



Organic farming demonstration project— eastern Iowa

Abstract: On-farm demonstration sites were developed in Dubuque and Jackson County to show interested producers some of the proven organic farming practices that are available.

Background

Land in organic crop production in Iowa increased from 13,000 acres in 1995 to more than 100,000 acres in 2000. In contrast to conventional farmers, producers interested in transitioning to organic production have limited ways to obtain science-based information about production practices.

Interest in organic production in eastern Iowa had been demonstrated through increased participation in organic farming conferences and telecommunications seminars. These events promoted organic farming as a value-added niche for sustainable farm operations in eastern Iowa. One of the needs identified through these promotional efforts was the establishment of on-farm demonstrations to show interested producers how to utilize proven organic farming practices.

In 1999, this project was initiated by the Organic Farming Committee of the Limestone Bluffs Resource Conservation & Development (RC&D), Inc., in cooperation with the Iowa State University organic crops specialist.

The objectives of the project were to:

- Establish organic farming demonstration plots in eastern Iowa as part of a statewide Long-term Agroecological Research Program (LTAR),
- Incorporate information gathered from existing certified organic farmers on practices to use in the demonstration sites,
- Hold field days at demonstration sites for organic and transition farms to showcase

organic farming practices, and

- Summarize production and economic data for distribution at conferences and throughout the mass media.

Approach and methods

The demonstration involved two sites in eastern Iowa. The Andrew Jackson Demonstration Farm (AJDF) was selected for the herb and vegetable crop trials. The AJDF is a private, non-profit corporation that manages a 380-acre tract owned by Jackson County (near Andrew) as a site to demonstrate emerging farming practices.

The New Melleray Abbey in Dubuque County was chosen as the site for the organic farming experiments with corn and small grains. New Melleray Abbey has over 300 acres devoted to organic production and is a cooperating partner with Practical Farmers of Iowa. The Abbey site demonstrated the use of flame cultivation as an alternative for weed control in organic corn production and the use of compost as a soil amendment and fertilizer in organic crop production.

Direction for the project came from a coordinating committee that developed specific demonstration plans each year. The committee included local organic producers along with Iowa State University, Limestone Bluff RC&D and ISU Extension staff. Each site also had a project manager.

Principal Investigator:

Warren Johnson
Limestone Bluffs
Resource Conservation
& Development

Co-investigator:

Kathleen Delate
Horticulture and
Agronomy
Iowa State University

Budget:

\$13,000 for year one
\$13,000 for year two
\$13,000 for year three

Question: Where can persons interested in organic farming practices find hands-on information on successful methodology and production practices for organic farming production? **Answer:** The organic farming demonstration sites in Jackson County and New Melleray Abbey provided a location for persons interested in organic farming to attend field days, ask questions, and view results of proven organic farming practices. These practices included flame cultivation for weed control in organic corn, use of compost as a soil amendment, in mechanical weed control, and uses of mulches in the production of a wide variety of herbs and vegetables crops in an organic demonstration plot.

St. John's-wort



Results, discussion, and conclusions

At the Andrew Jackson Demonstration Farm:

1999—The organic farming work was initiated in 1999 on 7.5 acres. Crops planted on one acre included *Echinacea* (coneflower), St. John's-wort, bell peppers, and basil. Organic clear-hilum soybeans and white corn were planted on the remaining acres. Weed pressure, especially from lambsquarter and giant ragweed, was high.



**Echinacea
(coneflower)**

The plots for *Echinacea*, St. John's-wort, and peppers were subdivided with one half of the area planted using seed and one half using transplants started in a greenhouse by Iowa State University. The basil was all planted from seed. The most successful stands of the *Echinacea*, St. John's-wort and peppers were established using plants rather than seed. Significant weed competition resulted in poor emergence from those plots planted with seed. The basil germinated faster than the other crops so it had a chance to get ahead of weed competition. The basil and bell pepper crops were excellent. More than 200 people visited the demonstration site during the 1999.

2000—The Jackson County site concentrated on vegetable and herb crops on approximately one acre. The rest of the 7.5 acres were seeded to a forage crop to help stem the weed problems. The *Echinacea* and St. John's-wort established in 1999 were maintained by mulching with oat straw grown on site to help control weeds. A crop of St. John's-wort was harvested and dried at the end of June. In August the St. John's-wort was affected by anthracnose from wet weather conditions and the *Echinacea* was plagued by aster yellows.

Grape cuttings were added as a demonstration of a nursery crop. Three varieties of grape cuttings were planted April 10 in 38-inch rows with cuttings placed about six inches apart.

The cuttings rooted and grew extremely well in the 2000-growing season with approximately 1,200 rooted plants being established for transplanting to new vineyards in the spring of 2001.

Vegetable crops of green pole beans, beets, broccoli, cabbage, carrots, cucumbers, lettuce, melons, onions, red and green bell peppers, radishes, spinach, winter squash, sweet corn, and tomatoes were established. Flower crops of bachelor buttons, calendula, and chamomile were established. In addition, herbs such as dill, garlic, parsley, sunflowers, and thyme were planted. Planting was completed by hand and with a single row seed planter. A multivator was acquired and used for weed control along with hand weeding and organic mulching. No other soil amendments were used. On July 6, an infestation of cabbageworms was observed and on July 8 an approved organic spray was applied and proved effective. Most of the crops were very good except sweet corn and melons. An open-pollinated sweet corn was used and insects damaged the melon crop. More than 100 people visited this site in 2000.

2001—A new research component was added. A high tunnel (poly-greenhouse) season extender was constructed at the demonstration site and used for tomato and green pepper production throughout the growing season. For comparison purposes, floating row covers and black plastic mulch were used as methods to extend seasons in the field.

Field crops grown in 2001 included beans, cabbage, carrots, cucumbers, lettuce, melons, onions, parsley, peas, bell peppers, squash, tomatoes, lemon balm, yarrow, *Monarda*, chamomile, thyme, and *Echinacea*. The season extension crops included Sunstart™ tomatoes, both in the greenhouse and the field, along with bell peppers. The tomatoes began producing fruit in the greenhouse approximately two weeks ahead of the field crops and harvest continued through December 2001. The crops

were marketed through subscription sales, farmers markets, and deliveries to local restaurants. The greenhouse tomatoes were used in the all-organic meal at the Iowa Organic Conference in November 2001.

In 2001 an application for organic certification was submitted to the Iowa Department of Agriculture and Land Stewardship for the one acre used in the herb and vegetable demonstration project. The site was inspected in September and the application for organic certification is pending. Two field days were held at the organic demonstration site with more than 100 total attendees.

At New Melleray Abbey:

1999-2001 The focus of the organic demonstration at the New Melleray Abbey was on flame weed control in organic corn production and use of compost as a soil amendment and fertilizer. The use of a flame cultivator was demonstrated at the New Melleray Abbey Field Day in June during each of the three years of the project. Flaming significantly increased crop yields and reduced the number of broad-leaf weeds and grasses.

The compost field trials at New Melleray Abbey received 15 tons of compost per acre that were incorporated into the soil with standard row crop tillage equipment. The expense of producing finished compost prevented the use of more than 15 tons per acre. There was not a significant increase in yields where compost was applied; however, compost in organic crop production in conjunction does seem to greatly enhance soil tilth.

Education and outreach

Field days were held at each location during each year of the project with total attendance of around 400 people.

*For more information
contact Warren
Johnson, Limestone
Bluffs RC&D, 1000
East Platt Street Suite
4, Maquoketa, Iowa
52060, (563) 652-5104*