A modeling system developed at CARD provides an ongoing assessment of the impacts of agricultural production on the environmental health of the central United States. In addition to impact assessment, the Resource and Agricultural Policy System (RAPS) has the capacity to analyze the potential outcomes of alternative agricultural and resource policies.

The 1997 RAPS Outlook, available in print and on CARD’s website, presents current trends in crop and livestock production and indicators of how these trends affect the environment. In this era of rapid change in the agricultural sector, policymakers and other interest groups need objective, useful, and timely information on how changes in agricultural policy and production are likely to affect the environment. The second annual RAPS analysis addresses this need.

The RAPS predicts farmers’ crop choices and production practices that are based on input and crop prices, government commodity program provisions, cropping history, soil properties, and climatic conditions for more than 160,000 NRI (National Resource Inventory, U.S. Department of Agriculture) locations in the Midwest. The modeling system estimates expected county-level yields to indicate why farmers choose to plant particular crops.

The model also includes an indicator for atrazine runoff, leaching, and volatilization, and for nutrients from livestock waste. An automated personal computer-based system integrates the crop production and environmental models, creating the ability to conduct timely, comprehensive policy analysis.

**Improved Environmental Health**

The RAPS Outlook reflects environmental impacts resulting from the 1996 Farm Bill, which has ended more than 60 years of...
Continued from page 1

planting restrictions and commodity subsidies tied to market prices. This landmark legislation continued the Conservation Compliance provisions on highly erodible land and revamped the Conservation Reserve Program (CRP).

In general, changes in crop production that have occurred since 1992 have improved the environmental health of the central United States. While increased planting flexibility has generally tended to increase farming intensity and thus place greater demands on the environment and natural resource base, the Conservation Compliance provisions have encouraged more effective and efficient conservation efforts.

The RAPS analysis showed that since 1992, farmers have increased their use of conservation practices to fulfill Conservation Compliance requirements and remain eligible for federal subsidies. This increase has had a positive effect on the environment and has helped balance the negative impacts of increased farming intensity. An example is the increase of conservation tillage acres by 14.8 percent, or 10 million acres.

Even though farming intensity has increased following implementation of the Federal Agriculture Improvement and Reform (FAIR) Act of 1996, positive environmental trends have developed. Between 1992 and 1997 soil erosion declined by 3.7 percent, or 52 million tons. The rate of loss of soil organic carbon from fertile cropland decreased by 2.9 percent,

Soil loss due to water erosion, tons/ac: 1997 projection
or more than 1 million tons. Less atrazine, overall, was used on cropland so there was a decrease (12 percent, or just under 24,000 tons) of the pesticide lost from runoff, leaching, or volatilization. The only exception to this positive trend was an increase (1.6 percent, or nearly 23,000 tons) in the runoff, or leaching, of nitrogen applied to cropland.

**Policy Analysis and RAPS**

The importance of Conservation Compliance in lessening agriculture’s pressure on the environment raises an important policy question that the U.S. Congress must address in the near term. If the public interest is being served by Conservation Compliance, how will farmers be induced to maintain their conservation plans when the current government payments cease after 2002?

The future research efforts of the RAPS team at CARD will be to maintain and update the baseline and modeling system, produce annual outlook reports, and conduct periodic policy impact assessments. The resulting analysis will assist Congress in evaluating the benefits of Conservation Compliance, CRP, and other government-sponsored programs.

The 1997 RAPS Agricultural and Environmental Outlook contains 48 GIS (Geographic Information System) maps that show the types and location of crops and livestock as well as the spatial distribution of farming and its effects on the environment. The Outlook can be accessed on the web at <www.ag.iastate.edu/card/divisions/rep/raps97.html>.

*Continued on page 4*
From the Interim Director

William Meyers,
CARD Interim Director

This year marks the 40th anniversary of CARD, which was established by the Iowa Board of Regents on July 1, 1958. Earl O. Heady was named the first director shortly thereafter. CARD letterhead and publications issued during the year will carry an anniversary emblem. Also, CARD alumni have been contacted to update their personal data and invited to reflect on their experiences at CARD. An annotated directory of alumni will be issued at the end of the year. If you are a former student, faculty member, visiting scholar, or staff, please send us your data (see our web page for the form). Plans are also under way for a special event in the fall of 1998 in connection with a CARD Fall Policy Conference in Ames.

By happy coincidence, 1998 is also the 30th anniversary of an unprecedented East/West scientific conference on economic models and quantitative methods organized by Professor Heady in Hungary in 1968. In commemoration of this event, the Gyongyos College of Agriculture organized a special session in memory of Professor Heady at the Sixth Biannual International Scientific Days of Agricultural Economics held March 24-25, 1998, on the topic of Agriculture and Rural Development.

Marian Heady and two of her children participated in the commemoration along with ISU Agriculture Dean David Topel, Economics Department Chair.
The nation’s meat slaughter and processing plants are in the midst of implementing the Hazard Analysis Critical Control Point (HACCP) system aimed at preventing the presence of pathogenic bacteria in their products. HACCP systems are being phased-in based on the 1996 implementation of new rules by the U.S. Department of Agriculture. January 26, 1998, marked the date on which large plants were required to meet the new regulations.

As a product of government regulation, HACCP must be evaluated to determine that its costs to industry are less than the resulting benefits to society. Helen H. Jensen, head of the Food and Nutrition Policy Division of CARD, and University of Illinois economist Laurian Unnevehr, both Food Safety Consortium researchers, contend that the economic costs and benefits of HACCP’s preventive procedures have not been adequately explored.

The costs of implementing new technologies to control microbial contamination are not well known. The costs of detecting hazards are high while the benefits are uncertain but potentially large, said Jensen. She notes that the federal Food Safety and Inspection Service (FSIS) has conducted only a preliminary analysis of HACCP’s potential impacts.

HACCP is a science-based risk assessment and prevention method for controlling foodborne safety problems. Seven principles are involved in developing and operating a HACCP program: (1) assess the hazard, list the steps in the process where significant hazard can occur, and describe the prevention measures; (2) determine critical control points (CCPs) in the process; (3) establish critical limits for each CCP; (4) establish procedures to monitor each CCP; (5) establish corrective actions to be taken when monitoring indicates a deviation from the CCP limits; (6) establish record keeping for the HACCP system; and (7) establish procedures to verify that the HACCP system is working correctly.

Sanitation standard operating procedures became effective in all plants in January 1997 and FSIS inspectors began reviewing testing results for generic E. coli for all slaughtered carcasses. Under the regulation, individual plants develop and implement the HACCP procedures, subject to FSIS verification. Each plant must identify points in its processing system at which a chemical, physical, or microbiological hazard can occur, and controls must be put in place to prevent or reduce those hazards. The HACCP system was required by January 1998 for plants with more than 500 employees; for plants with 10 to 500 employees by January 1999, and for plants with no more than nine employees or annual sales of less than $2.5 million by January 2000. In addition, plants are required to conduct periodic tests for generic E. coli and to reduce the incidence of pathogens.

Promoting Food Safety through Intervention

Jensen and Unnevehr, writing in the American Journal of Agricultural Economics (“HACCP As a Regulatory Innovation to Improve Food Safety in the Meat Industry,” available as CARD Reprint RP 3.148) pointed out there are two ways for government to promote food safety through intervention. One is through direct command-and-control interventions, which include the establishment of performance standards that products must meet, the monitoring of product quality, processing standards that specify certain production procedures, and the mandatory disclosure of information on pathogen reduction processes.
The other approach, the researchers said, is through incentive-based interventions that are designed “to induce either producers or consumers to identify and practice cost-effective methods that achieve food safety.” Those methods include the government providing information that enables consumers to evaluate and avoid hazards; subsidizing development of new pathogen tests, or certifying products that meet minimum safety standards.

The new FSIS rules recognize HACCP as a command-and-control intervention with process standards that require meat and poultry processors to adopt antimicrobial treatments. The rules also recognize HACCP as performance standards that require plants to meet pathogen reduction targets.

The Cost of Food Safety
Many companies began implementing HACCP in their plants before the new government rules required it, but its application was not widespread. Firms have private incentives to improve both food safety and the shelf life of meat products. Currently, these private incentives are most apparent in growing export markets for meat products but also occur through contracting on final product from large purchasers, such as “fast-food” firms. Increased safety is achieved at higher costs, however, and “the costs of the regulation are likely to fall more heavily on smaller firms,” according to Jensen and Unnevehr. An example is found in the high cost of testing directly for the presence of microbial pathogens.

Relying on private incentives-based approaches might not result in sufficient food safety benefits, Jensen and Unnevehr said, noting that imposition of a minimum performance standard could be justified economically. “Regulators and consumer advocates have argued that the costs of pathogen reduction regulation, while estimated to be substantial (about $2 billion) over 20 years, are small compared to potential benefits (about $6 billion to $24 billion).”

—Helen H. Jensen and Laurian Unnevehr

Although HACCP is a process standard, Jensen and Unnevehr asserted that it will be an efficient regulatory tool because it relies on the prevention and identification of measurable critical control points in food processing rather than on testing of finished products.

“Inspection and verification by regulators can be more efficient when focused on prevention,” they said. “Checking critical control points and verifying a HACCP program may provide cheaper and more effective regulatory monitoring than extensive product testing.”

Evaluating the costs and benefits of a particular HACCP program depends on the performance standard for improving safety and on how many fewer pathogens and cases of foodborne illness result. Jensen and Unnevehr acknowledged an analysis of HACCP’s effects on the seafood industry that showed the procedures significantly reduced the risk of microbial pathogens related to human health problems. They contend that the HACCP rules would be strengthened by drawing upon scientific literature to link specific pathogen reductions with specific health outcomes.
A recent analysis of the cost-effectiveness of several technological interventions for microbial control in beef and pork processing shows that marginal improvements in food safety can be obtained, but at increased costs (see Jensen, Unnevehr, and Gomez, CARD Working Paper 98-WP 189). Jensen, Unnevehr, and Miguel Gomez found that the additional intervention costs represent about 1 percent of total processing costs for beef and pork. Of course, some interventions are more cost-effective than others.

Although Jensen and Unnevehr advocate a command-and-control approach to prevent foodborne pathogens, they also call for consideration of combining those standards with incentives. “In a food safety context this might mean setting a standard for a minimum safety level 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 foodborne illness.”

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**Hungarian Credit Foundation Studies U.S. Rural Finance**

In November 1997, CARD and MATRIC (Midwest Agribusiness Trade Research and Information Center) hosted board members and executives of the Rural Credit Guarantee Foundation of Hungary. The group was headed by Dr. Jozsef Popp, first secretary for agriculture of the Embassy of the Republic of Hungary, Washington, D.C. In addition to Popp, the group included nine members of the foundation’s board of trustees, the chief executive and the office manager of the foundation’s secretariat, and the general director of the Ministry of Finance of Hungary.

The Rural Credit Guarantee Foundation provides collateral for loans made in the Hungarian agricultural sector to individuals, small agribusinesses, and cooperatives. The visit was designed to investigate the rural lending practices in the United States and included stops in Iowa, Washington, D.C., and Florida.

Lori Dooley, MATRIC program manager, hosted the visitors while they were in Iowa and arranged for a series of meetings on credit guarantees. The group visited Green Belt Bank and Trust in Iowa Falls (a rural bank with a client base similar to the Rural Credit Guarantee Foundation), the Iowa Farm Service Agency, and the Small Business Administration. They also met with ISU Vice Provost for Extension Stanley Johnson; CARD Interim Director William Meyers; and Ron Prescott of ISU’s Center for International Agricultural Finance. In addition, the group met with representatives of Iowa Select Farms and Pioneer Hi-Bred International, Inc., and toured the Iowa Select Swine production facility at Iowa Falls.
The U.S. food supply is among the safest in the world. However, recent outbreaks of 
*E. coli* O157:H7 contamination in hamburger have focused attention on controlling 
foodborne illness from this and other pathogens. The *E. coli* O157:H7 outbreak in late 1992 and early 
1993 on the West Coast was attributed to undercooked hamburgers served at a fast-food outlet. More recently, two noted outbreaks associated with 
*E. coli* O157:H7 occurred: in 1996, Odwalla apple juice was implicated in a child’s death in California and, in 1997, an outbreak associated with ground 
beef patties occurred in Colorado.

**Regulation**

In response to greater public awareness of problems with the safety of the food supply, the Clinton Administration has initiated significant changes in food safety regulation. The existing meat safety inspection methods that relied on sight, touch, and smell by inspectors in plants was not effective in controlling many of the health and safety problems traced to microbial contamination of product.

In 1996, the U.S. Department of Agriculture published its landmark rule on Pathogen Reduction and Hazard Analysis and Critical Control Points (HACCP) Systems. This rule requires all plants to have in place standard operating procedures for sanitation (SSOPs), mandates HACCP for meat processing plants, sets performance standards for *Salmonella*, and establishes a testing program for the pathogen, and requires slaughter plants to routinely test carcasses for generic *E. coli*. The requirements for SSOPs and generic *E. coli* testing became effective on January 26, 1998, for the largest slaughter plants. The requirements will be phased in over the next two years for medium- and small-sized plants.

**New Initiatives**

Several new food safety initiatives are under way. In May 1997, President Clinton requested a major increase in the budget of $43.2 million to fund an initiative designed to improve food safety in meats. The initiative concentrates on improving inspection procedures, emphasizing public education, and making greater use of scientific research to reduce foodborne illnesses. It included additional dollars for research, risk assessment, and an expanded surveillance program to help in tracing causes of foodborne outbreaks. The initiative recognizes the importance of a “farm-to-table” approach to controlling food safety problems.

In October 1997, the President announced a new initiative to enhance the U.S. Food and Drug Administration oversight over imported foods and to develop guidance on good agricultural and manufacturing practices for fruits and vegetables. The Administration's proposal for FY 1999 funding of $74 million is to fund a Food Safety Initiative that coordinates the efforts of FDA, the USDA, and the U.S. Environmental Protection Agency. The initiative recognizes the importance of expanded “early warning” and surveillance, as well as education for improved food handling practices of consumers and retail food service establishments.

**Controlling Foodborne Illness**

Foodborne illness has become increasingly important for several reasons: the emergence of new foodborne pathogens, an increasing share of the population susceptible to foodborne infections (such as elderly, people taking antibiotics, and those with lowered immunity due to HIV/AIDS), a more centralized
processing and distribution system that can quickly and massively disseminate foodborne problems throughout the food supply, and more products imported from other countries.

The federal government has promoted food safety both through regulations that exact greater control on the food production and processing sector, as well as through increased attention to education and other incentives for a safer food supply. Current USDA estimates show that the benefits of reducing foodborne illness far outweigh the costs of increased safety. The processing industry is currently investing in new technologies and methods to control food safety problems and meet new regulations.

Food safety regulation and new information connecting microbial pathogens with specific meat products are bringing about changes in the meat and poultry industry. Similar changes will occur in the fruits and vegetables industry. In the meat and poultry industry, new relationships among meat packers, input suppliers and meat wholesalers are emerging, such as requiring that products be tested for specific pathogens. The new regulations have changed the role of industry laboratories to focus on providing services associated with setting up and verifying HACCP plans. Some changes in industry structure may be required to respond to increased consumer demand for food safety.

Identifying the way, or ways, to reduce the incidence of foodborne illness has been controversial, since pathogens can enter food products at any point during the production process from the farm to the table. Food handling in the home continues to be an important point of control, but public policy is moving toward regulating pathogens during the production process. However, other approaches may emerge to address consumer demand for food safety, such as development of certified products, which could complement the direct regulation of production processes.

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Developing a Vision for Iowa Agriculture

(Article contributed by Dermot Hayes, Head, Trade and Agricultural Policy Division. Contact Dr. Hayes, 515-294-6185, e-mail dhayes@iastate.edu.)

During the spring of 1997, a group of Iowa farm leaders got together to discuss the future of agriculture in the state. Many of these producers are veterans of the Iowa Farm Bill Study team that recommended policy alternatives for the 1996 Farm Bill. The newly formed group realized that Iowa agriculture is undergoing profound changes and that the impact of these changes on Iowa farmers has yet to be determined.

The group, which came to be called AgSTATE (Agricultural Strategic Thinkers Acting Together Effectively), invited all relevant organizations to join, and most did. Contributing members include: Agribusiness Association of Iowa, Iowa Cattlemen’s Association, Iowa Corn Grower’s Association, Iowa Dairy Products Association, Iowa Department of Economic Development, Iowa Farm Bureau Federation, Iowa Institute of Co-operatives, Iowa Pork Producers Association, Iowa Poultry Association, Iowa Soybean Association, Iowa State University, and the Iowa Turkey Federation.

The ISU Department of Economics and CARD facilitated AgSTATE’s visioning process. The group met on a bimonthly basis throughout the late spring,
summer, and early fall of 1997, hearing from a total of 23 experts and discussing issues of importance to agriculture. They developed a report, which was presented during a seminar in November and includes the five goals summarized here.

1. Expand opportunities for Iowa by adding value to agricultural commodities, increasing exports of agricultural products, and increasing consumer confidence in the quality of Iowa’s food.

2. Maintain and encourage agriculture’s commitment to environmental stewardship.

3. Create a new, positive attitude among both producers and consumers about the future of Iowa agriculture.

4. Encourage Iowans to consider new types of cooperative business structures that may improve profitability.

5. Make the necessary changes in tax policy or capital access conditions that will encourage expanded investment in Iowa agriculture.

Space does not permit an exhaustive description of the “Vision for Iowa Agriculture” report, which covers areas from the environment to industrial organization. This article, describes how one idea developed a process that in many ways is as interesting as the ideas themselves.

**Consensus on Capital Gains Tax Rates**

Early in their discussions the group decided that Iowa agriculture should capitalize on new value-added export opportunities. Work then began at ISU on the economic impact of adding value to the crops produced in the state and on a series of surveys about manure management and attitudes among Iowa’s hog producers and rural residents.

“Aiowa has some of the world’s lowest prices for hog rations, and some of the nation’s highest live hog prices, yet the state’s share of U.S. hog production is falling.”

—Dermot Hayes

A puzzle emerged: Why, given the economic environment that currently favors value-added agriculture in Iowa, haven’t more producers taken advantage of existing opportunities? Iowa has some of the world’s lowest prices for hog rations, and some of the nation’s highest live hog prices, yet the state’s share of U.S. hog production is falling. Initially the group laid much of the blame on an ambiguous “attitude problem” among producers concerning the expansion of the hog industry. Nevertheless, the question remained: Why were certain attitudes formed in the first place?

Over the years, Iowans have responded in a rational way to the tax distortion, with the result that farm transfers tend to be put on hold until the owner dies. This suggests a typical scenario where farms are passed from 80-year-olds to 60-year-olds, with the average age of a farm owner about 70 years old. If this is true, then it is easy to understand why 70-year-old farmers might have an attitude problem about constructing socially controversial, financially risky, and time-consuming modern livestock buildings.

The average age of farmers was addressed by ISU Professor Neil Harl during his presentation to the AgSTATE group. He cited data showing that, in fact, the average age of Iowa farmers has been increasing, and that most farmland is owned debt-free. Between 1982 and 1992, the percentage of land owned by individuals older
than 65 increased from 29 to 43 percent. During that same period, the percentage of land owned by those under 54 fell from 48 to 35 percent.

The AgSTATE group compared the benefits and costs of the tax distortion using ISU economist Dan Otto’s values for the economic importance of livestock. This research contained a startling result: a 3 percent growth in Iowa livestock numbers would more than compensate state and federal taxpayers for the removal of capital gains taxes in intrafamily farm transfers. And, a 3 percent growth in livestock production would likely occur if it were financially feasible for 65-year-old farmers to sell their land to their 40-year-old offspring. The group postulated that a 40-year-old with a mortgage would have different attitudes and would make different business decisions about livestock production than a 70-year-old who had inherited wealth.

Consideration of these and other ideas and research has produced a body of knowledge about where Iowa agriculture is headed and a set of suggestions commonly agreed upon by the AgSTATE group concerning strategies and policies to shift the direction of Iowa agriculture. Copies of the AgSTATE report are available by contacting the participating organizations or by contacting CARD at 515-294-1183; e-mail jgarrea@gcard.iastate.edu.

Russian Water Quality Project Update

“‘To pure water!’ With this toast, more than 60 governmental representatives, scientists, and educators from the United States and Russia celebrated the successful conclusion of the Istra River Small Watershed Management Project. (See CARDreport, Vol. 8, No. 2, Fall 1995, for details on the project mission and work plans.)

The occasion for this celebratory toast was the Istra Project’s closing conference held in the Istra Region, Russian Federation, on September 29–30, 1997. The two-day event marked the conclusion of a collaborative project to improve the environment of the Istra River watershed.

Four years ago, the Istra watershed was selected by joint U.S. and Russian agreement for a pilot management project primarily because it provides approximately 15 percent of the drinking water for the city of Moscow (thus, water quality in this river system potentially affects the health of more than 12 million people), and its characteristics reflect similar small river systems in Russia (thus facilitating the transfer of tested management methods to other watersheds). The Istra Region, the largest administrative unit in the watershed, served as the focus for the project work.

The project required high-level coordination with state committees and ministries in Russia. Representing some of the key Russian organizations at the closing conference were Boris Nabrodov, deputy minister, Ministry of Natural Resources; Alfred Viksne, department chief, Ministry of Agriculture and Food; Vladimir Volkov, director of the Moscow-Oka River Basin Management Directorate; and Robert Chizh, chair of the Moscow Oblast Committee for Environmental Protection. A number of representatives of the Istra Region Administration also participated along with a cross-section of the public involved with the project.

Watershed Management

Addressing the significant water quality problems in the region, stemming primarily from large livestock operations and rural communities, called for the expertise and analytical capabilities that exist at CARD and Iowa State University. CARD/ISU specialists used a multifaceted approach in presenting and demonstrating the methods of watershed management that have been developed in the United States. This approach

Continued on page 12
includes seven key components: baseline data collection and analysis, environmental education, demonstrations of technologies and management methods, water quality monitoring, citizen involvement, data management, and long-term strategy planning (realized in the form of a watershed management plan).

The CARD/ISU team included experienced scholars, scientists, and administrators. Stanley Johnson, CARD director and vice provost for Iowa State University Extension, led the work as principal investigator for the project. Bruce Menzel, chair of the Department of Animal Ecology, and John Pesek, professor emeritus of Agronomy, assisted in formulating project design and strategy. James Pease, assistant professor of Animal Ecology, provided the conceptual force behind the environmental education component. (See CARDreport, Vol. 10, No. 1, Spring 1997, for details about the education component.) Craig Tordsen, integrated crop management specialist for ISU Extension, worked extensively on site with Istra Region farmers to implement the agricultural demonstrations. Walt Foster, a CARD visiting scientist, helped train Russian technicians in the application of Geographic Information Systems (GIS) to environmental data management. CARD’s international project manager, Charles Sauer, spent many months in Russia directly supervising project implementation. Sandra Glass, assistant project manager, provided administrative support.

Project Highlights
The united skills of the CARD/ISU team, Russian staff, and consulting specialists yielded concrete successes in all of the project components. The most notable accomplishments include the following:

- A number of successful demonstrations of environmental management technologies and methods were conducted on area farms and in rural communities.
- An environmental education curriculum was developed and is now in use in more than 35 Russian schools.
- A cost-benefit approach employing GIS technology was applied to water quality monitoring to facilitate decision making by regional officials and citizens.
- Environmental data management capabilities (also using GIS) were established at the regional level to support decision making and long-term environmental management planning.
- A regional public ecology committee with district branches was created to bring citizens into a public dialogue with local government to solve environmental problems.
- A watershed management plan was created that adapted U.S. methodology to Russian conditions.

Sauer reports that “independent initiatives have arisen since the close of the project at the regional, oblast, and federal levels that will sustain project programs, including the creation of an international center for environmental education (in cooperation with ISU), the application of data management capabilities to a new program to analyze patterns of soil erosion in the Istra Region (sponsored by the Ministry of Agriculture and Food), and dissemination of the watershed management approach to other regions.”
**Istra Project Origins**

The Istra River Basin Small Watershed Management Project began officially in August 1994. The U.S. Agency for International Development (USAID) provided $1.7 million to the U.S. Environmental Protection Agency, Region VII, to finance the work within the framework of the Environmental Policy and Technology Project. The latter program originated with the Gore-Chernomyrdin Commission and is aimed at improving the capacity of Russian organizations and citizens to remediate environmental problems. CARD served as the principal U.S. subcontractor responsible for implementing the Istra project in Russia, while Region VII staff provided management and technical support.

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**From the Interim Director (Continued from page 4)**

John Miranowski, and me. Mrs. Heady helped to dedicate a bust of her late husband, which was unveiled at the conference. She donated a complete set of Heady’s books. Dean Topel presented a $6,000 donation from Mrs. Heady and the College of Agriculture to initiate the E.O. Heady Scholarship Fund for the Gyongyos College of Agriculture.

The experience in Gyongyos, Hungary, was a reminder of the significant value and durability of professional relationships developed across political boundaries. CARD continues to build upon the relationships established by Earl Heady decades ago in “Eastern Bloc” countries as well as in India, where we just initiated a collaboration with the Indian Council of Agricultural Research. CARD is also building new relationships, including one just initiated with the Institute of Statistical, Social, and Economic Research in Ghana, one of the success stories in the African continent. These opportunities for joint research enhance our ability to study new markets and emerging trading partners with colleagues who have firsthand knowledge of data and institutions in these markets. ■
Nine representatives of the Lithuanian dairy industry participated in a policy reform program organized by CARD and MATRIC in November 1997. The program was sponsored by a Land O’Lakes dairy project and stemmed from discussions that CARD Interim Director William Meyers had in Lithuania with Land O’Lakes project officers and Ministry of Agriculture and Forestry personnel.

Problems in the Lithuanian Dairy Industry
Dairy production is an important part of the Lithuanian agricultural economy. Since independence, however, the dairy industry has experienced difficulty. According to Meyers, the industry faces a number of problems. Domestic and export demand have declined 40 percent since 1989, so dairy production has also declined. The quality of dairy products must be improved to meet the standards of the international market.

More than 90 percent of the milk production in Lithuania is used for manufactured dairy products rather than for fluid consumption. Moreover, 50 percent of the manufactured products are exported. The Lithuanian dairy industry needs to be competitive to retain this export market.

According to Meyers, “The policy problem is how to encourage increased quality of milk and not stimulate production that can’t be marketed successfully.” In Lithuania, milk is produced on many small farms. The challenge is to cool the milk and keep it at a constant temperature until it reaches the processing plants. When this is not done, the resulting second-grade milk is more expensive to process, and the farmers receive low prices for the milk that they deliver.

Land O’Lakes, Inc., has been operating a U.S. Agency for International Development-funded project to assist the privatization and restructuring of the Lithuanian dairy industry. As with most agricultural commodities, the producers, processors, and government agencies each have different concerns and opinions regarding their industry. For example, farmers feel that the processors pay too little for the raw milk they receive, while the dairy processors feel that government interference hinders their productivity and profitability. At this stage in the project, Land O’Lakes felt that a program based on the experience of the U.S. dairy industry might be beneficial to the Lithuanians.

Policy Reform Program
Land O’Lakes chose CARD to organize the policy reform program because of CARD’s experience in Lithuania and the success MATRIC has had with previous training programs. Furthermore, the analytical capabilities available at the Food and Agricultural Policy Research Institute (FAPRI) within CARD were additionally attractive. “A number of the issues that affect dairy in Lithuania are policy issues: subsidies, price policy, credit, quality incentives, issues related to efficiency and export promotion,” said Meyers.

The individuals selected to attend the U.S. program represented the various interests involved in the Lithuanian dairy industry. The leader of the group, Dr. Vygandas Paulikas, is the state counselor on rural affairs and a senior advisor to the prime minister in Lithuania. Also included were the chairperson of the Committee on Rural Affairs of the Seimas (parliament); the president of the Milk Producers Association; the president of the Dairy Processors Association; a dairy plant director; and four experts of the Ministry of Agriculture and Forestry.
Activities in Iowa
The Iowa program, organized by MATRIC program manager Lori Dooley, was centered on a number of issues. Lithuania is now competing in an open, international market. CARD personnel and ISU dairy and food science professors discussed global outlooks, world comparisons of the dairy market, and past successes and failures of U.S. dairy policy. The function of producers, processors, and government agencies in a successful dairy enterprise and the role of producer and processor associations in conflict resolution and policy development were discussed. Government agencies are involved in the dairy industry on a number of levels, the most basic being public health and sanitation. The government’s role in regulation, data collection and dissemination, and research and development was the topic of meetings with the Iowa Department of Agriculture and Land Stewardship, the Iowa Department of Public Health, and the Iowa Agricultural Statistics Service.

The Lithuanians were able to observe the Iowa dairy industry from production through retail sales. The group visited large and small Iowa dairy operations. They were then guided through the Anderson Erickson Dairy Company plant in Des Moines. They discussed the dairy retail market with the manager of the HyVee store in Ames. Finally, they toured the Land O’Lakes Answer Farm in Fort Dodge and discussed the development of local cooperatives with Land O’Lakes personnel.

The group had a second set of meetings in Washington, D.C., with the USDA, Congressional Research Service, National Center for Food and Agricultural Policy, the World Bank, the International Dairy Federation, Senate Agriculture Committee Staff, and the American Farm Bureau Federation. Meyers, along with MATRIC program assistant Julie Tritz and Former U.S. Congressman Neal Smith, accompanied the group.

An Anderson Erickson Dairy Company (located in Des Moines, Iowa) employee explains AE operations to the Lithuanian visitors.
The impact of biotechnology on producers and consumers was one of the topics discussed at the 1998 National Forum for Agriculture in Des Moines. “Hello Dolly: The Biotechnology Revolution for Agriculture has Arrived” was the theme for the event, which was organized by CARD, ISU Extension, and the Greater Des Moines Chamber of Commerce Federation.

Diane Birt, chair of the food sciences and human nutrition department in the ISU College of Agriculture, told the group biotechnology isn’t as new as some people might think. “The first genetically-engineered plants appeared 16 years ago. Field tests have been under way for 12 years, with work on 60 crops in 45 countries,” she said.

Work to improve agronomic and quality traits of plants came first, Birt said, with researchers now starting to turn their attention to plant modifications that would provide greater consumer benefits.

For instance, at ISU’s Center for Designing Foods to Improve Nutrition, researchers are exploring why eating more fruits and vegetables seems to reduce the risk of breast cancer in some women. She said once the right food compounds are isolated, biotechnology could allow the production of plants that provide these compounds in greater quantities. Birt said 48 products were commercialized in 1993-94 that were the result of biotechnology, and more than 50 million acres of genetically-modified plants are expected to be planted this year.

Prem Paul, associate dean of research in the ISU College of Veterinary Medicine and assistant director in the ISU ag experiment station, said the heightened public interest in biotechnology is the result of recent animal clonings. But he said the future of biotechnology’s impact on animals will be in other areas, such as new products that will make animals more productive, in new animal vaccines or the use of animals to produce drugs for humans.

“We see the development of designer animals that will offer such things as higher milk production, improved meat quality, larger litter size, production of drugs for treatment of human diseases or the use of animal organs and tissues as a source of organs for humans,” he said. Paul said research in this “designer animal” arena will be more prevalent in the next five to 10 years.

Jerry Hatfield, director of the National Soil Tilth Laboratory on the ISU campus, talked about biotechnology and its impact on sustainable agriculture. “Can we build an economic and environmental system that is a win-win for everyone?” he asked. “Some may think this has to be an either-or situation, but I think the two can be compatible. My opinion is that biotechnology is a positive for sustainable agriculture in the future.”
Sheila Martin was a research associate at CARD from 1987 to 1992. She worked in CARD’s Rural Development Division, assisting Dan Otto, Helen Jensen, and Stan Johnson with a variety of rural economic development studies. She explored alternative data sources for rural economic development research, profiled the rural areas of several states, coauthored a primer on developing rural profiles, and studied the effectiveness of state policies designed to encourage the development and diffusion of new technologies. She studied the latter as part of her dissertation research, which focused on the impact of state industrial extension programs on productivity and economic development.

Currently, Sheila is a senior economist in the Center for Economics Research at Research Triangle Institute in North Carolina. She leads RTI’s emerging research program in Technology Economics and Policy. Her clients include the National Institute of Standards and Technology. For NIST, she has examined the impact of programs such as the Advanced Technology Program, the Laboratory Programs, and the Manufacturing Extension Partnership on private and social welfare. She has also conducted similar analyses for the U.S. Environmental Protection Agency and the North Carolina Department of Commerce. While at RTI, Sheila has also studied the economics of food safety for the Food and Drug Administration and the U.S. Department of Agriculture and has examined the potential economic benefits of implementing industrial ecology for the EPA.

Sheila married Thomas Smith in 1995 after a three-year courtship that began in 1992 on a bicycle tour of Door County, Wisconsin. Thomas works for AT&T as a voice network administrator. Thomas and Sheila still enjoy cycling, and plan to continue bicycle touring with their daughter, Theresa Rose Smith, who was born in February 1998.
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