Letter from the Director

An annual report provides the opportunity for an organization to take stock of where it has been in the previous year and to reflect on where it is going. The accomplishments documented in this 1999 report demonstrate the resilience of CARD as a research institution. During the period covered, the turnover in CARD’s administrative team included the appointment of a new director and two new research division heads. Yet, the work of CARD continued at a high pace, which reflects the commitment of the core research and administrative staff to the organization and the clientele of CARD. The pace of output also reflects continued high demand for CARD policy research.

During 1999, CARD’s research priorities shifted to address the top food and agricultural issues. Perhaps the top issue facing agriculture today is whether the world is ready for freer trade in food and agricultural products. The Trade and Agricultural Policy Division is now headed by one of the world’s experts on the impact of environmental regulation on agricultural trade. In this time of protests against further agricultural trade liberalization, CARD is well prepared to address policy questions.

The Food and Nutrition Policy Division has seen its funding level more than triple in the last two years. This increase reflects recognition of the quality of the Division’s past work as well as recognition that the federal government and the states need help in designing policies that successfully implement the 1996 Welfare Reform Act. This Act devolved responsibility for welfare and food assistance programs to the states.

Another top issue that will be with us for years to come is that the Clean Water Act will likely force farmers to change the way they grow their crops and spread manure. Changes in farming practices will increase production costs, which presumably will be outweighed by the benefits of cleaner water. How much costs will be outweighed, and how clean we will want our water, are issues that the new head of the Resource and Environmental Policy Division has the expertise to address.

And lastly, it is generally accepted that the current U.S. farm commodity program is a political failure. Many are looking to counter-cyclical payments or crop insurance as a policy savior. The new Agricultural Risk Management Policy Division is ideally situated to continue CARD’s tradition of analyzing new proposals for federal farm policy.

Primary dissemination of this annual report on CARD’s website (www.card.iastate.edu) reflects a new era of increased emphasis on website publication. The widespread availability of the Internet and the ease of downloading publications have enabled CARD to cut its publication costs by 60 percent while expanding its readership. CARD will continue to emphasize web-based publishing as it addresses the food and agricultural policy issues that face Iowa, the United States, and the world.

—Bruce A. Babcock
CARD Director
Trade and Agricultural Policy

John C. Beghin, professor of economics, was appointed head of the Trade and Agricultural Policy (TAP) Division and director of the Food and Agricultural Policy Research Institute (FAPRI)* in January 1999.

Dr. Beghin’s research looks at agricultural trade policy and the linkages between the environment and international trade. He has studied how government regulations affect the

*FAPRI is a dual-university research program conducted by CARD’s Trade and Agricultural Policy Division, and by the University of Missouri-Columbia. FAPRI uses comprehensive data and computer modeling systems to analyze the complex economic interrelationships in the food and agricultural industries.
“[The FAIR Act] replaced production constraints, set-aside acres, target prices, and countercyclical payments with planting flexibility and decoupled cash payments.”


The competitiveness of the U.S. hog industry in world markets, and how labeling and phytosanitary regulations may impede the trade of agricultural products. For more information on his research and publications, visit CARD’s Web site www.card.iastate.edu.

“The TAP research has to be relevant and forward looking to be ready to address policy questions as they arise,” he says. “And, the work has to be of high quality to be of academic value.”

Beghin says he wants TAP and FAPRI to be “a central voice and a focal source of information in the next round of the World Trade Organization’s (WTO) agricultural trade negotiations and in the national debate on U.S. farm policy.”

RISK MANAGEMENT RESEARCH

Through expanded modeling capabilities, the TAP Division has been examining the larger questions involving trade in a volatile, highly competitive world market. Research has focused and will continue to focus on policy options to position U.S. agriculture for the demand-driven domestic and foreign markets of today and tomorrow. “Researchers are looking especially at risk management and affordable safety net options for producers, and assessing how domestic policies affect the competitiveness of U.S. products,” says CARD Director Bruce A. Babcock.

The sharp decline in commodity prices stepped up momentum for development of an improved U.S. agricultural safety net. CARD estimated the benefits, or value, of alternative agricultural insurance schemes to provide insight into determining how a safety net for agriculture should be developed. One study indicated that as far as midwestern crop production goes, revenue insurance provides the greatest benefits both in levels of coverage and benefits per dollar of insurance premium. (CARD Briefing Paper 99-BP 23, “Provision of a Safety Net for U.S. Agriculture”)

The collapse in hog prices in the fall of 1998 spurred interest in using insurance as a means of providing an affordable safety net to hog producers. CARD

AGRICULTURAL OUTLOOK RESEARCH

Against a backdrop of low prices for corn, soybeans, hogs, and cattle—lows not seen in a decade—and the phasing out of crop subsidies under the Federal Agriculture Improvement and Reform (FAIR) Act, FAPRI issued the annual baseline projections for U.S. and world commodities. Despite short-term concerns, U.S. net farm income was projected to rise from $44.65 billion in 1999 to $47.21 billion in 2002, then decline slightly to $46.30 billion in 2003. The 1999 FAPRI U.S. and World Outlooks (covering 25 commodities and 35 countries) are available on the Web at www.fapri.iastate.edu.

CARD researchers conducted a study on the impact of demand and supply pressures on the record low hog prices that occurred during the final quarter of 1998. The decrease in demand for live hogs and reduction in slaughter capacity were examined in light of technology and structural changes in the industry. Findings were reported in the Iowa Ag Review, Vol. 5, No. 3.
researchers argued that it would be technically feasible to add a livestock net revenue guarantee to existing whole-farm crop revenue guarantees, and these policies could complement the financial instruments offered on the Chicago Mercantile Exchange and the Chicago Board of Trade. (CARD Briefing Paper 99-BP 22, “Whole Farm Revenue Insurance for Crop and Livestock Producers”)

CARD researchers conducted several studies related to policies triggered by falling commodity prices, e.g., the nonrecourse marketing assistance loans and loan deficiency payments program (LDP), and emergency measures such as disaster assistance. A Web page was established in the fall of 1998 that reports daily loan rates, LDP rates, and posted county prices (PCP) for corn and soybeans for all counties in nine midwestern states: www.card.iastate.edu. Because the LDP rates changed daily, access to this information helped growers make decisions about marketing their crops. (They are eligible to receive an LDP when the PCP falls below the county loan rate.) In 1999-2000, more states will be added to the LDP site, and more useful marketing analysis will be available to producers through a new interactive computer program.

However, the growth potential offered by the Chinese market depends on the future direction of domestic policy, which has been instrumental in dictating the country’s grain situation for the past two decades.

A CARD study projected that over the long term (emphasize long term) China is likely to become a customer for U.S. agricultural commodities, and cease being a competitor. Furthermore, U.S. feed-grain exports will eventually be replaced by meat exports. The good news for China is that eventually their consumers will have access to relatively inexpensive food and a more varied diet. (CARD Briefing Paper 99-BP 18, “China’s Role in World Livestock and Feed-Grain Markets”)

Errors in China’s agricultural data, particularly with respect to over-reporting production figures in its pork sector, may lead to skewed agricultural trade policies in many nations. CARD researchers assessed the magnitude of the errors, and constructed two corrected data series based on alternative assumptions regarding technological change and away-from-home consumption. (CARD Working Paper 99-WP 210, “Reconciling Chinese Meat Production and Consumption Data”)

The adoption of market-oriented domestic and trade policies in India, the second most populous country in the world and the third largest economy in Asia, has led to accelerated economic growth. At the same time, there has been a decline in the growth of agricultural production. CARD-FAPRI evaluated India’s grain demand and supply situation out to
the year 2015, and found that starting in 2000 wheat and corn imports are likely to rise and eventually exceed rice exports. (CARD Technical Report 98-TR 38, “The Long-Term Food Outlook for India.”)

International Trade Liberalization
CARD researchers looked at the impact of GATT (General Agreement on Tariffs and Trade) reforms on the integration and efficiency of international beef and wheat markets.** With the next round of negotiations in the WTO (successor to GATT) set to open in late 1999, policymakers want to know how successful the 1996 Uruguay Round has been in expanding market access and limiting domestic support and export subsidies. What CARD found was that the Uruguay Round “disciplines” have actually promoted market efficiency in both the world beef and wheat markets and brought about better integration of prices as well. (Working Paper 99-WP 218, “Institutional Impact of GATT: An Examination of Market Integration and Efficiency in the World Beef and Wheat Market under the GATT Regime”)

FUNDED PROJECTS


Agricultural Trade analysis (World Trade Organization); U.S. Department of Agriculture; Cooperative State Research for Education and Extension Service; 1998-2000.


World Feed Grain Demand Model Program; U.S. Grains Council; 1990-99.


Agenda 2000 and European Union Enlargement Issues; Midwest Agribusiness Trade Research and Information Center; 1998-99.

**Integration refers to economic shocks in one market price being reflected in related market prices. Market efficiency refers to the speed at which market prices adjust to changes in their equilibrium relationship.
Food and Nutrition Policy

Helen H. Jensen, professor of economics, directs the work of the Food and Nutrition Policy Division (FNP). The division analyzes food consumption patterns, food assistance programs, food safety regulations, and food security issues in the United States and selected developing nations.

“There is growing recognition of the links between our diet and health. The FNP research brings sound economic analysis and innovative research methods to the study of food and
nutrition problems to better understand these linkages and the implications for food policy,” she says.

Dr. Jensen’s research areas are food and nutrition policy, consumer demand for quality and safety, the economics of food safety and food hazard control options, and food assistance programs. Jensen is principal investigator on several projects designed to develop methods and procedures for assessing the effectiveness of intervention strategies in the food distribution chain, monitoring the exposure to food hazards, and evaluating the cost effectiveness of the Hazard Analysis and Critical Control Point (HACCP) systems in the meat processing industry.

**FOOD SAFETY AND THE MEAT INDUSTRY**

An important policy issue affecting consumers and the food industry concerns the economic implications of the newer science-based approach to food safety. Will consumers have to pay higher prices at the meat counter to gain a greater assurance of safety in the products they buy? Are there structural implications for the slaughter and processing industry of government-mandated food safety interventions?

The U.S. government now requires meat processors to implement a HACCP plan, to conduct periodic tests for microbial pathogens, and to reduce the incidence of pathogens during the slaughter and processing of meat. However, while HACCP systems identify the points in the production process that are critical to monitor and control (improving the scientific basis for achieving safety), the firms themselves choose the methods and technologies to achieve improved safety, and they have the discretion to determine the final product quality.

“Producers or retailers, in addition to consumers, may be unable to ascertain or to certify safety because food-borne pathogens are living organisms that can enter the food at any point and may grow over time.”  (CARD Working Paper 99-WP 228 “The Economic Implications of Using HACCP as a Food Safety Regulatory Standard”)

For the past three years, the FNP division has channeled significant resources into the study of the costs and benefits of achieving increased food safety for U.S. consumers. In collaboration with Dr. Laurian Unnevehr of the University of Illinois, Jensen conducted studies in 1998 and 1999 on the pork processing industry’s adoption of HACCP. They collaborated with veterinary scientists at each of the universities in the studies.

The researchers used data obtained from input suppliers, hog packing firms, and meat science studies, and used an economic optimization model to explore the trade-offs in achieving multiple pathogen reduction targets. They looked at HACCP regulation and the costs to industry of improving food safety, issues in evaluating costs and benefits of microbial reduction in pork, and the cost-effectiveness of different technologies for food safety control in pork. “The economic problem is to choose the most cost-effective set of interventions to meet a set of pathogen standards,” said Jensen and Unnevehr.
The benefits of mandating HACCP to achieve reduced food-borne illness are more difficult to estimate because: (1) it is difficult to value human suffering and loss of life; and (2) evidence is lacking on the actual reduction in risk from mandating HACCP for an entire industry or portion of the food production chain. “From the firms’ point of view, it is important that they are able to capture the returns to the improved food safety in the marketplace,” Jensen said. “There’s not a good marketplace for additional investments in safety.”

“Our data indicate costs of individual pathogen reduction technologies in the pork industry are in the range of $.03 to $.20 per carcass for hogs, and that optimal combinations of technologies may cost as much as $.34 per carcass.” (Working Paper 99-WP 227 “HACCP in Pork Processing: Costs and Benefits”)

According to the researchers, “despite the widespread enthusiasm for HACCP among regulatory and international agencies, there are several controversies surrounding the mandatory imposition of the system.”

- How effectively will HACCP alone control or eliminate some food safety hazards?
- Does HACCP reduce or improve government regulatory oversight?
- Does HACCP force efficiency or produce inefficiency in firms?
- Can HACCP reasonably replace sanitary performance standards in international trade?

Regulatory measures combined with incentives may hold the most promise for increasing food safety. “This might mean setting a standard for a minimum level of safety that would capture most of the benefits and then providing incentives for some firms to exceed that standard—for example, by certifying safer products for consumers who have higher risks from food-borne illness,” said Jensen.

**Dietary and Nutritional Assessment**

The FNP division has on-going work to develop and apply new methods to assess the dietary status of population groups. This research includes interdisciplinary collaboration with researchers in statistics and food science/human nutrition. The collaboration with Dr. Alicia Carriquiry in the Department of Statistics, among others, resulted in the development of a statistical software program to implement the new methods. The software is now available to others through ISU’s Statistical Laboratory http://www.statlab.iastate.edu/survey/index6.html.

The methods have been applied to dietary, food safety, and water quality issues. Recent work with older people is an example of dietary applications. In a study funded by the USDA’s National Research Initiative competitive grants program, FNP researchers have assessed the dietary adequacy and nutritional needs of older adults. Jensen said, “We not only want to know whether older people are eating good diets, but also, whether they skip meals, lack variety in foods they...”

“Our data indicate costs of individual pathogen reduction technologies in the pork industry are in the range of $.03 to $.20 per carcass for hogs, and that optimal combinations of technologies may cost as much as $.34 per carcass.”

eat, are affected by lack of income or access to stores.” Results will be used to make recommendations for improved food programs for the elderly.

Other research, conducted as part of a larger USDA study, investigated the feasibility of allowing the use of food stamps to purchase vitamin and mineral supplements. Dietary adequacy in the at-risk, low income population, was assessed using the ISU methods of dietary assessment.

Welfare Reform, Food Assistance Programs, and Food Security

In Fall 1998, the FNP group launched an expanded research initiative to study the effects of welfare reform and changes in food assistance policies. The studies represent new collaborations with the State of Iowa’s Department of Human Services and with USDA’s Economic Research Service, as well as researchers in ISU’s Departments of Human Development and Family Studies, and Statistics and Statistical Laboratory. Several of the studies build on new capacity to link state administrative record data for various state programs at the case level. With new regulations on welfare programs, and a shift in responsibility for the traditional federal welfare programs to the state level, there is a great deal of interest in the effects of changes in the welfare system on individuals and families and on how those leaving the programs fare.

In one study currently under way, ISU researchers interviewed nearly 750 individuals about their experiences after leaving the food stamp program. The survey results will provide information about the use of food stamps and other programs, and the circumstances of those who have stopped receiving benefits. Local labor markets, economic conditions, as well as the design of program incentives, all affect the program outcomes. “Of particular interest in our studies,” Jensen said, “are possible differences in the experiences of rural compared with urban residents.”
Funded Projects


Food Safety Consortium Project; U.S. Department of Agriculture; 1993-99


Resource and Environmental Policy

Catherine L. Kling, professor of economics, was appointed head of the Resource and Environmental Policy (REP) Division in late 1998. Dr. Kling conducts research on nonmarket valuation issues in environmental economics. Her work at CARD is focused on how agricultural practices affect water quality, wildlife, soil carbon content, and greenhouse gases. Prior to coming to ISU in 1993, she was on the faculty of the Department of Agricultural Economics.
at the University of California-Davis.
For more information on Dr. Kling’s research, visit CARD’s website www.card.iastate.edu.

**WATER QUALITY RESEARCH**

A study completed in late 1998 examined the potential for estimating regional herbicide leaching using site specific and regional data in a pesticide root zone leaching model called PRZM-2. “Evaluation of the leaching model is a critical step in preparing regional estimates of groundwater responses to chemical use in the Midwest and other regions that have intensive chemical applications,” said REP analyst Philip Gassman, a coauthor of “Estimating Atrazine Leaching in the Midwest.” Gassman worked on this project with researchers from the National Soil Tilth Laboratory and Waterborne Environmental, Inc. (CARD Working Paper 98-WP 201)

When expensive and time consuming field trials are not feasible (and often they are not), an integrated modeling system can be very useful in helping policymakers and farmers answer questions about the environmental consequences of changes in crop management that may result from new or revised government programs. Gassman contributed to a study that validated a model known as EPIC (Erosion Productivity Impact Calculator) using long-term data from two southwestern Iowa watersheds that have been cropped in continuous corn under both conventional tillage and ridge-till methods. (CARD Working Paper 99-WP 215, “Validation of EPIC for Two Watersheds in Southwestern Iowa.”)

**ENVIRONMENTAL VALUATION**

In order for society to make good decisions regarding the environment, it is important to consider explicitly the value placed on environmental qualities. In a paper published in the *American Journal of Agricultural Economics* (80: 1025-31, 1998), Dr. Kling and coauthors Daniel Phaneuf of North Carolina State, and Joseph Herriges of Iowa State University, set up a general utility theoretical model of individuals’ recreation choices as a benchmark. They then examined three common empirical models and assessed the degree to which they might be adapted to better represent the theoretical model. Using data on water-based recreation in the Great Lakes region, the researchers then estimated each model, providing and contrasting welfare estimates for changes in water quality.

“A new turn in the research agenda of environmental valuation is under way,” said Dr. Kling in a study completed in 1999. Rather than treating stated preference (SP) and revealed preference (RP) as competing valuation techniques, analysts have begun to view them as complementary, where the strengths of each approach can be used to provide more precise and possibly more accurate benefit estimates. Dr. Kling and her coauthors Herriges and Christopher Azevedo of ISU used data from a 1997 survey of Iowa residents about their use of wetlands in the state. (CARD Working Paper 99-WP 222, “Linking Revealed and Stated Preferences to Test External Validity.”)

“The REP Division assesses regional, national, and international policies affecting the environment, including policies regarding natural resource use, livestock waste management, chemical application practices, and valuation and risk assessment.”

–Catherine L. Kling, Head, Resource and Environmental Policy Division
HEARTLAND ENVIRONMENTAL AND RESOURCE ECONOMICS WORKSHOP

With funding from the U.S. Environmental Protection Agency, Dr. Kling organized the first annual Heartland Environmental and Resource Economics Workshop in September 1999. More than 40 economists working on environmental and resource problems in the Midwest participated. They identified important public policy issues and discussed methodology and findings from their ongoing research. Several graduate students presented papers and had their work critiqued.

Session topics centered on valuing outdoor recreation goods and how innovation and economic growth affect the environment. Papers were presented on fisheries, forestry, wetlands, water quality and quantity, market-based incentives for the control of environmental pollution, international and transboundary pollution issues, and environmental issues related to domestic agricultural production. For more information see the CARD website www.card.iastate.edu.

FUNDED PROJECTS

NPP Project Model Development for the Lake Fork Reservoir Watershed; Tarleton State/U.S. Environmental Protection Agency; 1996-98.

On-Farm Site Specific Crop Management for Iowa; Iowa Soybean Promotion Board; 1997-99.

Resource and Agricultural Policy Systems (RAPS); U.S. Environmental Protection Agency; 1995-2001

Heartland Resource and Environmental Policy Workshop; U.S. Environmental Protection Agency; 1999-2002
MATRIC provided assessments of agricultural policy impacts, analysis of country and product markets, evaluations of foreign government policies, and identification of technologies and policies that improve the competitiveness and marketability of agricultural products to assist agribusinesses in developing international markets.

MATRIC sponsored the following studies by researchers in economics; marketing; and logistics, operations, and management information systems.

- “Comparative Marketing Analysis of Agricultural Products: Comparative Analysis of Conducting Business in the United States, Argentina, and Brazil.” Sergio Lence (Economics), Sangeev Agrawal (Marketing/College of Business), Thomas Goldsby (Logistics, Operations and Management of Information Systems/College of Business)

- “European Union Enlargement and Its Impacts on World Agriculture.” Frank Fuller (FAPRI)

- “European Union Enlargement and Its Impacts on Central and East European Agriculture.” William Meyers (Economics)


MATRIC conducted a live video satellite conference September 9, 1998, on exporting value-added food products, “Steps to Exporting Success: Meeting the Needs of Foreign Buyers,” in collaboration with the U.S. Department of Agriculture (USDA)/Foreign Agricultural Service; U.S. Department of Commerce Commercial Service; ISU Extension Value Agriculture; ISU Extension Communication Systems; and the Utilization Center for Agricultural Products. This conference was broadcast to participating downlink sites across the United States.

MATRIC conducted the following agricultural policy and industry technical assistance programs for policymakers, government officials, and agribusiness managers from Ukraine, Hungary, Belarus, Lithuania, and Egypt. Collaborators with the programs were the World Bank; Monsanto; Iowa Export-Import; ACDI/VOCA; and USDA/Foreign Agricultural Service/International Cooperation and Development/Food Industries Division, Cochran Fellowship Programs.

- Agricultural Policy Program
- Agricultural Credit and Finance Program
- Dairy Production Program
- Dairy Production Program
- Swine Production Program
- Grain and Dairy Production Program
- Grain and Dairy Production Program
- Dairy Processing Program

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CARD 1998-99 EXPENSES

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CARD 1998-99 RECEIPTS

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**PUBLICATIONS**

**CARD WORKING PAPERS**


99-WP 211. Trade Integration, Environmental Degradation, and Public Health in Chile: Assessing the Linkages. John Beghin, Brad Bowland, Sebastien
Dessus, David Roland-Holst, and Dominique van der Mensbrugghe. February 1999.


CARD STAFF REPORTS


CARD TECHNICAL REPORTS


**CARD BRIEFING PAPERS**


**FAPRI PUBLICATIONS**


**BOOK**


**JOURNAL ARTICLES**


Perceptions of Female Agricultural Educators Regarding the Role of Women in Agriculture in Uzbekistan:


CARD ADMINISTRATION AND FACULTY

Bruce A. Babcock
Director
Professor of Economics
babcock@iastate.edu
515-294-6785

Keith Heffernan
Assistant Director
kheffer@card.iastate.edu
515-294-0670

Helen H. Jensen
Head, Food and Nutrition
Policy Division
Professor of Economics
hhjensen@iastate.edu
515-294-6253

Catherine L. Kling
Head, Resource and Environmental
Policy Division
Professor of Economics
ckling@iastate.edu
515-294-5767

John C. Beghin
Head, Trade and Agricultural
Policy Division
Professor of Economics
beghin@iastate.edu
515-294-5811

Judith Pim
Communications and Information
jpim@card.iastate.edu
515-294-6257