



Local ecotype prairie seed—an alternative agricultural product for increasing the viability of smaller farming operations

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\$22,388 for year one
\$18,540 for year two
\$17,381 for year three
\$14,894 for year four

Abstract: *What is the potential for a “prairie truck farm” in Iowa? Investigators tried to determine if it was feasible to establish diverse production plots around the state, with seeds being collected and produced locally, and used as an alternative crop for farmers.*

Background

The demand for diverse local ecotype prairie seed offers a unique way to revitalize smaller farming operations by demonstrating a new concept in truck farming. Farmers would produce local ecotype prairie seed and sell the product locally at a profit. Carl Kurtz, a Nature Conservancy board member, has demonstrated the potential success and practical application of this model on his farm near Marshalltown.

The project objectives were to:

- Increase the viability of small farm operations by demonstrating and facilitating the production of an alternative such as local ecotype prairie seed that is an economically viable (potential net revenue of up to \$400 per acre) agricultural product that can be grown on areas less suitable for row-crop agriculture.
- Meet the increasing demand for diverse, local ecotype prairie seed by facilitating the establishment of production areas throughout the state.

Approach and methods

Market study—Following an extensive literature search, the Nature Conservancy contracted with Strategic Marketing Services (SMS) at

the University of Northern Iowa (UNI) to conduct a study to determine the present and future markets for prairie seed. The survey was to identify:

1. The size of the market for native Iowa prairie seed among the largest purchasers/potential purchasers of prairie seed,
2. Past, current, and future practices, trends, and issues that impact the use of native Iowa prairie seed,
3. What percentage of the market from purchasers is price driven versus other motivations, and
4. What percentage of the market is likely to purchase native Iowa prairie seed versus other seed, and determine motivations and price sensitivity.

Among those interviewed for the survey were government agency officials, environmental groups, county conservation officers, city park directors, corporate campus managers, seed producers and distributors, the Grinnell Foundation, and Ion Exchange. Three reports were prepared based on the survey results. Two of the reports can be accessed at the Nature Conservancy of Iowa’s web site: (<http://nature.org/wherewework/northamerica/states/iowa/news/news1180.html>).

Model production areas—Several model production areas were established near Broken Kettle Grasslands (BKG) in Plymouth County,

and one was located on a portion of the Briar Cliff College campus adjacent to the Sioux City Prairie (SCP) within the metropolitan area of Sioux City. In each case, the Conservancy was able to capitalize on opportunities to work with private landowners planning a prairie planting. Working with this project helped the owners to plant a diverse group of local ecotype seeds. Plantings were done in different years to demonstrate different stages of reconstruction, and in different seasons (spring or fall) to show the effects of timing on the results.

Current and potential producers/harvesters—The Conservancy collaborated with experts from the Iowa Department of Natural Resources (DNR), UNI programs, Iowa Prairie Network (IPN), and other individuals to compile data for Iowa producers and select producers in adjacent states. Producers were contacted to verify and update the data, and to obtain information on their use of local ecotype seed.

Laura Norian of the Conservancy worked closely with Inger Lamb from IPN on the list that is now posted on the IPN web site (<http://www.iowaprairienetwork.org/>). Keeping the information on a frequently updated web site seemed to be the best way to maintain a current, accurate list of all parties interested in producing local ecotype prairie seed.

Local ecotype prairie seed sources—There is a distinct lack of good native prairie remnants that can serve as seed sources. Less than one-tenth of 1 percent of Iowa's original prairie remains, and most of that is associated with steep, thin soils not suited for row crop agriculture. An important and extremely ambitious component of this project was to pull together existing data for prairie remnants and also search for additional remnants distributed across the state that could serve as local ecotype seed sources.

This prairie inventory required funding which was obtained from a number of sources. Data were obtained from Nature Conservancy Land Files, the Loess Hills Prairie Mapping Project, and the Neal Smith National Wildlife Refuge prairie inventory. Infrared Image Processing from the 1980s was used for remote sensing of prairie assessments, along with 1990s satellite data used by the Conservancy for eco-regional planning.

Mapping done by Iowa DNR workers has been very useful as verifying data for the aerial photograph interpretation. Most of the study was focused in several of the major prairie landscape areas: Loess Hills in western Iowa, the Little Sioux River and Big Sioux River corridors in northwestern Iowa, and the western half of southern Iowa. These areas contain the bulk of Iowa's remnant prairie. Actual prairie inventories for this project included a combination of aerial photo interpretation and field surveys to verify those interpretations.

Prairie Seed Production Handbook—This handbook has been expanded to become a full-fledged book with advice for would-be growers and many photographs.

Field day—A public field day was held October 25, 2002 at the demonstration areas around Broken Kettle Grasslands.

Results and discussion

Market study—Three summary reports were completed in 2002. Findings showed that county and soil-water conservation district markets are the most attractive for the prairie seed producer, based on volume of seed, expectations of future demand, and the short- and long-term goals of a healthy prairie seed industry. An unexpected but important variable is that all market segments devote a significant portion of their prairie acres to non-native or low-quality native vegetation. There

The goal of this project was to demonstrate the feasibility of a new concept in truck farming – local ecotype prairie seed – with seed being collected locally, produced locally, and finally distributed locally as an alternate crop by farmers. There is a high demand for prairie seed, but the current high cost and limited supplies of local ecotype prairie seed limit it to a smaller segment of that market. Increased production is needed to meet demands and make the cost more competitive. As the public is educated about the importance of using local ecotype seed, and as agencies adopt policies promoting its use, the demand for it should increase. Several important resources for interested landowners were produced with funding for this project. They include a market study, producer database, prairie reconstruction book, brochure, and PowerPoint presentation.

is a divergence of opinion among seed suppliers as to what exactly constitutes high-quality seed. Purchasing motivations vary across market segments, but in the largest potential markets (county and soil-water conservation districts) price is the primary consideration.

The three reports constitute an extremely useful resource for the entire prairie seed industry and conservation community. Copies are available from the Leopold Center or from the Nature Conservancy at <http://nature.org>.

Model production areas—Burns were conducted in spring 1998 to stimulate seed production in the source areas. In fall 1998, 320 pounds of seed were collected from the prepared site. The mixture was quite diverse with at least 45 species typical of the Loess Hills Tallgrass prairie. Seed collected by the Conservancy in 1998 was used for the first plantings completed in the spring of 1999. Additional seed collected in 1999 was used for fall 1999 and spring 2000 plantings.

The similarities of local ecotype seed production to conventional farming were born out of the impact of weather on the success of the model production areas. Wet weather in fall 1998 slowed the harvest, and one particularly ill-timed rainstorm followed by several days of high wind resulted in the loss of nearly half of the Indian grass and big bluestem seed. Conditions were reversed in fall 1999. Dry conditions forced curtailment of the fall burn program. This provided more opportunity for harvesting seed, but the seed matured and dropped more quickly. Poor weather conditions combined for a negative impact on seedling establishment and seed production when the first plantings were carried out.

Producers, consumers, and sources—Data were collected, checked for accuracy and, with the assistance of Inger Lamb and Casey Kohrt, they are being made available on the

Iowa Prairie Network web site. They will continue to maintain and update this list. Lamb also prepared two brochures, one for seed dealers and one for land management providers for distribution at the field day.

Jerry Selby reviewed the lists and entered them into a Geographic Information System (GIS) format so that they could be easily mapped. It was immediately apparent that there are major gaps in the distribution of seed dealers. The seed dealers are concentrated on a line from southwest to northeast, with more dealers south of the line than north of it. There are only a few dealers in northwest Iowa.

Local ecotype prairie seed sources—Information from this project will help people looking for local ecotype seed in their area. Data on public areas are readily available on the Internet, but information on private lands is more difficult to acquire due to privacy issues. The best course for people looking for sites is to contact knowledgeable agencies, organizations, or individuals. The Nature Conservancy, Iowa DNR, Iowa Prairie Network, and individuals such as Tom Rosburg at Drake University are good starting points.

The work funded by the Leopold Center has been leveraged significantly by other funding sources and collaboration with partners. With these pooled efforts, there is a better picture of Iowa's prairie remnants. As the 2002 infrared aerial imagery becomes available, the knowledge base will be expanded further.

Prairie handbook—"A Practical Guide to Prairie Reconstruction" is now available in bookstores. The book was written by Carl Kurtz and 7,000 copies were published by the University of Iowa Press in 2002. It contains information on prairie reconstruction and is enhanced with many of Kurtz's excellent nature photographs.

Conclusions and impact

The results of the market survey indicated that there is a good market for local ecotype prairie seed, but there also are major obstacles. Demand for large quantities of seed for highway and government programs continues to be far greater than the current available supply of local ecotype seed, and the price remains too high. There is a need to convince people that local ecotype seed is worth the higher prices. A larger supply of local ecotype seed would help make the prices more competitive.

Based on the prairie inventory, there are representative prairie remnants scattered throughout the state. But there is a great need to establish production plots, since the number and size of the remnants is not great enough to meet the demand for seed.

The documents created for this project were well received and there has been much interest in the findings of the market survey. Work will continue to further develop and refine the prairie database.

For more information contact Jerry Selby, (515) 961-0718 or Donald Farrar, Botany, Iowa State University, Ames, IA 50011-1020, (515) 294-5044

Education and outreach

Educational products included:

- “A Practical Guide to Prairie Reconstruction” by Carl Kurtz
- Iowa Prairie Seed Market Study by Strategic Marketing Services
- Local Ecotype Prairie Seed—an alternative agricultural product (two brochures)
- Local Ecotype Prairie Seed—a Power Point program