SUSTAINABLE AGRICULTURE RESEARCH AND EDUCATION

Evaluating Impacts and Outcomes of the North Central Region SARE Research and Education Grants Program

2008 Survey of Farmers and Ranchers Project Participants

June 2008

Murari Suvedi
Susan Smalley

Center for Evaluative Studies
Department of Community, Agriculture, Recreation and Resource Studies (CARRS)
131 Natural Resources Building
Michigan State University
East Lansing, MI 48824

Evaluating Impacts and Outcomes of the North Central Region SARE Research and Education Grants Program

2008 Survey of Farmers and Ranchers Project Participants

June 2008

Murari Suvedi, Ph.D. and Susan Smalley, Ph.D.

Acknowledgements

This survey was initiated by the North Central Region Sustainable Agriculture Research and Education (NCR-SARE) program through a targeted call for proposals. Michigan State University conducted the survey with coordination, oversight and administration from the NCR-SARE evaluation committee and Mr. Al Kurki, survey project coordinator. The individuals involved in the effort include:

Dr. Bill Wilcke, Regional Coordinator,
NCR-SARE and the NCR-SARE staff

Dr. Doug Karlen, Chair of NCR-SARE Administrative Council
Evaluation Committee

Dr. Hans Kandel, Extension Agronomist, North Dakota State University

Dr. Jill Auburn, National SARE Coordinator, USDA-CSREES

Ms. Paula Ford, Professional Development Program Coordinator, NCR-SARE

Mr. Al Kurki, Survey Project Coordinator & PDP Associate Training Coordinator,
Western Region SARE

We acknowledge the support we received from these individuals in the finalization of the survey instrument and relevant feedback to the survey results. It should be noted, however, that as stipulated in the RFP we used the grant recipient survey developed in Western Region SARE. Although several small and regionally specific changes were made to the prototype survey, but there were no major modifications per the guidance researchers received from project funders.

We greatly appreciate the diligent work of Mr. Mattias Johnson who assisted us in the mailing of surveys, sending follow-up reminders and entering survey data using SPSS. Similarly, Mr. Eric Bailey assisted in compiling survey results, designing tables and preparing charts for this report.

We greatly appreciate the cooperation and support from all the NCR-SARE Principal Investigators who took time to complete and return this survey.

Table of Contents

List of Figures

List of Tables

Evaluating Impacts and Outcomes of the North Central Region SARE Research and Education Grants Program

2008 Survey of Farmers and Ranchers Project Participants

Executive Summary

The North Central Region Sustainable Agriculture Research and Education (NCR-SARE) program is one of four regional competitive grants programs funded by the U.S. Department of Agriculture. The NCR-SARE program manages grants that seek to increase knowledge of sustainable agricultural practices and promote adoption of these practices by farmers and ranchers. The research and education (R & E) grant program administered by the NCR-SARE funds research projects with educational and outreach components designed to disseminate project research findings to farmers, ranchers, Extension professionals and other relevant target groups. Since it began in 1988, the NCR-SARE program has funded approximately 330 R & E projects involving 260 principal investigators.

In 2006, NCR-SARE sought an evaluation of its R & E program to determine the reach and/or diffusion of the grant program to farmers, ranchers and other relevant stakeholders, as well as to determine its impacts.

The Center for Evaluative Studies in the Michigan State University Department of Community, Agriculture, Recreation and Resource Studies was selected to conduct the evaluation. The request for proposals stipulated that researchers use a grant recipient survey already developed in the Western Region SARE. Several minor and regionally specific changes were made to the prototype survey as per the guidance that researchers received from SARE staff members.

The list of farmers and ranchers who were participants in the North Central Region SARE formed the sampling frame for this phase of the evaluation. Data were gathered by administering a questionnaire in the form of a mail survey. The survey instrument with cover letter and a self-addressed, stamped return envelope was mailed to the population on February 11, 2008. To increase the overall response rate, follow-up reminders were sent on February 26 and March 12, 2008. The mail survey had a response rate of 72 percent.

Findings indicated that 78 farmers or ranchers (71.6 percent) were involved in NCR-SARE-funded projects; the rest (28.4 percent) reported no involvement or did not recall being involved.

Respondents were primarily white farmers or ranchers. They were on average 54 years old, cultivating on average 1,100 acres. These farms and/or ranches were established across a wide range of time. Approximately 10 percent were established before 1970; 46 percent were established between 1970 and 1980; and 44 percent had been established since 1981. These farms and/or ranches produced a wide variety agricultural products, ranging from vegetables, fruits and ornamentals to cereals, livestock and value-added products, among others. The majority of these farms and/or ranches provided full-time as well as part-time employment, mainly for family members.

Respondents were affiliated with various farm services agencies and organizations. Almost half of the respondents (47.4 percent) indicated that they were affiliated with the Farm Bureau, 44 percent were affiliated with sustainable agriculture organizations, and 36 percent were affiliated with organic farmers' groups.

Findings indicate that the majority of respondents tended to adopt new technologies and/or approaches if they enhanced profitability or improved the environment (60 percent and 64 percent, respectively). Respondents indicated that they were very much involved in NCR-SARE-about half of them provided land for a test plot or the site for a tour, 45.5 percent were engaged in project planning, and 42 percent participated in on-farm research or demonstration. A similar number of farmers or ranchers (40 percent) spoke about the NCR-SARE-funded projects at meetings, and

about one-tenth of them co-authored papers or publications.

NCR-SARE has been a source of useful information to farmers and ranchers. Findings showed that a large proportion of respondents (44.2 percent) indicated that the information gained from the project was very useful. Additionally, 34 percent found the information to be mostly useful, and 16 percent found the information slightly useful.

Respondents were asked if they tried out an idea, approach or technology on their farm or ranch as a result of their involvement in the NCR-SARE-funded R & E projects. About half (51 percent) of the respondents indicated that they used an idea, approach and technology as a result of their involvement in the projects. Examples of adoptions included the planting of new crops, utilizing no-tillage or reduced-tillage practices, establishing forage crops for grazing, integrating agro-tourism, and improving sanitary and phytosanitary practices, among others. When asked if they were still using this main idea, approach or technology on their farms, more than four-fifths (82 percent) indicated that, after initial adoption of a new technology or approach, they persisted in its use.

When asked if this SARE-funded project triggered or inspired new ideas for use on their farms or ranches and whether they tried those ideas, more than three out of five (63 percent) indicated that their involvement in NCR-SARE-funded projects inspired or triggered new ideas for their farms or ranches. A majority of respondents indicated that they implemented those ideas on their farms and/or ranches and persisted in the use of those ideas. These new inspired approaches included improving farm/natural resource infrastructure, rotational grazing and mixed-cropping.

The study attempted to find out whether farmers and ranchers who were not project participants adopted sustainable agricultural practices as a result of the presence of the NCR-SARE projects. About half of the respondents indicated that other farmers benefited from the projects — over one-third (36 percent) reported that between one and five farmers tried out the new approach, 14 percent reported that six to 10 farmers tried the new approach, 8 percent reported that 11 to 20 farmers tried out the new approach, 8 percent reported that 21 to 60 farmers tried the new approach, and 2 percent reported that more than 60 farmers or ranchers tried out the new technology because of the SARE project.

How have the approaches, technologies or ideas adopted through NCR-SARE-funded projects affected the farms or ranches in the region? Although the number of respondents reporting differed, the following are some examples of impacts:

- 33.3 percent of respondents indicated that fertilizer use has decreased.
- 37.1 percent reported reduction in fuel use.
- 20 percent reported reduction in the use of pesticides.
- 34.2 percent reported reduction in costs associated with weed control.
- 27 percent indicated a reduction in the cost of feed.
- 20 percent of respondents indicated a reduction in veterinary costs.
- 27.8 percent reported a reduction in costs of hired labor.
- 30.6 percent indicated reduction in purchase of off-farm resources.
- 29.7 percent reported reduction in machinery and equipment costs.

Respondents were asked to indicate how the adoption of the new idea, approach or technology affected production outcomes and other technical indicators associated with production. Findings show that:

- Yield increase was reported by 33.3 percent of respondents.
- Reduction in losses due to insect damage was indicated by 18.9 percent of respondents.
- Decreased losses from weeds were reported by 33.3 percent of respondents.
- Decreased losses from disease damage was indicated by 27.8 percent of respondents.

Respondents indicated similar impacts on the environment, including:

- 40.5 percent indicated a reduction in soil erosion.

- 48.6 percent of respondents reported an increase in soil quality.
- 43.2 percent mentioned an improvement in wildlife habitat quality/quantity.
- 27 percent indicated that an improvement in water quality occurred.
- 21.6 percent reported a reduction in use of non-renewable resources.

Improvement in market recognition of sustainable agricultural products was mentioned by 50 percent of respondents. This study explored the impacts relating to social factors such as relationships within the farming and business community, and with employees, as well as effects on farm succession. Findings show that:

- 67.6 percent of respondents felt increased relationships with the business community.
- 38.9 percent reported an improvement made for farm workers.
- 27.8 percent of respondents indicated an increase in farm succession options.
- 51.4 percent of respondents reported an increase in the likelihood of land staying in farming.

Twenty-seven percent (n=30) of respondents indicated other ways in which their participation in SARE affected their farms or ranches. Some of these impacts included employing local labor, strategic evaluation and planning and leveling of income through different seasons, among others.

When asked whether, as a result of NCR-SARE-funded projects, farmers or ranchers saw an increase in net farm income, approximately 64 percent of survey participants responded, and within this group, approximately one-third (34.3 percent) reported an increase in net farm income.

When asked to rate their level of satisfaction with farming, spouses' satisfaction with farming, cooperation with other farmers, the likelihood of their children staying in farming and quality of life for farm labor, responses were positive:

- 52.1 percent reported an increase in the level of cooperation with other farmers.
- 47.9 percent had an increased level of satisfaction with farming.
- 33.8 percent of the spouses experienced an increase in satisfaction with farming.
- 33.3 percent of respondents reported that the quality of life for workers had improved.
- 31.9 percent reported an increase in the options for farm succession.

Farmers and ranchers were asked to indicate topics on which they would like to receive information. The most frequently mentioned topics or areas of informational needs include the production of renewable energy on the farm or ranch (56.6 percent), ecologically based insect and disease management strategies (57.9 percent), ecologically based weed management strategies and soil-building crop rotations (57.9 percent), and soil-building crop rotations and cover crops (65.8 percent). The Internet was reported to be the most preferred (51 percent) source of information. Farm publications and sustainable agriculture groups were reported as the next preferred sources, among 31 percent and 29 percent of respondents, respectively.

In summary, the findings are indicative of several positive changes on farms or ranches in the North Central region. Various innovative ideas and technologies are being introduced by grant recipients. These ideas and technologies tend to result in cost saving as well as income generating to the producers and induce positive social and environmental changes. The level of adoption of sustainable agricultural practices and its diffusion is quite encouraging. We recommend that NCR SARE maintains an accurate database of its grant recipients including farmer and rancher participants, and conduct periodic follow-up study to document impacts. We also suggest that case studies using in-depth personal interviews would result in valid quantifiable impacts of SARE projects.

Introduction

The North Central Region Sustainable Agriculture Research and Education (SARE) program is one of four regional competitive grants program funded by the U.S. Department of Agriculture. This program had its inception in 1988 and is geared to influence America's farmers and ranchers to adopt agricultural production systems that are compatible with sustainable agriculture while maintaining profitability. The north central SARE region comprises 12 states in the north central part of the United States (see Figure 1).

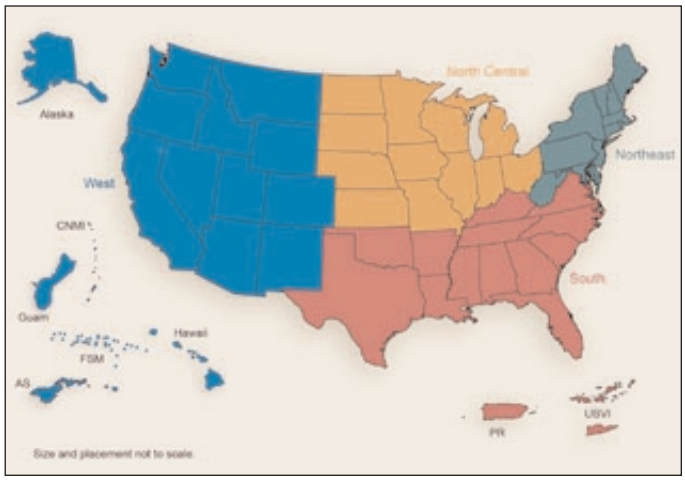


Figure 1. SARE Regions

The North Central SARE program manages grants that seek to increase knowledge of sustainable agricultural practices and promote adoption of these practices by farmers and ranchers. It involves an integrated system of plant and livestock production to satisfy human needs while improving environmental quality, making efficient use of renewable and non-renewable resources, sustaining the economic viability of farms and ranches, and enhancing the quality of life for farmers, ranchers and the society in general. Since 1988, SARE in the has worked to attain these outcomes in the north central region by funding on-farm research and education activities as well as professional development activities, all geared toward promoting and improving sustainable agriculture.

The research and education (R & E) grant program administered by the North Central Region SARE funds research projects with educational and outreach components designed to disseminate project research findings to farmers, ranchers, Extension professionals and other relevant target groups. North Central Region SARE often involves scientists, farmers/ranchers and others in conducting research and disseminating research findings in a multidisciplinary framework. Projects generally involve on-farm research trails of crop and/or livestock, and approaches to agricultural marketing, integrated farming systems, and soil and/or water conservation. Grants are awarded through a competitive review process and are generally implemented over a one- to three-year period.

The award of research grants in the North Central Region SARE is governed by the following guidelines:

- The R & E grants are developed by collaborative teams.
- Producers are key functionaries in the grant activities.
- Project has farm and ranch profitability as the focus area.
- Researchers are encouraged to take a holistic view — to explore social, environmental and economic aspects of the whole system.
- Projects include strong outreach components (NCR-SARE, 2007).

Beginning in 1988, the NCR-SARE program has funded approximately 330 R & E projects involving 260 principal investigators. It has over time gathered outcome data from grantees in the form of annual progress reports and final projects reports. However, in 2006, a more comprehensive and systematic process to assess the reach and impacts of the grants program was initiated. The process of evaluation was subdivided into two phases. In the first phase, the principal investigators of the funded projects were the targets of assessment in determining the reach and impact of the program. The results from the first phase have been published in a companion report (Suvedi, et al., 2008). The second phase involved the assessment of outcomes and impacts from the perspectives of farmers and ranchers who participated in SARE R & E projects.

Evaluation Purpose and Objectives

The 2006 request for proposal (RFP) from NCR-SARE established the overall purpose of the evaluation. The aim was to determine the reach and/or diffusion of the grant program to farmers, ranchers and other relevant stakeholders, as well as to determine the impacts of the R & E grants. The specific objectives were to:

1. Determine how farmers and ranchers were involved in the research and education activities of funded projects.
2. Determine the effectiveness of NCR-SARE outreach on the dissemination of sustainable agricultural practices by farmers and ranchers in the north central region.
3. Estimate the extent to which sustainable agricultural practices were adopted by participating farmers and ranchers.
4. Determine the economic, environmental and quality of life impacts of the adoption of sustainable agricultural practices among farmers and/or ranchers (e.g., profitability, increase or decrease in labor or management, input cost, yield per acre, and soil/air/water quality).
5. Determine if changes may be required to improve the grant-making, contracting or reporting processes of NCR-SARE.

Evaluation Methodology

The Center for Evaluative Studies in the Michigan State University Department of Community, Agriculture, Recreation and Resource Studies (MSU CARRS) responded to the 2006 targeted request for proposals from the North Central Region SARE. The RFP stipulated that researchers use a grant recipient survey already developed in Western Region SARE (Rasmussen and Kurki, 2007). Several minor and regionally specific changes were made to the prototype survey, but there were no major modifications per the guidance researchers received from project staff members. Members of the North Central Region SARE evaluation committee reviewed and approved the survey draft once it was finalized.

Survey Description

Consistent with the guidelines of the RFP, the Western SARE farmer and rancher participant evaluation survey was adapted to the north central region by making necessary modifications. It consisted of 41 questions and approximately 181 coded variables and included closed-ended as well as open-ended questions. Though the survey was not explicitly divided into sections, the focus of questions followed the following order: project participation and technology adoption by primary participants, project impact on primary participants, technology adoption by secondary participants, outlook on farming and aspirations of primary participants, and demographic/socioeconomic profile.

Identification of Survey Participants

The list of farmers and ranchers who were participants in the North Central Region SARE formed the sampling frame for this phase of the evaluation. During the first phase of this evaluative study, the principal investigators provided the names and contact information for 161 farmer and/or rancher participants. This sample included participants from all states with the North Central Region SARE. After accounting for nine individuals who either died or could not be reached, the researchers had 152 farmer/rancher participants forming the valid population for this study.

Data Collection

Data for this evaluative study were gathered by administering a questionnaire in the form of a mail survey. The survey instrument with cover letter and a self- addressed, stamped return envelope was mailed to the population on February 11, 2008. To increase the overall response rate, follow-up reminders were sent on February 26 and March 12, 2008. As shown in Table 1, the mail survey had a response rate of 72 percent.

Table 1. Sample size, dates of initial invitation and reminders and response rate.

Sampling characteristics	Results
Initial population	
By farmers/ranchers	161
Valid population	
By farmers/ranchers	152
Survey process dates	
Invitation mailed	February 11, 2008
First reminder mailed	February 26, 2008
Second reminder mailed	March 12, 2008
Number of respondents	
By farmers/ranchers	109
Number of denials or returned as undeliverable	
By farmers/ranchers	9
Response rate	
By farmers/ranchers	71.7%

Data Management and Analysis

The data from the returned surveys were manually entered into a SPSS data file and randomly checked for accuracy. Data analysis was then conducted by generating descriptive statistics such as frequency counts, percentages, means and standard deviations. Various graphs, charts and tables were also generated. The analysis and ensuing report generally followed the tradition set by Bennett (1978), which outlined a hierarchy of project change outcomes, including on a continuum awareness, knowledge, attitude, skills, behavior and system circumstances. These outputs were used to provide description of North Central Region SARE-funded projects reach and impacts.

Results

Profile of Participants

The valid population for this evaluative study consisted of 152 farmers and ranchers from the north central region. Of this population, 109 farmers or ranchers responded to this study.

Each survey listed the project title, the name of the project leader and the year it was funded by SARE. First, respondents were asked whether they recalled being involved with the project. If they did not recall being involved with the specific project, they were asked to check the box "Not Involved" and return the questionnaire in the prepaid envelope provided. Seventy-eight farmers or ranchers (71.6 percent) reported that they were involved in NCR-SARE-funded projects and the rest (28.4 percent) reported that they were not involved or did not recall being involved. The following analysis is based on survey responses from those who indicated involvement in the NCR-SARE-funded projects.

Those who indicated involvement reported that they participated in NCR-SARE projects between 1988 and 2005. Table 2 shows the distribution of respondents by state and the year in which their projects were funded.

The age of the respondents ranged from 27 to 75 years, with an average of 54 years. Nine out of ten (90 percent) indicated they were white; 1.3 percent each indicated their ethnicity as Hispanic, Native American, Asian and African American. Fewer respondents mentioned they belong to "other" ethnic groups, such as Germans from Russia, Northern European, Pacific Islander and Hawaiian.

Table 2. Distribution of respondents by year of funding and state.

Year of funding	Frequency	State located*	Frequency
1988	1	Iowa	3
1991	3	Illinois	1
1993	2	Indiana	2
1995	2	Kansas	10
1996	1	Michigan	8
1997	8	Minnesota	13
1998	6	Missouri	4
1999	1	North Dakota	12
2001	11	Nebraska	10
2002	13	Ohio	3
2003	35	South Dakota	1
2004	17	Wisconsin	9
2005	8		

*Only 76 respondents indicated the state where their farms or ranches are located.

Respondents for this evaluative study could be farmers, ranchers or farm marketers. Those who indicated they were involved in farming or ranching were asked how many acres they owned and how many they actively farmed. The numbers of acres owned by the respondents ranged from 1 to 17,000 acres, with a mean of 1,097 acres and a standard deviation of 2,458 acres. Similarly, respondents indicated that the number of actively farmed acres ranged from 1 to 10,000, with a mean of 1,529 and a standard deviation of 2,250 acres. Seventy- one respondents mentioned that they leased farmland. The leased land ranged from 1 to 9,500 acres, with a mean of 682 acres and a standard deviation of 1,467 acres.

Findings showed that respondents' started to farm or ranch across a wide range of time. Approximately 10 percent started before 1970, 46 percent were farming or ranching between 1970 and 1980, and 44 had been established since 1981. These farms and/or ranches produce a wide variety of agricultural products, ranging from vegetables, fruits and ornamentals to cereals, livestock and value-added products, among others. Table 3 shows the number of farmers who produced various crops. Appendix A shows the list of other products produced by the farmers and ranchers.

Table 3. Types of agricultural products (n = 76).

Products	Frequency
Vegetables	30
Fruits	20
Nuts	4
Grains	45
Seeds	18
Hay	41
Legumes	25
Poultry	18
Goats	6
Sheep	3
Hogs	12
Dairy cattle	14
Beef cattle	29
Cover crop	29
Ornamental turf or trees	7
Agro-tourism	19
Value-added products	20
Other products	18

The farms and/or ranches operated by the respondents provided full-time as well as part-time employment, mainly for family members. Respondents were asked how many persons they employed full-time or part-time. Altogether, 76 respondents answered this question. As shown in Table 4, the number of family members employed full-time ranged from one to seven, with a mean of 1.9 and a standard deviation of 1.3 persons. Two-thirds (67.1 percent) of farms and/or ranches employed one to two family members full-time, and 22.3 percent employed three or more family members. About one out of 10 (10.5 percent) of farms or ranches provided no full-time employment to family members.

Respondents indicated that half (50 percent) of the farms or ranches employed between one and two family members part-time, 17 percent had employed three or more family members part-time, and 32 percent of the farms/ranches did not provide part-time employment to family members.

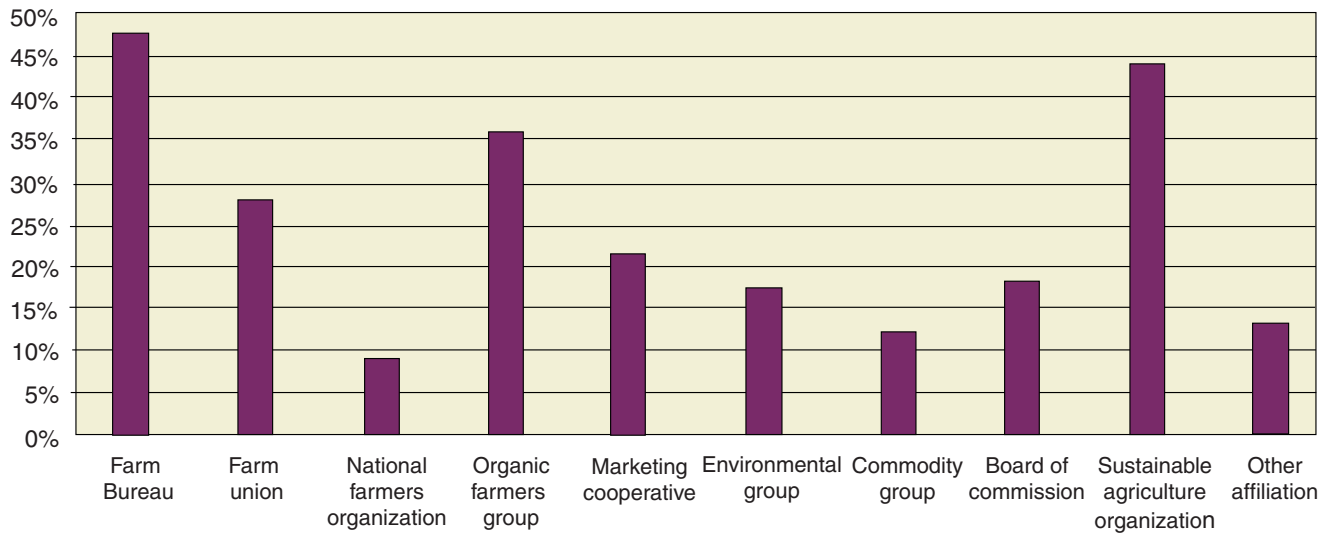
Among 75 respondents, 16 of ranches employed one to two non-family members full-time, 17 percent employed three of more full-time employees, and 67 percent did not employ non-family members on a full-time basis. Among 75 respondents, 16 percent provided part-time employment for one to two persons, 19 percent employed three or more individuals, and 51 percent did not employ non-family members on a part-time basis. (See Table 4.)

When asked if they were affiliated with farm services or natural resource organizations, the majority responded in the affirmative. Almost half of the respondents (47.4 percent) indicated that they were affiliated with the Farm Bureau, 44 percent were affiliated with sustainable agriculture organizations, and 36 percent were affiliated with organic farmers' groups. Figure 2 shows the various farmers' organizations with which respondents were affiliated. Findings also indicated that many respondents belonged to multiple organizations. Farm Bureau, Sustainable Agriculture Organization and Organic Farmers Group were frequently mentioned organizations by respondents.

Table 4. Level of employment provided by farms and ranches.

Type of employment	N	Mean (SD)	% employing 1-2 persons	% employing 3 or more persons	% not employing any persons
Full-time employment of family members	76	1.9 (1.3)	67.1%	22.3%	10.5%
Part-time employment of family members	76	1.3 (2.6)	50%	17%	32%
Full-time employment of non-family members	75	1.1 (2.6)	16	17	67
Part-time employment of non-family members	75	1.8 (4.0)	31	19	51

Figure 2. Farmer Affiliations (n = 75)



Awareness and Knowledge

(Objective 1)

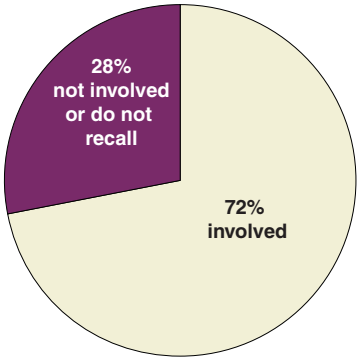
This segment of the report examined how effective NCR-SARE was in reaching its target group. This provides a measure of how aware participants were of the project goals and activities and serves as a proxy for the level of knowledge transfer that occurred as a result of participation in research and education activities.

Are farmers and ranchers in North Central Region SARE involved in the projects, and what is the nature of their involvement?

As indicated earlier, respondents were asked to indicate whether they were involved in NCR-SARE-funded projects. Of the 109 respondents, 78 (71.6 percent) indicated that they were involved (see Figure 3).

Participating farmers and ranchers were further asked to indicate how they were involved in NCR-SARE-funded projects. They had the option of choosing among the following options: participated in project planning, actively involved in on-farm research or demonstration, provided land for a test plot or the site for a tour, spoke about the

Figure 3. Involvement in NCR SARE Projects (n = 109)



project at a meeting, co-authored a paper or other product, or other activities.

Of the 76 respondents who indicated that they were involved in NCR-SARE, almost half (48.7 percent) provided land for a test plot or the site for a tour, whereas 45.5 percent were involved in project planning. As shown in Figure 4, about two-fifths (41.6 percent) were involved in on-farm research or demonstration projects. A similar number of farmers or ranchers (40.3 percent) spoke about the NCR-SARE-funded project at a meeting. About one-tenth (9.1 percent) of them co-authored a paper or publication, and about one out of five (20.2 percent) indicated they were involved in other ways.

The findings showed that over one-third (34 percent) of respondents were involved in one major activity, 38 percent were involved in two to three major activities, 17 percent were involved in four to five major activities, and 1 percent of respondents indicated involvement in all six major activities listed. Appendix B provides a complete list of the other ways in which respondents participated in NCR-SARE-funded projects. These "other" ways included roles for farmers and ranchers as educators, as planners/organizers/managers, as providers of labor and products and as learners.

Attitude and Behavior (Objective 2)

This section presents results related to the participants' reaction to and/or perception of the research and education programs of NCR-SARE as well as the levels of behavioral change resulting from participating in the projects.

How useful to your farm or ranch was the information you gained from this NCR-SARE project?

Respondents indicating involvement were further asked to rate the usefulness of information gained from the NCR-SARE project. As shown in Figure 5, a large proportion of respondents (44.2 percent) indicated that the information gained from the project was very useful. Additionally, 34 percent found the information to be mostly useful, and 16 percent found the information slightly useful. Only 7 percent of respondents found the information not useful.

Figure 4. Ways in Which Farmers and Ranchers Were Involved in NCR SARE (n = 77)

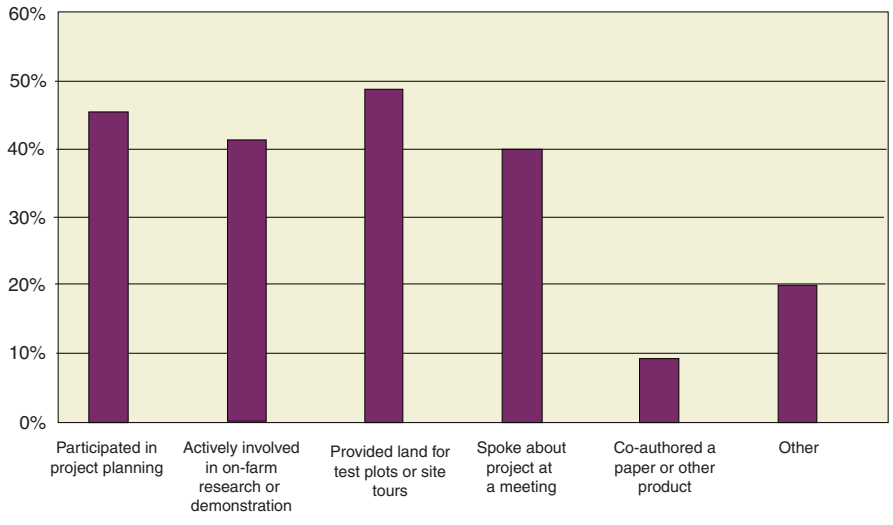
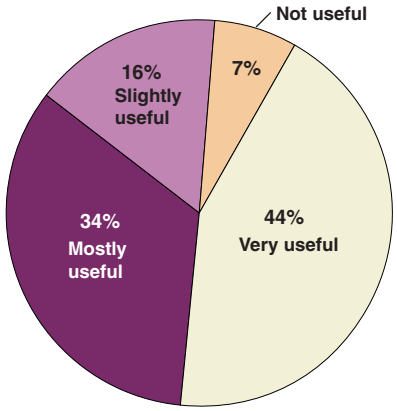


Figure 5. Usefulness of Information Gained From SARE (n = 77)



Did Farmers and Ranchers Adopt Sustainable Agricultural Practices?

Respondents were asked if they tried out an idea, approach or technology on their farms or ranches as a result of their involvement in the NCR-SARE-funded R & E project. Altogether, 75 farmers or ranchers answered this question. Approximately half (51 percent) of the respondents indicated that they used an idea, approach and technology as a result of their involvement in the project. 37 respondents explained the main idea, approach or technology they used in the project. Their responses can be characterized as about 40% cropping systems, about 30% livestock and/or integrated livestock/cropping systems, and about 30% management/business planning/marketing. Some of these adoptions included planting new crops, utilizing no-tillage or reduced tillage, establishing a forage crop for grazing during fallow, integrating agro-tourism, and improving sanitary and phytosanitary practices, among others. Comments on examples of farm technology adopted included the following:

"I used the DVD to help train orchard scouts to scout my farm as well as 15 other farms (2,500 acres)."

"Planted early maturing variety of sunflowers on borders of field so they would blossom before main field and therefore only apply insecticide to borders."

"Grow, process and label grass-fed beef and sell as a marketing cooperative."

A majority of respondents also indicated that they tended to adopt new technologies and/or approaches if adoption enhanced profitability or improved the environment (60 percent and 64 percent, respectively).

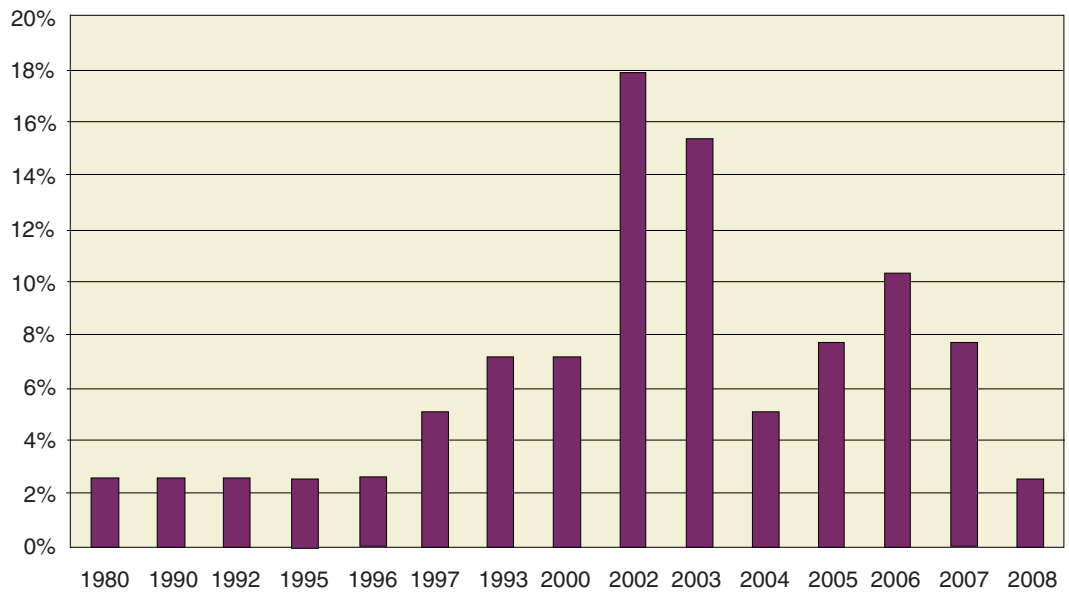
A summary of sustainable agricultural practices adopted is shown in Appendix C.

The respondents also indicated a relatively even rate of adoption of technology for sustainable agriculture over time. Findings in Table 5 show that few producers started the adoption of sustainable agricultural practices and/or approaches before 1990. About one-third indicated adoption before year 2000 and as a result of NCR-SARE. As shown in Table 5 and Figure 6, an additional 33.3 percent of farmers made changes in agricultural

Table 5. Distribution of adoption of new ideas by respondents.

	Frequency	Percent
Before 1991	2	5.1
1992-1996	3	7.8
1997-2000	8	20.5
2001-2003	13	33.3
2004-2008	13	33.3
Total	**39**	**100**

Figure 6. Year Participant Began Using New Approach or Technology (n = 39)



practices between 2001 and 2003, and the remaining 34 percent adopted the new approaches after 2004.

An attempt was made to determine the time lag between the SARE grant funding and the year of adoption of the new idea or technology. It should be noted that some respondents did not indicate when the new technology was adopted. It is interesting to note that some respondents were testing or adopting the new idea well before they were awarded the SARE grant. Others indicated adopting the new idea during the same year in which they received the grant, and still others reported they began using the idea one to several years after the project was funded (see Appendix D).

Are farmers or ranchers still using this main idea, approach or technology?
Respondents were also asked to indicate if they were still using this main idea approach or technology on their farms (Figure 7). About one-third (34.9 percent) of the farmer or rancher participants (n = 38) responded to this question. Among those who responded, more than four-fifths (82 percent) indicated that, after initial adoption of a new technology or approach, they persisted in its use.

Beside the main idea, approach or technology, what other ideas, approaches or technologies have you tried on your farm that were related to your involvement in the NCR-SARE-funded project?
Respondents were asked to indicate what other approach or technology they tried on their farms/ranches that were related to their involvement in the NCR- SARE-funded project. Twenty-seven farmer/rancher respondents answered this question and reported that they adopted other ideas, approaches and technologies because of their involvement in NCR-SARE-funded projects. The "other ideas/approaches can be categorized as about 40% cropping systems, about 18% livestock/cropping systems, and about 29% management/business planning/marketing.

> *"We have changed the head on our combine that we use for wheat and millet to a stripper head, which has increased the efficiency of the combine by 25 to 30 percent."*
>
> *"My husband has changed to not using synthetic fertilizers and trying not to use GMO grains, rotational grazing for the dairy herd."*
>
> *"It forced us to look at labor as a percent of gross income. This made us learn how to be more efficient and productive with labor and helped us to increase vegetables and berries from about 6 acres in 2001 to current 25 to 30."*

Appendix E presents a list of other approaches adopted by farmer and rancher participants.

Did this SARE-funded project trigger or inspire new ideas for you on your farm or ranch? Did you try these ideas? Describe these new ideas. Have you continued to use new ideas?
Thirty-five respondents answered this question. Among this group, 63 percent indicated that their involvement in NCR-SARE-funded projects inspired or triggered new ideas for their farms or ranches (Figure 8). A majority (87 percent) of respondents indicated that they implemented the

Figure 7. Use Persistence of Main Idea (n = 38)

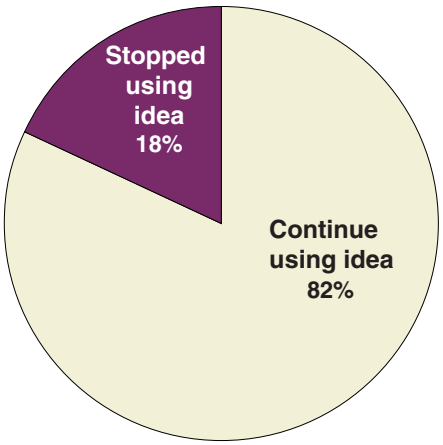
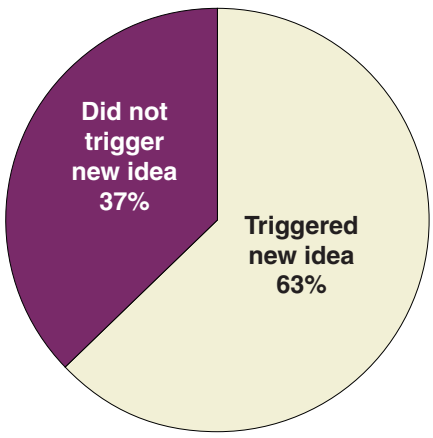


Figure 8. Did SARE Projects Trigger New Ideas (n = 35)



newly inspired or triggered ideas on their farms and/or ranches and have persisted in the use of those ideas. Some of these new inspired approaches were improving farm/natural resource infrastructure, rotational grazing and mixed cropping, among others. Appendix F provides a matrix summarizing the new ideas that were inspired and implemented by farmers and ranchers. Those ideas related about 43% to cropping systems and about 28% each to livestock/cropping systems and to management/business planning/marketing.

In the event that respondents abandoned the new idea or discontinued its use, they were asked to indicate the year they stopped using the main idea, approach or technology and the reasons for discontinuing use of the technology. There was a relatively low response rate (6.4 percent) to this question. Given the high rate of sustained technology adoption previously noted, this response rate is understandable. The responses indicated that 14.3 percent of respondents stopped using the main idea/technology/approach in each of the years 1995, 2000, 2002, 2003 and 2007; and 28.6 percent reported they abandoned the idea in 2006. The reasons put forward for the discontinuation of these new ideas or approaches included the removal of critical community infrastructure, low yield response, unprofitable enterprise, incompatible mix of plant varieties, rising costs, high labor intensity in some processes and personal financial troubles (See Appendix G for list of comments.)

Technology Diffusion and Adoption (Objective 3)

This section provides a measure of the secondary reach or diffusion of the projects. That is, farmers and ranchers who were not project participants but adopted sustainable agricultural practices because of the presence of the North Central Region SARE project. An attempt was made to estimate the extent of technology dissemination and/or adoption (reach or diffusion) of the project impacts. To put it simply, we attempted to find out whether farmers and ranchers who were not project participants adopted sustainable agricultural practices because of the presence the NCR project.

How many other farmers or ranchers in your area do you estimate tried out an idea, approach or technology on their own farm or ranch as a result of the NCR-SARE-funded project?

When asked, "How many other farmers or ranchers in your area do you estimate tried out an idea approach or technology on their own farm or ranch as a result of this NCR-SARE-funded project?" 50 farmers and ranchers (46 percent of respondents) provided an answer (Table 6). Within this segment, less than one-third (30 percent) reported that no other farmer or rancher in their area tried out the new approach. On the other hand, over one-third (36 percent) reported that one to five farmers tried out the new approach, 14 percent reported that six to 10 farmers tried the new approach, 8 percent reported that 11 to 20 farmers tried out the new approach, 8 percent reported that 21 to 60 farmers tried new approach, and 2 percent reported that more than 60 farmers or ranchers tried out the new technology because of the SARE project.

Table 6. Non-participating farmers who tried out SARE idea (n = 50).

Number of secondary adopters	Frequency	Percent
0	15	30
1-5	18	36
6-10	7	14
11-20	5	10
21-60	4	8
>60	1	2
Total	**50**	**100**

Project Impact (Objective 4)

This section assesses the impact of the project on the farmers and ranchers. This involves looking at changes related to the use of inputs, input costs, productivity, environmental conditions and social networking.

How have the approaches, technologies and ideas adopted from NCR-SARE-funded project affected your farm or ranch operations?
Respondents were asked to indicate how the use of an innovative or new idea, approach or technology promoted by the NCR-SARE-funded project affected various aspects of their farms or ranches. The response options were on an ordinal scale showing whether the new idea or technology affected their farm or ranch operations positively, negatively, made no change or was not applicable

Table 7. Impact of NCR-SARE on the use of inputs.

Input measures	N	% decreased	% stayed the same	% increased	% don't know/ not applicable
Input amounts					
Purchase Fertilizer	24	33.3	58.3	8.3	0
Purchase Fuel	35	37.1	25.7	5.7	31.5
Pesticide	35	20	31.4	5.7	42.9

to a given farm. The impact measures were grouped into input factors (Table 7), economic factors (Table 8), production factors (Table 9), environmental factors (Table 10), market factors(Table 11), social factors (Table 12) and other factors (Table 13).

(a) Input Factors

One-third (33.3 percent) of respondents indicated that fertilizer use decreased, 58.3 percent reported fertilizer use remaining the same, and 8.3 percent reported an increase in the use of fertilizers. With respect to fuel use, 37.7 percent reported a reduction, 25 reported no change, and 5.7 percent of respondents reported an increase. However, 31.5 percent of respondents indicated that fuel use was not applicable. Similarly, 42.9 percent of respondents indicated that pesticide use was not applicable to their farm. Among those who incurred pesticide costs, approximately one-fifth (20 percent) of respondents reported a reduction in the use of pesticides, 31.4 percent reported pesticide use remaining the same, and 5.7 percent indicated an increase in pesticide use. Therefore, in a general sense, the adoption of sustainable agricultural practices resulted in reduction in costs and/or stability in costs among the larger proportion of farmers and ranchers.

(b) Economic Factors

Over a third (34.2 percent) of respondents reported a reduction in costs associated with weed control, 42.1 percent indicated that costs remained stable, 10.5 percent reported an increase in weed control costs, and 13.3 percent indicated that weed control was not relevant to their farms or ranches. Almost one-fifth (18.9 percent) indicated that seed cost was not applicable to their farm or ranch operations. Among those who faced seed costs, more than half (54 percent) indicated that costs remained the same, and 13.5 percent reported a reduction as well as in increase in costs. Just over one quarter (27 percent) of respondents indicated a reduction in the cost of feed, 21.6 percent reported feed costs remaining the same, and 5.4 percent indicated an increase. Feed cost was not relevant to 46 percent of the respondents. More than half (62.9 percent) indicated that veterinary care costs were not applicable to their farm or ranch operations. Among those who incurred veterinary costs, one-fifth (20 percent) of respondents indicated a reduction, 17.1 percent reported no change, and no farmer reported facing an increase.

Fencing costs were not applicable to most of the farmers and ranchers (56 percent) in this study. Of respondents who had fencing costs, almost one quarter (24.3 percent) indicated that fencing costs remained stable, 16.2 percent reported an increase, and only 2.7 percent reported a reduction. In relation to hired labor, 27.8 percent reported a reduction in costs, 25 percent indicated stable labor costs, and 16.7 percent had an increase in costs. Nearly one-third (30.5 percent) of respondents indicated that hired labor was not applicable to their operations. Management costs were applicable to three-fourths of the survey participants. Within this group, costs remained stable for two-fifths (40.5 percent) of respondents, decreased for 13.5 percent and increased among 21.6 percent of respondents. Similarly, four-fifths (81 percent) of respondents faced record-keeping costs. Of those, 43.2 percent reported that costs remained the same, 32.4 percent experienced an increase in costs, and 5.4 percent had a reduction in costs.

Nearly one quarter (24.4 percent) of respondents indicated that machinery and equipment costs were not applicable to their farms or ranches. Among those respondents who face costs associated with equipment and machinery, 29.7 percent reported a reduction in costs, almost one quarter

(24.3) indicated that costs remained the same, and 21.6 percent reported an increase in costs. A relatively small proportion (38.9 percent) of survey participants indicated that building costs were applicable to their operations. Within this group, one quarter (25 percent) of respondents indicated that building costs remained stable, 8.3 percent reported a decrease, and 5.6 percent saw an increase. More than half (55.5 percent) of survey participants indicated that on-farm processing costs were not applicable to their operations. Among those who faced this cost, just over a fifth (22.2 percent) reported that processing costs remained the same, 16.7 percent indicated an increase, and 5.6 percent reported a reduction in processing costs.

With respect to overall gross farm sales, a majority (61.1 percent) of the respondents indicated that they experienced an increase, while 11.1 percent and 8.3 percent said sales decreased or stayed the same, respectively. Similarly, farm profitability increases were reported by 70.3 percent of respondents, 13.5 reported that profits remained the same, and 5.4 percent indicated a reduction in profit.

Respondents indicated that purchase of off-farm resources remained the same for a third (33.3 percent) of farmers/ranchers, decreased for 30.6 percent and increased for 8.3 percent. An increase in the net worth of the farm was reported by 44.4 percent of respondents; 19.4 percent reported it remaining the same, and 2.8 percent indicated a reduction. When asked about tax costs and land costs, 41.7 percent of respondents reported these costs remained the same, and 13.9 percent of respondents reported an increase (for both categories of costs). No farmer or rancher reported a reduction in taxes, though 2.8 of respondents reported a reduction in land costs. Thirty seven percent indicated an increase in direct marketing costs (Table 8).

(c) Production Factors

Respondents were asked to indicate how adoption of the new idea, approach or technology affected production outcomes and other technical indicators associated with production. Over one-third (36.1 percent) of farmers and ranchers reported no changes in the yield per acre. One-third (33.3 percent) of respondents reported an increase in yield, however, and only 8.3 percent indicated a reduction in yield. Among 37 respondents, no farmer or rancher reported a reduction in annual animal production, 16.2 percent had no change in produc-

Table 8. Impact of NCR-SARE project on economic measures.

Economic measures	N	% decreased	% stayed the same	% increased	don't know/ not applicable
Weed control costs	38	34.2	42.1	10.5	13.2
Seed costs	37	13.5	54.1	13.5	18.9
Feed cost	37	27	21.6	5.4	46
Veterinary care costs	35	20	17.1	0	62.9
Fencing cost	37	2.7	24.3	16.2	56.8
Hired labor cost	36	27.8	25	16.7	30.5
Management costs	37	13.5	40.5	21.6	24.4
Record-keeping costs	37	5.4	43.2	32.4	19
Machinery and equipment costs	37	29.7	24.3	21.6	24.3
Building costs	36	8.3	25	5.6	61.1
On-farm processing costs	36	5.6	22.2	16.7	55.5
Overall gross farm sales	36	11.1	8.3	61.1	19.5
Farm profitability	37	5.45	13.5	70.3	10.7
Farm net worth	36	2.8	19.4	44.4	33.4
Purchase of off-farm resources	36	30.6	33.3	8.3	27.8
Tax costs	36	0	41.7	13.9	44.4
Land costs	36	2.8	41.7	13.9	41.6
Costs of direct marketing	35	8.6	11.4	37.1	42.9

tion, and 18.9 percent indicated an increase in production. Correspondingly, 16.2 percent of respondents indicated no change in livestock stocking density, 16.2 percent reported an increase, and only 2.7 percent reported a reduction. In relation to the use of byproducts and the reduction in the generation of waste, 5.6 percent of respondents reported a decrease in the use of byproducts resulting in lowering in the reduction of waste, 13.9 percent indicated no change in these outcomes, and 11.1 percent reported an increase in the use of byproducts and in waste reduction.

Most respondents (35.1 percent) reported no change in the amount of insect damage they incurred. Over one-fourths (27.8 percent) indicated a decrease in damage caused by disease. However, 18.9 percent indicated there was a reduction in insect damage, and 2.7 percent reported an increase. A similar result was found in relation to losses due to weeds. Farmers and ranchers reported that losses due to weed damage stayed the same (22.2 percent of respondents), decreased (33.3 percent) or increased (11.1 percent).

(d) Environmental Factors

None of the participants reported an increase in soil erosion, 24.3 percent reported it remained the same, and 40.5 percent indicated a reduction in soil erosion. Correspondingly, 48.6 percent of respondents reported an increase in soil quality, 16.2 percent reported no change, and 5.4 percent a decrease in soil quality. In regard to air quality, 28.9 percent reported no change, 26.3 percent reported an increase, and 2.6 percent indicated a decrease in air quality. Respondents reported no

Table 9. Impact of NCR-SARE-funded projects on production.

Production measures	N	% decreased	% stayed the same	% increased	% don't know/ not applicable
Yield per acre	36	8.3	36.1	33.3	22.3
Annual animal production	37	0	16.2	18.9	64.9
Byproduct use and waste reduction	36	5.6	13.9	11.1	69.4
Insect damage	35	18.9	35.1	2.7	43.3
Disease damage	36	27.8	38.9	2.8	30.6
Losses from weeds	36	33.3	22.2	11.1	33.4
Livestock stocking rate	37	2.7	16.2	16.2	64.9

Table 10. Impact of NCR-SARE-funded project on the environment.

Environmental measures	N	% decreased	% stayed the same	% increased	% don't know/ not applicable
Soil erosion	37	40.5	24.3	0	35.2
Soil quality	37	5.4	16.2	48.6	29.8
Air quality	38	2.6	28.9	26.3	42.2
Water quality	37	0	32.4	27	40.6
Wildlife habitat quality/quantity	37	0	16.2	43.2	40.6
Use of renewable resources	36	5.6	22.2	33.3	38.9
Use of non-renewable resources	37	21.6	24.3	8.1	46

incidence of water quality reduction; 32.4 percent reported no change, and 27 percent indicated improvement in water quality. Use of renewable resources increased among 33.3 percent of respondents, 22.2 percent reported no change, and 5.6 percent indicated a decrease. Over two-fifths (43.2 percent) noted an increase in the number and quality of wildlife habitat. On the other hand, almost a quarter (24.3 percent) of respondents reported no change in the use of non-renewable resources, 21.6 percent reported a reduction, and 8.1 percent reported an increase.

In a general sense, there was an improvement in environmental quality among a larger proportion of respondents.

(e) Market Factor

Almost a third of respondents indicated that market/customer recognition of products was not applicable to their farms or ranches. No farmer/rancher reported a reduction in market/customer recognition of farm or ranch products, and 19.4 percent reported no change. On the other hand, 50% of respondents indicated increase product recognition among customers.

(f) Social Factors

This section on social factors examines the impact on relationships within the farming and business community, with employees, as well as the impact on farm succession. Coordination among farmers was reported to have decreased among 2.7 percent of respondents, stayed the same among 10.8 percent and increased among 67.6 percent. At the same time, no respondents indicated a decrease in the relationship with lenders, 25 percent indicated no change, and 30.6 percent indicated an increase. A majority of the respondents (38.9 percent) reported improvements made for workers, 13.9 percent reported no change, and 2.8 percent indicated an adverse benefit for workers. Over one-fourth (27.8 percent) of respondents indicated an increase in succession options, 16.7 percent saw no change in options, and no respondent reported a reduction. Correspondingly, with regard to the likelihood of land staying in farming, more than half (51.4 percent) of respondents reported an increase, 28.6 percent reported no change, and no respondent indicated a decrease in likelihood.

Table 11. Impact of NCR-SARE on market recognition.

Marketing of products	N	% decreased	% stayed the same	% increased	% don't know/ not applicable
Market/customer recognition of farm products	36	0	19.4	50	30.6

Table 12. Social impacts of NCR-SARE-funded projects.

Social measures	N	% decreased	% stayed the same	% increased	% don't know/ not applicable
Coordination among farmers	37	2.7	10.8	67.6	18.9
Lender relationships*	36	0	25	30.6	44.4
Farm succession options*	36	0	16.7	27.8	55.5
Improvement for farm workers	36	2.8	13.9	38.9	44.4
Likelihood of my land staying in farming	35	0	28.6	51.4	20

Table 13. Other impacts of NCR-SARE-funded projects.

Other impacts	N	% decreased	% stayed the same	% increased	% don't know/ not applicable
Diversification	36	0	25	55.6	19.4
Integration--putting the pieces together	35	2.9	28.6	51.4	17.1
Farm planning	35	0	25.7	51.4	22.9

(g) Other Factors

Respondents reported on the NCR-SARE impact on crop/product diversification, process integration and farm planning. More than half (55.6 percent) of respondents reported an increase in diversification, 25 percent reported no change, and no farmer or rancher indicated a reduction in diversification. Correspondingly, 51.4 percent of respondents indicated an increase in the incidence of integration, 28.6 percent reported no change, and only 2.9 percent reported a reduction. In relation to farm planning, no respondent indicated a decrease, more than half (51.4 percent) reported an increase, and 25.7 percent reported no change.

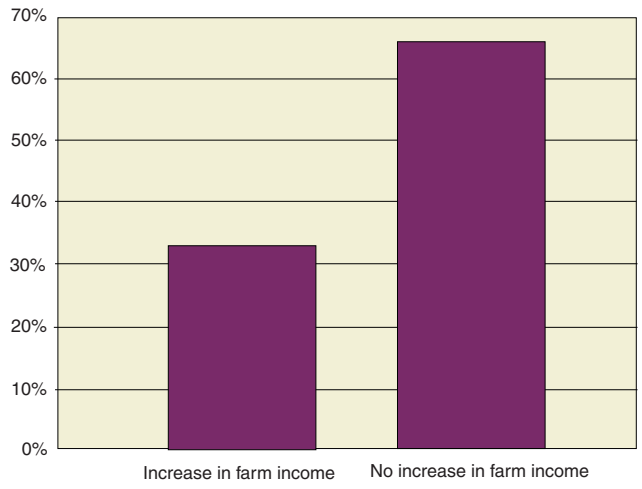
In what other ways did your farm or ranch change as a result of the SARE-funded projects?

Twenty-seven percent (n=30) of respondents indicated other ways in which their participation in SARE affected their farms or ranches. These impacts included employing local labor, strategic evaluation and planning and leveling out of income through different seasons, among others. A summary of these additional impacts is provided in Appendix H.

As a result of the NCR-SARE-funded project, did you see an increase in net farm income on your farm or ranch?

Approximately 64 percent of survey participants responded to this question. Among this group, approximately one-third (34.3 percent) reported an increase in net farm income, and the remaining 65.7 percent reported no increase in net farm income (Figure 9).

Figure 9. Impact on Net Farm Income (n = 70)



Change in outlook

Respondents were asked to indicate how their outlook on farming has changed as a result of their involvement the NCR-SARE-funded project. To answer this question, they were asked to rate their level of satisfaction with farming, spouses' satisfaction with farming, cooperation with other farmers, the likelihood of their children staying in farming, and the quality of life for farm labor. The findings shown in Table 14 revealed that almost half of the respondents (47.9 percent) had an increased level of satisfaction with farming; only 1.4 percent experienced a reduced level of satisfaction. Correspondingly, a third (33.8 percent) of the spouses experienced an increase in satisfaction; only 2.8 percent had a decrease. Approximately half (52.1 percent) of respondents reported an increase in the level of cooperation with other farmers. Approximately one-third (33.3 percent) of respondent reported that the quality of life for workers improved, 31.9 percent reported an increase in the options for farm succession, and 19.7 percent indicated an increase in the likelihood of their children staying in farming.

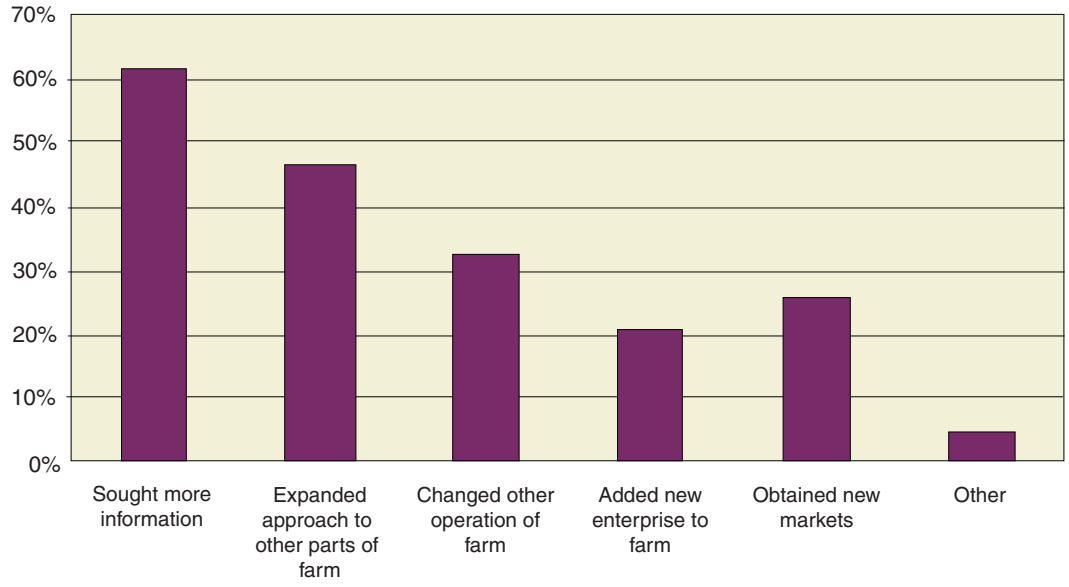
Table 14. Changes in outlook attributed to NCR-SARE-funded projects.

Outlook measures	N	% decreased	% stayed the same	% increased	% don't know/ not applicable
Your satisfaction with farming	67	1.4	45.2	47.9	5.5
Your spouse's satisfaction with farming	65.1	2.8	33.8	33.8	29.6
Extent of cooperation with other farmers	67	1.4	38.4	52.1	8.2
Likelihood your children will stay in farming	65.1	0	45.1	19.7	35.2
Quality of life conditions for farm labor	66.1	0	40.3	33.3	26.4
Favorable options for farm succession	66.1	1.4	40.3	31.9	26.4

Additional action

Farmers and ranchers were asked if, as a result of their involvement in this SARE-funded project, they went on to further enhance their farms or ranches. Of the total number of respondents, 66.1 percent responded to this question (Figure 10). The responses indicated that three-fifths (61.1 percent) sought additional information, and 45.8 percent applied or expanded the approach/technology/idea to other parts of the farm. In addition, 31.9 percent of respondents changed other operations of the farm or ranch, 20.8 percent added new enterprises to their operations, 25 percent obtained new market outlets, and 4.6 percent carried out other actions.

Figure 10. Other Actions Initiated Due to Involvement in SARE (n = 72)



Potential for Improvement
(Objective 5)

This section considers project components that may be important in future project design and implementation. It also provides insights into the challenges that limited the effectiveness and impact of NCR-SARE as well as areas of interest expressed by the respondents.

Did you receive public recognition for your involvement in this project?

The response rate to this question was 68.8 percent (Figure 11). The most common form of public recognition took the form of articles in various publications. Respondents indicated that 25 percent had articles in local newspaper, 11 percent had articles in magazines, and 28 percent had articles in newsletters. In addition, 4 percent reported receiving awards, and 20.8 percent reported other forms of public recognition. (Appendix I provides a summary of the other kinds of public recognition reported.) About one-third (33 percent) indicated they received no public recognition.

Were there any circumstances that limited the impact and/or effectiveness of the NCR-SARE-funded project or your ability to use the results?

There was a 66.1 percent response rate (n=72) to this question. Over three-fifths (62 percent) of respondents indicated that there were no factors limiting the impact and/or effectiveness of the project or their ability to use the results. Explanation of the limiting factors put forward by 38 percent of respondents included inclement weather incidents, shortage of educational resources, unfavorable prices, trespassing animals, lack of capital, poor market structures, inadequate processing processes, disease infestation, high labor intensity, errors in the research process, interpersonal conflict among team members, lack of organization on the part of project coordinators, absence of follow-up funding, shortage of time for marketing activities, and the presence of conflicting values between universities and farmers.

Sustainable Agriculture Information Needs

Farmers and ranchers were asked what topics of sustainable agriculture information might be helpful to them on their farms or ranches. Seventy-six respondents indicated information needs to help them with their farming or ranching operations. Findings in Figure 12 show the most popular topics. Producing renewable energy on the farm or ranch (56.6 percent), ecologically based insect and disease management strategies (57.9 percent), ecologically based weed management strategies and soil-building crop rotations (57.9 percent), and soil-building crop rotations and cover crops (65.8 percent) were the most frequently mentioned areas of informational needs.

Figure 11. Public Recognition for Involvement in SARE (n = 75)

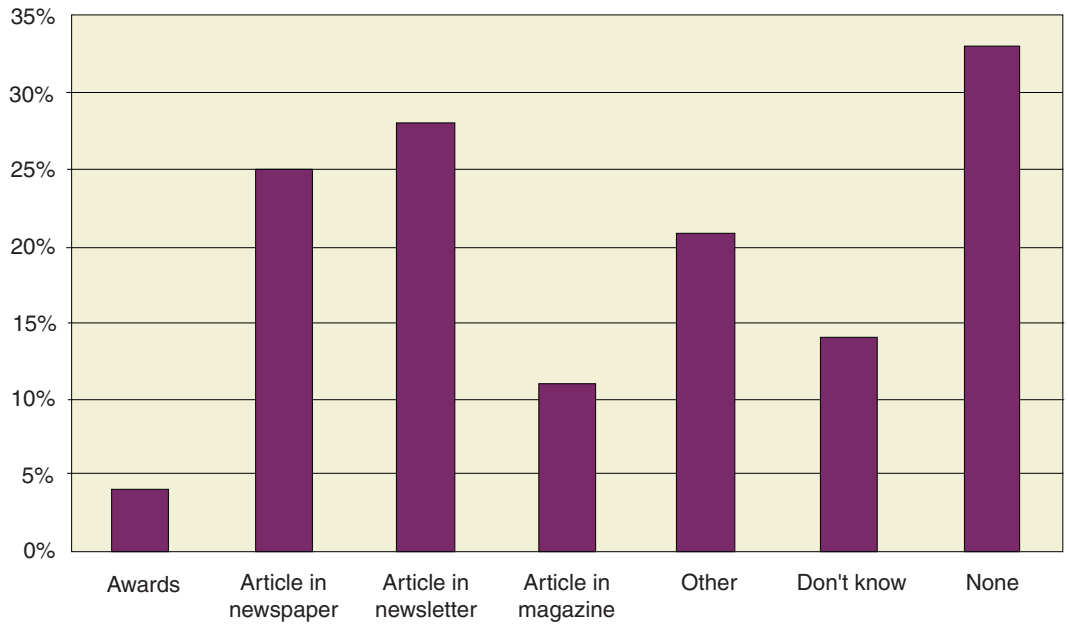
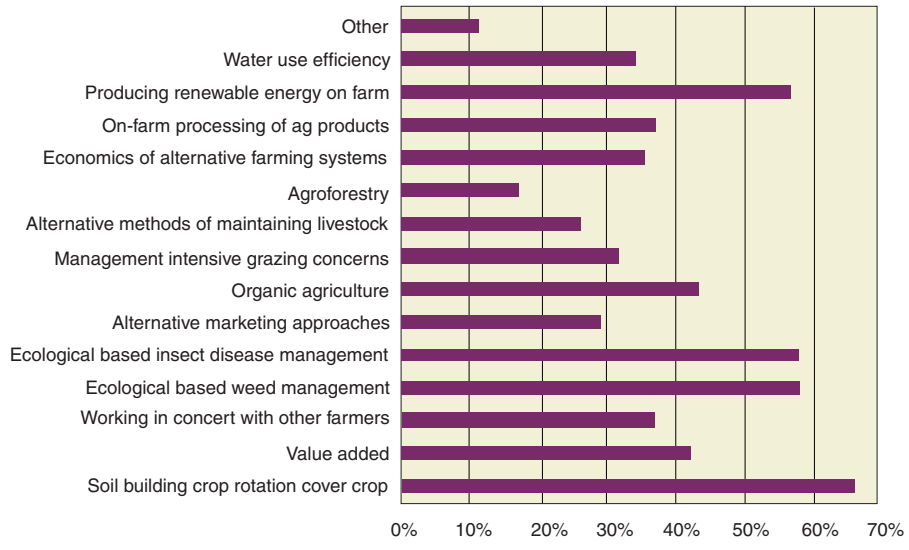


Figure 12. Helpful Topics in Sustainable Agriculture (n = 76)

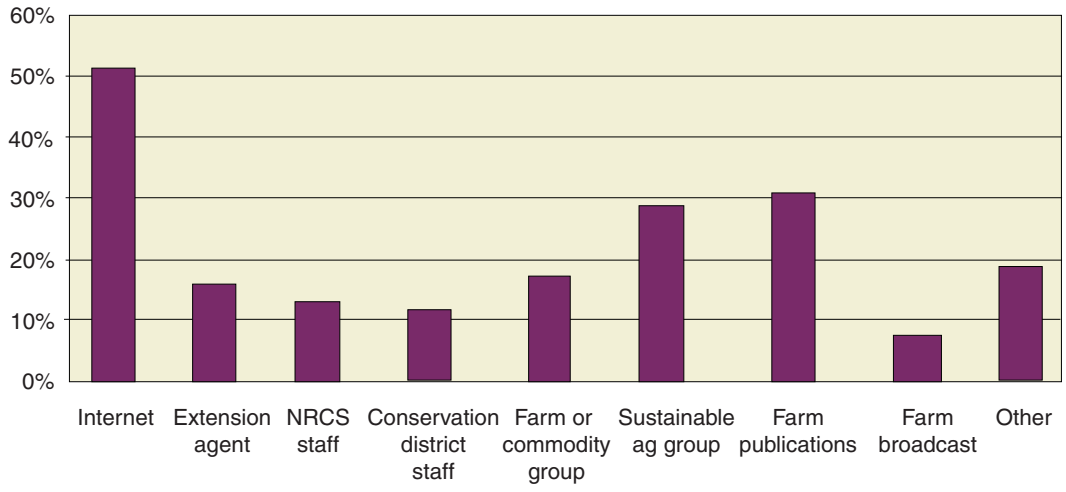


What is your most preferred way of getting new information on farming approaches and programs?

Farmers or ranchers were asked to indicate their most preferred way of getting new information on farming approaches and programs. It should be noted that the survey asked respondents to limit their response to only one most preferred way of getting new information on farming approaches and programs, but the majority of farmers listed more than response. Therefore, the analysis assumes that the respondents checked all that applied.

The response rate to this question was 70.6 percent (n = 77) (Figure 13). The Internet was reported to be the most preferred (51 percent) source of information. Farm publications and sustainable agriculture groups were reported as the next preferred sources, among 31 percent and 29 percent of respondents, respectively. Extension agents, conservation district staff members, and farm and commodity groups were chosen as the preferred information source by less than 20 percent of respondents. In addition, 13 percent reported other sources not listed, including conferences, seminars, workshops, podcasts, farmer mentorships/fellow farmers, universities and producer networks.

Figure 13. Preferred Way of Getting Information on New Farming Approaches (n = 74)



Conclusion and Discussion

Respondents to this survey do not represent a random sample of farmers/ranchers who were involved in NCR-SARE research and education projects. Project Directors and the regional office provided names to the researchers. Based on the earlier survey of project directors, these farmers and ranchers represent a minority of all those who were involved. This limits the ability to generalize from the results of this survey. Nevertheless, respondents do represent each of the twelve states in the region and projects from 13 of 18 years examined, so the sample should represent some of the diversity of the entire population.

Of those initially contacted, 28.4% reported that they did not or could not recall participating in the project listed on their application. Researchers were surprised at this rate. Possible explanations of this high rate may include: 1) The project may have been known by a name other than its "official" title; 2) some projects occurred over 15 years ago and people may have forgotten; 3) some farmers may be involved in multiple projects and be unable to sort out their experiences with each one; 4) farmers perception of what it means to be "involved" in a project may differ from the project director's perception of farmer "involvement"; or 5) there may have been errors in the information provided by project directors and databases. Some follow up by telephone with a sample of this group might elicit useful information.

Based on survey respondents, the typical farmer or rancher who has participated in a North Central Region SARE research or education project is 54 years old and most likely to be Caucasian. They own, on average, about 1,100 acres; they lease, on average, about 680 acres; and they farm, on average, about 1,500 acres. They collectively produce a wide range of agricultural products and services, representing the breadth of the very diverse North Central Region. On average, each farm/ranch employs 3.2 family members full or part-time as well as 3.1 non-family members. They sell 59% of their products through wholesalers or brokers, 27% direct to consumers, and 10% through retail outlets, and they keep about 3% for personal use. They depend on farming for 75% of their family income on average.

Over 75% indicated that information they gained from the NCR-SARE project was very or mostly useful, and over 60% have sought more information about the approach that was tested.

Researchers asked respondents to specify a main approach, technology or idea that they tried out on their farm or ranch as a result of their project involvement. More than two-thirds (70 percent) of the farmer/rancher participants indicated that they had tried an idea, approach or technology as a result of their involvement in the NCR-SARE project. Most indicated that they had persisted in its use. Fewer indicated that their involvement in NCR-SARE-funded projects inspired or triggered new ideas for their farms or ranches. These ideas included integrating new cropping system, marketing practices and utilizing no-tillage or reduced tillage. In retrospect, the systems view of farming and ranching advocated by SARE may focus on one approach, idea or technology but will likely incorporate a range of adjustments.

The indication that at least some farmers and ranchers were trying out new approaches to farming even before they became involved in a SARE project to "test" that new approach was an interesting finding. It could indicate that the farmers and ranchers were important instigators of new research and education directions and played a key role in shaping the projects

Researchers asked respondents to specify a main approach, technology or idea that they tried out on their farm or ranch as a result of their project involvement. In retrospect, the systems view of farming and ranching advocated by SARE may focus on one approach, idea or technology but will likely incorporate a range of adjustments.

Agricultural systems that are more sustainable tend toward increasing diversity in many dimensions. The very diversity that provides increased resilience to the system also makes it difficult to identify uniform measures for documenting and evaluating change. Researchers conducting this project developed a checklist that included a wide range of possible farming/ranching system attributes that might be expected to change with involvement in a sustainable agriculture research or education project. These factors were drawn from the literature and serve as a list of possible indicators of change toward greater sustainability.

Change in just one indicator does not necessarily reflect a move toward or away from greater sustainability, but looking at collective changes and across the farming/ranching operations of all respondents does provide a picture of SARE project impacts.

In general, we expect more sustainable farming/ranching operations to take measure that may, in the long run, limit or reduce their use of off-farm inputs including purchased fertilizers, purchased fuel and pesticides. Respondents to this survey reported changes in this direction.

More sustainable farming/ranching operations would typically take steps to control costs. Generally survey respondents reported overall decreasing costs associated with weed control, feed, veterinary care, hired labor and purchase of off-farm resources. They reported more or less stable costs for seed, machinery and equipment, and buildings. They reported increased costs for fencing, management, record-keeping, on-farm processing, direct marketing, land and taxes. One way to interpret these trends is that the respondents have learned and are practicing ways to control many operating costs; that savings in these areas allow increased investments in aspect of the farming operation that hold potential for enhancing the business in the long run.

More sustainable farming/ranching operations may or may not achieve increases in production. A sustainability context implies optimum, not necessarily maximum, production. Respondents to this survey did report overall gains, however, in yields per acre, annual animal production, and liverstock stocking rates along with declines in insect damage, disease damage and losses from weeds. Byproduct use and waste reduction appeared to be minimally impacted by respondents involvement with SARE. This may be an area to consider for future emphasis.

The sustainability paradigm may be best know for its focus on maintaining and improving environmental quality and respondents reported many positive environmental impacts from their SARE involvement, indicating overall increases in soil, air and water quality; in the quantity and quality of wildlife habitat, and int the use of renewable resources. They also reported overall decreased soil erosion and decreased use of non-renewable resources.

Respondents reported overall changes in several social dimensions of their farming/ranching operations. These included increased coordination among farmers, lender relationships, farm succession options, improvements for farm workers, and likelihood of land staying in farming.

When asked about ways their outlook was impacted by project involvement, respondents reported overall stable or increased satisfaction with farming, spouse's satisfaction with farming, extent of cooperation with other farmers, likelihood that children will stay in farming, farm labor quality of life and favorable options for farm succession. Management indicators also were reported to have increased including diversification, farm integration and farm planning.

Respondents indicated that overall their market/customer recognition of farm products, gross farm sales, farm profitability, and farm net worth increased as impacts from their SARE project involvement.

Overall, the changes indicated reflect movement toward greater sustainability among survey respondents. A major caution, however, is that we lack a control group of farmers/ranchers who were NOT involved in SARE projects. It may be that such a control group would also reflect some or all of the movement toward greater sustainability that survey respondents report. Certainly many of the ideas and language of sustainability has become ubiquitous. Also, it must be noted that we are asking respondents to report about themselves and their own operations. In some situations, self-reporting may yield more favorable results than would some sort of outside observation or third party measurement.

The checklist of sustainability indicators might be used routinely as one way to capture SARE project intents and impacts. Project applicants could be asked to indicate which indicators their projects would try to impact and to incorporate project evaluation tools to determine changes in those areas. SARE could work with the National Agricultural Statistics Service and its state affiliates to sample farmers in general regarding these indicators to develop a control group against

which to compare SARE project participants. Any of the indicators could be refined to develop specific measures that could be used before and after project involvement to measure change. PI's could propose additional indicators.

A number of possible adjustments in SARE operations could help to more effectively capture project impacts:

- If meaningful farmer/rancher involvement is required, consider developing a form for use by PI's similar to an IRB consent form that clearly spells out expectations - including expected feedback - and includes complete contact information. Copies of this form could be shared with SARE regional office and the information used to populate a database of involved farmers. Sending a participating farmer/rancher a copy of the form that she/he signed might be a powerful reminder of the project. Also getting email addresses is critical.
- About one-third of respondents indicated that they received no public recognition for their SARE project involvement. This may be a major untapped opportunity. Increased public recognition of farmer/rancher SARE project participants has potential to 1) show the greater public that these projects are thoroughly grounded in real farmer/rancher concerns; 2) promote the farmers/ranchers so recognized as spokespersons for the project, thus increasing their impact on others; increasing commitment of the recognized farmers/ranchers to the project and to SARE. SARE regional offices could use their communications staff to assist Project Directors to do better in this area.
- If regional SARE offices can find the resources, it might be a very good investment to develop and maintain a database of farmers involved in SARE projects and to communicate on a regular basis - electronically - with these farmers. Such a database could be divided state-by-state and shared with state coordinators. Using current electronic technology, creating a listserv at minimum or perhaps a social networking site could help link people involved in a wide range of projects.
- The optimum time to collect impact data may be one or two years after the final project report is completed.
- Based on results from this survey, researchers suggest that a shortened version could be developed and used routinely over time to show trends and changes. Such a version might include the following questions from this survey: 1, 2, 4, 6, 19, 20, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 40. This would remove half the questions but maintain some continuity regarding impact and demographic data. This shortened version could be provided as a web survey and routinely used with farmer participants. The SARE regional office could collect the data and could contract for periodic data analysis.
- Although the researchers acknowledge and understand SARE's interest in quantifying both project reach and economic impacts of SARE, the questions which probed these areas did not produce much useful data.

A number of the sustainable agriculture information topics desired by respondents represent areas in which there SARE instructional resources already exist. There are various ways to interpret this finding. One is that respondents may not be aware of existing SARE resources. In that case, more effective marketing would be one potential action for the SARE Administrative Council to consider. Another possible interpretation is that respondents know about and have used these resources and that the books and bulletins have raised awareness, interest and demand for additional information.

Respondents strongly prefer using the internet to get information on new farming approaches. Administrative Councils and communication staff need to consider ways to incorporate rapidly evolving internet technology to provide information to farmers. Technology forecasts indicate rapid movement to use of portable devices and 20-something adults - including farmers - are frequent users of social networking to find information. SARE needs to incorporate social networking, podcasts and other avenues to disseminate information from projects and publications. Funding research and education projects that pilot these approaches may be one way to start moving in that direction.

References

Rasmussen, Phil, and Al Kurki. 2007. *Evaluating Impacts and Outcomes of the Western SARE Research and Education Grants Program: 2006 Survey of Farmers and Rancher Project Participants.* Pullman, Wash.: Social and Economic Sciences Research Center, Washington State University.

Suvedi, Murari; Carla Barbieri; Susan Smalley; and Mattias Johnson. 2008. North Central Region Sustainable Agriculture Research and Education (SARE) Program: Research and Education Grant Program 1988-2004 Impacts. East Lansing, Mich.: Center for Evaluative Studies, Department of Community, Agriculture, Recreation and Resource Studies, Michigan State University.

Suvedi, Murari; Kirk Heinze; and Diane Ruonavaara. 1999. How to Conduct Evaluation of Extension Programs. East Lansing, Mich.: ANRECS Center for Evaluative Studies, Michigan State University.

Appendix A: Other Products Produced on Farms

Alpaca
Bison
Cheese
Cut flowers
Dairy products
Flowers
Food-grade conventional soybeans
Grass-fed beef
Grass
Hardwood lumber
Heifer development for other ranchers
Lumber
Milk
Mushrooms and mushroom products
Organic crops
Seed stock bulls
Stream bank protection, tree lines, wildlife habitat
Wool, pork, lamb

Appendix B: Other Ways Respondents Participated in NCR-SARE Projects (n = 20)

Farmers as educators (n=9)
Allowed video to be done on farm.
Edited publication.
Helped write the technical outline for the DVD.
Hosted 1 apprentice.
Mentored an apprentice.
Participated in meetings.
Participated in a series of meetings, shared data.
Provided and discussed data.
Served on a video review team.
Farmers as planners/organizers/managers (n = 5)
Board member of the Organization KCCUA (Kansas City Center for Urban Agriculture).
Continuing advisory committee.
Organized and managed project.
Project manager.
Represented conventional (non-GMO) growers in developing Best Management Practices (BMPs) for co-existence of GMO and non-GMO crops.
Farmers provided labor, products (n = 4)
Grew tomatoes and helped with processing and marketing value-added products.
Grew tomatoes and provided my share of the labor to process them.
Provided product for sampling.
Soil prep for plots.
Farmers as learners (n = 2)
Participated in beginning farmers gatherings/ workshops.
Student of farm beginnings class.

Appendix C: Main Idea, Approach and/or Technology (n = 37)

Cropping Systems (n = 15)
It was roughly the same time period we started planting forage crops for grazing in the field, and we went to no-till in 2004, so instead of fallowing, use grazing of forage crop.
Added sunflower to my cropping system.
Better insect trapping.
Blending varieties to benefit yields.
I used the DVD to help train orchard scouts to scout my farm as well as 15 other farms (2,500 acres).
Learning how to identify material useful for selection and breeding work.
No-till organic soybeans — planted soybeans into standing rye, rolled/crimped the rye to form a mat for weed control.
No-till, high-tunnel.
Organic no-till soybeans in rye cover crops.
Planted additional cover crops.
Planted early-maturing variety of sunflowers on borders of field so they would blossom before main field and there fore apply insecticide only to borders.
Try to raise spring and fall canola in this region.
Using annual ryegrass as a cover crop in a corn/soybean rotation.
Using nitrogen fertilizer for range and pasture.
We have continued to grow out varieties from a farmers' perspective, providing feedback to plant breeders, agrono mists, fellow farmers, Extension and buyers on our observations.
Livestock and integrated systems crop/livestock (n = 11)
Dairy (established a dairy).
Feeding field peas to my swine operation.
Grass finishing beef cattle.
Grow, process and label grass-fed beef and sell as a marketing cooperative.
Installed plate cooler for more efficient milk cooling.
Integrating crop livestock (holistic management).
Pursued rotational grazing for dairy.
Raising broilers on grass with supplement feed. Organic vegetables and fruit. Raising beef on grass. Selling from farm and farmers' market. Also layers on grass — selling the eggs (brown). Sent son to the same program.
Re-route milkhouse waste water from drainfield to manure lagoon.

(Appendix C, continued on page 25)

(Appendix C, continued from page 24)

Swath grazing.
We intensified our waste management of cattle. We now move them each week instead of remaining in two areas. We make better use of nutrients and use cattle to prepare a seed bed for spring pasture improvement seeding.
Management/marketing/business planning (n = 11)
Agro-tourism.
Analyzing farm profitability.
Became more conscious about microbial contamination.
Business planning and marketing planning.
Farm economic analysis — made adjustments to farming operations that improved quality of life and profitability.
How to organize and train new entrants into market gardening.
On-farm processing/ market research.
Scale is an important consideration for profitability. Large farms are not necessarily more efficient. They have higher gross farm income but not necessarily higher net/acre of production.Seed planting and working with the Extension agent, for getting more use out of the hoop house.
The farm beginnings project helped us further grow our direct marketing to be a full-time farm for our family.
This project was off-farm value-added processing.
This was an all-encompassing economic evaluation of our farm. As a result we: 1) Increased scale of production 2) Used percent of expenses to put toward different inputs 3) Began to better track production costs, which has led to increased efficiencies.

Appendix D: Year Started Using the Technology (n = 105)

Year	Frequency		Year started using technology
1988	1	Not reported	
1991	3	Two not reported	1992
1993	2	One not reported	2000
1995	2		1995 and 1996
1996	1		1997
1997	8	Six not reported	1990, 2000
1998	3	Three not reported	
1999	1	Not reported	
2001	11	Four not reported	One in 1997, three in 2002, one in 2003, one in 2004, one in 2007
2002	13	Nine not reported	Four in 2002
2003	35	Twenty eight not reported	Five in 2003, one in 2004, one in 2005
2004	17	Eight not reported	One in 1980, one in 2000, one in 2005, four in 2006, one in 2007, one in 2008.
2005	8	Six not reported	One in 2005, one in 2007

Appendix E: Other Approaches Adopted or Outcomes Due to NCR Projects (n = 27)

Cropping Systems (n = 11)
Always using cropping systems that keep the soil covered. All no-till, rye and oats as a cover, wheat, alfalfa, broom-grass are grown.
Expanded to continuous no-till with alternative crops in system. Diversified cropping system.
More careful about where crops are planted, only use compost, more willing to skip over doubtful areas,
No-tilled corn into an aged alfalfa field,
Ongoing collaborative work with plant breeders and research agronomists,
Pesticide-free cropping, market ideas,
Studied long-day lighting options,
Use of fungicides,
Wanting to do a hoop house,
We have changed the head on our combine that we use for wheat and millet to a stripper head, which has increased the efficiency of the combine by 25 to 30 percent,
We have incorporated a strong seed evaluation and selection enterprise on our farm.
Management/marketing/business planning (n = 8)
Employee record keeping,
Forced us to look at labor as a percent of gross income. This made us learn how to be more efficient and productive with labor and helped us to increase vegetables and berries from about 6 acres in 2001 to current 25 to30.
Hiking/skiing trail for our visitors,
Roasting and freezing chilies — worked well.
We developed an emergency action plan for our farm,
We have branched into agro-tourism,
We started developing an emergency action plan,
Willingness to talk more openly about money issues with other farmers,
Livestock and integrated systems crop/livestock (n = 5)
Installed 6-foot-deep water line to top of hill,
My husband has changed to not using synthetic fertilizers and trying not to use GMO grains, rotational grazing for the dairy herd,
Rotational grazing,
Stockpiling grasses for off-season grazing - save hay and equipment. Much better farm economic analysis — understand our operations reliability better,
We have implemented organic practices in both crops and livestock with grazing and multiple crop rotations,
Other (n = 1)
Because of this project and what we learned, we wanted to be part of another exciting research project involving UW Madison people. That project is ongoing.

Appendix F: Newly Inspired Ideas that were Implemented (n = 21)

Cropping Systems (n = 9)
Closely watch disease pressure,
Expand number of crops grown,
Just to continue efforts and give me confidence to do so; to do diversified cropping systems,
New ways to do poly-genetic resistance breeding/ selection and develop enduring, disease resistant, evolutionary crop variety populations,
No-till,
Our ideas were for other farmers on marginal land to adopt the use of cover crops, especially annual ryegrass in corn/bean rotation.
Season extension for longer growing season,
We are going to start experimenting with different cover crops. Also considering trying no-till corn,
We wanted to seed Kura clover in our pastures.
Livestock and integrated systems crop/livestock (n = 6)
Build bridge across creek instead of using a ford for cattle crossing,
Confirmed rotational grazing idea in energy use, fertilizer, etc.
Mixed forage crops to include legumes. Planting several forage cover crops on irrigated ground — mixing legumes with those as well.
Rotational grazing — using natural fertilizers from Midwest Bio Ag. Lowering vet costs — change the quality of our feeds. Improving the quality, changing and lowering supplements needed.
Rotational grazing,
Running water line uphill to fast free water,
Management/marketing/business planning (n = 6)
Farmer participation in a farm research,
From marketing as ranchers and contact with urban public, how we better appreciate cultural resources and appeal of our area's tourism potential,
Roasting and freezing chilies — worked well.
Stay small, despite pressure from the market to get bigger,
We are starting to track all hours used on our top 10 crops produced so we can get at the actual cost to produce these crops to determine if we should increase or decrease productions of them.
We have expanded our direct marketing to offer products to our customers.

Appendix G: Reasons for Discontinuance of Idea

All cover crops were seeded by airplane. It became difficult to do after airstrip was removed.
Losing money — going into debt, personal exhaustion.
No significant increase in yield and it was difficult to thoroughly blend the varieties.
Not profitable.
Peas are too expensive to feed right now.
Some co-op members were overworked in the processing aspect of the project.
Stopped growing sunflowers.

Appendix H: Other Impacts of NCR-SARE not Previously Noted

Able to include two sons full-time in the farm/processing operation plus several part-time workers from the neighborhood.
Being part of this project made us evaluate other areas of our management and make improvements in how we manage the cattle.
Better planning, resulting in higher net/acre ratio. We were able to track money better — see where costs needed to be reduced.
Brought a son into the operation and one also took the program and is on my parents' farm.
Chemical costs and application costs were less.
Co-op marketing with other farmers.
Have not been a recipient of SARE funding.
Income through winter months and a longer growing season.
Increased customers.
Intensified cropping system — reduced or eliminated fallow. More productive with same amount of acres.
It really gave us the tools to gather more data, analyze and increase efficiencies in many ways.
More aware of realities of marketing, realize our limits — seasonal production.
More efficient milk cooling but use of more water to do it- - the water isn't getting used by cattle as planned.
More visitors to farm. We're establishing on-farm retail sales in '08. Expect even more visitors.
MSU has done more research on my farm.
No-tilled crops into sod. That probably would not have been done without seeing results of the SARE project.
Other producers inquired about blending varieties from our certified seed farm.
Removed last drainfield from house to an approved manmade septic system.
Skill level of orchard scouts increased.
Soil tilth improved — conserved moisture. Cover crop could be used to help dry out soil if wet spring; earth worm populations rise.
The education and knowledge we gained as well as contacts in networking are immeasurable and have helped us to be the successful farmer we are today.
The products extended our season, used excess product and increased income and income flow.
We became more aware of environmental issues. As a minor project we developed an emergency action plan for our farm.
We have a good idea of how to integrate an oil seed crop into our rotation.
We have continued our involvement in research on organic farming systems and varietals development for organic farms through participatory research.
We started developing an emergency action plan.
We were able to look at our farm operations through the eye of another person, gain ideas and farming practices we otherwise might not have seen available to us.
Weed control initially very poor, now am looking at continuously cropping cover crops to accomplish weed control.
When planning we consider more ideas/options.

Appendix I: Other Forms of Public Recognition

Brochure
DVD interview
Field day, tour, panel discussion.
Line in book
Local TV
Participated in no-till workshop at O.F.C. in La Crosse
Photo recognition
Presentation at growing conference
Publication
Recognized at field day
Seminar presentation
Speaker
Used in presentations
Was listed as an author

Appendix J: Factors Limiting Project Effectiveness and Impact

Drought, lack of education material.
Seven years of drought — other factors — when we started, wheat was $2.86 and corn was $1.96. Things look a lot different with current prices.
Difficult to blend to satisfaction.
Drought — still in it for eight years now. Continuous no-till is a little risky here with 15 inches of rainfall and it being drier than that.
Drought.
Extreme drought. When there their was moisture, this project did extremely well.
Inability to totally control animals and birds passing through and over our fields.
Inadequate capitalization of marketing co-op, concentration and monopolies in beef industry, geographic distance from urban markets, ignorance of distribution systems.
Late freeze, son mowed cover crop.
Members were more interested in growing than in processing. Major batch of salsa had to be tossed because of possible contamination by lost stone from jewelry.
Much more drought , lack of funds and providing a coordinator of mentors for information exchange.
Not enough time in 2007 in addition to drought conditions.
Our farm was hit by a microburst, damaging or completely destroying every building, vehicle and piece of equipment.
Processing tomatoes is time-consuming, especially for farmers who are busy growing the tomatoes. The processing work was supposed to be done by the farmers, but the same people got stuck with the work and got burned out. This enterprise is not currently operating.
Research tallied results inaccurately.
Team members did not want to get along.
The coordinator was not very organized the first year of the study. He needed to seek out help from those with more experience. I got a lot out of this project, but it could have been organized and managed better.
The factor that was being studied — rust — did not show up during the test years.
The lack of continual funding to full develop the potential of the new ideas/ methods.
The limiting factor was our lack of time and skill to market the products.
The project did not produce meaningful BMP's. It was used to promote the use of GM products and resulted in no change in practice or reduction in GM contamination.
The whole process was very divisive. University and industry representatives were very GM- biased. Conventional growers and sustainable agriculture groups were very protective of their BMP's that promoted segregation and separation protocols.
This study confirmed what I was already doing on the whole farm.
USDA did not care!
We are fortunate to have very fertile and productive soils and have always used cropping systems that promote soil tilth and fertility. Therefore, I do not believe we saw a big impact on cover crop use.
We are more occupied with off-farm project, though we still farm seriously.
We could not grow big enough to stay as a co-op.

Appendix K: Other General Comments

I very much like working with SARE. Little interest in surrounding farmers to try cover crops. Should show bene fits, especially on marginal and organic soils.
As a sole operator with no employees, we thought it was a matter of time. We could see the value of some of it within larger operations. The things we covered were not new to us. Lack of time and money are the two things that keep farmers from accomplishing.
Books were good.
Good project, very responsible.
Great project for Kansas City. [NOTE: farmer owns 10 acres in Kansas and 70 in Iowa].
Has been a rewarding and income-producing experience.
Hopefully, research dollars can be spent on useful, scientifically sound projects, rather than emotional or politically based movements that have no interest, such as organic farming or environmentalism.
I manage a University of NE research farm, so some of the questions are not applicable.
I sold my farm, so there was no follow-up on recommendations.
I strongly support SARE, and I have written to our congressional reps to increase funding.
I thought it was an excellent project, and I am sorry it did not continue. I have dreams of reviving it.
It's too bad $66,000 was not put to better use. Though this project failed, another grant written by the same author is still thriving after 14 years, and it's a cooperative.
Limiting factor is ability to tap and utilize human creativity.
Most farmers I know have a pretty good handle on production. However, very few have any idea what their true production and labor costs are. Economics and financials are the main area where farmers need help.
My son (26 years) became interested in farming; the project was mostly for his education.
SARE people were wonderful to work with. Thanks for all you do. Sorry our group didn't do better; we gave it our whole hearts — just too many obstacles.
SARE personnel we have had contact with are very supportive and encouraging.
Thanks for the work you do.
The beginning farmer initiative was a great opportunity for me. Martin Kleinschmidt has been very helpful. Thanks for the funding and help.
The coexistence project was initiated during the heated political debate of placing a moratorium on the release of a RR spiny wheat. The lines were drawn and the hoped for protocols and BMP's never materialized.
The farm beginnings program has become one of the best one-term programs ever funded and started. We believe so strongly in F.B. and all it stands for that we have become presenters and steering committee members. Thank you, SARE, for funding this program.
The main impact of this project was primarily for our intern. We planned on having an intern regardless of the SARE project. Benefits for us were involvement in the local sustainable ag farming community, having an intern that had outside training.
The organic crop variety trials on our farm were interesting and confirmed most of what we had learned by trial and error. Had value to less experienced organic farmers, also valuable to research and Extension.

(Appendix K continued on page 34)

(Appendix K continued from page 33)

The project we were involved in does not relate to income or alternative agriculture. It was a very unique experience.
There is excellent potential with this project
This project was to promote agriculture, especially to those not involved with it. I feel the program did a successful job in that area. It did not go as far to inspire others to do more like we had hoped.
This was a great way to show/introduce producers to alternative crops and increase their income and reduce risk.
Very gratifying, invigorating, inspirational and valuable.
We appreciate the help SARE gave to tall grass beef co-op. We gained lots of valuable info and experience.
We really need a way to get information from projects like this published and accessible to farmers and decision makers.
When voting about policies, procedures and BMP's, started to go against the organic folk. They got mad, picked up their toys and went home.

Appendix L. Copy of survey letter

MICHIGAN STATE
UNIVERSITY

February 6, 2008

Title & Name
Address
City State Zip

Dear [Name]

The North Central Region Sustainable Agriculture Research and Education (NCR-SARE) program is evaluating the impact of its Research and Education (R&E) grant program. An important part of that effort is a survey of farmers or ranchers who have been engaged in the North Central Region SARE R&E projects from 1988 through 2004. Please share your valuable feedback by completing the attached survey that will help NCR-SARE to assess the impacts of the funded projects and to improve the grant program.

This evaluation is being conducted by Michigan State University. We estimate that the 40 question survey will take about 30 minutes to complete. Knowing that you are busy, we designed the format to make it easy for you to respond quickly.

Your completion of this survey is completely voluntary. You are free not to answer any questions or to stop participating at any time. All responses will be kept confidential by the researchers to the maximum extent allowable by law. There are no risks or individual benefits associated with completing this survey. Our reports will not associate any responses with any individual respondents unless express written permission to do so has been secured. If you have any questions regarding your rights as a participant, please contact Dr. Peter Vasilenko, Director of Human Research Protection Programs at Michigan State University 517-355-2180, fax 517-432-4503, or irb@msu.edu.

By completing the survey you indicate your voluntary consent to participate in this study and have your answers included in the evaluation data set. Your response will be treated as confidential and no individual responses will be identified. Once you have completed the questionnaire, fold it and return it to us in the enclosed pre-stamped, pre-addressed envelope.

We appreciate your cooperation and we thank you in advance for your time and assistance to complete this important questionnaire. As a token of appreciation, enclosed is a MSU pen for you. If you have questions about this survey please contact Dr. Murari Suvedi at 517-432-0265 or suvedi@msu.edu. On behalf of North Central Region SARE, thank you very much for your help!

Sincerely,

Murari Suvedi
Professor

Susan Smalley
Director, CS Mott Group for Sustainable Food Systems

CARRS
DEPARTMENT OF
COMMUNITY, AGRICULTURE, RECREATION, AND RESOURCE STUDIES
College of Agriculture and Natural Resources
Michigan State University
131 Natural Resources
East Lansing, MI
48824-1222
517/353-5190
fax: 517/432-3597
web: www.carrs.msu.edu

MSU is an affirmative-action, equal-opportunity institution.

Appendix M. Copy of follow up survey letter

MICHIGAN STATE
UNIVERSITY

February 26, 2008

Name and Title
Address
City, State, Zip

Dear Name,

Last week you were mailed a questionnaire entitled “NCR-SARE Research and Education Program: Survey of Farmers and Ranchers." If you have already completed and returned the questionnaire, please accept our sincere thanks. If not, we urge you to please complete and return the questionnaire as soon as possible.

The return of your completed questionnaire will help design and improve NCR-SARE’s future research and education program and services. If by some chance you did not receive the questionnaire, or it was misplaced, you will receive another one in the next two weeks.

Sincerely,

CARRS
DEPARTMENT OF
COMMUNITY, AGRICULTURE, RECREATION, AND RESOURCE STUDIES
College of Agriculture and Natural Resources
Michigan State University
131 Natural Resources
East Lansing, MI
48824-1222
517/353-5190
fax: 517/432-3597
web: www.carrs.msu.edu

MSU is an affirmative-action, equal-opportunity employer.

Murari Suvedi
CARRS Center for Evaluative Studies
135 Natural Resources
Michigan State University

Appendix N. Copy of survey

Sustainable Agriculture Research and Education

North Central Region SARE
Research and Education Program
Survey of Farmers and Ranchers

North Central Region Sustainable Agriculture Research and Education (NCR SARE), in cooperation with Michigan State University, is conducting a region-wide survey of its Research and Education (R&E) grant recipients from 1988-2004. Through this survey NCR SARE hopes to learn from farmers and ranchers about their experience with the program. The survey results will help guide and shape the future NCR SARE program.

When completing this survey, please think about your involvement with the following NCR SARE Research and Education Project

Project title:

Project leader:

Project year:

If you were NOT INVOLVED with this project or you DO NOT RECALL BEING INVOLVED, please check the box below and return the questionnaire in the prepaid envelope provided

NOT INVOLVED ☐

Q1. How were you involved in this NCR SARE funded project? Please mark all that apply:

- ☐ Participated in project planning (e.g., involved in decisions on what to do, why, how)
- ☐ Actively involved in on-farm research or demonstration (e.g., managed field trials, interpreted results, hosted or led tour)
- ☐ Provided land for test plots or site for tour
- ☐ Spoke about the project at a meeting (presentation, panel, etc.)
- ☐ Co-authored a paper or other product.
- ☐ Other, Please describe: _____

Appendix N. Copy of survey

Q2. Overall, how useful to your farm or ranch was the information you gained from this NCR SARE project? Mark one response.

- ☐ Very useful
- ☐ Mostly useful
- ☐ Slightly useful
- ☐ Not useful

Q3. Did you try out an idea, approach or technology on your farm or ranch as a result of your involvement in this NCR SARE project?

- ☐ Yes → Go to Q4
- ☐ No → Skip to Q16

Q4. Please explain what <u>main</u> idea, approach or technology you used:

Q5. In what year did you first start using this main idea, approach or technology?

Year: _____

Q6. How has this main idea, approach or technology from the SARE-funded project impacted each of the following aspects of your farm or ranch operation?

	Decreased	Stayed the same	Increased	Don't know	Not applicable
Input amounts					
Purchased fertilizer amount	☐	☐	☐	☐	☐
Purchased fuel amount	☐	☐	☐	☐	☐
Pesticide amount	☐	☐	☐	☐	☐
Economics					
Weed control costs	☐	☐	☐	☐	☐
Seed costs	☐	☐	☐	☐	☐
Feed costs	☐	☐	☐	☐	☐
Veterinary care costs	☐	☐	☐	☐	☐

Appendix N. Copy of survey

	Decreased	Stayed The Same	Increased	Don't Know	Not applicable
Fencing costs	☐	☐	☐	☐	☐
Hired labor costs	☐	☐	☐	☐	☐
Management costs	☐	☐	☐	☐	☐
Machinery & equipment costs	☐	☐	☐	☐	☐
Building costs	☐	☐	☐	☐	☐
On-farm processing costs	☐	☐	☐	☐	☐
Overall gross farm sales	☐	☐	☐	☐	☐
Farm profitability	☐	☐	☐	☐	☐
Farm net worth	☐	☐	☐	☐	☐
Purchase of off-farm resources	☐	☐	☐	☐	☐
Tax costs	☐	☐	☐	☐	☐
Land costs	☐	☐	☐	☐	☐
Record keeping	☐	☐	☐	☐	☐
Outputs					
Yields per acre	☐	☐	☐	☐	☐
Annual animal production	☐	☐	☐	☐	☐
Byproduct use, waste reduction	☐	☐	☐	☐	☐
Insect damage	☐	☐	☐	☐	☐
Disease damage	☐	☐	☐	☐	☐
Losses from weeds	☐	☐	☐	☐	☐
Livestock stocking rate	☐	☐	☐	☐	☐
Environmental					
Soil erosion	☐	☐	☐	☐	☐
Soil quality	☐	☐	☐	☐	☐
Air quality	☐	☐	☐	☐	☐
Water quality	☐	☐	☐	☐	☐
Wildlife habitat quality/quantity	☐	☐	☐	☐	☐
Use of renewable resources	☐	☐	☐	☐	☐
Use of non-renewable resources	☐	☐	☐	☐	☐
Market					
Market/customer recognition of my farm products	☐	☐	☐	☐	☐

Appendix N. Copy of survey

	Decreased	Stayed The Same	Increased	Don't Know	Not app
Social					
Coordination with other farmers	☐	☐	☐	☐	☐
Lender relationship	☐	☐	☐	☐	☐
Farm succession option	☐	☐	☐	☐	☐
Improvements for farm workers	☐	☐	☐	☐	☐
Likelihood of my land staying in farming	☐	☐	☐	☐	☐
Other					
Diversification	☐	☐	☐	☐	☐
Integration – putting the pieces together	☐	☐	☐	☐	☐
Farm planning	☐	☐	☐	☐	☐
Costs of direct marketing sales (e.g. farmers markets, CSAs, on-farm sales, sales to restaurants or institutions)	☐	☐	☐	☐	☐

Q7. In what other ways did your farm or ranch change as a result of the SARE funded project? Please explain.

Q8. Are you still using this main idea, approach or technology on your farm or ranch?

☐ Yes → Skip to Q11
☐ No → Go to Q9

Q9. In what year did you stop using this main idea, approach or technology?

Year: _____

Appendix N. Copy of survey

Q10. What is the main reason you discontinued use of this idea, approach or technology? Please explain.

Q11. Besides this main idea, approach or technology, what other ideas, approaches or technologies have you tried on your farm that were related to your involvement on this SARE funded project? Please explain.

Q12. Did this SARE funded project trigger or inspire any new ideas for you on your farm or ranch?

- ☐ Yes → Go to Q13
- ☐ No → Skip to Q16

Q13. Please describe these new ideas.

Q14. Did you try these new ideas on your farm or ranch?

- ☐ Yes
- ☐ No

Appendix N. Copy of survey

Q15. Have you continued to use those new ideas on your farm or ranch?
- ☐ Yes
- ☐ No

Q16. As a result of this SARE funded project, did you see an increase in net income on your farm or ranch?
- ☐ Yes → Go to Q17
- ☐ No → Skip to Q18

Q17. What is your estimate of the monetary increase per unit (for example, acre, animal, field, farm stand, farm, etc.):

$_____ per _____
(please specify unit: acre, animal, field, farm stand, farm, etc.)

Q18. How many other farmers or ranchers in your area do you estimate tried out an idea, approach or technology on their own farm or ranch as a result of being involved in this SARE-funded project?

Estimated number of farmers/ranchers: _____

Q19. Please indicate how your outlook on farming has changed as a result of your involvement with this SARE funded project. Mark one response for each item.

	Decreased	Stayed the same	Increased	Don't know	Not applicable
a. Your satisfaction with farming	☐	☐	☐	☐	☐
b. Your spouse's satisfaction with farming	☐	☐	☐	☐	☐
c. Extent of cooperation with other farmers	☐	☐	☐	☐	☐
d. Likelihood your children will stay in farming	☐	☐	☐	☐	☐
e. Quality of life conditions for farm labor	☐	☐	☐	☐	☐
f. Favorable options for farm succession	☐	☐	☐	☐	☐

Q20. As a result of your involvement with this SARE funded project, have you:

	Yes	No
a. Sought more information on use of the approach or technology tested?	☐	☐
b. Expanded use of this approach or technology to other parts of your farm or ranch?	☐	☐
c. Changed other operations on your farm or ranch?	☐	☐
d. Added a new enterprise to your farm or ranch?	☐	☐
e. Obtained new markets for the crops or livestock raised on your farm or ranch?	☐	☐
f. Other, Please specify: _____		

Appendix N. Copy of survey

Q21. Were there any circumstances that you think limited the impact and effectiveness of this project or your ability to use the results (such as drought, change in personnel, change in farming situation, etc.)?

- ☐ Yes → Go to Q22
- ☐ No → Skip to Q23

Q22. What factors limited the impact? Please explain.

Q23. Did you receive public recognition for your involvement in this project? Mark all that apply.

- ☐ Award
- ☐ Article in local newspaper
- ☐ Article in newsletter
- ☐ Article in magazine
- ☐ Other, Please specify: _____
- ☐ Don't know
- ☐ No

Q24. Which of the following topics of sustainable agriculture information would be helpful to you on your farm or ranch? Check all that apply.

- ☐ Soil-building crop rotations, including cover-crops
- ☐ Value-adding
- ☐ Working in concert with other farmers
- ☐ Ecologically based weed management strategies

- ☐ Ecologically based insect and disease management strategies
- ☐ Alternative marketing approaches (such as direct marketing)
- ☐ Organic agriculture
- ☐ Management-intensive grazing concerns

- ☐ Alternative methods of maintaining livestock
- ☐ Agroforestry
- ☐ Economics of alternative farming systems, such as organics

- ☐ On-farm processing of agricultural products
- ☐ Producing renewable energy on-farm or on-ranch
- ☐ Water use efficiency in irrigation
- ☐ Other, Please specify: _____

Appendix N. Copy of survey

Q25. What is your most preferred way of getting new information on farming approaches and programs? Select one.

- ☐ Internet (the Web)
- ☐ Extension Agent/Educator
- ☐ NRCS staff person
- ☐ Conservation district staff person
- ☐ Farm or Commodity Group
- ☐ Sustainable Ag Group
- ☐ Farm Publications
- ☐ Farm Broadcast
- ☐ Other, Please specify: _____

Q26. The Sustainable Agriculture Network (SAN) is the national outreach arm of the SARE program. SAN develops and disseminates information about sustainable agriculture through print and electronic media. How have you used SAN publications? Mark all that apply.

- ☐ I am not familiar with SAN publications.
- ☐ I read one or more SAN publication(s).
- ☐ I was inspired by one or more SAN publication(s) to explore new production or marketing ideas.
- ☐ I adopted new production or marketing techniques as a result of SAN publication(s).
- ☐ I passed SAN publication(s) on to others.
- ☐ I sought more information from the resources listed in SAN publication(s).

Q27. What farm or natural resource organization(s) are you affiliated with? Please mark all that apply.

- ☐ Farm Bureau
- ☐ Farmers Union
- ☐ National Farmers Organization
- ☐ Organic Farmers Group
- ☐ Marketing Cooperative
- ☐ Environmental Group
- ☐ Commodity Group
- ☐ Board or Commission
- ☐ Sustainable Agriculture Organization
- ☐ Other, Please specify: _____

Q28. In what year did you start to farm or ranch?

Year: _____

Appendix N. Copy of survey

Q29. In what state(s) is your farm or ranch located? State(s): _____

Q30. How many family members work on your farm or ranch, including you?

Number of full time family members who work on your farm/ranch: _____
Number of part time family members who work on your farm/ranch: _____

Q31. How many non-family members work on your farm or ranch?

Number of full time non-family member farm workers: _____
Number of part time non-family member farm workers: _____

Q32. How many acres do you own? Acres owned: _____

Q33. How many acres do you actively farm? Acres actively farmed? _____

Q34. How many acres do you lease from someone else?

Acres leased from someone else? _____

Q35. What products or services are produced on your farm or ranch?

	Yes	No
Vegetables	☐	☐
Fruit	☐	☐
Nuts	☐	☐
Grains (wheat, barley, oats, corn, etc.)	☐	☐
Seed	☐	☐
Hay	☐	☐
Legumes	☐	☐
Poultry	☐	☐
Goats	☐	☐
Sheep	☐	☐
Hogs	☐	☐
Dairy cattle	☐	☐
Beef cattle	☐	☐
Green manure or cover crops	☐	☐
Ornamentals, turf or trees	☐	☐
Agritourism	☐	☐
Value-added products	☐	☐

Other, Please specify: _____

Appendix N. Copy of survey

Q36. What percentage of your farm or ranch products do you sell to these outlets? Percentages should total 100 percent.

- Wholesaler or broker (for example, grain elevator, auction yard, ales barn, bulk processor)……_____ %
- Retail outlets such as stores, bakeries or restaurants ……. _____ %
- Directly to consumers (for example, direct sales, CSA's, farmers markets)…… _____ %
- For family, personal or cultural use or barter …… _____ %

100%

Q37. Please estimate the percentage of your household income that comes from farming or ranching.

Percent of household income:_____%

Q38. When a new approach to farming comes along that might benefit your farm or ranch economically, do you tend to: Please select one.

- ☐ Try it out right away yourself.
- ☐ Wait to see if others try it out first then test it yourself.
- ☐ Wait until an approach is proven and used by lots of neighbors before trying it out yourself.
- ☐ Do nothing

Q39. When a new approach to farming comes along that might benefit your farm or ranch environmentally, do you tend to: Please select one.

- ☐ Try it out right away yourself.
- ☐ Wait to see if others try it out first then test it yourself.
- ☐ Wait until an approach is proven and used by lots of neighbors before trying it out yourself.
- ☐ Do nothing

Q40. What is your age? Age: _____

Q41. Which of the following categories best describes your ethnic background? Mark all that apply.

- ☐ White, Not Spanish/Hispanic/Latino/Chicano
- ☐ Spanish/Hispanic/Latino/Chicano
- ☐ Black, African American
- ☐ American Indian
- ☐ Asian/Asian American (Including Pacific Islander)
- ☐ Other, Please list: _____

Appendix N. Copy of survey

Thank you for completing this survey! What other comments do you have regarding your involvement in this project or with SARE?

Thank you again for your participation in this survey. Please send your completed survey in the enclosed stamped, pre-addressed envelope.