes social, cultural, institutional, moral, and political factors. In today's global economy, businesses and organizations are in a state of near-constant change. As new data and information emerge, individuals and organizations require a culture that values all these factors in responding to ever-changing business opportunities. Sample research initiatives include examining how knowledge era factors, such as 24/7 business hours, language challenges, and other cross-cultural factors, affect the agriculture industry at various levels, both locally and globally.

How do we balance the needs, wants, and aspirations of individuals with those of larger organizational structures related to agriculture?

Knowledge is the key to sustainable development. Rather than being merely sustained by use, it grows—especially through sharing. There will still be competition in the knowledge era, but the old understanding of “us and them” is likely to change to a more dynamic relationship (Bertels & Savage, 1999). Sample research initiatives include examining amounts, kinds, and determiners of knowledge sharing within agricultural systems and organizations and analyzing ethical standards involved in the fair exchange of agricultural information.

Priority Area 4: Develop Effective Agricultural Work Forces for Knowledge-Based Societies

What are the theoretical underpinnings of and synergistic relationships between the knowledge management concept and agricultural communications as a field of research, education, and practice?

Knowledge management embodies processes that combine data and the unique capacity of information technologies with the creative and innovative capacity of humans to communicate and create understanding. It also helps identify the related parts of each knowledge system and identifies possible

ways to connect those parts productively. Sample research initiatives include analyzing elements and features of specific agriculture-related knowledge systems; assessing the extent to which the knowledge management framework can improve communication in settings related to food, agriculture, and natural resources; and examining theoretical connections between agricultural communications and the human/social disciplines (e.g., communication, sociology, economics) to which it relates.

What are the skills and competencies necessary to improve the communication and knowledge management effectiveness of those in the agriculture workforce?

Any sector of society is dependent upon the capability of its workforce. Knowledge and information are increasingly vital parts of that capability in today's global economy. As a result, agricultural producers, processors, marketers, scientists, and others involved in the vast food, agriculture, and natural resource sectors need greater skills as communicators, information processors, and knowledge creators and managers. Sample research initiatives include assessing the communications and critical thinking skills of those working in various sectors in agriculture and developing strategies and mechanisms to strengthen such skills.

What are the skills, competencies, and resources necessary to prepare professional communicators for success in agricultural knowledge management?

Agricultural communications professionals could be among the leaders in creating knowledge management systems for the food and agriculture sector. As such, their knowledge, skills, and abilities must be at a level that ensures their continued success. Sample research initiatives include assessing the skills and perspectives that professional agricultural journalists and communicators need for working successfully in the knowledge era and strengthening courses, curricula, and other entry-level and career-long education programs for professionals in this field.

Benefits of a Framework

This agenda is organized within what may be the first comprehensive, integrative framework for the broad and diverse body of research in our field. Agricultural knowledge management seems to hold promise in several ways. It offers a broad framework to integrate diverse elements, such as information flow and function (e.g., creation, retention, transfer, use), types of knowledge (e.g., explicit or tacit), types of agents (e.g., individuals and organizations), and types of knowledge management tools (e.g., knowledge mapping, social network analysis). "Many of these elements are currently being addressed in agricultural communications research and are inviting integration" (Evans, 2006, p. 22).

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Such a framework can help us see where our current and past research fits within the larger research agenda. In fact, it can help researchers see where they are contributing the most. Researchers can also use the framework to identify unanswered questions and knowledge gaps, as well as to find promising new fronts for their efforts.

This framework leaves unlimited room for addressing specific topics. It accommodates research about topics as diverse as the communications aspects of food labeling, drought issues, global warming, international trade, risk communications, precision farming, diets of rural youth, bio-based energy, feedlot runoff, family relations, and rural community development. All topics related to agriculture can fit into the framework.

Finally, a geographically inclusive framework such as this can serve researchers throughout the world. It can encourage and guide agricultural communications research within all geographic areas and cultures, as well as among them. The geographically inclusive nature of such a framework also helps researchers address global issues, such as avian flu, agricultural biotechnology, and agricultural sustainability.

Conclusions

In the introduction to their book *Megatrends 2000*, Naisbitt and Aburdene (1991) looked forward to the 21st century with the following thoughts:

When we think of the 21st century, we think technology: space travel, biotechnology, robots. But the face of the future is more complex than the technology we use to envision it. The most exciting breakthroughs of the 21st century will occur not because of technology but because of an expanding concept of what it means to be human. (p. 16)

Our profession is growing, but the global population is urbanizing, and public understanding of agriculture is decreasing. Yet, as noted earlier, this same population will help shape the agricultural industry in the future. Agricultural sustainability, land use and natural resource management, food safety, biotechnology, and bio-based energy are just a few of the areas that will be examined during the coming years and decades—each from the perspective of what it means to the future of society.

The 18 key research questions listed in this manuscript reflect important issues and concerns for the future of agricultural communications. It is clear that, based on these research questions, the following priority areas for investigation are key to the future of the agricultural communications profession and agriculture as a whole:

1. Enhance decision-making within agriculture.
2. Help citizens participate effectively in public decision-making related to agriculture.
3. Help societies build strong knowledge and intellectual capabilities.
4. Develop effective agricultural work forces for knowledge-based societies.

It is incumbent upon each of us in agricultural communications to focus our efforts, including our research, in order to maximize our potential impact and reach a wider variety of stakeholders. These research questions and priority initiatives are proposed to help develop a comprehensive, focused, dynamic research agenda to support our efforts for the future. In Naisbitt's latest book *Mind Set!: Reset Your Thinking and See the Future* (2006), he describes the future as a picture puzzle.

The future is a collection of possibilities, directions, events, twists and turns, advances, and surprises. As time passes, everything finds its place and together all pieces form a new picture of the world. In a projection of the future, we have to anticipate where the pieces will go, and the better we understand the connections, the more accurate the picture will be. (p. 43)

We do not know what the final picture of our future will look like. However, we must move into this new information era and begin to manage knowledge like never before. This can become a golden age in our shared field of interest if we both embrace and lead this change. The agricultural well-being of society may depend on our ability to communicate effectively in a dynamic knowledge era.

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