Agriculture and Natural Resources Extension

Program Themes

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ANR Extension is:

- **Two colleges**
  College of Agriculture
  College of Veterinary Medicine

- **Twelve departments – extension and research leadership**
  Agricultural and Biosystems Engineering (2)
  Agronomy (10)
  Agricultural Education and Studies (2)
  Animal Science (13)
  Economics (8)
  Entomology (4)
  Food Science and Human Nutrition (1)
  Horticulture (7)
  Natural Resource Ecology and Management (2)
  Plant Pathology (4)
  Sociology (5)
  Veterinary Diagnostic and Production Animal Medicine (3)

- **Ten centers and special initiatives – extension and research leadership**
  Beginning Farmer Center
  Center for Crops Utilization Research
  Corn and Soybean Initiative
  Iowa Beef Center
  Iowa Pork Industry Center
  Manure Applicator Certification
  North Central Aquaculture Center
  Pesticide Applicator Training
  Soybean Rust and Aphid Initiatives
  Value-Added Agriculture

- **Field specialists in seven areas – educational leadership**
  Agricultural Engineering (5)
  Beef Production Management (7)
  Commercial Horticulture (2)
  Crops Production and Protection (12)
  Dairy Production Management (3)
  Farm and Business Management (10)
  Swine Production Management (6)

(#) Number of extension specialists in each subject matter group
Base Program

Base programming involves extension and research activities that support profitable and efficient agricultural producers and businesses, rural vitality and development, value-added opportunities and assistance, and protection and enhancement of natural resources. Base programming is fundamental to the land-grant mission of applying and sharing knowledge grounded in the best science.

ANR Extension’s base program matches the Experiment Station’s base program:

1. Plants and Their Systems
2. Animals and Their Systems
3. Natural Resources and Environment/Engineering and Support Systems
4. Family and Community Systems
5. Economics, Markets, and Policy
6. Food and Non-Food Products
7. Human Nutrition, Food Safety, and Human Health and Well-being

Corn, soybeans, cattle and hogs consistently account for nearly 90 percent of Iowa farm marketing receipts.

From 2000 through 2003, Iowa...

- Was first or second in the nation in annual sales for corn, soybeans and hogs
- Was the sixth largest marketer of cattle in the nation
- Generated more than one-fifth of the corn and hogs sold in the nation
- Generated nearly one-sixth of the soybeans sold in the nation
- Reclaimed the title of number one egg producer in the nation
- Was eighth in total dairy processing (2004)

Iowa is consistently the third largest supplier of agriculture commodities in the nation, following California and Texas.
Target Program

Target programming involves extension and research activities that relate to the rapidly changing political, social and economic environment in Iowa. Programs address specific needs and focus on outcomes that foster opportunities and resolve chronic issues. Target programming is fundamental to the land-grant mission of working directly with Iowans to help them prosper through the best science.

ANR Extension has a competitive advantage in target programs:

- Match ISU, ISU Extension and College of Agriculture strategic plans
- Address critical issues vital to state's future
- Recognized by “grassroots” and “grasstops” stakeholders

ANR Extension's target program focuses on identified themes that will evolve and change over time. Target programs being discussed with state and local stakeholders are:

- Economic Development: Agriculture
- Growing Iowa's BioEconomy
- New Agricultural Enterprises, Opportunities, and Linkages
- Beginning Farmers and the Next Generation of Agriculturists
- Entrepreneurship Development
- The New Rural Iowa
- Rural/Urban Communication and Relationships
- Natural Resources and Environmental Stewardship
- Food Safety and Security
- Serving Iowans and New Audiences
- Leadership Development

These 11 target programs are summarized on the following pages.
Economic Development: Agriculture

- **77 of Iowa’s 99 counties are non-metro.**

According to the 2000 U.S. Census, 77 of Iowa’s counties are considered as rural or small urban. A rural county does not contain a community of at least 2,500 persons (2,500 is the census definition of an urban place). A small urban county has fewer than 20,000 persons living in all urban places in the county. In many of these counties, agriculture forms the basis of economic activity with many opportunities for enhancing economic and rural development.

- **Ag processing comprises more than 21% of Iowa manufacturing.**

Agricultural processing (including food, ethanol, biodiesel, and animal feed) is the largest sector of Iowa’s economy and consists of more than 21% of the state’s manufacturing base. The combined 8.22% of Iowa GSP (gross state product) generated by ag production and food processing in 2002 was the highest combined proportion in the nation.

- **Ag production and processing was 8.22% of GSP in 2002.**

According to The Main Street Economist, November 2003, “The economic imperative facing every region in the nation is building a source of competitive advantage in the global marketplace. It is no longer good enough to be the best region in the state in producing a particular product, or even the best in the nation. A region’s niche must stand the test of the global market. Whatever the niche, it must include exporting something beyond the region, whether in the U.S. or beyond.”

- **Diversification can enhance the income of farmers.**

Diversification within and beyond agriculture also can make important contributions toward reducing our energy dependence, enhancing homeland security, and helping to improve the performance of Iowa’s economy and community vitality. Among the possibilities are expansion of livestock production, new biotech products, ethanol, biodiesel, wind generation and other entrepreneurial initiatives.

Working together, Iowans can explore new opportunities for small, medium and large farms to develop new markets, products and processes. Creating new opportunities in Iowa’s rural regions also can serve to increase the employment and income opportunities for farm as well as non-farm families that will help sustain Iowa’s communities and statewide economy.

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Growing Iowa’s BioEconomy

- 4% of U.S. fuel is produced from biomass.

- 20% of U.S. fuel is expected to be produced from biomass by 2025.

Due to declining oil reserves in the world, increasing demand for oil from developing countries around the globe, and growing need to improve rural economies, the U.S. Department of Energy has set targets to produce 20% of U.S. liquid fuel from biomass by 2025.

- Iowa is the top ethanol-producing state in the United States.

Iowa moved from No. 2 to No. 1 in ethanol production in 2005, processing 360 million bushels of corn into 975 million gallons of ethanol. As of October 2005, Iowa has 18 plants producing ethanol and another eight plants in the building or planning phase. The ethanol industry has created 6,000 jobs directly and indirectly and in 2005 will have more than $4.6 billion in sales and will make $221 million in income payments. The industry purchases more than $870 million worth of Iowa corn annually. Eighty-six percent of Iowa’s ethanol is exported out of state. Most of Iowa’s ethanol and biodiesel production capacity is owned by farmers, with more than 5,000 farmer investors in ethanol and more than 3,000 farmer investors in biodiesel.

- Biorefineries produce fuels, power and products from crops and crop residue. Ethanol and biodiesel plants will become integrated biorefineries.

This will require that ethanol be produced from lignocellulose (crop residues and dedicated energy crops like switchgrass), as well as starch (corn). New systems will need to be developed for harvesting, transporting and storing lignocellulose crops. New processing technologies also will need to be developed, piloted and commercialized.

- Other renewable energy alternatives, such as wind power, also have potential for reducing dependence on oil.

The bioeconomy provides the opportunity to increase the number of jobs in the state, and raise incomes for Iowans. Iowa must make strategic investments in research and development of the industry to fully realize these opportunities.

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New Agricultural Enterprises, Opportunities and Linkages

- Iowa value-added agriculture products create jobs and wealth.

Value added agriculture and further processing of Iowa’s ag products provides jobs and wealth creation for Iowans. More than 8 percent of Iowa’s gross state product is related to ag production and food processing. More than $15 million has been allocated to Iowa producers for working capital, marketing and feasibility studies to further develop their value added ag enterprises through the USDA Rural Development Value Added Ag Producer grants.

- Iowa is a leading state in the number of farmers’ markets.

There are more than 175 farmers’ markets in Iowa, making it one of the leading states in the number of markets in the United States.

- Specialty foods production, niche markets and value-added opportunities increase each year.

Iowa has more than 490 orchards and 750 farmers growing vegetables. Also, there are more than 50 community supported agriculture associations in Iowa, and more than 280 vineyards with 650 acres in grape production.

- Markets for organics increase by more than 20% annually.

Extension and research opportunities exist to assist producers and entrepreneurs develop new tools and skill sets related to selling directly to consumers, preparing feasibility studies, market studies, and business plans, and determining production and marketing strategies for market-driven products.

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Beginning Farmers and the Next Generation of Agriculturists

- Nearly 25% of Iowa’s farmers are 65 years or older and 7% are younger than 35 years.

Iowa and the nation are losing farmers, especially young farmers, at an alarming rate. According to the Census of Agriculture, the percentage of Iowa farmers over the age of 65 surpassed the percentage of farmers under 35 almost a decade ago. In 1987, 19 percent of Iowa farmers were under 35 and 16 percent were over the age of 65. This age discrepancy has continued to erode and shows no signs of abatement. In 2002, only 7 percent of Iowa farmers were under 35 and 25 percent were over the age of 65. The situation in the United States is very similar to Iowa.

- A majority of Iowa farmers work off the farm at least part of the year.

Against a backdrop of the increasing age of farmers and the increasing cost of farming, many people wonder about the future of production agriculture and who will farm the land.

- Significant changes in land ownership will occur over the next several years.

The Beginning Farmer Center was started by the Iowa Legislature in 1994. ISU Extension, in conjunction with the ISU College of Agriculture Experiment Station, fund the center. The Beginning Farmer Center offers a variety of programs including FarmOn, which is designed to link unrelated retiring and beginning farmers, and AgLink, which is a seminar for students who are returning to the farm and their parents.

- Value-added agriculture businesses could hold the key.

The most recent survey of Iowa’s high school agriculture programs shows there are 16,000 students studying agriculture in 240 Iowa high schools, compared with 9,000 students in 1990. Curriculum changes have broadened the scope of agricultural education classes. Youth are learning about all aspects of agriculture, including marketing, processing and biotechnology.

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Entrepreneurship Development

- **Iowa ranks 49th in small business startups.**

Iowa ranks 49th in small business startups, according to a U.S. Small Business Administration report released in August 2004. To underscore this point, the Community Vitality Center at Iowa State interviewed leaders in eight non-metropolitan case study communities. They all were able to identify major employers that started as homegrown industries in an earlier decade, but could identify only a few current efforts to facilitate and support local startups. A balanced approach to economic development would include retention and expansion programs for existing business, programs to attract new firms and spending into the local community and initiatives to support entrepreneurial startups.

- **Just 10.5% of U.S. adults are involved in entrepreneurial activities.**

The key to entrepreneurship is putting innovation into commercial practice. Successful entrepreneurs can come from any income group and can provide successful contributions to any industry where there is a market opportunity.

- **Entrepreneur support networks tend to be less developed in non-metro communities and rural regions.**

According to a national report by the Kellogg Foundation and the Corporation for Enterprise Development, community capacity to support entrepreneurial networks is often a missing link in rural regions. Part of the challenge in rural states like Iowa is to stimulate community and regional entrepreneurial initiatives that build local capacity and can be linked to regional and statewide resources, expertise and networks.

- **Iowa leaders and citizens are interested in entrepreneurial support.**

In the Community Vitality Center study, strong interest in entrepreneur support initiatives was expressed, as long as they can be conducted on a cost effective basis. Two years ago, the center sponsored 10 forums on entrepreneurship across Iowa in which 88% of participants favored community initiatives to support entrepreneurs and 67% favored linking local entrepreneurs and support capacity with regional expertise and resources. Only 11 percent favored the traditional approach of self-help entrepreneurship without public support or initiatives. For rural communities that lack the ability to attract industry, entrepreneurship often represents a more important portion of the local economic development portfolio.

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The New Rural Iowa

- Iowa’s population is classified as 33% rural nonfarm.

According to the 2000 U.S. Census, there are 2,926,324 people living in Iowa, with 61% living in urban areas, 33% rural nonfarm and 6% living on farms. Rural nonfarm was the fastest growing segment during the 1990s, up 134,000 or 16% while the farm population decreased 85,000 people or 33%. This changing rural Iowa is most obvious within the commuting radius of urban areas, but also is occurring in the most rural of counties. Some of the most farm-oriented counties (i.e. Howard, Mitchell, Osceola, Shelby) in Iowa have 2.5 times more nonfarm residents than farm residents.

- Recreational land purchases are increasing in some areas of the state.

A growing percentage of land purchases in some regions is for recreational purposes by nonfarmers.

- Acreage owners have questions about country living issues.

Acreage owners often have small crop, livestock and horticultural enterprises and need technical information. Environmental risks associated with rural water and septic systems need to be understood and managed. The higher income households tend to have more disposable income to spend on inputs, improvements and enterprises.

- Quality of life issues are requiring new emphasis on infrastructure and amenities.

The expectations of these new rural Iowans regarding farm activities (odor, dust, noise), recreational opportunities and community involvement may differ. They also may have land they are willing to rent to neighboring farmers and need to understand the practices, culture and responsibilities.

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Rural/Urban Communication and Relationships

- **22 of Iowa’s counties are classified as urban.**

Iowa’s population is growing rapidly in the state’s 22 urban counties. And while many urban and rural nonfarm people grew up on a farm, have family farming, or own farmland, they often are not familiar with modern farm practices.

- **Expanding cities bring new neighbors to farm communities.**

These new neighbors often are more concerned about water and air quality and recreational amenities than a generation ago. Increasingly this creates confrontation between farmers and neighbors.

- **Odors, dust, noise, machinery and chemicals create concern for nonfarm neighbors.**

There is a need for farmers to effectively communicate with neighbors and others about how they grow crops and livestock, the safety of the practices, and the measures taken to protect the environment. Improved communication between farm and nonfarm neighbors is needed.

- **Declining political clout of rural areas requires good public relations with nonfarm audiences.**

Many urban and rural nonfarm Iowans have strong feelings about farming and are interested in preserving the rural landscape. Opportunities exist for small rural businesses catering to this demand. Biking and hiking trails, on-farm bed and breakfast, and community supported agriculture are some examples.

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Natural Resources and Environmental Stewardship

- Sediment, nitrogen and phosphorus levels are water quality issues.

Many of the water quality problems in Iowa are caused by non-point sources (NPS). NPS sediments and nutrients are carried by runoff as it flows over land to receiving waters resulting in decreased water depths as well as decreased water quality. Sources for these pollutants include both agriculture and open land-use areas, e.g., urban areas, construction sites, roads and parking lots. Also, pesticides, pathogens, salts, oil and grease often are transported.

- Ag production and processing systems need to consider air and water quality effects.

Iowa has made natural resource conservation gains, especially since the passage of the 1985 Farm Bill. Thousands of acres of prairie reconstruction have been planted. Iowans have restored more than 100,000 acres of wetlands and adjacent uplands since 1985. Woodland acres have increased about 1.1 million acres since 1975.

- CRP expiration 2007-2010.

Conservation Reserve Program contracts on 1,326,915 acres of Iowa land will expire between 2007 and 2010. These acres could revert to crop production or pasture, depending on the ability to re-enroll in CRP and the economic and environmental options available.

- Conservation of prairies, wetlands and woodland has increased.

With lots of special programs, tree planting, prairie restoration and wetland installations have increased significantly over the past 20-30 years. A new issue is the explosion of invasive plants, both woody and non-woody in Iowa’s woodlands.

- Exotic species threaten Iowa waters.

Exotic and non-native aquatic animals and plants threaten Iowa's waters. Impacts can include displacement of native species as well as a change in Iowa’s native ecosystems.

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Food Safety and Security

- **Five food pathogens cost $6.9 billion a year.**

In 2000, medical costs, productivity losses, and costs of premature deaths from diseases caused by five foodborne pathogens were estimated at $6.9 billion per year. The five bacterial pathogens included are *Campylobacter* (all serotypes), *Salmonella* (nontyphoidal), *E. coli* O157, *E. coli* non-O157 STEC, and *Listeria monocytogenes*.

- **Bovine spongiform encephalopathy (BSE), foot-and-mouth disease, soybean rust and other pathogens threaten the agriculture economy.**

- **Greater traceability within the food chain is expected.**

Traceability systems help firms minimize the production and distribution of unsafe or poor-quality products, which minimizes the potential for negative publicity, liability and recalls.

- **Agro-terrorism is a concern to the nation’s food supply.**

By themselves, traceability systems do not produce safer or higher quality products. These systems help buttress the overall safety system, providing information about whether or not control points in the production or supply chain are operating correctly. Many buyers, including many restaurants and some grocery stores, now require their suppliers to establish safety/quality traceability systems and to verify, often through third-party certification, that such systems function as required. The growth of third-party standards and certifying agencies is helping to push the whole food industry — not just those firms that employ third-party auditors — toward documented, verifiable traceability systems.

- **Biosecurity and certification standards reduce foodborne risks.**

Food standards are a necessity to both consumers and the food industry. They maintain the general quality of a large part of the national food supply and prevent economic fraud. Without standards, different foods could have the same names or the same foods could have different names. Both situations would be confusing and misleading to consumers and create unfair competition.

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Serving Iowans and New Audiences

- Iowa farm operators by race:
  
  Caucasian = 90,472  
  Hispanic = 380  
  American Indian = 61  
  African American = 31  
  Asian & Pacific Islander = 27

More extension publications, including the Master Gardener Calendar, now are offered in Spanish. Small tract vegetable production and meat and milk goat production are of particular interest to the Hispanic farm audience.

- Amish and Mennonite farmers

Existing communities are growing. These new families bring agriculture diversity to Iowa. Extension offers ongoing programs which meet the unique cultural learning needs of the Amish and Mennonite communities.

To accomplish educational goals, an attempt is made to identify the leader in each group (livestock, horticulture, equine, etc.) who the community respects and follows. Examples of programming efforts include economics in livestock marketing, livestock and crop production, nutrition, produce and horticultural auction markets.

New Mennonite communities bring young families with diverse farming operations back to some counties. For example, Chickasaw, Floyd, Howard and Mitchell Counties have gained nearly 200 new farm families over the past 10 to 15 years. These diversified farm family units generate income predominately through dairy, greenhouse flowers, commercial vegetable and fruit production and crafts. These families are familiar with extension from past experience and look to ISU Extension for information and support.

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Leadership Development

• Rural and community development depends on leaders.

Leadership is becoming a critical area of concern in rural and community development. Rural and community development can only be enhanced through the efforts of leaders. Leadership is part skill and part art and requires study, practice and experience.

• Women in agriculture – they own 47% of Iowa farmland, and are the principal operators of 6,000 farms.

Programs that target women in agriculture are vital. Some examples include:

- Annie’s Project - education and training in five risk management areas of agriculture.

- Women, Land and Legacy - a partnership that provides a local network of women producers who develop local needs education for farm women.

- Overall Women in Agriculture - a two-day conference focused on issues and educational opportunities that meet the needs of farm women in eastern Iowa.

- Women in Denim - a two-day conference focused on issues and educational needs of farm business partners in west central and northwest Iowa.

• ISU College of Agriculture – there are more than 100 students participating in leadership education and learning from real-life problems and challenges.

Leadership courses, programs and workshops need to focus on applying leadership principles to real-life problems and challenges. Each year more than 100 students enroll in ISU College of Agriculture undergraduate and graduate level courses in leadership education.

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