

## **Introduction to Iowa's Organic Transition Experiments**

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In 1997, Iowa State University (ISU) established the first full-time faculty position in Organic Agriculture at a land-grant university. Focus Groups held by the ISU organic specialist and the sustainable agriculture coordinator determined the need for long-term evaluations of multiple organic agriculture systems around the state. With funding from the Leopold Center for Sustainable Agriculture, four long-term organic transition sites were established in Iowa: the Neely-Kinyon Long-Term Agroecological Research (LTAR) site in Greenfield, Iowa (southwest–agronomic crops), the Crawfordsville LTAR (southeast–agronomic crops), the Muscatine LTAR (southeast–vegetable crops), and McNay LTAR (south central– agronomic crops). These sites were designed to examine the short- and long-term physical, biological, and socioeconomic effects of organic and conventional farming systems. All aspects of soil quality and pest status, as affected by the farming system, are included in the agroecological analysis. Feedback from the local farm associations that are responsible for farm stewardship and farm finances at the LTAR sites is considered an integral part of the LTAR process.

By establishing long-term experimental sites in four distinct agroecological zones in Iowa, researchers could test the hypothesis that longer crop rotations, typical of organic farms, would provide yield stability, improve plant protection, and enhance soil health and economic benefits compared to conventional systems with shorter rotations and greater off-farm, synthetic inputs. Spatial and temporal variation in physical, chemical, and biological soil constituents are quantified in all LTAR sites to identify changes in soil quality, a key component of sustainable farming systems. Because organic farmers undergo organic certification to obtain premium prices, adherence to certified organic practices and third-party certification of all organic research fields are important components of these projects. Supporting factors for long-term research, identified at the Focus Group meetings, included the recognition that, because most farmers begin their transition into organic production from conventional fields, a minimum of three years of research was needed, as required for organic transition. In addition, organic farmers reported improvements in soil quality and plant productivity after several years of organic management, and only longer research trials could elucidate this effect. By involving local farmers in the planning process, experimental design, sampling protocols, and review of research results in the long-term experiments, we sought to obtain outcomes that would benefit the entire community.

Financial support for these long-term sites was secured through grants written by the organic specialist, with cooperators located in research and Extension faculty from ten Iowa State University departments, a local farm association, and the Adair County Extension office. The Leopold Center for Sustainable Agriculture provided the initial investment in the organic research program, funding a full-time technician to support the organic specialist. Grants were also secured from the USDA-North Central Region Sustainable Agriculture Research and Education Program (SARE), and the USDA-IFAFS (Initiative for Future Agricultural and Food Systems) program. The interdisciplinary

nature of the LTAR program is reflected in the diverse disciplines of the ISU staff working at the site, an the inclusion of an Organic Marketing Cooperative and four organic seed companies who provide materials and marketing support.

### **Publications Resulting From This Work**

- Delate, K. and J. DeWitt. 2004. Building a farmer-centered land grant university organic agriculture program – A Midwestern partnership. *Renewable Agriculture and Food Systems (Formerly The American Journal of Alternative Agriculture)* 19(1): 1–12.
- Delate, K. 2004. Serving Organic Growers Through Innovative Outreach and On-farm Research. 2004 American Society for Horticulture Science Annual Meetings Abstracts, ASHS, Alexandria, VA.
- Delate, K. 2002. Using an agroecological approach to farming systems research. *HortTechnology* 12(3): 345-354.
- Delate, K. 2002. Organic Agriculture. *Encyclopedia of Pest Management*. D. Pimentel (ed.), pp. 550–553, Marcel Dekker Press, New York.
- Delate, K. 2000. Using an Agroecosystem Approach in Farming Systems Research. *HortScience* 35(3):517.