

Economic Opportunities in Food Systems, Agriculture, and Natural Resources: Priority Areas and Initiatives

Consumer concerns
Future technology and infrastructure
Agriculture's global competitiveness
Rural area opportunities
Environment and natural resource issues

Applied economists, represented through the Council on Food, Agricultural and Resource Economics (C-FARE), are engaged in a structured process to identify priorities and related initiatives for the future. C-FARE was created in 1993 to encourage the application of economic analysis to the high priority issues facing society.

Several members of the C-FARE Board of Directors contributed to this process. Special appreciation is extended to the National Association of Agricultural Economics Administrators whose members provided the initial ideas that shaped this product. The AAEA Foundation and Farm Foundation provided financial support for this project.

Economic Opportunities in Food Systems, Agriculture, and Natural Resources: Priority Areas and Initiatives

Society faces significant challenges with respect to the production and processing of food, the use of emerging technologies, the globalization of agriculture, the survival of rural communities, and the protection of natural resources. Applied economists, through their research, education, and extension efforts, have the knowledge, expertise, and ability to help society respond to these challenges.

In 1997, priorities were outlined in *Economics Research and Education Priorities for an Efficient and Sustainable Food System* (C-FARE, 1997). These priorities were designed to reflect important socio-economic problems and opportunities, while setting targets toward which limited resources for research and education could be applied. Like the 1997 priorities, these new focus areas will be utilized in many venues to guide the planning and development of research and education programs. They will be used to recommend staffing decisions in government agencies, influence grant opportunities, and open doors for collaboration with other scientists.

The overall objective of this priority-setting process is to promote the application of economics to important problems. Applied economists, through their research, education, and extension programs, have and will continue to influence public and private decision making that impacts the food and agriculture sectors, technology transfer, business development, rural economies, natural resources, environmental quality, and the well being of consumers.

Agricultural and applied economics department heads and chairs, agency administrators, faculty, and members of the American Agricultural Economics Association have contributed to this statement of priorities for the future. The department heads and chairs were asked to contact key leaders within their respective states to request their review and suggestions. The C-FARE Broad of Directors also sought formal input from stakeholders at the national level. Feedback was collected at the C-FARE web site at www.cfare.org and faxed to Tamara Wagester, C-FARE Executive Director. If you have questions please call 202-408-8522.

Society is facing some significant challenges over the next ten years. Increased investments in applied economics research and education are needed to respond to these challenges. Following are five high priority areas, along with examples of the key issues, where economic knowledge and expertise in research and education are needed. These priority areas have both domestic and international dimensions, and they are important for communicating the role of applied economics in dealing with the important problems facing society. These priorities are interrelated and their ordering does not reflect any ranking of importance among them.

Priority Area 1: Responding to Consumer Concerns about Food, Health and Safety.

- What are consumers' nutrition, health, and food safety concerns and their implications for the food system?
- What information do consumers need in order to make good decisions?
- What are the costs and benefits of health, nutrition, and food safety policies and programs?

Priority Area 2: Assessing Future Technologies and Infrastructure Investments.

- How will emerging information technologies impact food and fiber supply chains?
- What are the potential economic and social effects of biotechnology?
- What investment in infrastructure, human, physical, and natural capital is needed to revitalize and enhance the agriculture and the food system?

Priority Area 3: Improving Agriculture's Global Competitiveness and Profitability.

- What new tools are needed to improve income and manage risk?
- What are the economic impacts of alternative food, agricultural, and trade policies?
- How can food and fiber industries be more competitive in global markets?

Priority Area 4: Enhancing Economic Opportunities in Rural Areas.

- What policies and strategies are needed to improve rural economies?
- How can rural access to the Internet and telecommunications technology be improved?
- What types of programs best respond to the needs of the rural poor?

Priority Area 5: Resolving Environmental and Natural Resource Issues.

- How can we more effectively manage natural resources and control environmental risks?
- How can land use be managed to minimize conflicts and resolve rural-urban issues?
- How should water resources be managed in response to increasing scarcity and conflict?

Priority 1: Responding to Consumer Concerns about Food, Health and Safety.

What are consumers' nutrition, health, and food safety concerns and their implications for the food system? Concerns about food are changing with important implications for food production methods and consumer demand. In addition to accidental introductions of disease or contaminants, terrorism has increased concerns about the intentional introduction of harmful substances.

Priority initiatives

- Analyze consumer concerns and their implications for food demand and production.
- Learn how changes in consumer preferences will drive future changes in the food system.
- Increase multidisciplinary analysis of nutrition and food science issues.

What information do consumers need in order to make good decisions? A lack of adequate, easy-to-understand information can contribute to poor food choices.

Priority initiatives

- Assess the value of information provided through product labels and health claims.
- Evaluate the ability of various information dissemination methods to change consumer behavior and promote healthy diets.

What are the costs and benefits of health, nutrition, and food safety policies and programs? The contexts within which health, nutrition, and food safety programs operate are changing. As a result, the costs and benefits of the programs are changing.

Priority initiatives

- Assess the costs and benefits of programs that promote health and nutrition.
- Evaluate the risks of food safety problems and the costs and benefits of alternative measures to safeguard the food supply.

Priority 2: Assessing Future Technologies and Infrastructure Investments.

How will emerging information technologies impact food and fiber supply chains and the environment? New information technologies allow the collection and transformation of vast amounts of data into information for managing food and fiber supply chains.

Priority initiatives

- Assess the value and use of precision technology and information in production.
- Assess the potential of new information technologies to aid in managerial decisions.
- Analyze the potential impacts of information technologies on the restructuring of industries and markets.
- Ascertain the costs and benefits of public versus private information.

What are the potential economic and social effects of biotechnology? New life science technologies have the potential to revolutionize agriculture and the food industry, with great economic and social implications.

Priority initiatives

- Analyze how biotechnology affects the economic structure and performance of agriculture.
- Evaluate public versus private sector roles in the development of biotechnology.
- Enhance public understanding of the benefits and risks of biotechnology.
- Evaluate new technology and facilitate technology transfer.

What investment in infrastructure, human, physical, and natural capital is needed to revitalize and enhance the agriculture and the food system? The agricultural and food system infrastructure – both physical and institutional – is undergoing vast growth and change. With limited public resources, investments in infrastructure must be allocated to provide the greatest benefits.

- Assess impacts of investment and policies to enhance the resources, work force and infrastructure of food system.
- Examine the benefits from investments in research, education, and extension.
- Determine the future data needs of agriculture and the food system.
- Evaluate returns to long term capital investment in infrastructure.

Priority 3: Improving the Agriculture's Global Competitiveness and Profitability

What new tools are needed to improve income and manage risk? The abilities to improve income and manage risk are essential to the success of the food and fiber system.

Priority initiatives

- Explore and appraise alternative sources of income.
- Assess ways to measure and manage risk across the global, vertically coordinated food system.
- Analyze specific risk management strategies, instruments, portfolios, and arrangements.
- Help farmers and lenders adopt better financial accounting and decision analysis systems.

What are the economic impacts of alternative food, agricultural, and trade policies? The increasing globalization of markets and the changing structure of agriculture and the food industry call for a reassessment of the rationale and implications of food, agriculture, and trade policy.

Priority initiatives

- Identify, clarify, and analyze emerging agricultural, trade, resource, and food policy options.
- Develop new scientific methods for analyzing public policy issues.
- Evaluate alternative policies in the context of global markets, natural resource and environmental concerns, and the economies of rural areas.
- Analyze the policy implications of structural change and concentration, and the impacts of vertically coordinated farming and agribusiness on the economic performance.
- Educate the public and policymakers about policy options and their consequences.

How can food and fiber industries be more competitive in global markets? The international trade of agricultural commodities and food and fiber products contributes to economic growth and welfare, but is complicated by trade policies and barriers.

Priority initiatives

- Provide information on the implications of policies, regulation, and institutional barriers on international trade, and assess their impact on international marketing strategies.
- Evaluate the relationships between trade and the environment and biotechnology.
- Enhance public understanding of the economic impacts of trade and trade policies.
- Analyze the relationship between value-added for agricultural commodities and new product development, producer profitability, risk, market access, and competitiveness.

Priority 4: Enhancing Economic Opportunities in Rural Areas.

What policies and strategies are needed to improve rural economies? The economic development of rural communities here and around the world is critical. Important questions must be answered about how to most effectively increase employment opportunities and promote rural entrepreneurship.

Priority initiatives

- Develop information that helps local governments provide public infrastructure and services, invest in human development, and involve the private sector.
- Enable more-informed choices about land and resource use.
- Provide analysis on welfare reform in regards to rural populations.
- Increase education and training in rural entrepreneurship.

How can rural access to the Internet and telecommunications technology be improved?

Limited access to the Internet and other communications technologies has created a digital divide and places rural businesses and communities at a serious disadvantage.

Priority initiatives

- Assess alternatives for rural access to the Internet, telecommunications technology, and the basic technologies on which those two rely.
- Assess alternatives for providing training on the effective use of telecommunications.
- Assess whether new institutional arrangements, regulations, or incentives are needed to guarantee access in rural areas.

What types of programs best respond to the needs of the rural poor? Persistent poverty characterizes many rural areas of the United States, and particularly in developing countries around the world.

Priority initiatives

- Evaluate alternatives for relieving rural poverty and improving community viability.
- Improve understanding of the rural development role of human capital, social capital, and life-long learning.

Priority 5: Resolving Environmental and Natural Resource Issues.**How can we more effectively manage natural resources and control environmental risks?**

Natural resource management and environmental quality--including land, water, air, habitat, endangered species, and climate changes--are important public concerns in the United States and around the world.

Priority initiatives

- Evaluate the economics of best management practices to sustain and improve water, soil, and air quality.
- Evaluate and measure the values that the public places on environmental goods.
- Develop mechanisms to assess and mitigate global environmental resource management including climate change and desertification.
- Assess the costs and benefits of government regulations on agriculture, the food and fiber system, natural resources, and the environment.
- Evaluate the impacts of alternative agricultural systems such as sustainable agriculture and organic farming.

How can land use be managed to minimize conflicts and resolve rural-urban issues?**Priority initiatives**

- Define and educate about the meaning of land use incompatibilities and sprawl and the economic and other impacts of congestion/sprawl.
- Measure the preferences/values of the public for various land uses and the attributes (open space) of these land uses.
- Design new public policies for managing land use and educate about these policy options and their impacts.
- Research and educate about the performance of alternative policy options to manage land use.
- Understand and analyze the unique issues at the rural-urban interface.

How should water resources be managed in response to increasing scarcity and conflict?

The water issues are broad in scope and touch the lives of each person around the world.

Priority initiatives

- Introduce incentives and trading mechanisms to enhance water use efficiency and quality.
- Expand research and education related to water development, use, conservation, marketing, and policy.

Responding to Priority Needs through Multidisciplinary Collaboration

The U.S. land grant system of higher education, research, and extension is held up as a successful model for the rest of the world. Public investments in these programs have generated high rates of return. Higher education and extension programs have produced employable skills and informed citizens. Research programs benefit producers and consumers through the applications of new technology, institutional innovations, and practical knowledge to solve real life problems and issues. However, tighter budgets and increasing public demand for accountability suggest the need for multidisciplinary approaches to set priorities and assess the impacts of these programs. Economics provides a systematic framework for priority setting and impact assessment that takes into consideration the benefits and costs to all segments of society.

The discipline of agricultural economics is concerned with improving the economic rationality of decisions made within the agriculture, food, fiber, natural resource, and public sectors of the economy. This includes both group decision making and individual firm decision making. Policy analysis provides input into group decision making processes at the federal, state, and community levels. Work in management, marketing, and finance provides input to the decisions of individuals and business firms.

Economics also plays a key role in enhancing the value of publicly funded research. Economists provide research institutions with the tools and analysis they need to be accountable to society and better able to set research priorities and design research programs that are consistent with public policy objectives while meeting the standards of good science.¹

About C-FARE

The Council on Food, Agricultural and Resource Economics (C-FARE) is a non-profit, non-partisan organization dedicated to encouraging the application of economic analysis to high priority issues facing society. To accomplish its mission, C-FARE

- identifies key economic issues, establishes priorities, and seeks support for research, extension education, and academic instruction;
- helps agricultural economists contribute more effectively to public and private sector decisions;
- collaborates with other agricultural science groups and government agencies; and
- publicizes applied economic contributions to solving important societal issues.

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¹John M. Antle and Robert J. Wagenet, *Why Scientists Should Talk to Economists: the Role of Economics in Enhancing the Value of Publicly Funded Agricultural Research*, American Agricultural Economics Association and Economic Research Service, U.S. Department of Agriculture, Ames, Iowa, March 1995.

The Process So Far

Updating the priorities and main research and education foci of our profession is an on-going process. The process has proceeded as follows: (A) in 1997 the profession finalized and published the first set of “Priorities.” This document was used as frame of reference. (B) In 1999 we engaged academic department heads in a structured process to outline hot topics and issues of concern. (C) In 2000 C-FARE met with and collected input from leaders and representatives of related organizations and stakeholder groups. (D) At the 2001 AAEA Meeting a survey was provided for the membership.