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# **Agricultural Economics Staff Paper**

**The Role of Professional Societies  
and Process Considerations  
In Generating Research Priorities:  
A Case Study  
From Agricultural Economics**

**by  
Sam Cordes  
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The Role of Professional Societies and Process Considerations in  
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by  
Sam M. Cordes\*\*

\*Revised draft of paper presented at session titled "Research Funding Prioritization and Accountability in Agriculture", Annual Meeting of the American Association for the Advancement of Science, Seattle, February 1997. The comments of Peter Barry were particularly useful in revising the original paper.

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## INTRODUCTION

Professional and learned societies have a number of important functions. While the specific functions and activities of these societies vary considerably it is not uncommon for such functions to include one or more of the following: sponsoring/publishing books and scholarly journals; organizing and hosting annual meetings, workshops, and other scientific forums; recognizing and honoring outstanding scientists and scholarly work; establishing quality control standards through accreditation and other mechanisms; and providing rather specific services and products to members, e.g., travel discounts, insurance benefits packages, employment services, etc. Most of these services and functions reflect the needs and preferences of individual members who clearly see the benefits from certain services, e.g., the individual scientist must have some type of forum provided (e.g., journals and conferences) that will allow scientific results to be exchanged efficiently. There are, however, broader collective needs, the benefits of which may not be as apparent to the individual scientist. Often, this latter category includes services and activities that have more of an external orientation. One specific element that is part of this expanded portfolio, and is the topic of this paper, is the role of professional and learned societies in generating research priorities.

The paper divides into three sections. The first section provides several general observations about generating priorities. The second section identifies several questions that must be answered by a professional society as it generates priorities. The third section describes and assesses a recent process for generating priorities undertaken by the Council on Food, Agricultural and Recourse Economics (C-FARE), the outreach arm of the agricultural economics profession.

In addition to my own involvement with the C-FARE experience, I will also borrow from insights provided by the leaders of other agricultural scientific societies. Specifically, in early January, I wrote to 16 representatives of selected agricultural professional societies\* and asked them to respond to the following six questions:

1. Does your professional society routinely engage in a priority setting process?

If not, why not?

If yes, please continue with questions 2-6.

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\*The thoughtful comments of the following individuals who took time to share their perspectives on these six questions are acknowledged and appreciated: Robert F. Barnes (American Society of Agronomy, Crop Science Society of America, Soil Science Society of America), Chris R. Calkins (American Meat Science Association), Douglas Dahlman (Entomological Society of America), Russell Hahn (American Society of and Agricultural Engineers), Richard Stuckey (Council of Agricultural Science and Technology), Robert G. Zimbelman (American Society of Animal Sciences).

2. What is the motivation for priority setting--to secure additional funding at the state and national levels? To encourage scientists to shift their work into higher priority areas? Other reasons and motivations?
3. Please explain the process used-- frequency, leadership, people involved, and mechanisms (e.g., formal voting or informal consensus building) used to establish priorities. Does consensus usually occur ( if not, how are differences reconciled)?
4. What are the strengths and limitations of your process?
5. How have the results of your process been used and what is the degree of success?
6. Other thoughts, suggestions, or ideas about priority setting?

## **GENERATING RESEARCH PRIORITIES: GENERAL OBSERVATIONS**

Generating priorities is both an art and a science. While everyone would agree with “the artistic dimension”; all too often we overlook the important role solid research and science can play in generating critical empirical evidence ( both ex ante and ex post) for helping to establish research priorities. Economists are particularly well-skilled to provide leadership in this part of our scientific enterprise. This proposition is nicely articulated by Antle and Wagenet who argue that:

“Economics provides the scientific community with a systematic framework for priority setting and research assessment that tries to account for the benefits and costs to all segments of society affected by publicly funded research. This framework requires that economic data, and data from the other scientific disciplines, be collected for integration using common units of measurement.

Most scientists and administrators incorrectly believe it is too costly and time consuming to implement this kind of framework. The solution to “paralysis by analysis” is not to abandon informed decision making. Rather, the solution is to encourage scientists to collaborate with economists and other social scientists to develop the capacity to provide timely assessments of their research. Impact assessments can be constructed in a timely manner, and at a reasonable cost, if research institutions make the commitment to invest in the requisite data, method, and expertise.” (Agricultural Research Assessment: A Symposium Summary, p.17).

The basic approach Antle and Wagenet describe is explicated in more detail elsewhere (see, for example, Alston and Pardey; Alston, Norton and Pardey; and Huffman and Evenson).



Fortunately, the application of this framework and associated empirical findings are becoming commonplace. For example, scientists ( primarily agricultural economists) from 17 different states are actively involved in a regional research project titled “Impact Analysis and Decision Strategies for Agricultural Research ( NC-208).”

More “research on research” of the type noted above is needed to generate better empirical information for future priority-setting processes. However, in the absence of this perfect world, the generating of research priorities would still have a subjective dimension and some semblance of an “art form”. In sum, professional and learned societies have a role to play in both the art and science of generating professional priorities.

## **CRITICAL QUESTIONS TO BE CONSIDERED BY PROFESSIONAL SOCIETIES**

Professional or learned societies that wish to generate professional priorities for their discipline need to carefully consider several important questions:

1. Why are we doing this? Probably the most common answer to this question is to secure additional resources. However, it is important to look beyond this self-serving motive. Professional societies also have a responsibility to support and provide intellectual leadership in anticipating and determining how best to address current and emerging societal problems. While individual scientists, university administrators, and others have this role, there is also a leadership role for the collective wisdom of a learned society. It is not unseemly to generate and share our collective wisdom with a congressional committee, for example, on what are high priority societal problems and how the agricultural economics profession can contribute to solving these problems. Are these Congressional committees not entitled to such information so they can make well-informed decisions? Another reason for engaging in focused, systematic, and ongoing priority-setting processes is the serendipitous happenings that inevitably occur but are difficult to document or measure. For example, a process to generate priorities that brings together scientists, and/or users of science, typically generates a certain energy of collective synergy and new insights for the individual scientists, and for the others who participate.

2. Who Should Be Involved? Just because professional and learned societies have a leadership role it does not necessarily follow that the final outcome of a priority setting process should be driven by the views of that society and its members--especially in the case of applied disciplines. There are two reasons to involve in a priority-setting process both “ the users”, along with “the producers” of science and information. First those who use our science and information likely have relevant insights, knowledge or wisdom about societal priorities and how science may contribute to those needs. Second, the “buy-in”, effectiveness, and impact of the priorities generated will be reduced considerably if they are controlled exclusively by the scientific community. This point was made by Robert Zimbleman in his response to my query when he stated:

“The American Society of Animal Science used to have a Research Committee. The duties varied from year to year and some attempt was made to determine priorities or issues...Their report was pretty much accepted without much discussion and (received) very little attention (and had little) impact. In 1980 the larger animal science community got together...for a consensus conference...It was probably a more successful activity but was (still) limited...later...commodity groups...indicated that the next time the scientists wanted to do priority setting, they would like to be involved... we proposed a project called Food Animal Integrated Research for 1995 (FAIR '95). FAIR '95 represented the first time that not only the scientists, but the veterinarians, producers, processors, and advocacy group (animal welfare, food safety, and environmental) got together on such a joint effort. OUR PRIOR EFFORTS WERE NOT VERY SUCCESSFUL AS THEY ONLY REPRESENTED THE VISION OF SELECTED SCIENTISTS ON WHAT THE FUTURE WOULD HOLD. THE LATTER EFFORT WAS SUCCESSFUL AS IT REVOLVED AROUND WHAT CAN ANIMAL AGRICULTURE DO TO MEET SOCIETAL INTERESTS (emphasis added). All of the scientific societies and all of the producer groups have endorsed FAIR '95 beyond our expectations and consistently with time.”

3. Where to Get Resources for Priority Setting Processes? Priority setting processes can be expensive or relatively inexpensive, depending on the process(es) used. Some professional and learned societies are in better financial positions than others to engage in such a process. Those lacking adequate financial reserves and/or “member volunteers” will need to identify sources of support. Such sources might include the USDA, the Kellogg Foundation, and private/corporate sponsors.

4. What is the Scope or the Focus of the Priority Setting Activity? This global question contains several more specific questions. Is the process focusing on national, regional, state, institutional, or individual scientist priorities? Most professional and learned societies have a dispersed membership and a national identity (e.g., the word “America” or “American” was in the title of all but three of the surveyed societies). Thus, the primary role or obligation of professional and learned societies is to think broadly and to focus on communicating their views to those agencies and organizations that have a national focus, e.g., the federal research establishment and national foundations. This national focus does not, however, mean that priority setting will not have utility and value at other levels.

Additional “sub-questions” that need to be answered are:

a. Time Frame?

Because priorities change over time it is important to clearly understand whether the time frame for thinking about priorities is near-term or the longer-term. The time frame question is especially important when involving non-scientists in the process. Unless instructed otherwise non scientists may focus on current “hot topics.” The result could be too little attention and investment in more fundamental long-term scientific needs.

b. Which Functional Area (s)?

Academics--especially in colleges of agriculture-- tend to think in terms of research, teaching, and outreach/ extension. At many levels, this sharp trichotomy is problematic. While USDA now has all three functions under joint administration, budget authority for each remains distinct. And, at many colleges and universities the walls among functions remain high. As a practical matter it is probably wise to keep these functions separate when generating priorities. Conceptually, however, a different taxonomy would likely be more helpful in generating priorities, e.g., basic research, applied research, adaptive research, and technology/ information transfer.

c. Which Sector: Public or Private? \*\*

Most priority-setting processes--led by professional societies will focus on priorities funded by the public sector. However, those who are engaged in the process must recognize the different roles and implications of publicly and privately funded activities, and make a decision on the public/private issue.

d. Whether to Focus on Additional or Total Benefits?

This critical issue must be made explicit and articulated clearly. At any point in time, current projects or activities presumably are addressing an important need. However, when some currently funded area is determined to be a high priority, it should not necessarily receive additional funding. Any additional funding may provide a greater return on investment in a lower priority area, if that lower priority area currently suffers from under investment. The priority-setting process must clarify whether the focus is on total investment or additional investment.

e. What Method (s) to Use to Rank Priorities.

As noted earlier, the actual and potential benefits and rates of return on various scientific projects can be empirically estimated. However, even if these data were available for the full range of scientific needs and opportunities some subjective evaluation comes into play-- especially when multiple societal objectives are introduced simultaneously (e.g., efficiency, equity, and security). At this point, priority-setting becomes an "art form". Norton identifies the following four methods for ranking priorities (and in increasing order of complexity):

1. Simple ranking of alternatives
2. Simple scoring techniques
3. Benefit/cost calculations with single point probability estimates

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\*\*The rest of this section of the paper draws heavily upon a paper by George Norton (see citation in reference section).



#### 4. Benefit/cost calculations with subjective probability distributions.

After describing these four approaches, Norton concludes as follows:

“Where does this leave us in terms of recommending a particular method? First, if time and resources are short for conducting careful benefit/cost analyses, with or without measures of dispersion of estimates, a simple ranking process is likely to be the most useful approach, particularly if people can agree up front on basic objectives for the research and education programs. Such an approach is also more likely to yield useful results if the factors that would lead to contributions by a particular alternative to the level, distribution, and variance of economic benefits are explicitly discussed during the ranking process. These factors for research and extension programs include items such as the number of units affected, probability and timing of adoption of results, who benefits, etc. For classroom education, these factors include projected class enrollments, demands for graduates in different areas, comparative advantage of different departments in focusing on particular areas, etc.

Simple scoring or scaling techniques are not recommended due [to] their numerous and often hidden deficiencies. It may be useful in the future to conduct explicit benefit/cost analyses for particular alternatives, especially for expensive ones, but clearly such procedures will not be of much use in our current exercise and are difficult to use to prioritize education issues. Regardless of the method applied, a logical process should be followed.”

### **THE C-FARE EXPERIENCE**

The Council on Food, Agricultural and Resource Economics (C-FARE) was created in 1993 to strengthen the national presence of the agricultural economics profession and to enhance its effectiveness. C-FARE has been actively working to:

- \* Prioritize and publicize key economic issues within the research, extension, and resident instruction agendas.
- \* Help agricultural economists contribute more effectively to public and private sector decisions.
- \* Establish linkages with organizations and institutions for the benefit of the entire profession .
- \* Work with other disciplines on issues of mutual concern.

As part of its mission, C-FARE has initiated a prioritization process that will be refined, adjusted, and continued in the future.

This process has involved three related steps:

- STEP 1. Focus groups of users of agricultural economics science.
- STEP 2. A survey of agricultural economists (based on the results of Step 1).
- STEP 3. A workshop of agricultural economists and users of agricultural economics science (that builds upon the results of Steps 1 and 2).

### **STEP 1: USER FOCUS GROUPS\*\*\***

Prior to the formation of C-FARE, an effort was already underway to convene ten focus groups of users, or potential users, of agricultural economics research. Funding support was contributed jointly by ERS, the American Agricultural Economics Association (AAEA), and the Cooperative State Research, Extension, and Education Services (CSREES, USDA).

Each of the ten focus groups of “users” was relatively homogeneous and was organized around a common theme or subject matter: farm and commodity interests; marketing, processing and trade; agricultural finance and inputs; food and consumer interests; natural resources; rural development; international development; public decision makers and advisors; agricultural natural scientists; and agricultural economists. These focus groups were held at several different geographical locations across the country, with each group typically involving 15-20 participants. Although each group was relatively homogeneous in terms of subject-matter, the participants represented a diverse set of establishments and institutions.

Prior to the focus group, meeting participants were mailed three products to familiarize themselves with products of agricultural economics research: two magazines which offered nontechnical summaries of agricultural economics research (Choices and Agricultural Outlook), and a listing of ERS publications for the previous quarter. Each focus group session lasted approximately 3 hours and was co-led by two individuals, generally someone from ERS and someone from AAEA. The session began with introductions and brief descriptions of the project, agricultural economics, and the nominal group technique.

Each focus group considered three questions:

1. What trends, events, and conditions will most affect your organization’s future?

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\*\*\*This section and the following section of the paper draw heavily from two papers written by Mary Ahearn (see citations in reference section).

2. If you could fund agricultural economics research, what issues would be addressed by your research program?
3. What factors contributed most to your selection of highest priority research topics for agricultural economists?

The first question sought an understanding of the nominal group technique and encouraged participants to be forward-looking in preparation for the second, and most central, question. More than half of the time was spent on the second question (“If you could fund agricultural economics research, what issues would be addressed by your research program?”). Ideas were generated until all individuals exhausted all of their ideas, and the group was asked to prioritize the ideas. For the third and final question (“What factors contributed most to your selection of highest priority research topics for agricultural economists?”), participants were given a list of 19 possible factors and asked to select the most important ones or to write in other important factors.

More than 700 issues/topics were generated by the second question. From this universe, 89 “high priority” issues were generated. The following 16 issues emerged as the most important for all groups combined:

1. Analyze how households make decisions about health and convenience of food.
2. Measure the economic impacts of moving towards a science-based (Hazard Analysis and Critical Control Point, HACCP) inspection system for producers and processors.
3. Analyze the relationship between international trade and food safety.
4. Forecast the likely global shifts in the location of agricultural production as a result of freer trade.
5. Analyze the trade distorting practices of foreign competitors and their effects on U.S. agriculture.
6. Measure the effects of industrialization on income distribution in the food and fiber sector.
7. Analyze the benefits and costs of government regulation of agriculture on the food and fiber sector and consumers.
8. Measure the impacts of alternative policies on agricultural sustainability.

## **STEP 2: A SURVEY OF AGRICULTURAL ECONOMISTS**

The C-FARE organization was being established as Step 1 was in progress. Given that generating professional priorities was part of the C-FARE mission, the focus group work was of considerable interest to this new organization. It decided to build upon the work in progress. Specifically, a C-FARE Task Force on Professional Priorities was established.\*\*\*\*

This Task Force used the results from Step 1 as a basis for a survey of AAEA members and brought both the focus group and survey information together in a workshop setting. The Task Force also expanded the scope of inquiry beyond the research domain (which was the focus of Step 1) to also include teaching and extension. The survey instrument was based on the focus group results and additional input solicited from key stakeholders, e.g., selected committees of the AAEA. A sample of 1,381 was drawn from the larger AAEA membership with the cover letter and questionnaire mailed in May 1996. The final response rate was 68%. The survey instrument contained seven sections.

1. Background information on the respondent.
2. A list of 22 research issues drawn partly from the focus group work. The respondents were instructed "...[to] review the list of issues and indicate your view of their importance over the next five years with respect to agricultural economics receiving public funds for support. Please consider both your own program and the profession as a whole in your response."
3. The same list as above, but with instructions to indicate the importance of each with respect to extension and outreach activities.
4. A list of teaching priorities for the B.S., M.S., and Ph.D., levels. The same 12 specific items were listed for each of these three levels.
5. Underlying factors or criteria the respondent used in answering sections 2-4. This list of 19 factors was also used during the focus group step.

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\*\*\*\* The Task Force was co-chaired by Katherine "Kitty" Smith, ERS, USDA and Sam Cordes, University of Nebraska. Other Task Force members were Mary Ahearn, ERS, USDA; Henry Bahn, CSREES, USDA; Tracy Irwin Hewitt, C-FARE; Peter J. Barry, University of Illinois; George Norton, Virginia Tech; and Amy Purvis, Texas A&M University.

6. Views on the eight goals in the 1996 Farm Bill for research, extension and education. Specifically, the respondent was asked to indicate both (a) the societal importance of each goal, and (b) the importance of agricultural economics in attaining the goal.
7. The final section of the questionnaire included process and organizational issues associated with the work and work environment of agricultural economists, e.g., should agricultural economists work more in interdisciplinary teams?

Selected findings from the survey follow.

\* High priority research issues were (from Section 2 of the questionnaire):

1. Identifying the benefits and costs of environmental and production trade-offs.
2. Global shifts in the location of agricultural production as a result of freer trade.
3. The benefits and costs of regulation of agriculture on the food and fiber sector and consumers.
4. U.S. and foreign trade-distorting practices and their effects on U.S. agriculture.
5. Valuation of environmental benefits.

\* High priority extension issues were (from Section 3 of the questionnaire):

1. Identifying the benefits and costs of environmental and production trade-offs.
2. Marketing and risk analysis of agricultural firms.
3. Adequate rural health care.
4. Economic value of agriculture in rural communities--both market and nonmarket.
5. The impact and effectiveness of public spending on rural areas.
6. The benefits and costs of regulation on the food and fiber sector and consumers.
7. The impacts of alternative policies on agricultural sustainability.

\* Regardless of the degree level, respondents agreed that agricultural economics teaching programs should place a greater emphasis on the following four issues (from Section 4 of the questionnaire):

1. Written and verbal communication skills.
  2. The ability to integrate and synthesize important concepts and information.
  3. The ability to address real-world problems.
  4. Applied topics.
- \* The characteristics of issues most often identified as important in establishing views on priorities were (from Section 5 of the questionnaire):
1. Benefit society in general.
  2. Benefit consumers.
- \* Of the eight goals in the 1996 Farm Bill, the one agricultural economists believed was of greatest societal importance; and to which agricultural economists could make the greatest contribution was (from Section 6 of the questionnaire):
- “Increase the long-term productivity of the U.S. agriculture and food industry while maintaining and enhancing the natural resource base on which rural America and the United States agricultural economy depend.”
- \* Support for process and organizational change were greatest for the following statements (from Section 7 of the questionnaire).
1. “Agricultural economists need to work more in interdisciplinary teams.”
  2. “More recognition to teaching accomplishments in tenure and promotion decisions.”
  3. “Teaching programs must better prepare students for the private sector job market.”
  4. “More recognition to extension accomplishments in tenure and promotion” decisions.”
  5. “Agricultural economists need to better account for nonmarket effects in their activities.”
  6. “Greater cooperation and integration among ERS, specialized regional research centers (e.g., FAPRI, CARD, RUPRI), and agricultural economics departments.”



### **STEP 3: AN INTERACTIVE WORKSHOP**

The culmination of the C-FARE approach was a carefully organized and structured workshop to bring together “users” of agricultural economics science with the “producers”. This workshop was by invitation and was sponsored by C-FARE (through a grant from the Kellogg Foundation), CSREES, ERS, the Farm Foundation, Con Agra, and The Crop Insurance Research Bureau. The agricultural economists in attendance included those who were nominated by their department heads (or equivalent). Additionally, approximately 100 non academic organizations were invited to send a representative. Special efforts were made to ensure representation from the smaller agricultural economics departments and from 1890 institutions. Each attendee was provided a copy of the results from both surveys in advance of the workshop. Approximately 80 persons attended the two day workshop, with about two-thirds of the attendees agricultural economists and the remaining one-third users of agricultural science. The first one-half day of the program was designed to set the stage for the rest of the workshop, and included three presentations:

- \* An overview of principles for setting priorities.
- \* An overview of the FAIR '95 process used by animal scientists.
- \* A summary of the results from the two surveys.

In the second one-half day, the participants were divided into groups of 8-10, and using a modified nominal group process (and facilitators who had received training the evening before ) the participants were asked to address the following question:

“WHAT ARE THE MOST IMPORTANT ECONOMIC, SOCIAL,  
OR POLICY ISSUES TOWARD WHICH AGRICULTURAL ECONOMICS  
RESOURCES SHOULD BE DIRECTED OVER THE NEXT 3-5 YEARS.”

At the end of the first day the lists from the different groups were organized and collated by a subset of the C-FARE Professional Priorities Task Force. Ten broad research/extension categories, plus a teaching category were identified. Over 150 specific topics were included within these major categories. This categorization and listing were assembled in both hand-out form and on flip charts placed around the main conference room. The next morning the participants were given 14 colored “stickers” and were asked to distribute them among the 150+ specific items, with a requirement that they allocate at least one vote to an item in the teaching category, and allocate one vote to an item in at least seven of the remaining ten research/extension categories.

### **PRIORITY AREAS IN AGRICULTURE ECONOMICS**

Results of the voting from the C-FARE workshop were tabulated and subsequently refined into the following ten broad areas and an associated sub-list of more specific initiatives.

1. Farm and Agribusiness Structure, Industrialization, and Globalization

The U.S. agricultural system is experiencing increasing consolidation of production units and greater coordination among the input production, processing, and distribution stages of the system. These changes have profound implications for economic performance both within and beyond the agricultural system, and raise important questions about the goals and targets of agricultural and related policies. More specific priority initiatives are:

- a. Analyze the forces driving structural change and industrialization, and their impacts on the economic performance of vertically coordinated farming and agribusinesses.
- b. Determine the impacts of alternative levels of vertical coordination in agriculture on market access, bargaining power, location of production, financial arrangements, rural communities, and the environment.
- c. Analyze the relationship between value-added for agricultural commodities and new product development, producer profitability, risk, and market access.

## 2. Farm Income and Risk Management

Concerns about farm income and risk management have been heightened by changes in the 1996 Farm Bill that decouple farm marketing and production decisions, allow greater volatility of commodity prices, and shift risk bearing from the public sector to the private sector. Synthesizing information, improving expectations, and effectively managing new and traditional sources of risk are essential to the long-term viability and performance of farm businesses. More specific priority initiatives are:

- a. Assess ways to measure and manage risk in a new, globalized, vertically coordinated food system for an expanded clientele base.
- b. Analyze specific risk management strategies, instruments, and portfolios--especially new instruments and arrangements.
- c. Assist farmers and lenders with the adoption of improved financial accounting and reporting systems.

## 3. Agri-Environmental Trade-offs and Property Rights

Mechanization, new cultivation practices, chemical use in crop production, and more concentrated, technology-based, livestock production have led to substantial gains in resource productivity in agriculture and stronger competitive position for U.S. agriculture in world markets. However, other costly effects not reflected in market prices have included the degradation of soil, air, and water in some rural areas. Concerns about the management and control of natural resources and sustainable agricultural systems have

come to the forefront, especially in the increasing numbers of areas where the urban-rural interface is most intense. More specific priority initiatives are:

- a. Assess the benefits and costs of government regulation affecting agricultural production and the environment.
- b. Design and evaluate alternative policies and institutions for environmental/agricultural interaction.
- c. Determine the value of non-market/environmental goods.

#### 4. International Trade and Competitiveness

In a globalized economy, competitiveness in the international trade of agricultural inputs, commodities, and food and fiber products is a major contributor to economic growth and well-being. Especially important are the emergence of new trade policies under the free trade directions of GATT, and the influence of environmental issues and regulations on trade and competitiveness. The public's understanding of these trade issues and impacts must be enhanced. More specific priority initiatives are:

- a. Assess the benefits, costs and other implications of trade policies, government regulations, and institutional barriers on international trade.
- b. Evaluate the relationships among trade, natural resources, and the environment.
- c. Enhance the public's and policy makers' understanding of the economic impacts and consequences of trade.

#### 5. Economic and Rural Community Development — Domestic and International

Improving the prospects for economic development in rural areas continues as an important policy issue. Some rural economies thrive as a result of local industries, recreation and tourism, regional shopping centers and a healthy agriculture. Many others languish with limited opportunities for rural employment and income generation. Especially important in this latter case is the need to assist local government and to work on problems and issues related to the development and mobilization of human capital. More specific priority initiatives are:

- a. Create improved information to assist local governments in cost-effectively meeting demands for public services, financing public programs, providing infrastructure needs, and designing incentives for private sector initiatives and involvement.
- b. Improve the understanding of the roles of human capital, social capital, and life-

long learning in rural economic development.

- c. Determine the impacts of government programs on rural poverty.

## 6. Health, Nutrition, Food Safety, and Other Consumer Issues

Major changes in consumer demand have reflected accelerated lifestyles, nutrition and health awareness, needs for greater convenience, and a more diverse population. These changes underscore the needs for an improved information base to ensure a safe, nutritious, dependable, and affordable food supply for U.S. consumers. More specific priority initiatives are:

- a. Assess the benefits and costs of public policies and governmental regulations affecting health, nutrition and food safety.
- b. Assess consumer preferences and demands, and their implications for production and marketing practices in the food system.
- c. Increase multi-disciplinary analysis of food science issues.

## 7. Biotechnology

Biotechnology, including genetic engineering, has greatly advanced the role of science in agricultural production and throughout the food system. Potential productivity improvements are substantial. Many questions are raised, however, about the economic implications of these developments, the roles of the private versus public sectors, and the public's understanding of these factors. More specific priority initiatives are:

- a. Analyze the economic effects of biotechnology.
- b. Evaluate the public versus private sector roles in the development of biotechnology.
- c. Enhance the public's understanding about the benefits and risks of biotechnology.

## 8. Information Technology and Communication Systems

Fundamental transformations of information technologies, on a global scale, have enhanced the competitiveness of information markets and altered the traditional balance between public and private providers of information. The needs for timely, accurate, reliable, and targeted information systems for agricultural research and education have intensified, and raised critical questions about the appropriate delivery systems. More specific priority initiatives are:

- a. Determine the benefits and costs of public versus private information, and the implications for delivery systems for agricultural research and education.
- b. Redesign the delivery systems of Cooperative Extension for more effective performance.
- c. Evaluate the value and use of precision technology and information in agricultural production.

#### 9. Modernization of Public Agricultural Institutions

The traditional organization of the U.S. agricultural research and education system has maintained separate experiment stations and extension services in the respective states with subject matter specialties organized largely along disciplinary lines. Tighter budgets, more specialized knowledge, and greater emphases on accountability in public programs are challenging this tradition, calling for greater emphasis on regional centers of excellence, multi-disciplinary work, and closer linkages between research and extension. These pressures also demand greater interaction with the private sector in setting public agendas. More specific priority initiatives are:

- a. Assess opportunities for regionalization of research and extension programs.
- b. Change the reward system for agricultural research to value more highly multi-disciplinary and applied work.
- c. Achieve greater coordination among research and extension, including involvement by stakeholder in prioritization, planning, and program evaluation.

#### 10. Human Capital Development

Higher education through the Land Grant Colleges of Agriculture is one basis for major long-term investments in human capital. Education creates employable skills and informed citizens. It also creates an awareness of opportunities provided by an information-driven, technologically-intensive and competitive global economy, and it stimulates creative thinking about the applications of new technology, institutional innovations, and practical knowledge to real life problems and issues. More specific priority initiatives are:

- a. Place greater emphasis in undergraduate curricula on understanding the global economy.
- b. Renew the emphasis on competitiveness as a key economic concept in agriculture/agribusiness curricula.

- c. Utilize more "real life" and experiential learning in the classroom.

The menu noted above will represent the common voice for C-FARE, and others, in communicating to internal and external stakeholders some sense of the high priority areas to which agricultural economists can make major contributions during the next 3-5 years. This set of priorities does not imply that all existing or additional resources should be directed or redirected in some lock-step fashion. It does mean that the information generated by C-FARE should be useful and helpful in informing decision making--whether decision-making involves federal funding, possible revisions in the Request for Proposal template used by the National Research Initiative or the Fund for Rural America, or the individual scientist as he/she contemplates future professional projects and responsibilities.

## **CONCLUDING COMMENTS**

Professional and learned societies have a responsibility to identify and share their sense of future scientific priorities. Without a formal, consensus-building process, the members and leadership of such societies have two choices when asked by external stakeholders about priorities: to indicate that none exist, or quickly convey individual biases. Neither approach serves the best interest of either the professional society or the external stakeholders.

Generating priorities involves numerous considerations. Among the key questions are the following:

1. Why Are We Doing This?
2. Who Should Be Involved?
3. Where to Get Resources for Priority-Setting Processes?
4. What Is the Scope or Focus of the Priority Setting Activity?
  - \*National, Regional, State, Institutional, Individual Scientist?
  - \*Time Frame?
  - \*Which Functional Area(s)?
  - \*Which Sector: Public or Private?
  - \*Whether to Focus on Additional or Total Investments?
  - \*What Method(s) to Use to Rank Priorities?

Beginning in 1993, the agricultural economics profession, under the auspices of C-FARE, initiated a professional priorities process. To date, the effort looks promising. The participants at the culminating workshop were overwhelmingly positive. It would appear that some of the strengths of the process used by C-FARE include:



- \* An open process, and one that is driven both by the “users” and the “producers” of agricultural economics science.
- \* A process that was systematic and grounded in data--albeit subjective and/or qualitative (e.g., the survey data and focus group data).
- \* The use of a culminating conference which brought together face-to-face both “users” and “producers” and which emphasized dialogue, participatory processes, and decision-making by the participants.

Additional fine tuning will be needed as C-FARE engages in this activity on an ongoing basis. Among the areas in need of attention are the time frame over which the generation of priorities occurs and whether the priorities are within the context of total investment, or marginal resource adjustments.

Other models for professional and learned societies exist for generating professional priorities. For example, the FAIR '95 effort of the animal agricultural societies is widely acclaimed. It is important for representatives of professional and learned societies to not only engage in such processes, but to share with one another their successes, failures, and frustrations. Future collaboration among the scientific disciplines in generating priorities is also important. The end result will be better information and insights for both the scientific community, and those who fund and use the science generated.

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