July 1997

Center for Sustainable Agricultural Systems Newsletter, July/August 1997

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SARE Announces Two Grant Opportunities

The North Central Region (NCR) Sustainable Agriculture Research and Education (SARE) program is requesting applications from researchers, educators, nonprofit organizations and others for competitive grants addressing environmental, economic and social agricultural improvements. The Region currently has two applications available:
1) Annual Call for Preproposals, due September 12, 1997;
2) Special Call for Proposals on Innovative Marketing Strategies, due January 23, 1998.
Approximately $1.3 million will be available for funding projects in FY 1998, with $300,000 of that total earmarked for the special call.
Preproposals—Priority areas are: Emerging Issues; Integration and Diversification of Farming Systems; Sustainable Livestock Systems; Networking; and Environmentally Sound Management Practices.
Marketing Proposals—Proposals are requested that address issues of developing and maintaining marketing infrastructure for sustainable products of current and potential importance to the region and nation. Consumer education should be a key consideration, emphasizing the importance of supporting local food systems and associated benefits for the environment, the local economy, the health of communities and small farms, nutritional value, and enhanced quality of life. Cross-sector efforts including producers, marketers, processors, retailers, wholesalers and consumers are encouraged. Priority areas are: Improving producers marketing relationships with local and regional consumers and businesses; Addressing farmer/rancher barriers to developing and managing these relationships; Assisting with the development of community markets and producer-owned cooperatives; Involving farmers/ranchers in institutional policy development in marketing; Examining consumer preferences of local and regional food; and Developing outreach to train business owners and managers on linking to local producers of sustainable agriculture products.
Applicants must reside in the North Central Region: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

For more information or to obtain application materials, contact NCR SARE, 13A Activities Bldg., UNL, Lincoln, NE 68583-0840, 402-472-7081; sare001@unlvm.unl.edu,http://www.ces.ncsu.edu/ncrsare.

A Woman's Place on the Farm

South Dakota Extension Agent Deb Sundem says the face of women in agriculture is changing. Once thought to be a complement to her husband's business, the farm, women are now often heavy equipment operators, market forecasters, pubic relation agents, financial planners, accountants, mechanics, and animal husbandry specialists. They also continue to manage the household and care for the children. A 1994 study indicated farm women put in 68 domestic work hours, 22 farm chore hours, 5 volunteer hours, and 30 hours of off-farm work hours per week. The study valued farm wife work at $27,500 compared to $23,700 for men in agriculture.

In the late 1970s and 1980s many farm wives took off-farm jobs to provide health insurance and extra farm income. Once considered farm wives, these women now think of themselves as farm partners. The Farm Research Institute in Illinois found that 65% feel they are full partners with their husbands. More women are full-time farmers; since 1982, according to the latest U.S. Census, the number of women farmers has increased 8.2% and now numbers 145,156.

In a 1996 study conducted by Julia K. Rembert, present and former women activists from Nebraska and Iowa were interviewed to learn why they were involved in the farm crisis of the 1980s. Most women said they wanted the public to understand the farmer's needs. They understood that the voice of the family farmer would be better heard from a farm wife speaking before legislators or the press than the farmer's voice from his tractor seat. Also, it was easier for them to be away from the farm for short times. As partners in the farm, they could address business concerns and raise the human and family issues as well. These women could see that bad legislation and public policy could threaten a farm as much as bad weather and poor markets.

Source: *The Beginning Farmer*, June 1997, published by the Center for Rural Affairs.

Editor's Note: The 1997 Women In Agriculture Conference on September 11-12 in Kearney, Nebraska, will feature a Sustainable Ag Panel assembled and moderated by Cris Carusi. For more information, contact Deb Rood, 800-535-3456.

Economic, Environmental and Sociological Effects of Whole-Farm Production Systems in Eastern Nebraska

Fourth in a four-part series: **Alternative Production Systems and Quality of Life**

[With primary funding from an Agriculture in Concert with the Environment (ACE) grant, a team of UNL researchers conducted one of six regional studies that is being aggregated to assess the national impact of moving toward a more sustainable agriculture. The goal of the Nebraska project was to study existing whole-farm system groups along a continuum from "conventional" to "alternative" and compare the economic, environmental, and sociological performance/characteristics of each group. Team members of the 1993-1996 study were Glenn Helmers, Kevin Bernhardt, John Allen, Alice Jones, and William Powers. Authors of the following are John Allen and his associate Brenda Johnson.]

As an extension of the ACE project, a quality of life component was added to the study funded by the North Central Sustainable Agriculture Research Program. Three farming systems were identified by a cluster analysis of a statewide survey of cropping practices: continuous corn, no-till, and integrated (see part one of this series in Jan-Feb 1997 issue). To assess quality of life outcomes associated with these farming systems and their adjacent communities, three objectives were identified: 1) analyze the linkages of four whole farm systems in northeastern Nebraska to surrounding communities; 2) analyze how these farm systems are perceived to influence local community well-being; and 3) analyze probable structural impacts of the four systems on farms and rural communities in northeastern Nebraska.

Sustainable agriculture proponents often argue in the literature that smaller scale, more diversified farms will produce greater benefits for the surrounding community than will continued growth of monocultural, large-scale farming. Based on this literature, one would expect the three agricultural systems to have differential impacts on local communities and the farm households within each system if the size of operation, ownership structure, or hired labor varied significantly. Researchers have focused largely on how farm structure is related to quality of life in nearby communities. Largely ignored is how the community itself may influence farm structure. Of particular interest in this study were how community-level factors, such as marketing structure, local farming heritage and information networks, shaped farm household decisions regarding production practices. How do local community social structures facilitate or constrain farmers' ability to choose more sustainable farming systems?

Designing measures relevant to individuals living in rural areas has been challenging. Using methods suggested by the National Sustainable Agriculture Quality of Life Task Force, we compared the quality of life associated with each production system.

Methods

The study relied on in-depth interviews with farm household and community members following an open-ended interview. Farm households were selected from a statewide survey of farms carried out as part of the ACE-funded project described in this article series. A group of 30 farm families representing the three farming systems identified by cluster analysis residing in a natural resources district (NRD) in the northeastern part of the state agreed to participate in confidential in-depth interviews. Key informants, community members with significant ties to local agriculture, were identified in three communities in the watershed district region for interviews. Case study communities were chosen based on factors presumed to have sociological relevance to the type of farm system operating in the area. Ideas generated in discussions with key community informants and the farm panel were used to design a quantitative survey to measure quality of life issues related to agriculture.

No-till (largest farms). Because of the high percentage of highly erodible land on their farms (56%), over half (60%) of these farmers had gone to minimal tillage systems. They were most likely to do soil testing (82%) and had the highest rate of computer usage in their operations (45%).

Continuous corn (middle-sized farms). These farms were primarily located on flat land along the Platte River valley with easy access to irrigation, hence the group's high percentage of irrigated cropland (71%). They were most likely to rely on anhydrous as a nitrogen source. The group had the least diversified operations, with corn the major source of income.

Integrated (smallest farms). In spite of the smallest average farm size and nearly a third of their farms in highly erodible land, this group did not suffer from lower incomes than the other two farming systems. They relied on more intensive management (i.e., rotations) and livestock operations to increase farm income. The group also shunned debt and had the highest rate of land ownership of all farm systems (67% compared to 49% and 46% for the other two systems). The group was highly reliant on livestock (46% of household income).

Results

Quality of Life Effects of Each Production System

- Farm households (i.e., husband and wife) are no longer the key decision makers in many farm operations. New partnerships between fathers and sons or between brothers provide the structure for decision making. Wives are ambivalent about their dismissal from the decision making process.
- Farmers themselves saw few differences among the three production systems. Early innovators faced social ostracization, a process that hinders local knowledge exchange.
- Farmers in each group were considering different options: no-till were considering expansion; continuous corn were considering rediversifying

into livestock; and integrated were considering moving out of livestock production and further reducing chemical usage.

- Each production system faced different constraints: no-till and continuous corn groups saw labor availability as the central limiting factor; the integrated group was unwilling to take on new farm debt to move away from livestock a significant proportion (46%) of their household income.
- Different norms were apparent in the different groups. No-till and continuous corn groups were primarily concerned about being seen as progressive, timely in production tasks, and producing clean fields as criteria to judge farmers and themselves. The integrated farmers were more concerned about family and environmental issues in their definitions of good farmers. The continuous corn and integrated groups were extremely critical of the expansionism of the no-till group.
- Networks for local knowledge exchange were severely limited in the study region, particularly for integrated farmers attempting to move into new product lines such as fruits and vegetables.
- Adoption of new technologies and techniques is increasingly viewed by farmers in all production systems as a "process" rather than as a one-time event. Two major adoption styles were observed: experimentation and systemic.
- When asked about quality of life, most farmers echoed one common theme: "family time" versus "standard of living." The expansion model of farming pursued by the no-till and continuous corn groups is seen as limiting family time in order to produce a high standard of living. While farmers in those groups saw the tradeoff as necessary, their wives often reported household conflict over the amount of time spent on farm operations. Integrated farms with heavy time commitments to off-farm labor often experienced the same conflict.

Quality of Life Effects of Each Production System on the Community

- Farm household members rarely mentioned specific towns as their community; rather, they often emphasized social relationships.
- Farm household members in all production systems played a variety of roles in their communities such as employees, business owners, consumers and volunteers.
- While farmers in all groups acknowledged that "large" farmers are beginning to bypass local markets (for both marketing and purchases), only a minority of those interviewed were marketing outside their local communities. No-till and continuous corn farmers, who often ran seed dealerships due to their volume purchases, were likely to make seed or chemical purchases outside the region, but to sell to other local farmers.
- Unlike farm purchases, household purchases were more likely to be made in surrounding regional centers.
- While net household income was the same in all three farming systems, the integrated group did have higher rates of off-farm employment than

the other groups. The no-till and continuous corn groups were more likely to operate other businesses from their homes.
- Few farmers reported local environmental quality issues related to agricultural practices in the region. They typically saw the "environmental problem" as a media issue, and argued that local residents' knowledge of farm practices in the immediate area lessens their perception of risk, and hence, these local residents were unlikely to be concerned about environmental issues related to agriculture.

Quality of Life Effects of the Community on Each Production System

- A major issue facing these farmers is the high rate of land held by elderly or retired farm households. No-till and continuous corn groups were especially concerned about how that land will be disposed of by the families involved. Despite the importance of the land issue, few households reported concrete succession plans.
- Most farmers reported constricted local grain and livestock markets due to market consolidation. While farmers sold to the local co-op, they were often required to haul the grain to the terminal themselves. In short, "all the grain ends up at the terminal anyway."
- The integrated farmers, more reliant on livestock income, were more likely to be concerned about the loss of livestock markets, while grain producers were likely to report that enough interoutlet competition remained to keep grain prices relatively similar across larger and smaller outlets.
- Despite increasing ties outside the local community, farm households continued to emphasize that local friendship ties were important to them. They noted the loss of community "events" which helped foster dense linkages to others in the local community.

Editor's Note: The first article in this series discussed how the producers/production systems were classified into clusters; the second article focused on economic analysis of whole farm systems; the third addressed environmental-economic aspects of the study. For more information about the quality of life study, contact John Allen at 402-472-8012, agec008@unlvm.unl.edu.

Nebraska Resources Ideal for Aquaculture

Fish or farm? With Nebraska's groundwater, electric power, and feedstuffs, both are possible!
This country is the second largest importer of fisheries products in the world. In 1994, U.S. consumers spent nearly $39.4 billion on fisheries products. Imported

fisheries products contribute more to the U.S. trade deficit than any other food or agriculture commodity.
Projections indicate that U.S. demand for fisheries products could increase 30% by the year 2000 and that worldwide demand will expand 70% by 2025. If demands live up to these expectations, there will be a great need to find new sites for developing aquaculture industries, as most wild capture fisheries have been severely depleted.
This potential need for suitable aquaculture sites may represent an opportunity knocking for Nebraska. Three assets that make this state an ideal place to foster an aquaculture industry are: 1) a great abundance of groundwater; 2) an ability to produce aquatic feedstuffs in large volume; and 3) the widespread availability of low-cost electric power.
Currently more than 85% of Nebraska's groundwater is used for crop irrigation. Ultimately, any major aquaculture industry in Nebraska probably would be integrated with agriculture, underscoring the "low-consumptive" use aquaculture makes of water.
Most U.S. aquaculture employs groundwater pumped from wells. For continuous pumping, access to three-phase electricity is best. Nebraska's commercial electric rates are among the lowest in the nation.
Feedstuffs in many instances account for approximately 50% of aquaculture operating costs. Nebraska has abundant supplies of low-cost feed ingredients, ingredient processing plants and feed mills necessary to manufacture aquaculture feeds.

Additional factors that make aquaculture ideal in Nebraska include the following points:

- a tradition of cooperation between state and local government and private enterprise regarding agriculture-related enterprises;
- a comparatively user-friendly regulatory environment;
- relatively low land and labor costs;
- an earnest, hard-working labor force;
- a location central to major markets and distribution points;
- an outstanding transportation system, including major railroads and a trucking industry that can handle perishable products.

An examination of Nebraska's hydrogeology, soil types and power availability will provide insight of those areas best suited to sustain an aquaculture industry. For more information, contact Terry Kayes, UNL aquaculture specialist, 402-472-8183, fofw023@unlvm.unl.edu.

Editor's Note: There are five regional aquaculture centers established by Congress and administered by USDA. You can learn about the North Central Regional Aquaculture Center by visiting the following Web site:
http://www.ansc.purdue.edu/aquanic/ncrac/

Glickman Announces National Commission on Small Farms

On July 16, 1997 Agriculture Secretary Dan Glickman announced the formation of a national commission to study the problems of small and limited resource farmers and recommend ways to help them. Glickman directed the commission to look at a wide range of programs and issues, including credit, risk management, education, and outreach, and to recommend improvements to better serve small and beginning farmers. The commission will also look at ways in which USDA can ensure that small farms are treated fairly and have an equal opportunity to compete in vertically-integrated agricultural systems, and at ways to encourage small farms to adopt farm operations and production practices, such as value-added cooperatives or direct marketing, that can help to improve their profitability.

Glickman said, "The average age of an American farmer today is 58. We need to do more to encourage the younger generation to farm, and we must continue to find ways to help small and disadvantaged producers find ways to make a decent living, keep their land, and make their small farms economically viable."

Among Commission members is Chuck Hassebrook, who has worked for many years for the Center for Rural Affairs in Walthill, Nebraska, and who is also a member of the University of Nebraska Board of Regents. The commission's report will be released this fall.

Diverse Strategies for Diverse Crops

York and Aurora area farmers shared successful marketing and soil management strategies with participants in a recent field day which started at John Ellis' Libby Creek Community Supported Agriculture (CSA) Farm. From mid May to late September 60 CSA members pick up their half-bushels of five or six varieties of fresh vegetables and herbs once a week at convenient locations. Libby Creek has been in operation three years and is one of the first CSAs in Nebraska. The CSA structure helps consumer and grower develop a close relationship. Members develop a feel for the management and risks of growing vegetables. John adjusts his plantings to members' tastes and encourages sampling of different items through recipes.

At Paul Huenefeld's farm near Aurora we learned about his composting method. Paul produces a high-quality compost to improve soil tilth and microbially active organic matter for better soil health. He operates a six-year rotation of corn-soybeans-corn-soybeans-oats-alfalfa on his section, three quarters of which are certified organic. The compost is combined in a mixture of 50% manure, 30% straw, 10% subsoil clay, and 10% finished compost. The clay helps tie up nitrogen usually lost to volatilization from the process. Paunch manure from a Grand Island packing plant is added to manure from his livestock to supply added

nutrients. A micronutrient package solution is added to aid in decomposition and improve the microbial biomass of the compost. Paul uses machinery specially designed to turn compost to make a usually cumbersome job easy. The four-foot high windrow of compost is monitored with temperature and carbon dioxide gauges to measure the level of microbial activity in the pile. The pile is turned often to keep decomposition aerobic and below 160o F to maintain the microbial population. Paul usually turns his pile 20-25 times for a finished product in two months of beautiful coffee-ground textured compost. Finished compost is usually added at the rate of 5-7 tons/acre after the first rotation of soybeans in the fall to help supply nutrients for the next rotation of corn.

The final stop was The Grain Place, operated by David Vetter and family in Marquette. They process a wide range of products including popcorn, hot cereals, bird diets, soybeans, and corn for national distribution, with primary emphasis on the organic food market. Since their start in 1980, the Vetter family has engineered and developed much of the operation's components themselves. With the increasing demand for organic foods, business has been growing by at least 14% per year. David relates the importance of supporting similar activities and developing long- term relationships with growers. With the fast growth of organic products, he fears the organic network will lose these important connections and parallel mainstream production practices as more private investors move into the field.

The farm operation at The Grain Place has 250 acres of certified organic production in a unique five-year rotation of corn-soybeans-popcorn-forage-small grains. Rotational grazing complements the cropping system, which increases the management options. Livestock run on corn stalks and oats after harvest and cycle nutrients. Rotations that include crops with different rooting depths increase the efficiency of nutrient capture and cycling. The farm operation has reduced inputs by one-third over the last 20 years, with a yield increase of nearly 40%. David says they could get a higher yield out of the system for some crops, but other parts in the system would be disrupted. Their strategy is to take a "system average" to determine the best rate of production.

Submitted by Larry Cutforth and Chuck Francis

The Center for Sustainable Agricultural Systems bimonthly newsletter is currently available free in hard copy to U.S. addresses, and electronically via: SANET, PENPages, and the internal IANRNEWS. Current and back issues, along with other sustainable agriculture information is also available on the Internet:
http://www.ianr.unl.edu/ianr/csas/
For comments or questions, or to be added to the mailing list for hard copy, contact the editor at the masthead address, or e-mail csas001@unlvm.unl.edu.

Did You Know...

According to a recent USDA report, "Estimating and Addressing America's Food Losses," 91 billion pounds of food were lost by consumers and foodservice in 1995. See highlights at http://www.econ.ag.gov/whatsnew/feature/.

Coming Events

Contact CSAS office for more information.

1997

Jul-Sep—Many field days throughout Iowa demonstrating sustainable practices on farms. For schedule, contact Rick Exner, Practical Farmers of Iowa Farming Systems Coordinator, 515- 294-1923, dnexner@iastate.edu
Aug. 9, 16—Specialty Crop Field Days, Lincoln, NE
Aug. 28—Manure Distribution Field Day, Concord, NE
Sep. 11-12—Women In Agriculture annual conference, Kearney, NE
Oct. 6-7—Agricultural Research Institute 46th Annual Meeting - Agricultural Research: Funding Now to Ensure Food for the Future, Rockville, MD
Oct. 9-13—Heartland Center for Leadership Development - Helping Small Towns Succeed, Jackson Hole, WY
Oct. 24-26—Community Food Security Conference, Los Angeles, CA
Oct. 28-3—Regenerative Agriculture for the 21st Century: Rodale Institute's Natural Resource Mgt Professional Training Series, Kutztown, PA.
Nov. 2-6—3rd North American Workshop of Farming Systems Research & Extension Association - Food & Natural Resource Systems: Integrating Diversity, Inquiry, & Action, Mt. Hood, OR
Dec. 1-4—3rd IFOAM-Asia Scientific Conference - Food Security in Harmony with Nature, Bangalore, India

1998

Jan. 9-10—Great Plains Vegetable Conference, St. Joseph, MO
Mar. 5-6—National SARE Conference - Building on a Decade of Sustainable Agriculture Research & Education: Sharing Experiences to Improve Our Agriculture, Austin, TX
http://www.ces.ncsu.edu/san/

CSAS Staff

Charles Francis----------Director
Pam Murray (newsletter editor)----------Coordinator
Betty Jacobs (newsletter layout)----------Secretary


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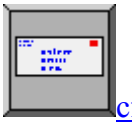
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