Cooperative Extension Service On-Farm Demonstration Projects

Gerald Miller
Iowa State University
Demonstration projects at Iowa State University are a major program thrust supported by separate contracts with state agencies. The projects are

• the Integrated Farm Management Demonstration Project,
• the Big Spring Basin Demonstration Project, and
• the Model Farms Demonstration Project.

The Integrated Farm Management Demonstration Project

The Integrated Farm Demonstration Project is designed to help Iowans help themselves - to balance our need for efficient and profitable crop production with our need for safe drinking water and environmental protection. It is a cooperative effort of Iowa's state agencies, universities, private foundations, and Iowa farmers.

The project implementation demonstrates environmental protection through reduction in soil erosion and chemical runoff to surface water; reduction of leaching losses of chemicals below the root zone; and through the integration of chemical management with conservation tillage, land treatment, and cropping sequences. The project demonstrates reductions in energy consumption through reduced conservation tillage, and reductions in the use, or improvements in the efficiency, of chemical fertilizers and pesticides.

Through reduced energy and chemical inputs, the project also demonstrates greater efficiency as a way to enhance profitability in farming across Iowa.

Best Methods: Benefits for Us All

The Integrated Farm Management Demonstration Project is an interactive demonstration and education project. Project staff work with farmers and the agribusiness community to implement the best, innovative, available crop production technology to protect soil and water resources, reduce energy consumption, and enhance the profitability of Iowa's most important industry -- agriculture. It is a five-year program that started in crop year 1987 and will work with farmers throughout Iowa. Field demonstration projects that include integrated tillage, nutrient and weed management practices are being implemented with farmers in every county in Iowa during the five-year project. Innovative education programs will bring the results to the agricultural community and the people of Iowa to help them adopt more integrated practices that preserve and improve the quality of Iowa's resources.

Benefits for Farmers

Improve fertilizer and nutrient use and reduce cash inputs by

• Developing realistic yield goals
• Properly using soil tests
• Taking appropriate nutrient credits for crop rotations
• Using manure as a resource
• Evaluating refined application and soil test methods

**Make pest control more efficient and reduce pesticide use and exposure by**
• Using Integrated Pest Management
• Calibrating equipment properly
• Banding to reduce amounts applied
• Demonstration of cultivation with and without herbicides
• Demonstrating weed management practices

**Improve overall management by**
• Developing realistic yield goals
• Using crop enterprise records
• Better adapting appropriate techniques to particular operations and soils

**Reduce tillage and control soil erosion**
• Demonstrate alternative tillage management practices
• Evaluate no-till as one treatment at each location

**The Big Spring Basin Demonstration Project**

The goal of this project is to develop a non-regulatory program to reduce the potential environmental impacts of agriculture and to enhance the efficiency and profitability of farm management.

This project is being carried out in the following manner. Through public education and marketing an increased understanding of groundwater quality issues, of the condition of groundwater supplies, and groundwater’s relationship to agriculture is being developed together with farmers and agribusinesses; also, attitudes facilitating the use of technologies which reduce potential chemical, nutrient, and sediment contamination are being influenced.

On-farm demonstrations are providing farmers and agribusinesses with the “know-how” to implement improved management technologies. Interactive education-demonstration-monitoring components are identifying research needs to further the development of improved farm management technologies. The programs are being monitored to document environmental improvements and changes in management technologies.

One on-farm demonstration being implemented at four locations is improved alfalfa establishment and management. This demonstration includes seed selection, maintaining proper fertility levels, planting techniques, monitoring for weed, disease and insect populations, and timely harvesting.

Through on-farm demonstrations, now in the third crop year, the Project has illustrated the potential to reduce input costs on the “average farm” by $3,000 to $4,000 per year. The reduction in tillage and chemical use this entails is the energy equivalent of approximately 3,000 gallons of diesel fuel per year. The energy equivalent of the fertilizers and chemicals used on the “average” 160 acres of corn in Iowa is one billion BTUs.
Model Farms Demonstration Project

The purpose of this project is to develop five areas of concentrated farm demonstration and education programs that will accelerate the voluntary adoption of improved farm management practices that reduce the environmental impacts of Iowa agriculture, reduce agricultural consumption of non-renewable energy resources, and enhance the efficiency and profitability of farm management. The programs will be based on the successful experience gained in the Big Spring Basin and Integrated Farm Management Demonstration Projects.

The five areas have been selected on the basis of the following criteria:

• Geographic distribution: the five areas are distributed around the state to provide regional focal points to enhance the more rapid adoption of improved farm management practices.

• Soil-crop-climatic variations: the areas are located to cover some of the major soil regions of the state and some of the cropping and farm management concerns unique to each region.

• Local resources: experience from the Big Spring Basin and Integrated Farm Management projects have shown that to be immediately successful in developing such programs, particular local resources should be available, such as local personnel (for example, extension agriculturalists), other established programs, and local institutions with appropriate programs, such as DALS Water Quality Protection Fund Projects.

• Local Organization: Projects will be operated from local county Extension offices.

• Local Project Elements: In each area a target audience is being defined, to help establish an identity for the projects. In each area a total integrated farm management package will be delivered, including
  • Nutrient management
  • Enterprise record-keeping
  • Integrated pest management
  • Banding of herbicides coupled with appropriate limited cultivation
  • Improved conservation tillage

The five sites will be located in the following areas

• Southeast Iowa: Near Danville, Des Moines County, and near Crawfordsville, Washington County
• South Central Iowa: Clusters of farms in Lucas and Clarke Counties
• Audubon and Carroll Counties
• Sioux County
• Kossuth County

117