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Incorporating grassland agriculture into row crop production systems

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Incorporating grassland agriculture into row crop production systems

Abstract
This project explored ways to make grassland agriculture a more appealing option for Iowa producers who have marginal soils on their farms.

Keywords
Animal management and forage, Farming systems, Integrated crop-livestock systems and diversity

Disciplines
Agricultural Science | Agriculture | Agronomy and Crop Sciences
Incorporating grassland agriculture into row crop production systems

Abstract: This project explored ways to make grassland agriculture a more appealing option for Iowa producers who have marginal soils on their farms.

Question & Answer

Q: Are producers who row crop marginal soils willing to change their cropping practices to include pasture and/or forage, given the limited average production of row crops and the negative environmental effects?

A: Many producers say yes, if assured that the change will be profitable. Those who are interested in the change often need both financial and technical support to make it happen. The percentage of those who answered no exceeded those who answered yes, but a significant number are at least willing to think about making changes. Public and private support are needed to encourage those who are willing to consider a change.

Background

Incorporating grassland agriculture into row crop systems on marginal soils can address a range of environmental and economic problems. Because of combination of tradition, perception, and convenience, farmers tend to disregard grassland alternatives and choose to continue to crop marginal soils.

The Iowa counties of Madison, Warren, Marion, and Mahaska are located in an area where soil resources are in transition. While the soils on the upland ridges in these counties support intensive agricultural production, the side slopes change to steeper hillsides, sharper ridges, and more eroded soils. These marginal soils also have higher clay contents in the subsoil, which restricts optimal root growth and crop development. As a result of intensive row-cropping of these poorer soils, soil erosion has increased, soil quality has decreased, water quality is affected negatively, and wildlife habitat is destroyed.

The project goal was to demonstrate how to incorporate grass-based alternatives on transitional areas to improve sustainability and enhance long-term profitability.

Project objectives were to:

- Demonstrate grass-based conservation alternatives to row-cropping marginal soils;
- Impact awareness, knowledge and attitudes through hands-on demonstrations, media campaigns, educational outreach, and a public information program; and
- Facilitate objective analysis by landowners and operators based upon individual operation economics and soil capabilities.

Approach and results

A field review to select demonstration farms for the project was completed in July 2001. Producers in Mahaska, Marion, Warren, and Madison counties were chosen. Each had a unique perspective and a soil conservation and management challenge. An incentive payment was made to each producer who participated in the project. The payment secured participation through a

<table>
<thead>
<tr>
<th>Principal Investigator:</th>
<th>Co-investigator:</th>
<th>Budget:</th>
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<tbody>
<tr>
<td>Marvin Mensching</td>
<td>Dale Miller</td>
<td>$20,000 for year one</td>
</tr>
<tr>
<td>District Conservationist</td>
<td>Marion County Education Director</td>
<td>$8,800 for year two</td>
</tr>
<tr>
<td>Natural Resources Conservation Service</td>
<td>ISU Extension</td>
<td>$11,200 for year three</td>
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signed agreement and provided funds to put the finishing touches to the farming systems that were highlighted on the individual farms.

A preliminary farmer attitude survey was distributed in January 2002 with a 58 percent response rate (262 landowners in the four counties). The survey was developed by ISU Extension, the Natural Resources Conservation Service, and Iowa Division of Soil Conservation. Some important points gleaned from the survey were:

- Sixty-two percent of the acres reported were planted to corn or soybeans in 2001, despite the fact that the landowners surveyed were farming marginal land.
- The vast majority of Conservation Reserve Program (CRP) acres currently enrolled will be released in the five-year period from 2006 to 2011. Sixty percent plan to re-enroll these acres, but one-third remained unsure of their plans.
- Although fewer than half the landowners currently have a cow/calf operation, 74 percent of those indicate at least some interest in expanding their herd size. Profitability of the system is an important consideration.
- There was a 60 bu/acre difference between the most productive and the least productive five-acre plots within the landowners’ most productive field in 2001.
- Forty-four percent of the respondents indicated that it is not feasible to subdivide their existing crop fields with low-cost temporary fencing to permit livestock grazing. Most of these operators said they are not interested in alternative uses of their crop acres.
- With regard to water accessibility in these hypothetical subdivided fields, the most commonly anticipated problems with use of this land for grazing would be the need to haul water.

- The lack of market incentives for a change in their current practices was cited by nearly half of the respondents as a major obstacle to altering their current farming system.

Data collection for partial budget analysis was completed in spring 2002 and analysis was available for each participating producer in fall 2003. The principal investigators worked with ISU Extension program specialists and an AmeriCorps member to collect and analyze the data. The delay in analyzing the data occurred because of Iowa’s state budget difficulties and the retirement of the ISUE farm management specialist who was working on the project.

Four field days were held in June 2003; each was hosted by a participating producer. Topics covered included: plant identification, forage management, pasture paddock system design, fencing options, stream and pond use and protection, watering systems, and stockpile grazing. Thirty producers from the four-county area participated in the field events.

The “Grassroots of Grazing” workshop held at Attica in Marion County in March 2004 attracted 93 participants, most of whom rated the meeting as very good. Eighty percent said they learned three or more new concepts about grasslands and grazing. Topics featured at the workshop were row crop to pasture conversion, beef production costs, year-round grazing systems utilizing corn stover, weed and brush control in pastures, and profitable selection and management of grass species.
A survey of farmers conducted in the winter of 2004 assessed program effectiveness. Among the 205 respondents, 79 percent also had participated in the initial study. In the 2002 survey, more than half of the respondents indicated they would be at least somewhat willing to convert to a system with increased amounts of forages assuming the profits would equal their current corn/soybean system. By 2004, 13 percent of the responding landowners reported having converted at least some of their corn/soybean acres to permanent hay/pasture in the past two years. Additionally, 36 respondents indicated they have plans to convert row crop acres within the next five years. The number of acres already converted ranged from two to 100 among the survey respondents for a total of 544 acres. The anticipated number of acres to be converted ranged from two to 200 and totaled 1,437 acres.

Those who had converted or planned to convert said they were motivated by the desire to make “more environmentally sound use of the land” and they “like to work with livestock.” Those unwilling to convert land regardless of profitability remained the same in 2004 as in 2002; the majority simply preferred a corn/soybean rotation.

Respondents were asked whether they had sub-divided existing pasture and adopted rotational grazing. Twenty-nine (14 percent) said they had; a total of 1,124 acres was converted.

Another survey question asked about the level of involvement in five specific programming efforts that were focused on integrating grasslands into farm operations. Those responding cited two activities as most helpful in making decisions: “read articles promoting increased grassland” and “had informal conversations with neighbors and colleagues.”

A final project farm field day was held in August 2004 in Warren County where the farmer-cooperator had implemented a rotational grazing system. Fifteen producers learned about methods of pasture forage improvement, weed control, fencing, rotation management, watering systems, stockpile grazing, and stream crossings.

Impact of results
More than 150 producers attended the educational field days and workshops. Ninety percent of those attending indicated they plan to apply a new practice or make a change in their operation as a result of these events. Changes they plan to make include:

- converting poor cropland to pasture,
- comparing farm pasture and row crop economics,
- implementing stockpiled forage systems and better corn stalk grazing,
- improving weed and brush control practices, and
- improving current pasture grazing management.
Education and outreach

Articles about the project have appeared in Wallace’s Farmer, Mid-South Farmer, and National Beef Producer magazines. A fact sheet was developed in 2004 on “Incorporating grassland agriculture into row crop systems” for distribution at producer meetings and for ISU Extension and NRCS offices to use as an informational handout.

For more information, contact
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