

# **Western Region Sustainable Agriculture Research and Education (WSARE) Professional Development Survey Report**

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**Cooperative Extension**

# Table of Contents

Table of Contents .....	1
List of Tables .....	3
List of Figures.....	3
Introduction .....	4
Method.....	4
Survey Description.....	4
Reliability and Validity.....	4
Identification of Survey Participants .....	6
Survey Procedure .....	6
Data Entry .....	8
Data Analyses.....	8
Structure of the Report.....	9
Results .....	10
Participant Characteristics.....	10
Level of Expertise in Various Areas of Sustainable Agriculture .....	11
Knowledge of Sustainable Agricultural Practices.....	11
Knowledge of Sustainable Agricultural Systems .....	13
Knowledge of Sustainable Agricultural Policy.....	15
Summary.....	16
Sources of Information and Usefulness of Information .....	17
Learning Through USDA SARE-Funded Projects or Events .....	17
Sources of Information on Sustainable Agriculture .....	18
Getting Sustainable Agriculture Information.....	20
Usefulness of Sustainable Agriculture Information.....	21
Summary.....	22
Desired Information .....	24
Summary.....	26
Programming.....	27
Topics of Sustainable Agriculture Educational Programs .....	27
Time Devoted to Educational Programming.....	29
Number of Educational Programs Conducted with Farmers or Ranchers.....	29
Working with Farmers or Ranchers to Develop Sustainable Agriculture Practices.....	31
Program Delivery to Various Farm-Related Groups.....	31

## Table of Contents (continued...)

Program Delivery to Various Non-Farm-Related Groups .....	32
Partnering with Other Groups to Deliver Educational Programs .....	34
Summary.....	34
Participating and Cooperating in SARE Activities.....	36
Participating as a Cooperator.....	37
Summary.....	38
General Sustainable Agriculture .....	39
Agriculture as Practiced Today.....	39
Interest of Farmers/Ranchers in Learning About Sustainable Agriculture .....	40
Interest in Educating Others in Sustainable Agriculture .....	40
Summary.....	41
Overall Summary and Conclusions .....	42
References.....	44

## List of Tables

Table 1. Participating States and State Response Rate (Q22) .....	7
Table 2. Level of Knowledge in Areas of Sustainable Agricultural Practices (Q1) .....	11
Table 3. Level of Knowledge in Areas of Sustainable Agricultural Systems (Q2) .....	13
Table 4. Level of Knowledge in Areas of Sustainable Agricultural Policy (Q3) .....	15
Table 5. Sources of Information on Sustainable Agriculture (Q4) .....	18
Table 6. Obtaining Sustainable Agriculture Information (Q5) .....	20
Table 7. Usefulness of Sources of Information (Q13).....	21
Table 8. Desired Information (Q16) .....	24
Table 9. Number of Programs Delivered to Farm-Related Groups During 2002-2003 (Q11).....	31
Table 10. Number of Programs Delivered to Non-Farm-Related Groups During 2002-2003 (Q11) .....	33
Table 11. Partnering With Other Groups (Q12).....	34
Table 12. Participation in USDA WSARE Activities (Q14).....	36
Table 13. Participation in USDA WSARE Activities as a Cooperator (Q15) .....	37
Table 14. Responses to the Question, “Agriculture as it is practiced in my area today...” (Q17).....	39

## List of Figures

Figure 1. Years of Experience with Extension Service (Q23).....	10
Figure 2. Geographic Area Covered as an Extension Educator (Q24) .....	10
Figure 3. The Extent to Which Sustainable Agriculture Learning Comes Through USDA SARE-Funded Projects or Events (Q6).....	17
Figure 4. Time Expected to be Devoted to Educational Programming (Q9) .....	29
Figure 5. Number of Educational Programs Conducted with Farmers or Ranchers During 2002-2003 (Q7) .....	30
Figure 6. Frequency of Working with Farmers/Ranchers in Developing Sustainable Agriculture Practices (Q10).....	31
Figure 7. Farmers/Ranchers’ Level of Interest in Learning About Sustainable Agriculture (Q18) .....	40
Figure 8. Participants’ Level of Interest in Educating Others in Sustainable Agriculture (Q19) .....	41

## **Introduction**

For almost ten years, the USDA's Western Region Sustainable Agriculture Research and Education Professional Development Program (WSARE PDP) has provided grants for agriculture professionals' training and education opportunities in sustainable agriculture principles, systems and practices. WSARE PDP, in cooperation with a research team in the University of Arizona Cooperative Extension Service, conducted a region-wide survey of agricultural Extension Educators to gain insight into their experiences and thoughts on the topic of sustainable agriculture. The survey results will help guide and shape the WSARE PDP state and competitive grants program in the future.

## **Method**

### **Survey Description**

The 84-item WSARE Survey included questions on educator knowledge, educator practice, and educator attitudes relative to sustainable agriculture, as well as demographic variables. The second page of the questionnaire packet contained a definition of sustainable agriculture so that participants were completing the questionnaire with a shared frame of reference. Sustainable agriculture was defined in this survey as follows:

“National legislation defines sustainable agriculture as: An integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- a) Satisfy human food and fiber needs.
- b) Enhance environmental quality and the natural resource base upon which the agricultural economy depends.
- c) Make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls.
- d) Sustain the economic viability of farm operations. Enhance the quality of life for farmers and society as a whole.”

### **Reliability and Validity**

When examining the results of a survey, it is important to ask, “How accurate is the information that was obtained?” While there is no simple answer to this question, most researchers focus on the validity and reliability, or “quality,” of the survey. The quality of the WSARE Survey of Extension Educators is reflected in

the variability and consistency in the data that allowed us to find meaningful patterns both within and across states. The following paragraphs provide an explanation of how we addressed certain threats to the validity and reliability of the WSARE survey.

Our first concern around validity was to address the question, “Are we measuring what we intend to measure?” In other words, will the information gathered from the survey allow WSARE PDP to gain insights into the experiences and thoughts of members concerning sustainable agriculture to guide and shape the WSARE PDP grant program into the future, as was intended? Several steps were followed to address this validity issue and other important issues such as whether the questions in the survey have only one interpretation (Cook & Campbell, 1976) and make conceptual sense (Patton, 1986). First, a steering committee, consisting of WSARE PDP members, used an existing survey as a starting point and made modifications based on technical assistance provided by the University of Arizona Cooperative Extension Service research team. After several iterations and committee member reviews, consensus was reached on the wording and organization of survey items.

Another potential threat to validity in survey research is social desirability bias. This occurs when respondents “answer questions in a way that conforms to dominant belief patterns among groups to which the respondent feels some identification or allegiance” (Dillman, 1978, p. 62). One way to minimize such bias is to insure respondent confidentiality. We did this by arranging to have a contact person in each state provide the Arizona team with a list of potential participants and their addresses. Each potential respondent was then assigned a five-digit code number to maintain confidentiality. It is also important to note that written surveys, as opposed to interviews, provide an additional level of anonymity, and therefore, generally produce the most honest responses (Hotchstim, 1967; as cited in Dillman, 1978).

Nonresponse bias can also be problematic for survey research. Nonresponse bias occurs when those who do not respond to a survey differ greatly from those who do respond. If such a bias exists, then the results of the survey are misleading, since they only represent those unique individuals who answered the survey and not the broader population initially targeted. One way to decrease nonresponse bias is to increase response rates. To accomplish this, we utilized Dillman’s (1978) Total Design Method as a framework for developing and implementing surveys. Among other techniques, this method makes use of mailings which both inform potential respondents of forthcoming surveys and remind them to answer and send in the survey materials. This method yielded state

response rates ranging from 64-100%, with an overall response rate of 75%, which meet established standards of “good” to “very good” response rates (Babbie, 1973; as cited in Edwards, Thomas, Rosenfeld, & Booth-Kewley, 1997).

Reliability is concerned with issues of stability and consistency of results. A reliable survey will produce consistent results despite random fluctuations in the survey implementation process (e.g., changes in respondents’ moods, time of day the survey was administered). Thus, a reliable survey insures that differences resulting from repeated administrations (if administered to the same population to measure the same characteristics) are due to real changes rather than due to error or random fluctuations.

While there are many ways to assess reliability, the type of reliability analysis appropriate for most survey data is called internal consistency reliability. This estimates how consistently the items within a dimension (such as knowledge of sustainable agriculture practices) measure the same characteristic (Edwards et al., 1997). Internal consistency reliability values can range from .00 to 1.00 with .70 or greater considered acceptable (Edwards et al., 1997). Internal consistency reliability was less of an issue in this survey because we were interested in the responses to each item. However, within each area we also reported trends across conceptually linked items; thus, internal consistency reliabilities were calculated for these items. These analyses resulted in internal consistency values between .75 and .85. Recall that values of .70 or greater are considered acceptable.

## **Identification of Survey Participants**

All agricultural extension educators from the states of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming were included as potential participants for this survey. A contact person in each state sent a list of potential participants and their addresses to the Arizona team. In Arizona, each potential respondent was then assigned a five-digit code number consisting of a two-digit state code plus a three-digit number beginning with 001 to maintain confidentiality and anonymity. The code and name lists were only used for follow-up reminders by one member of the Arizona team. From that point on, data entry and analyses were done by team members who had no access to names.

## **Survey Procedure**

Dillman’s (1978) Total Design Method was used for this project. First, an introductory letter from Jim Freeburn (WSARE Professional Development Program Coordinator) was sent to all potential participants on January 23,

2004. This letter was sent one week prior to the beginning of the survey process and encouraged members to complete the survey when it arrived. On January 30, 2004, the initial WSARE Survey packet was sent to all potential participants. This packet included a cover letter informing participants about the purpose of the project and providing directions on returning the completed survey, a copy of the WSARE Survey, a self-addressed stamped return envelope, and an order sheet of Sustainable Agriculture Network Publications for participants to return with their surveys. Offering these publications served as an incentive for participants to complete and return their surveys. All surveys, identified only by code numbers, were returned directly to Arizona for analysis. A member of the Arizona team who did not see actual survey responses was responsible for tracking participation.

One week later, on February 6, 2004, a postcard follow-up/thank you was sent to all WSARE potential participants. Two weeks later, on February 20, 2004, a second letter was sent to those who had not yet responded requesting that they complete and return the survey. Four weeks later, on March 19, 2004, the final packet was sent to those who had not yet returned the survey. This final mailing included a new cover letter, a replacement questionnaire, a self-addressed stamped return envelope, and another order sheet of Sustainable Agriculture Network Publications.

The WSARE Survey was implemented from January through April 2004. Six hundred twenty-six (626) eligible participants were identified. Four hundred seventy-two (472) completed surveys were returned, resulting in an overall regional response rate of 75%. Table 1 shows the participating states and their corresponding response

**Table 1. Participating States and State Response Rate (Q22)**

<i>State</i>	<i>Number of Eligible Participants</i>	<i>Number of Surveys Returned</i>	<i>Response Rate</i>
Alaska	4	4	100%
Arizona	26	20	77%
California	179	114	64%
Colorado	65	55	85%
Hawaii	23	16	70%
Idaho	46	36	78%
Montana	44	38	86%
Nevada	18	15	83%
New Mexico	37	30	81%
Oregon	71	51	72%
Utah	29	27	93%
Washington	63	49	78%
Wyoming	21	17	81%
<b>Total</b>	<b>626</b>	<b>472</b>	<b>75%</b>



rates. Note that the total number of eligible participants as determined by each of the 13 states varied widely, from a low of 4 to a high of 179. Response rates from the participating states ranged from 64-100%.

## **Data Entry**

Arizona team members performed initial data entry using computer software that allowed a scanner to read filled-in bubbles directly from a survey. Once the surveys were scanned, they were converted to numbers to facilitate statistical analysis. To ensure reliability, 10% of the scanned surveys were manually checked for accuracy. Because no errors were found in these surveys, the remaining surveys were not checked. Each survey also included open-ended questions which allowed participants to write answers in a sentence-based format. Responses to these questions were manually entered into an Excel spreadsheet. Each set of open-ended responses was entered along with the respondent's unique five-digit code to assist Arizona team members in further analyses.

## **Data Analyses**

Frequencies and crosstabulations were utilized to gain insight into Extension Educators' experiences and thoughts on the topic of sustainable agriculture. Frequencies provide an actual count and a percentage of individuals choosing each response category for a specific question. Frequencies were computed for every item. Please note that percentages reported have been adjusted for missing data. Also, due to rounding, percentages may not sum to 100%.

A number of the survey questions included open-ended responses. Basic content analysis was used to code the open-ended responses. Coding involves grouping similar responses together into a category. For example, the responses of drip irrigation, water management, and irrigation management were grouped into the category "water issues." Each open-ended question was coded by an individual team member. Results of the coding were then examined by another team member and discussed with the original coder to establish inter-rater reliability.

A crosstabulation is a table that displays the number of individuals falling into each combination of the categories of two or more variables. Two sets of crosstabulations were calculated for each question; the first was used to see how responses to each question were broken down by state and the second was to see how responses were broken down by years of experience with Extension Service. For crosstabulations, the five potential response categories for the variable "years of experience with Extension Service" were grouped into three categories: 0-5 years, 6-20 years, and more than 20 years. Again, an actual count and percentages are included. A

Chi-square statistic was also computed to test the hypothesis that two sets of variables are independent. If the Chi-square is statistically significant (i.e., there is only a 5% or less likelihood that the result occurred due to chance), it means that the variables are not independent. For example, a significant Chi-square obtained for a crosstabulation of knowledge of integrated farming systems by years of experience with Extension would indicate that these variables are related. Please note that only statistically significant crosstabulation results are reported.

## **Structure of the Report**

We begin this report by providing a brief summary of survey participant characteristics. We then turn to the main substantive areas of the report. First, we explore the level of expertise in various areas of sustainable agricultural practices, systems and policies. Second, we examine the sources and perceived usefulness of information related to sustainable agriculture. We then report results pertaining to the type of sustainable agriculture information that would be helpful to participants. Next, we present results on sustainable agriculture educational programs conducted by participants. After examining the results on programming, we present results on participants' responses to questions pertaining to participating and cooperating in WSARE activities. The final section deals with the topic of general sustainable agriculture, how it is practiced today along with interest in learning and educating others about sustainable agriculture.

After presenting the results of the main substantive areas, we conclude with an overall summary. Because results are best interpreted by those familiar with the content of a particular state or region under consideration, many of the conclusions from the results are left to the reader.

Finally, we provide an appendix which contains a bar chart for each survey item on the questionnaire, a copy of the survey questionnaire, and copies of the correspondence sent to each participant.

When reading the results presented in this report, please keep in mind that the number of participants within each of the 13 states varied widely, from a low of 4 to a high of 114 (refer to Table 1 on page 7). Additionally, please note the variation among the states' numbers when interpreting the crosstabulations used to make comparisons. A crosstabulation with a statistically significant Chi-square indicates that there is at least one significant across-group comparison. However, additional analyses are required to determine precisely where the significant differences lie. For ease of interpretation, only general trends in the crosstabulations are reported.

## Results

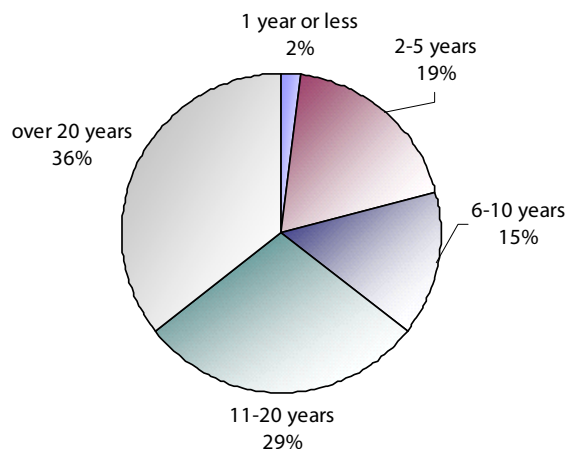
### Participant Characteristics

A total of four hundred and seventy-two (472) surveys were returned for analysis. Of those who returned completed surveys, 79% are male, and 21% are female. The majority of participants (74%) reported that they had received a master's degree, while 17% had obtained a doctoral degree, and 9% had completed a bachelor's degree.

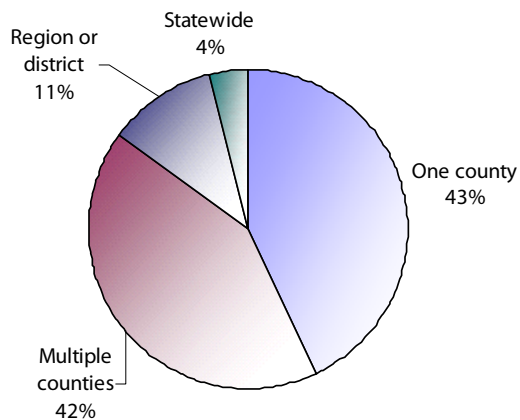
Question 23 asked participants to indicate their years of Extension Service experience. The results in Figure 1 show that over one-third of participants (36%) have been with Extension for more than 20 years. An additional 29% reported 11 to 20 years and the remaining 36% have been with Extension for 10 years or less.

Participants were also asked to identify the geographic area they covered as an Extension Educator. According to Figure 2, the vast majority (85%) worked at a county level, while 11% worked at the region or district level, and 4% worked statewide.

**Figure 1. Years of Experience with Extension Service (Q23)**



**Figure 2. Geographic Area Covered as an Extension Educator (Q24)**



## Level of Expertise in Various Areas of Sustainable Agriculture

Participants were asked to rate their level of expertise in a number of areas pertaining to sustainable agriculture. Knowledge in three broad areas was assessed: sustainable agricultural practices, sustainable agricultural systems, and sustainable agricultural policy. Participants who indicated that a topic was not related to their position were excluded from analyses. Scale scores were also computed for each of the three broad areas. Cronbach's alpha revealed high reliability for each of the scales (ranging from .75 to .85). This suggests that individuals were relatively consistent in the way they responded to questions. In other words, if a person reported having excellent knowledge in one area, he or she was likely to report excellent knowledge in the other areas.

## Knowledge of Sustainable Agricultural Practices

### Regional Findings

Question 1 of the survey asked participants, "What is your knowledge level of Sustainable Agricultural Practices?" Eight practices and a category for "Other" were listed with response options of *excellent*, *adequate*, *very limited*, or *not applicable to my position*. Table 2 presents the

data on knowledge of various sustainable agricultural practices.

Twenty-six participants indicated having knowledge in another sustainable agriculture practice area not listed (e.g., "Other").

Because participants work in such varied specialty areas, responses were also quite varied.

Responses included: specific sustainability issues (e.g., farm profitability for sustainability,

sustainability of agricultural labor, sustainable home gardening, sustainable landscapes) (n=5), water issues (e.g., drip irrigation, water management, irrigation management) (n=4), specific production areas (e.g., fruit, nut,

**Table 2. Level of Knowledge in Areas of Sustainable Agricultural Practices (Q1)**

<i>Topic</i>	<i>Very Limited Knowledge</i>	<i>Adequate Knowledge</i>	<i>Excellent Knowledge</i>
Soil building crop rotations including cover crops	25%	59%	16%
Ecologically-based weed management strategies	24%	56%	20%
Ecologically-based insect and disease management strategies	32%	51%	17%
Alternative marketing approaches (e.g., direct marketing, eco-labeling)	47%	42%	11%
Organic agriculture	39%	52%	9%
Management-intensive grazing systems	24%	49%	28%
Alternative methods for maintaining livestock health	53%	37%	9%
Agro forestry	69%	26%	5%
Other (please specify)	25%	14%	61%

vegetable, tree farming, greenhouse crop production) (n=5), no-till farming (n=2), management (n=2), pest management (n=2), alternative crops (n=1), community food systems (n=1), nutrient economics (n=1), range management (n=1), enhancing plant resistance (n=1), and marketing food stuffs without additives (n=1). Additional responses that were unrelated (e.g., “would like more training on alternative marketing”) were excluded from the above list.

### **Crosstabulations of Items by State**

Crosstabulations (with Chi-square) of the various knowledge areas by state revealed statistical significance in three areas: ecologically-based insect and disease management strategies, organic agriculture, and management-intensive grazing systems. First, the crosstabulation of knowledge of ecologically-based insect and disease management strategies by state revealed that 47-75% of participants in ten states (Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington) reported adequate knowledge of such strategies, as compared to 35-43% of those in the other three states. However, 60-65% of participants in two states (Hawaii and Wyoming) reported very limited knowledge, compared to 0-40% in the remaining states. One state (California) had 35% of participants reporting excellent knowledge of such strategies, compared to a range of 0-25% in the other states.

Second, knowledge of organic agriculture by state revealed that 50-73% of participants in seven states (Alaska, California, Colorado, Hawaii, New Mexico, Oregon, Washington) reported adequate knowledge of such strategies; percentages ranged from 33-47% in the other six states. However, from 50-63% of participants in six states (Arizona, Idaho, Montana, Nevada, Utah, Wyoming) reported very limited knowledge, compared to 24-40% in the other states. In two states (Alaska and Arizona), from 17-25% of participants reported excellent knowledge of organic agriculture, compared to 0-14% in the remaining states.

Finally, knowledge of management-intensive grazing systems by state showed that from 50-71% of participants in nine states (Alaska, Colorado, Hawaii, Idaho, Montana, New Mexico, Oregon, Utah, Wyoming) reported adequate knowledge, as compared to 22-42% in the other states. Nearly half the participants (46%) in two states (California and Washington) reported very limited knowledge, compared to a range of 6-33% in the remaining states. In ten states (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington), from 22-40% of participants reported excellent knowledge, compared to 0-17% in the remaining states.

## Crosstabulations of Items by Years of Experience in Extension Service

Crosstabulations (with Chi-square) of the various knowledge areas by years of experience in Extension Service revealed statistical significance in four areas: ecologically-based insect and disease management strategies, alternative marketing approaches, organic agriculture, and agro forestry. First, the crosstabulation of insect and disease management strategies by years of experience revealed that as years of experience increased, the percentage of participants reporting excellent knowledge of such strategies increased (from 12% to 17% to 21%).

In general, the crosstabulations of insect and disease management strategies, alternative marketing approaches, and organic agriculture by years of experience indicated that more participants in the 0-5 years of experience category reported having very limited knowledge than participants in the other categories. However, it is interesting that for the agro forestry crosstabulation, approximately three-fourths of participants in the 0-5 year category and in the 20+ years category reported having very limited knowledge of agro forestry (73% and 75%, respectively) compared to 61% in the 6-20 years category.

## Knowledge of Sustainable Agricultural Systems

### Regional Findings

Question 2 of the survey asked participants, “What is your knowledge level of Sustainable Agricultural Systems?” Six systems and a category for “Other” were listed with response options again of *excellent*, *adequate*, *very limited*, or *not applicable to my position*. Table 3 presents the data on knowledge of various sustainable agricultural systems.

**Table 3. Level of Knowledge in Areas of Sustainable Agricultural Systems (Q2)**

<i>Topic</i>	<i>Very Limited Knowledge</i>	<i>Adequate Knowledge</i>	<i>Excellent Knowledge</i>
Whole farm or ranch planning approaches	31%	53%	16%
Farm business planning for sustainable agriculture	48%	42%	10%
Impact analysis of adding new farm or ranch enterprises	55%	35%	10%
Community-based food systems (e.g., local markets for local production)	48%	43%	10%
Establishing farmer-to-farmer information networks	50%	42%	8%
Integrated farming systems	34%	55%	11%
Other (please specify)	73%	0%	27%

Only three participants indicated that they had “other” knowledge of sustainable agricultural systems. These responses were: comparison of organic and conventional systems (n=1), economic survival of family farms (n=1), and sustainability of agricultural labor (n=1).

## **Crosstabulations of Items by State**

Crosstabulations (with Chi-square) of the various knowledge areas by state revealed statistical significance in two areas: impact analysis of adding new farm or ranch enterprises and establishing farmer-to-farmer information networks. First, the crosstabulation of impact analysis by state indicated that 41-53% of participants in six states (Idaho, Montana, New Mexico, Oregon, Utah, Wyoming) reported adequate knowledge, compared to 0-38% in the remaining states. From 68-100% of participants in five states (Alaska, Arizona, California, Hawaii, Washington) reported very limited knowledge, compared to a range of 28-57% in the other states. However, 18-19% of participants in two states (Idaho and Montana) reported excellent knowledge; 0-15% of participants in the remaining states reported excellent knowledge.

Second, establishing farmer-to-farmer information networks by state revealed that in two states (Alaska and New Mexico), 72-100% of participants reported adequate knowledge, while in the remaining states, this percentage ranged from 21-55%. In eight states (Arizona, California, Hawaii, Idaho, Montana, Utah, Washington, Wyoming), 51-71% of participants reported very limited knowledge of establishing such networks as compared to 0-41% in the remaining states. In five states (California, Idaho, Nevada, New Mexico, Oregon), from 9-13% of participants reported excellent knowledge, compared to 0-6% in the other states.

## **Crosstabulations of Items by Years of Experience in Extension Service**

Crosstabulations (with Chi-square) of the various knowledge areas by years of experience in Extension Service revealed statistical significance in three areas: whole farm or ranch planning approaches, farm business planning for sustainable agriculture, and impact analysis of adding new farm or ranch enterprises. The pattern of results for the two crosstabulations of whole farm or ranch planning approaches and farm business planning is similar, with fewer participants in the 0-5 years category reporting excellent knowledge than those in the other years of experience categories. First, for whole farm or ranch planning approaches, only 4% of those with 0-5 years of experience in Extension reported excellent knowledge, compared to 22% and 15% in the 6-20 years and 20+ years categories, respectively. For farm business planning, 1% of participants with 0-5 years of experience reported excellent knowledge, as compared with 13% and 11% in the remaining two categories. However, similar percentages of all groups are reporting very limited knowledge.

Second, the impact analysis of adding new farm or ranch enterprises by years of experience indicated that 67% of participants in the 0-5 years of experience category reported very limited knowledge, compared to 55% and

47% in the 6-20 and 20+ years categories, respectively. Only 2% of participants in the 0-5 years category reported excellent knowledge, while 14% and 11% of participants in the other categories did so.

## Knowledge of Sustainable Agricultural Policy

### Regional Findings

Question 3 of the survey asked participants, “What is your knowledge level of Sustainable Agricultural Policy?” Three policies and a category for “Other” were listed, again with response options of *excellent*, *adequate*, *very limited*, or *not applicable to my position*. Table 4 presents the data on knowledge of various sustainable agricultural policies.

Five participants indicated that they had “other” knowledge of sustainable agricultural policy.

These responses were: copyright of product, labels, and trade names (n=1), county policy (n=1), farm labor law and policy (n=1), Indian farms programs (n=1), and protection of water for agriculture (n=1).

**Table 4. Level of Knowledge in Areas of Sustainable Agricultural Policy (Q3)**

<i>Topic</i>	<i>Very Limited Knowledge</i>	<i>Adequate Knowledge</i>	<i>Excellent Knowledge</i>
Farmland protection	49%	46%	5%
Federal programs to support sustainable agriculture	57%	40%	4%
State programs to support sustainable agriculture	52%	46%	3%
Other (please specify)	77%	12%	12%

### Crosstabulations of Items by State

Crosstabulations (with Chi-square) of the various knowledge areas by state revealed statistical significance in only one area: farmland protection. From 50-75% of participants in seven states (Alaska, Arizona, California, Nevada, New Mexico, Oregon, Utah) reported adequate knowledge of farmland protection policy, compared to 8-39% in the remaining states. In five states (Hawaii, Idaho, Montana, Washington, Wyoming), from 61-92% of participants reported very limited knowledge, compared to 25-50% in the other states. In one state (Colorado), 12% of participants reported excellent knowledge of farmland protection policy; the remaining states ranged from 0-7% of participants reporting excellent knowledge.



## **Crosstabulations of Items by Years of Experience in Extension Service**

Crosstabulations (with Chi-square) of the various knowledge areas by years of experience in Extension Service revealed statistical significance in only one area: farmland protection. Over half (54%) of those with 20+ years of experience reported adequate knowledge, compared to 40-47% in the other groups. Fifty-three percent (53%) of participants with 0-5 years of experience and 52% with 6-20 years of experience reported very limited knowledge of farmland protection policy, compared to 42% in the 20+ years category. None of the participants with 0-5 years of experience reported excellent knowledge, while 8% and 5% in the other groups did.

## **Summary**

The results for level of expertise in three broad areas pertaining to sustainable agriculture (practices, systems, and policy) indicate that in most areas, at least half the participants are reporting adequate or excellent knowledge. However, the areas where half the participants are reporting very limited knowledge can point to potential training topics; for example, alternative methods for maintaining livestock health, agro forestry, impact analysis of adding new farm or ranch enterprises, and state and federal programs to support sustainable agriculture. In fact, two participants listed training and program needs as they responded to the “Other” items. One “would like more training on alternative marketing.” The other stated a “need for programs on landscape and turfgrass.”

## Sources of Information and Usefulness of Information

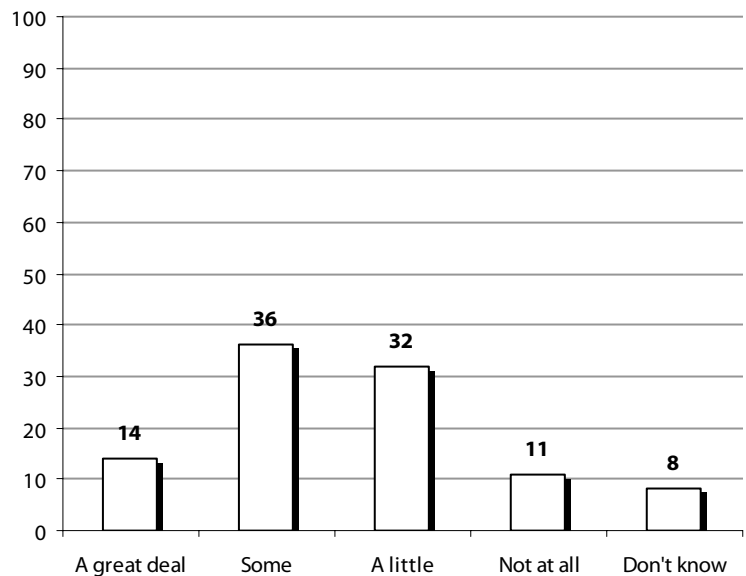
The next group of questions asked about participants' sources of information related to sustainable agriculture and perceived usefulness of this information.

### Learning Through USDA SARE-Funded Projects or Events

#### Regional Findings

Question 6 of the survey asked participants, "To what extent does your sustainable agriculture learning come through USDA SARE-funded projects or events?" Possible responses were *a great deal*, *some*, *a little*, *not at all*, and *don't know*. Half the participants (50%) indicated that at least some of their sustainable agriculture learning comes through these projects or events. Figure 3 reports the responses for this question.

**Figure 3. The Extent to Which Sustainable Agriculture Learning Comes Through USDA SARE-Funded Projects or Events (Q6)**



#### Crosstabulations of Items by State

Crosstabulations (with Chi-square) of the extent to which participants' sustainable agriculture learning comes through SARE by state revealed statistically significant differences among states. Three states (Alaska, Hawaii, Utah) had 73-75% of their participants who indicated that either *some* or *a great deal* of their learning comes through SARE. Five states (California, New Mexico, Oregon, Washington, Wyoming) had 31-49% of their participants who marked either *some* or *a great deal*. The remaining five states (Arizona, Colorado, Idaho, Montana, Nevada) had 56-67% of their participants who indicated that either *some* or *a great deal* of their learning comes through SARE.

Four states (Alaska, Idaho, Utah, Wyoming) had 10-25% of their participants indicate that the extent to which their learning comes from SARE was either *not at all* or *a little*. Five states (Arizona, Colorado, Hawaii, Montana, Nevada) had 27-39% of their participants mark *a little* or *not at all* for this question. The remaining four states (California, New Mexico, Oregon, Washington) had 41-57% of their participants indicate that the extent to which their learning comes through SARE was either *not at all* or *a little*.

Four states (Alaska, Hawaii, Montana, Nevada) had none of their participants check *don't know* in answer to the question on the extent to which their learning comes through SARE, Colorado, Oregon and Utah had 2-7% of their participants check *don't know*, while participants from the remaining six states (Arizona, California, Idaho, New Mexico, Washington, Wyoming) had 10-14% of their participants check *don't know*. Clearly there is a great deal of variation among states on the extent to which their sustainable agricultural learning comes through SARE.

### Crosstabulations of Items by Years of Experience in Extension Service

Crosstabulations (with Chi-square) of this question, when examined by years of experience in Extension Service, revealed no statistically significant differences.

### Sources of Information on Sustainable Agriculture

#### Regional Findings

Question 4 of the survey asked participants, “What are your sources of information on sustainable agriculture?” Seven sources of information and a category for “other” were listed.

**Table 5. Sources of Information on Sustainable Agriculture (Q4)**

<i>Source of information</i>	<i>% saying yes</i>
Other Extension educators	93%
University researchers	83%
Farmers or ranchers using sustainable agricultural practices and systems	70%
ATTRA (Appropriate Technology Transfer for Rural Areas)	27%
Sustainable Agriculture Research and Education (USDA SARE/SAN)	63%
Alternative Farming Systems Information Center (part of the National Ag Library)	8%
University-based sustainable agriculture program (please specify)	44%
Other (please specify)	5%

Table 5 shows the percentages of participants indicating that they used these particular sources for information on sustainable agriculture. Because participants were asked to check all that apply, the percentages add to greater than 100%.

Nearly half (44%) the participants selected “University-based sustainable agriculture program” as a source of information. When asked to specify the sources, some participants listed the names of specific universities (n=24) and individuals within universities (n=11). Eleven participants listed specific (non-SARE) programs within universities, while thirty-four listed SARE specifically. Twelve participants listed specific departments or centers within universities. Ten participants listed university-based research, publications, or websites. Two participants indicated that their universities were doing a good job of keeping them informed and providing them with updates.

Five percent (5%) of the participants selected “other” sources of information. The most commonly cited sources were printed publications (n=9) including journals, magazines, and books, and web-based resources (n=7). Participants also listed various people such as specialists and growers as sources of information (n=5). Additional responses included workshops (n=1), meetings (n=2), and specific local or regional groups (n=5).

### **Crosstabulations of Items by State**

Crosstabulations (with Chi-square) of the various sources of information by state showed statistically significant differences among states for four sources: university researchers, ATTRA, USDA SARE/SAN, and University-based sustainable agriculture program. When asked about university researchers as a source of information on sustainable agriculture, three states (California, Colorado, New Mexico) had 90-91% of their participants cite them as a source of information, while three other states (Alaska, Arizona, Idaho) had only 50-70% of their participants cite them as a source of information. In the remaining states, percentages were between 73% and 89%.

When asked about ATTRA as a source of information on sustainable agriculture, in two states (Alaska and Washington), approximately half of their participants (50% and 49%, respectively) listed ATTRA as a source of information, while in five states (California, Idaho, Nevada, Utah, Wyoming), 11-19% of their participants listed ATTRA. The percentages for the remaining states fell between 25% and 33%.

When asked about USDA SARE/SAN as a source of information on sustainable agriculture, in two states (Alaska and Utah), 85-100% of their participants named SARE as a source of information on sustainable agriculture, while in three states (California, Colorado, Oregon), 51-55% of their participants named SARE as a source of information. Percentages in the remaining states ranged from 63% to 75%.

When asked about University-based sustainable agriculture programs as a source of information, three states (Alaska, California, Hawaii) had 50-70% of their participants check this as a source of information on sustainable agriculture, while two states (Arizona and Oregon) had only 20% and 26% of their participants check this as a source. In the other states, percentages ranged from 32% to 44%.

### **Crosstabulations of Items by Years of Experience in Extension Service**

Crosstabulations (with Chi-square) of the various sources of information on sustainable agriculture by years of experience in Extension Service revealed one statistically significant difference. Participants with over 20 years

of experience were significantly more likely to list “University-based sustainable agriculture program” as a source of information than the other two groups having fewer years of experience (0-5 years = 35%, 6-20 years = 42%, 20+ years = 52%).

**Getting Sustainable Agriculture Information  
Regional Findings**

Question 5 of the survey asked participants “How do you get your sustainable agriculture information?” Five sources and a category for “Other” were listed. Participants were asked to check all that apply. Table 6 shows the percentages of participants who indicated that they get sustainable agriculture information from these various sources.

**Table 6. Obtaining Sustainable Agriculture Information (Q5)**

<i>Sources of information</i>	<i>% saying yes</i>
Professional publications	74%
The World Wide Web	67%
Agriculture press	52%
Workshops	72%
Farm or ranch tours	57%
Other (please specify)	9%

When asked, “How do you get your sustainable agriculture information?” 46 participants filled in the “Other” category. However, some participants gave more than one source. Therefore, the total numbers will equal more than 46. Many listed obtaining information from various people including researchers, specialists, peers, and farmers (n=17). Ten listed professional meetings, conferences, trainings, or workshops. Six listed written publications such as newsletters, books, and research reports. Additional responses included conducting research (n=3), university-based sustainable agriculture or Extension programs (n=3), international travel to areas of practice (n=1), farm visits (n=1), participation in grant review teams (n=1), Extension office (n=1), ARS (n=1), email listserves (n=1), and trials on my own farm (n=1).

**Crosstabulations of Items by State**

Crosstabulations (with Chi-square) of how participants get their sustainable agriculture information by state showed statistically significant results in two areas: getting information from the World Wide Web and getting information from farm or ranch tours. In three states (Arizona, Nevada, Washington), 84-93% of the participants obtained sustainable agriculture information from the World Wide Web, while in California and Hawaii, only 52% and 44% of their participants obtained information this way. Percentages in the remaining states ranged from 60% to 77%.

Relative to obtaining information from farm or ranch tours, in three states (Montana, New Mexico, Washington), 69-83% of participants obtained information this way, while in California, Idaho, and Wyoming, 39-47% of their participants indicated that they obtained information from farm or ranch tours. The percentages for participants in the remaining states fell between 50% and 63%.

**Crosstabulations of Items by Years of Experience in Extension Service**

Crosstabulations (with Chi-square) of the various sources of information on sustainable agriculture by years of experience in Extension Service revealed one statistically significant difference. Participants with 0-5 years of experience were more likely to get information from the World Wide Web than participants in the other two groups (0-5 years = 87%, 6-20 years = 69%, 20+ years = 54%).

**Usefulness of Sustainable Agriculture Information**

**Regional Findings**

Question 13 of the survey asked participants, “How would you rate the usefulness of information from the following sources when presenting information on sustainable agriculture?” Four sources and a category for “Other” were listed with response choices of *very useful*, *somewhat useful*, *not very useful*, and *I have not used this information*. Responses of *I have not used this information* were treated as missing data and were not included in the analyses; if participants had not used the information, it would be impossible for them to rate its usefulness. Table 7 reports

how participants rated the usefulness of these specific sources of information.

When asked, “How would you rate the usefulness of information from the following sources when presenting information on

**Table 7. Usefulness of Sources of Information (Q13)**

<i>Sources of information</i>	<i>Very useful</i>	<i>Somewhat useful</i>	<i>Not very useful</i>
Land-grant university	72%	26%	2%
USDA SARE/ SAN	44%	47%	9%
ATTRA	34%	46%	20%
AFSIC	13%	60%	27%
Other (please specify)	72%	25%	3%

sustainable agriculture?” 31 participants marked the “Other” category. However, some participants listed more than one source. Therefore, the total numbers will equal more than 31. The most commonly cited sources were farmers, farm visits, or on-farm trials (n=6), SARE (n=4), research publications (n=4), web-based sources (n=3),

Cooperative Extension (n=3), and non-profit (n=2). Other responses were personal study/interest (n=1), AgNIC-Western Rangelands (n=1), community groups (n=1), Europegap (n=1), other government (n=1), SANET (n=1), soil and water conservation districts (n=1), natural resource conservation service (n=1), SRM (n=1), STEEP (n=1), Direct Seeding Cropping Systems Conference (n=1), DNG (n=1), Direct Seeders Association (n=1), and IPM (n=1). Seventy-two percent (72%) of the participants rated these “Other” sources as being very useful, 25% rated these sources as being somewhat useful, and only 3% rated these sources as being not very useful.

### **Crosstabulations of Items by State**

Crosstabulations (with Chi-square) of the usefulness of these sources of information by state showed statistically significant results in two areas: information from SARE and information from AFSIC. Three states (Alaska, Arizona, Utah) had 69-100% of their participants who rated the information from SARE as being very useful, while four states (California, New Mexico, Oregon, Wyoming) had 32-38% of their participants who rated the information from SARE as being very useful. From 42% to 49% of participants in the remaining states rated this information as very useful.

As for the information from AFSIC, two states (Arizona and Nevada) had 50-60% of their participants who rated the information from AFSIC as being very useful, while five states (Alaska, Hawaii, New Mexico, Washington, Wyoming) had none of their participants rating the information from AFSIC as being very useful. In the remaining states, 6-18% of participants thought this information was very useful.

### **Crosstabulations of Items by Years of Experience in Extension Service**

Crosstabulations (with Chi-square) of this question, when examined by years of experience in Extension Service, revealed no statistically significant differences.

### **Summary**

The findings for sources of information related to sustainable agriculture indicate that half the participants reported that at least some of their sustainable agriculture knowledge comes through USDA SARE-funded projects or events. However, crosstabulations revealed a great deal of variation among states on the extent to which their sustainable agricultural learning comes through SARE. In general, the most common sources of information on sustainable agriculture were other Extension Educators (93%), University researchers (83%), farmers or ranchers using sustainable agricultural practices and systems (70%), and USDA SARE/SAN (63%).

When participants were asked how they get their sustainable agriculture information, the most common ways were professional publications (74%), workshops (72%), and the World Wide Web (67%).

Participants were also asked to rate the usefulness of information from various sources when presenting information on sustainable agriculture. Nearly three-fourths (72%) of participants indicated that information from land grant universities was very useful, while nearly half (44%) felt that information from USDA SARE/SAN was very useful.



## Desired Information

### Regional Findings

Question 16 of the survey asked participants “What type of sustainable agriculture information would be most helpful to you in your work?” Nine types of information were listed. Participants were asked to check all that apply. Table 8 shows the types of sustainable agriculture information and the corresponding percentage of participants

**Table 8. Desired Information (Q16)**

<i>Type of information</i>	<i>% saying information would be helpful</i>
Soil-building crop rotations including cover crops	45%
Ecologically-based weed management strategies	63%
Ecologically-based insect and disease management strategies	55%
Alternative marketing approaches (e.g., direct marketing, eco-labeling)	57%
Organic agriculture	46%
Management-intensive grazing systems	37%
Alternative methods for maintaining livestock health	35%
Agro forestry	13%
Economics of alternative farming systems, such as organics	57%

who indicated that the information would be helpful to them in their work.

### Crosstabulations of Items by State

Crosstabulations (with Chi-square) of types of sustainable agriculture information that would be helpful by state showed statistically significant results in four areas: alternative marketing approaches, management-intensive grazing systems, alternative methods for maintaining livestock health, and economics of alternative farming systems, such as organics. Ninety-four percent (94%) of the participants from Wyoming indicated that information on alternative marketing approaches would be helpful to them in their work, while only 25% of the participants from Alaska thought this information would be helpful. Five states (Arizona, California, Hawaii, Oregon, Washington) had 37-56% of the participants who indicated that they thought this information would be helpful. The remaining six states (Colorado, Idaho, Montana, Nevada, New Mexico, Utah) had 64-83% of the participants who believed that information on alternative marketing approaches would be helpful to them.

Seventy-one percent (71%) of the participants from Wyoming expressed that information on management-intensive grazing systems would be helpful to them, while only 17% of the participants from California indicated that this information would be helpful. Four states (Arizona, Hawaii, Oregon, Washington) had 25-26% of the participants who thought that information on management-intensive grazing systems would be helpful to them. In the remaining seven states (Alaska, Colorado, Idaho, Montana, Nevada, New Mexico, Utah), 47-67% of the participants indicated that this information would be helpful.

Again, 71% of the participants from Wyoming believed that information on alternative methods for maintaining livestock health would be helpful to them in their work, while only 13% of the participants from California thought this information would be helpful. Six states (Alaska, Arizona, Hawaii, Nevada, Oregon, Washington) had 19-35% of the participants who thought this information would be helpful. The remaining five states (Colorado, Idaho, Montana, New Mexico, Utah) had 42-59% of the participants who believed that information on alternative methods for maintaining livestock health would be helpful to them.

Seventy-five percent (75%) of the participants from Alaska indicated that information about the economics of alternative farm systems, such as organics, would be helpful to them in their work, while only 42% of the participants from California believed this information would be helpful. Four states (Arizona, Colorado, Oregon, Washington) had 45-59% of the participants who thought that information on the economics of alternative farm systems would be helpful to them. The remaining seven states (Hawaii, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming) had 63-73% of the participants who thought this information would be helpful.

### **Crosstabulations of Items by Years of Experience in Extension Service**

Crosstabulations (with Chi-square) of the various types of information participants thought would be helpful by years of experience in Extension Service revealed statistically significant differences in two areas: ecologically-based weed management strategies and alternative methods for maintaining livestock health. Participants with 0-5 years of experience were significantly more likely than the other two groups to indicate that information on ecologically-based weed management strategies would be helpful to them (0-5 years = 74%, 6-20 years = 62%, 20+ years = 58%). In addition, participants with 0-5 years of experience were also more likely than the other two groups to consider information on alternative methods for maintaining livestock health to be helpful to them in their work (0-5 years = 44%, 6-20 years = 37%, 20+ years = 29%).

## **Summary**

When asked about the type of sustainable agriculture information that would be helpful in their work, the most common responses were ecologically-based weed management strategies (63%), alternative marketing approaches (57%), economics of alternative farming systems (57%), and ecologically-based insect and disease management strategies (55%). These results may be useful in planning for potential workshops or trainings.

## Programming

This section covers sustainable agriculture educational programs conducted by participants. Topics include: a categorized list of sustainable agriculture programs presented by participants, the amount of work time participants devote to educational programming, the number of educational programs conducted with farmers/ranchers and various other groups, and partnering with other groups to deliver educational programs on sustainable agriculture.

### Topics of Sustainable Agriculture Educational Programs

Participants were asked to “briefly describe the topic(s) or nature of the sustainable agriculture educational program(s) you conducted.” Over 90% of participants completed this open-ended question with at least one description. In total there were more than 600 individual program descriptions provided (many participants described more than one program). The most frequently mentioned program topics were: Weed Control/Management (n=59), Integrated Pest Control/Management (n=51), Grazing Management/Intensive (n=43), and Marketing (Alternative, Small Farm, and Direct) (n=43). Responses have been placed into general groupings for ease of reading. No further analyses were done with these groups. Within the following groupings, topics are listed in descending frequency order (e.g., from most to least). Unless otherwise noted, the number of times each item was reported is one.

- Organic Practices (10) Alternative Crops (8), Alternative Energy/Wind Energy (3), Alternative Fallow Methods, Alternative Forages, Alternative Weed Control, Organic Agriculture, Organic Wine Growing, Solarization, Sustainable Ag Practices
- Budgeting/Record Keeping/Finances (14), Ranch Economics/Farm Management (8), Entrepreneurship/Enterprise Development (4), Family Ranching/Farming (4), Ag Profitability, Business Planning, Estate Planning, Family Ranch, Farmer's Market, Labor Management, Pesticides, Risk Management, Small Scale Farm Development, Training, Use of Agricultural Mask, Vertical Business Integration, Worker Safety
- Conservation Tillage/No-till (13), Erosion/Soil Conservation (2), Land Restoration, Re-vegetation, Wetlands Conservation
- Cover Crop Use (14), Crop Rotation/Systems (12), Crop Production/Science (5), Crop Diversification/Selection (3), Dryland Cropping (2), Cropping Systems, Crops for Bio-fuels, Rotation

- Cultural Disease Control, Disease Forecasting (6), Disease Management Strategies (6), Non-Chemical Disease Control
- Horticulture (2), Gardening, Lawn Care, Master Gardeners
- Grazing Management/Intensive (43), Pasture Management (14), Rangeland Management/Monitoring (12), Nutrient Management (8), Soil Fertility (8), Soil Health/Biology (7), Soil Management (7), Waste Management (5), Small Acreage/Pasture Management (4), Orchard Monitoring/Management (2), Soil and Salinity Management (2), Soil Building Organic Matter (2), Habitat Maintenance, Healthy Forest, Natural Resources Management, Rangeland Quality Assurance, Vineland Development/Management
- Marketing (Alternative, Small Farm, Direct) (41), Marketing (2), Integrating Forage, Livestock
- Pest Control/Management (Integrated) (51), Insect Bio-Control (3), Beneficial Insects (2), Insect Screening, Organic Pest Control, Rodent Impact Cover Crops & Soil
- Beef Quality Assurance (14), Compost Production/Methods (4), Livestock Production (4), Beef Production (3), Wine Grape Production (2), Wintering Cattle (2), Wool/Sheep Production (2), Cattle Production, Citrus & Avocado Production, Fish Production, Grass Fed Beef, Grass Finishing Beef Cattle, Greenhouse Crop Production, Sustainable Beef Production, Wheat Production
- Water Quality Planning/Protection (21), Irrigation Schedule Management (18), Drought Management (9), Water Conservation (4), Water Management/Conservation (3), Water Measuring/Use(3), Watershed Research and Demonstration (3), Irrigated Season Forages, Range Cover after Drought, Watershed Health
- Weed Control/Management (59), Noxious Weed Management (6), Ecological Weed Management
- IPM (23), Direct Seeding (4), AFO/CAFO Regulations (2), Animal Nutrition and Health (2), Biosecurity (2), Food Safety (2), Food Systems (2), Riparian Grazing (2), Wildlife Habitat (2), Alfalfa Seed Production, Animal ID Plans, Biodiversity, Biofumigation, Biological Control Agents, Endangered Species Impact, Fertility Management, Fisheries, Forest Stewardship, Mulching, Pecan Nutrition, Plant Nutrition, Plant-Animal Interaction, Pruning, Rhizosphere Quality, Root Development, Use of Mulch, Utilization of By-products, Vegetable and Melon Production, Vegetable Production/Marketing, Windbreak/Shelter Belt, Youth Programs

## Time Devoted to Educational Programming

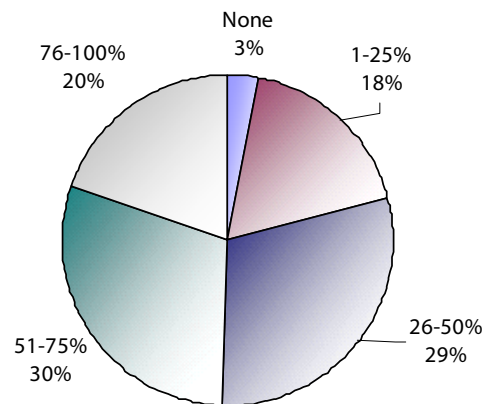
### Regional Findings

Question 9 asked participants, “How much of your work time are you expected to devote to educational programming?” Possible responses were *none*, *1-25%*, *26-50%*, *51-75%*, and *76-100%*. Figure 4 shows the breakdown of responses to this question.

### Crosstabulations of Items by State

The crosstabulation of the amount of work time participants are expected to devote to educational programming by state showed statistically significant differences among states. For example, examination of the crosstabulation showed that Arizona and Idaho had nearly half (45% and 42%, respectively) of their participants who devoted 76-100% of their time to educational programming, while California had only 2% and Colorado had only 15% of their participants who spent 76-100% of their time on educational activities. In the remaining states, between 20% and 33% of participants devoted this much time to educational programming.

**Figure 4. Time Expected to be Devoted to Educational Programming (Q9)**



### Crosstabulations of Items by Years of Experience in Extension Service

Crosstabulations of this question when examined by years of experience in Extension Service revealed no statistically significant differences.

## Number of Educational Programs Conducted with Farmers or Ranchers

### Regional Findings

Participants were asked about their educational outreach to farmers and ranchers. Question 7 of the survey asked participants, “How many educational programs (workshops, presentations, seminars, etc.) have you conducted with farmers or ranchers during the 2002 and 2003 calendar years on some aspect of sustainable agriculture?” Figure 5, on the next page, reports the percentages of participants in each response category. Possible responses were *none*, *1 program*, *2-5 programs*, *6-9 programs*, and *10 or more programs*.

## Crosstabulations of Items by State

Crosstabulations (with Chi-square) of the question regarding educational outreach to farmers/ranchers by state showed statistically significant differences.

Five states (California, Nevada, New Mexico, Oregon, Washington) had 20-33% of their participants who conducted 10 or more educational programs (workshops, presentations, seminars, etc.) with farmers or ranchers during 2002-2003 on some aspect of sustainable agriculture. Four states (Arizona, Colorado, Idaho, Montana) had 11-18% of their participants who conducted 10 or more programs,

while the remaining four states (Alaska, Hawaii, Utah, Wyoming) had 0-6% of their participants who conducted 10 or more programs during 2002-2003.

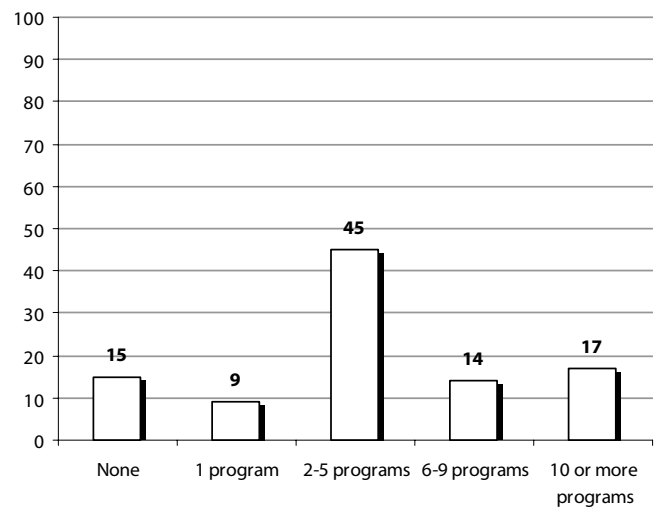
When examining the percentage of participants who reported conducting 2-5 programs and 6-9 programs with farmers or ranchers, six states (Arizona, California, Colorado, Nevada, Oregon, Washington) had 47-58% of their participants check one of these two responses. Four states (Hawaii, Idaho, Montana, New Mexico) had 60-67% of their participants check 2-5 or 6-9 programs, and the remaining three states (Alaska, Utah, Wyoming) had 74-100% of their participants check one of these two categories.

An examination of participant responses for conducting either no programs or one program with farmers or ranchers indicates that four states (Alaska, Nevada, New Mexico, Wyoming) had 0-20% of their participants mark one of these two categories. Five states (California, Colorado, Idaho, Utah, Washington) had 22-25% of their participants check either no programs or one program, while the remaining four states (Arizona, Hawaii, Montana, Oregon) had 26-35% of their participants indicate that they had conducted at most one program during 2002-2003.

## Crosstabulations of Items by Years of Experience in Extension Service

Crosstabulations (with Chi-square) of this question, when examined by years of experience in Extension Service, revealed no statistically significant differences.

**Figure 5. Number of Educational Programs Conducted with Farmers or Ranchers During 2002-2003 (Q7)**

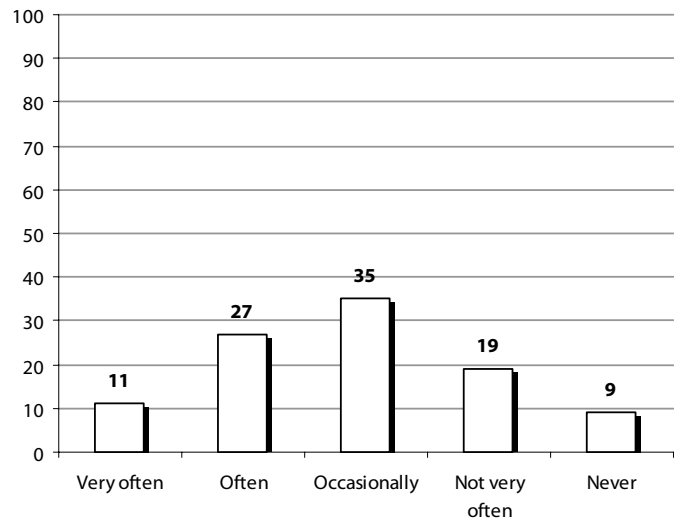


## Working with Farmers or Ranchers to Develop Sustainable Agriculture Practices

### Regional Findings

Question 10 of the survey asked participants, “How often do you work with farmers/ranchers, on their farm/ranch, in developing sustainable agriculture practices?” Possible responses were *very often*, *often*, *occasionally*, *not very often*, and *never*. Eleven percent (11%) checked *very often*, 27% checked *often*, 35% checked *occasionally*, 19% checked *not very often*, and 9% checked *never*. Figure 6 reports the responses to this question.

**Figure 6. Frequency of Working with Farmers/Ranchers in Developing Sustainable Agriculture Practices (Q10)**



### Crosstabulations of Items by State and by Years of Experience in Extension Service

Crosstabulations of this question, when examined by state and by years of experience in Extension Service, revealed no statistically significant differences.

**Table 9. Number of Programs Delivered to Farm-Related Groups During 2002-2003 (Q11)**

Group	0 programs	1 program	2-5 programs	6-9 programs	10 or more programs
Small-sized family farmers or ranchers	22%	13%	45%	11%	9%
Indian, Hispanic or other minority farmers or ranchers	57%	16%	19%	3%	5%
Farm or commodity groups (e.g., livestock association, Wheatgrowers, Farm Bureau)	36%	15%	36%	8%	6%
Organic or sustainable farming groups	67%	17%	13%	2%	1%

### Program Delivery to Various Farm-Related Groups

#### Regional Findings

Question 11 asked participants, “During 2002 and 2003, approximately how many sustainable agriculture educational programs did you deliver to the following groups?” Ten

groups were listed with possible responses of *none*, *1 program*, *2-5 programs*, *6-9 programs*, and *10 or more programs*. Four of the groups for Question 11 included different types of farm-related groups. Table 9 presents the results for these items. Results for the other six groups are reported on the next page.



## **Crosstabulations of Items by State**

Crosstabulations (with Chi-square) of the question regarding program delivery to various farm-related groups by state revealed one statistically significant difference: the delivery of programs to Indian, Hispanic, or other minority farmers or ranchers. Nevada and New Mexico had 71% of their participants who delivered at least one program to minority farmers or ranchers during 2002-2003. On the other hand, seven states (Alaska, Colorado, Idaho, Oregon, Utah, Washington, Wyoming) had 71-82% of their participants who delivered no programs to these populations.

## **Crosstabulations of Items by Years of Experience in Extension Service**

Crosstabulations (with Chi-square) of program delivery to various farm-related groups by years experience in Extension Service revealed only one statistically significant finding. Participants with 0-5 years of experience reported delivering fewer educational programs to small-sized family farmers or ranchers during 2002-2003 than participants in the other categories. Forty-four percent (44%) of the participants who had 0-5 years of experience reported delivering either no programs or one program to this group during 2002-2003, while only 28% of the participants with 6-20 years of experience and 36% of the participants with 20+ years of experience reported delivering either no programs or one program to small-sized family farmers or ranchers during 2002-2003.

## **Program Delivery to Various Non-Farm-Related Groups**

### **Regional Findings**

As mentioned previously, Question 11 asked participants, "During 2002 and 2003, approximately how many sustainable agriculture educational programs did you deliver to the following groups?" Table 10, on the next page, reports the results for this question. Six non-farm-related groups were listed with possible responses of *none, 1 program, 2-5 programs, 6-9 programs, and 10 or more programs.*

## **Crosstabulations of Items by State**

The crosstabulation (with Chi-square) of the number of educational programs delivered to non-farm-related groups during 2002-2003 by state showed statistically significant findings in two areas: youth groups and agriculture consultants. First, three states (Nevada, New Mexico, Wyoming) had 11-14% of their participants reporting that they had delivered 10 or more programs to youth groups during 2002-2003, while three other states (California, Oregon, Washington) had 53-72% of their participants reporting that they had not delivered any programs to youth groups during 2002-2003.

Second, regarding the number of educational programs delivered to agriculture consultants during 2002-2003, six states (Alaska, Montana, Nevada, New

**Table 10. Number of Programs Delivered to Non-Farm-Related Groups During 2002-2003 (Q11)**

<i>Group</i>	<i>0 programs</i>	<i>1 program</i>	<i>2-5 programs</i>	<i>6-9 programs</i>	<i>10 or more programs</i>
Consumer or general public groups	48%	20%	25%	4%	4%
Environmental groups	76%	11%	12%	1%	<1%
Youth groups	49%	19%	25%	4%	3%
Peers or other Extension educators	43%	22%	29%	4%	1%
Agriculture consultants	61%	14%	19%	4%	3%
Other public agencies (e.g., NRCS, BLM, Forest Service, State Dept. of Ag)	57%	19%	22%	2%	1%

Mexico, Utah, Wyoming) had 92-100% of their participants who indicated that they had delivered either no programs or 1 program to agriculture consultants. The remaining states (Arizona, California, Colorado, Hawaii, Idaho, Oregon, Washington) had 63-

87% of their participants who delivered no programs or 1 program to this group. Most of the states (Alaska, Colorado, Hawaii, Montana, Nevada, New Mexico, Utah, Washington, Wyoming) had few of their participants (0-18%) who delivered 2-5 or 6-9 programs to agriculture consultants during 2002-2003. Nine states (Alaska, Arizona, Hawaii, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming) had none of their participants who delivered 10 or more programs to agriculture consultants during this time period. The other four states (California, Colorado, Oregon, Washington) had only 2-7% of their participants who said they delivered 10 or more programs to agriculture consultants during 2002-2003.

### **Crosstabulations of Items by State and by Years of Experience in Extension Service**

Crosstabulations for the number of educational programs delivered to non-farm-related groups, when examined by state and by years of experience in Extension Service, revealed no statistically significant differences.

## Partnering with Other Groups to Deliver Educational Programs

### Regional Findings

Question 12 asked participants, “When you deliver educational programs on sustainable agriculture, how often do you partner with the following groups?”

Response categories included *very often*, *often*, *occasionally*, *never*, and *not applicable*. Table 11 shows how often

participants reported partnering with each particular group.

**Table 11. Partnering With Other Groups (Q12)**

<i>Group</i>	<i>Never</i>	<i>Occasionally</i>	<i>Often</i>	<i>Very Often</i>
Farm or commodity organizations	14%	39%	35%	13%
Agriculture consultants	35%	47%	14%	5%
Organic or sustainable farming groups	39%	44%	15%	3%
Other government agencies	8%	47%	35%	11%

### Crosstabulations of Items by State

Crosstabulations (with Chi-square) of this question, when examined by state, revealed no statistically significant differences.

### Crosstabulations of Items by Years of Experience in Extension Service

Crosstabulations (with Chi-square) of partnering with other groups by years of experience in Extension Service showed one statistically significant finding. Participants with 0-5 years of experience were less likely to partner with farm or commodity organizations than participants in the other two groups with more years of experience. Eighty-nine percent (89%) of the participants who had 6-20 years of experience and 89% of the participants who had 20+ years of experience reported partnering with farm or commodity organizations at least occasionally, while 76% of the participants with 0-5 years of experience reported partnering with farm or commodity organizations. These numbers are all high and while statistically significant, may not indicate practical concern.

### Summary

Programming results indicate that half the participants were expected to devote 50-100% of their work time to educational programming. It is encouraging to note that only 24% of participants reported that they had conducted none or one educational program with farmers or ranchers during 2002-2003 on some aspect of sustainable agriculture. Additionally, over one-third of participants (38%) indicated that they often or very often worked with farmers/ranchers, on their farm/ranch, in developing sustainable agriculture practices. Participants also reported delivering sustainable agriculture educational programs to a variety of groups.

When asked how often they partner with other groups when delivering educational programs, nearly half the participants reported working often or very often with farm or commodity organizations (48%) or other government agencies (46%). Collaborations such as these may be beneficial for Extension Educators and their partners.

## Participating and Cooperating in SARE Activities

### Regional Findings

Question 14 on the survey asked, “Which of the following USDA Western SARE functions have you participated in?” Four types of functions were listed. Participants were asked to fill in all that applied; consequently, the percentages in the table may add to greater than 100%. Table 12 reports the percentages of those who participated in various USDA WSARE functions.

### Crosstabulations of Items by State

Crosstabulations (with Chi-square) of participation in SARE functions by state showed statistically significant differences among states for all of the functions. In nearly one-third of the states (Arizona, Montana, Nevada, Utah), 61-93% of their participants reported participating in SARE-sponsored professional development activities, while nearly another one-third of the states (Alaska, California, Colorado, New Mexico) had 18-27% of their participants reporting participating in a SARE-sponsored professional development activity. Percentages in the remaining states ranged from 36% to 59%.

Similarly, four states (Alaska, Arizona, Nevada, Utah) had 45-59% of their participants reporting participating in a tour of WSARE-funded research, while four other states (California, Idaho, Washington, Wyoming) had 14-25% of their participants reporting participating in a tour of SARE-funded research. In the other states, percentages fell between 27% and 38%.

When asked about their participation in a SARE-sponsored meeting or conference, 78-100% of the participants from three states (Alaska, Hawaii, Utah) reported having done this. However, only 38-46% of the participants from another three states (California, Colorado, New Mexico) reported participating in a SARE-sponsored meeting or conference. The percentages for participants in the remaining states ranged from 50% to 73%.

**Table 12. Participation in USDA WSARE Activities (Q14)**

<i>USDA Western SARE function</i>	<i>% who reported participating in function</i>
SARE-sponsored professional development activity	39%
Tour of SARE-funded research	27%
A SARE-sponsored meeting or conference	52%
A program or tour funded by my state’s SARE Professional Development Coordinator	32%

Finally, 67-75% of the participants from three states (Alaska, Hawaii, Nevada) reported participating in a program or tour funded by their state’s SARE Professional Development Coordinator, while 14-24% of the participants from another five states (California, Colorado, Idaho, Washington, Wyoming) reported participating in these functions. Percentages in the other states fell between 39% and 59%.

### **Crosstabulations of Items by Years of Experience in Extension Service**

Crosstabulations (with Chi-square) of participation in SARE functions by years of experience with Extension Service showed statistically significant differences for two of the four functions. Participants with 0-5 years of experience were significantly less likely to have participated in a SARE-sponsored meeting or conference than participants with more years of experience (0-5 years = 40%, 6-20 years = 54%, 20+ years = 57%). Similarly, participants with 0-5 years of experience were also significantly less likely to have participated in a program or tour funded by their state’s SARE Professional Development Coordinator than participants with more years of experience (0-5 years = 20%, 6-20 years = 36%, 20+ years = 35%).

**Table 13. Participation in USDA WSARE Activities as a Cooperator (Q15)**

<i>USDA Western SARE function</i>	<i>% who reported participating in function as a cooperator</i>
A SARE-funded research and education project	34%
A SARE-funded producer grant	17%
A SARE-funded Professional Development Program grant	17%

### **Participating as a Cooperator**

#### **Regional Findings**

Question 15 on the survey asked participants, “Which of the following USDA Western SARE functions have you participated in *as a cooperator*?” Three types of functions were listed. Participants were asked to fill in all that applied. Table 13 shows the percentage of participants who reported participating in the various USDA Western SARE functions as a cooperator.

### **Crosstabulations of Items by State**

The crosstabulation of participation in SARE functions as a cooperator by state revealed one statistically significant result. Nevada had 40% and Utah had 44% of their participants indicating that they had participated as a cooperator in a SARE-funded Professional Development Program grant, while four other states (Alaska, California, Colorado, Idaho) had 0-14% of their participants marking that they had participated as a cooperator in a SARE-funded Professional Development Program grant. In the remaining states, percentages ranged from 18% to 31%.

## **Summary**

The results pertaining to participating and cooperating in SARE activities provide some interesting findings. When participants were asked to indicate the SARE activities in which they had participated, over half of participants (52%) reported attending a SARE-sponsored meeting or conference. In addition, approximately one-third (34%) of participants reported participating as a cooperator in a SARE-funded research and education grant.

## General Sustainable Agriculture

### Agriculture as Practiced Today

#### Regional Findings

In this survey, sustainable agriculture was defined according to national legislation: “An integrated system of plant and animal production practices having a site-specific application that will, over the long term: a) satisfy human food and fiber needs; b) enhance environmental quality and the natural resource base upon which the agricultural economy depends; c) make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; and d) sustain the economic viability of farm operations; enhance the quality of life for farmers and society as a whole.”

**Table 14. Responses to the Question, “Agriculture as it is practiced in my area today...” (Q17)**

<i>Item</i>	<i>Agree or Strongly Agree</i>	<i>Neither Agree Nor Disagree</i>	<i>Disagree or Strongly Disagree</i>
Enhances environmental quality	67%	23%	11%
Is economically profitable	45%	34%	23%
Enhances the quality of life for farmers/ranchers	69%	23%	7%

Question 17 asked participants about agriculture as it is practiced in their area today. For each item, participants were asked to indicate their level of agreement; potential responses included *strongly agree*, *agree*, *neither agree nor disagree*, *disagree*, and *strongly disagree* (see Table 14). When asked, “Agriculture as it is practiced in my area today enhances environmental quality,” two-thirds (67%) of participants agreed or strongly agreed and 11% disagreed or strongly disagreed. Nearly half (45%) the participants agreed or strongly agreed that agriculture is economically profitable, while 23% disagreed or strongly disagreed. Finally, 69% agreed or strongly agreed that agriculture enhances the quality of life for farmers/ranchers; only 7% disagreed or strongly disagreed.

#### Crosstabulations of Items by State

Crosstabulations (with Chi-square) of the above items, when examined by state, revealed only one statistically significant finding. In ten states (Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Oregon, Utah, Wyoming), 55-90% of participants agreed that agriculture enhances environmental quality, compared to 36-50% in the remaining three states. However, in four states (Alaska, Arizona, Nevada, Washington), 21-25% of participants disagreed as compared to 0-17% in the other states.



## Crosstabulations of Items by Years of Experience in Extension Service

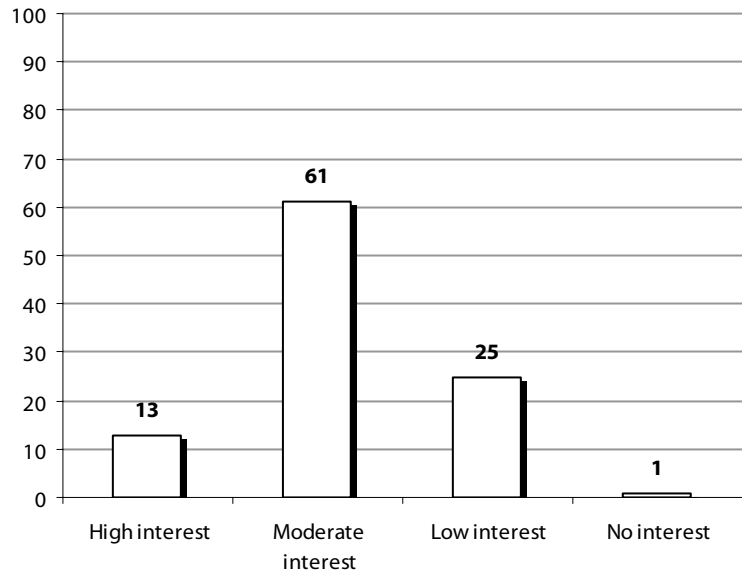
Crosstabulations of this question, when examined by years of experience in Extension Service, revealed no statistically significant differences.

### Interest of Farmers/Ranchers in Learning About Sustainable Agriculture

#### Regional Findings

In question 18, participants were asked about the level of interest farmers/ranchers in their areas have in learning about sustainable agriculture with potential responses of *high interest*, *moderate interest*, *low interest*, and *no interest*. Nearly three-fourths (74%) reported moderate to high interest by farmers/ranchers. Figure 7 displays more detailed results.

**Figure 7. Farmers/Ranchers' Level of Interest in Learning About Sustainable Agriculture (Q18)**



## Crosstabulations of Items by State

Crosstabulations (with Chi-square) of question 18, when examined by state, revealed a statistically significant difference. In one state (Nevada), 20% of participants indicated that farmers/ranchers had no interest in learning about sustainable agriculture, while in the remaining states, 0-2% of participants indicated this was the case. Additionally, in seven states (Alaska, Arizona, California, Nevada, New Mexico, Oregon, Washington), 14-50% reported high interest by farmers/ranchers, compared to 0-8% in the other six states.

## Crosstabulations of Items by Years of Experience in Extension Service

Crosstabulations of this question, when examined by years of experience in Extension Service, revealed no statistically significant differences.

### Interest in Educating Others in Sustainable Agriculture

#### Regional Findings

Question 19 asked participants about their own level of interest in educating others in sustainable agriculture in their service area with potential responses of *high interest*, *moderate interest*, *low interest*, and *no interest*. Nearly

all (90%) reported moderate to high interest.

Figure 8 includes a breakdown of response categories.

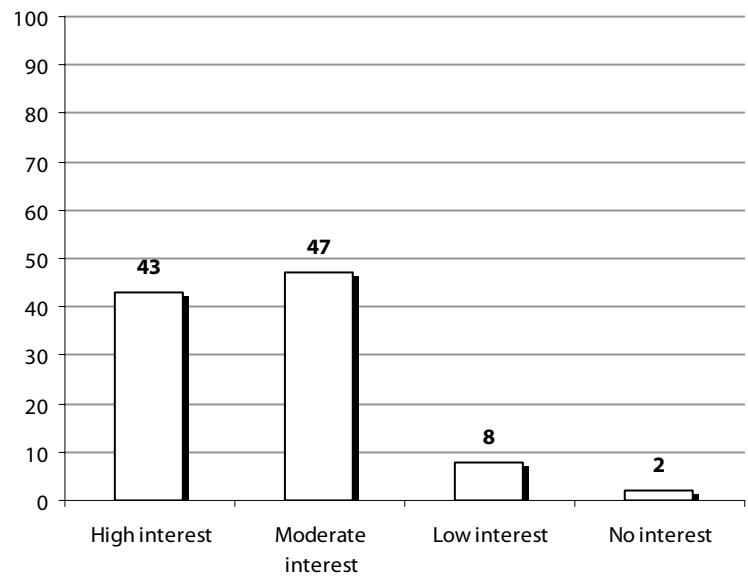
### Crosstabulations of Items by State and by Years of Experience in Extension Service

Crosstabulations (with Chi-square) of question 19, when examined first by state and then by years of experience in Extension Service, revealed no statistically significant differences.

### Summary

A majority of participants feel that agriculture as it is practiced in their areas today enhances environmental quality and the quality of life for farmers/ranchers. Although there is less agreement that agriculture is economically profitable, nearly three-fourths of participants indicated that there is moderate to high interest by farmers/ranchers in learning about sustainable agriculture. Finally, most participants (90%) expressed moderate to high interest in educating others in sustainable agriculture.

**Figure 8. Participants' Level of Interest in Educating Others in Sustainable Agriculture (Q19)**



## Overall Summary and Conclusions

The purpose of this survey is to help guide the WSARE PDP grants program by gaining insight into the experiences and thoughts of sustainable agriculture educators. This report has provided a description of the methods used to obtain and analyze data, a description of those who responded to the survey, and a detailed account of the results, organized around six general areas: level of expertise in various areas of sustainable agriculture, sources of information and usefulness of information, desired information, programming, participating and cooperating in SARE activities, and general sustainable agriculture. The results described in this report are best interpreted by those familiar with the context of the particular state or region under consideration. Hopefully, this report will serve as a resource for future discussions and planning sessions.

There are a number of strengths evident in the WSARE Survey of Extension Educators that warrant highlighting.

- An adequate or excellent level of knowledge was reported by half to three-fourths of respondents in six of eight areas of sustainable agriculture practices (with the exception of alternative methods for maintaining livestock health and agro forestry).
- Knowledge in areas of sustainable agriculture systems appears especially strong in whole farm or ranch planning approaches and integrated farming systems with 69% and 66% of respondents, respectively, reported an excellent or adequate level of knowledge in those areas.
- While gaps exist in the level of knowledge respondents reported pertaining to sustainable agriculture practices, systems, and policies, 90% of respondents indicated moderate to high interest in educating others in sustainable agriculture in their service area.
- SARE is seen as a source of information on sustainable agriculture by nearly two-thirds of the survey respondents, and 91% indicated that the information from SARE/SAN was either somewhat or very useful.
- Half the participants were expected to devote 50-100% of their work time to educational programming.
- Most participants (90%) expressed moderate to high interest in educating others in sustainable agriculture.

Results also suggest some areas where improvements may be needed.

- Crosstabulation analyses revealed that a range of nearly half to two-thirds of respondents (representing eight states, in total) reported very limited knowledge of ecologically-based insect and disease management, organic agriculture, and management-intensive grazing systems.
- Seventy-five percent (75%) of respondents with more than 20 years of Extension Service experience reported having very limited knowledge of agro forestry.
- While a small proportion of respondents (approximately 10%) reported excellent knowledge in areas of sustainable agricultural systems, 48-55% indicated that they possessed a very limited level of knowledge of farm business planning for sustainable agriculture, impact analysis of adding new farm or ranch enterprises, community-based food systems, and establishing farmer-to-farmer information networks.
- The majority of respondents indicated that they have very limited knowledge in regard to state and federal programs to support sustainable agriculture.
- Although numerous educational programs (workshops, presentations, and seminars) were conducted for farmers and ranchers over the previous calendar year, very few programs were delivered to environmental groups, agriculture consultants, organic or sustainable farming groups, or other public agencies. Furthermore, 57% of respondents indicated that they had delivered no programs to Indian, Hispanic, or other minority farmers.
- While respondents with the least number of years experience in Extension service were more likely to report a very limited level of knowledge in areas of sustainable agriculture practices, systems, and policy, they were also significantly less likely to participate in SARE-sponsored meetings/conferences or program tours as compared with those with more years of experience.

## References

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- Dillman, D. A. (1978). *Mail and telephone surveys: The total design method*. New York: John Wiley & Sons.
- Edwards, J. E., Thomas, M. D., Rosenfeld, P., & Booth-Kewley, S. (1997). *How to conduct organizational surveys*. Thousand Oaks, CA: Sage.
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# Appendix A: Bar Charts for Individual Survey Questions

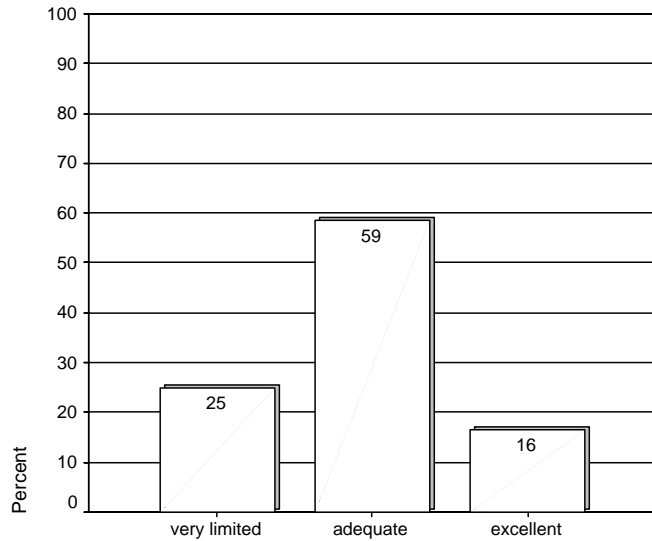
## Bar Charts for Individual Survey Questions

### Educator Knowledge

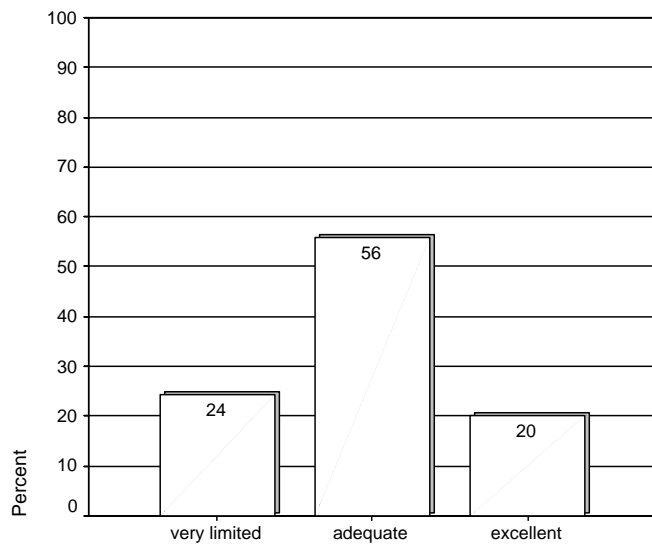
The following questions ask for your level of technical expertise in a number of areas pertaining to sustainable agriculture.

1. What is your knowledge level of Sustainable Agricultural Practices?

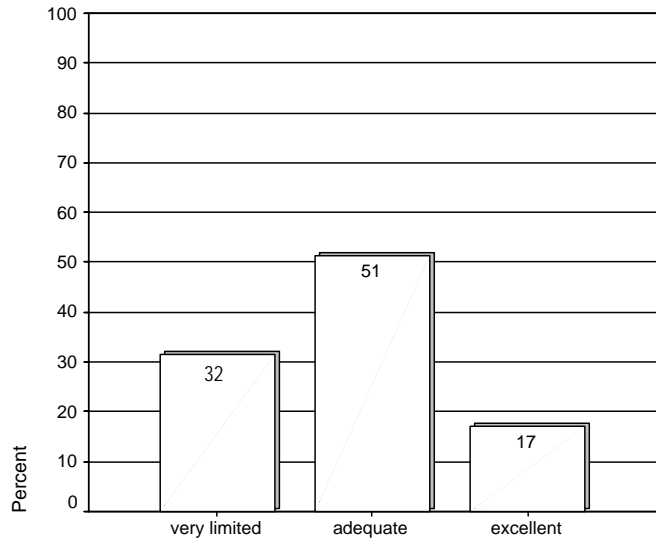
a. Soil building crop rotations including cover crops (n=426)



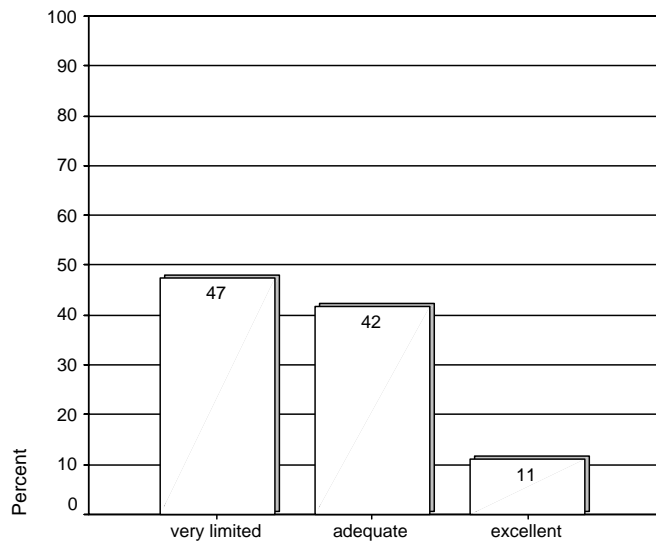
b. Ecologically-based weed management strategies (n=434)



c. Ecologically-based insect and disease management strategies  
(n=432)

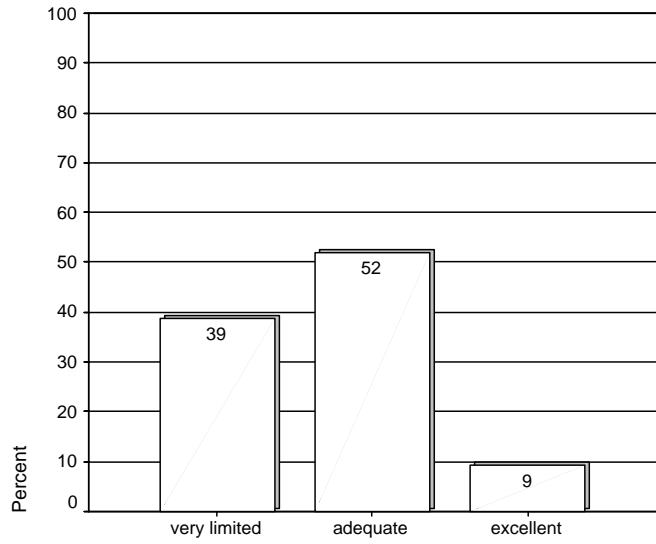


d. Alternative marketing approaches  
(e.g., direct marketing, eco-labeling)  
(n=418)

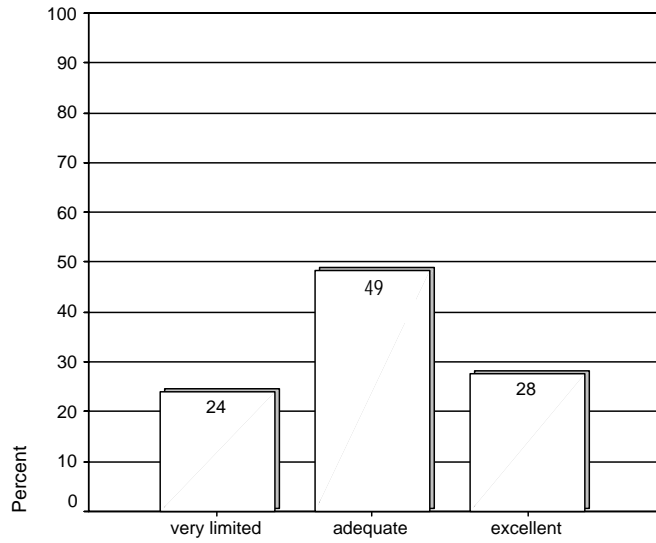




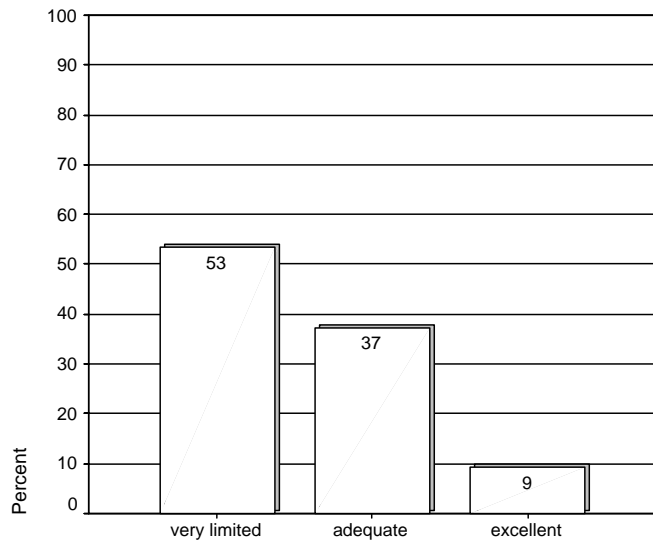
e. Organic agriculture (n=439)



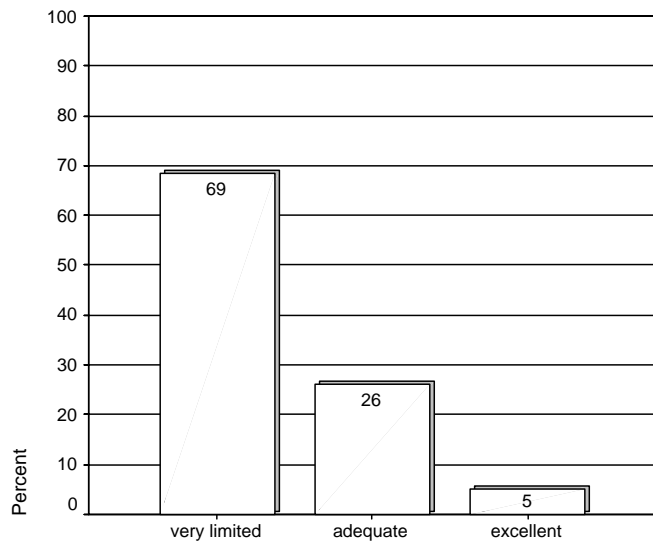
f. Management of intensive grazing systems (n=330)



g. Alternative methods for maintaining livestock health (n=313)

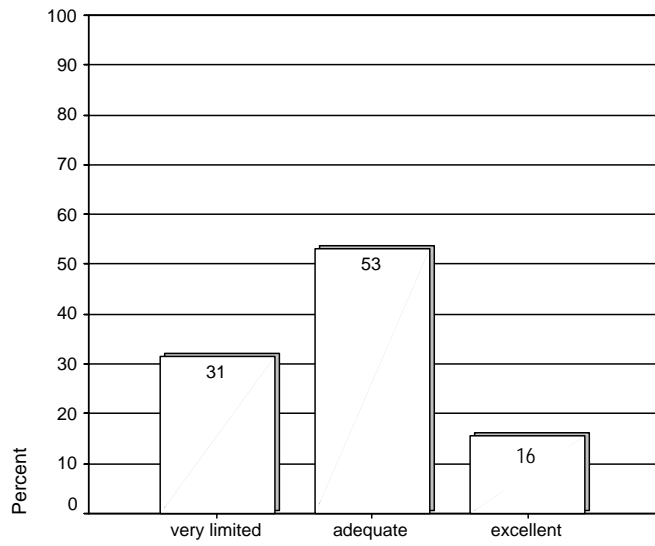


h. Agro forestry (n=248)

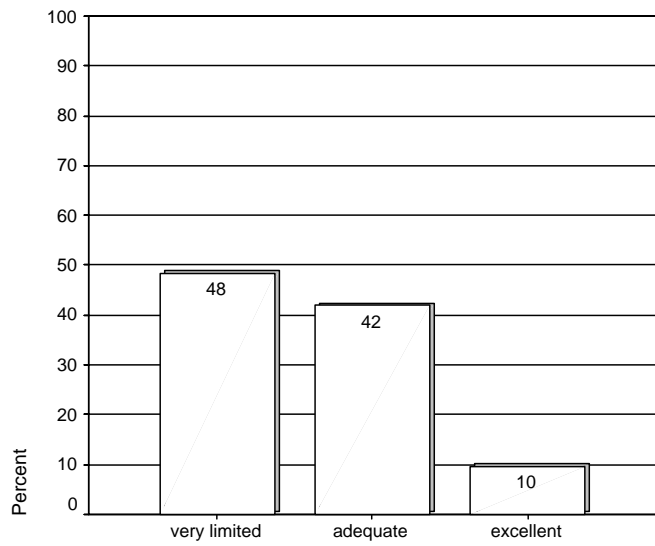


2. What is your knowledge level of Sustainable Agricultural Systems?

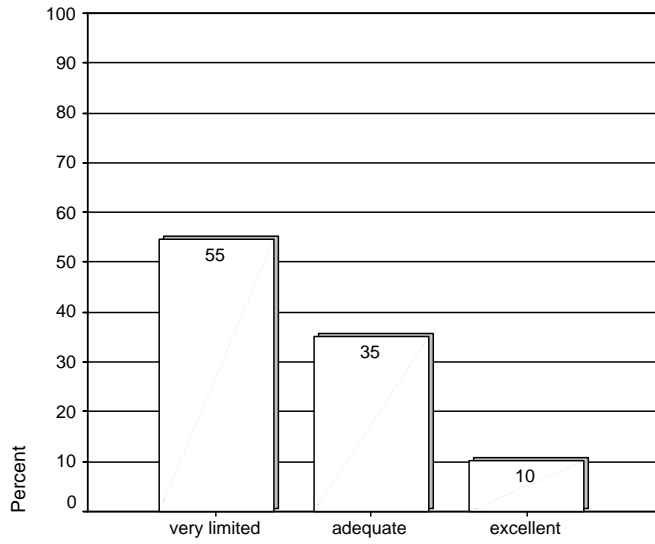
a. Whole farm or ranch planning approaches (n=420)



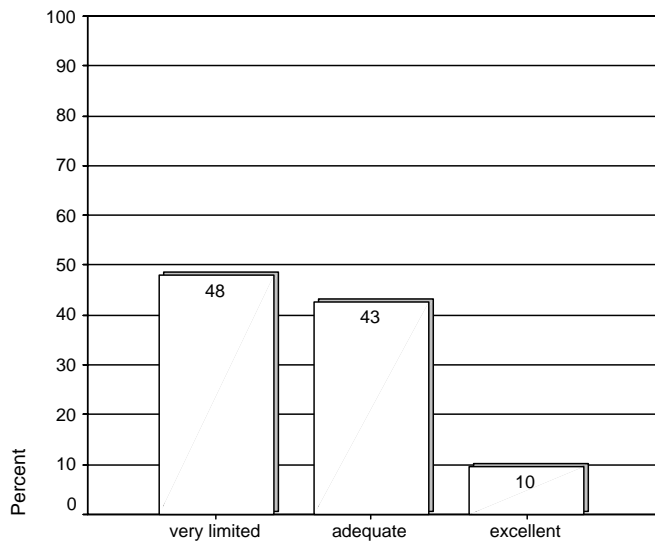
b. Farm business planning for sustainable agriculture (n=401)



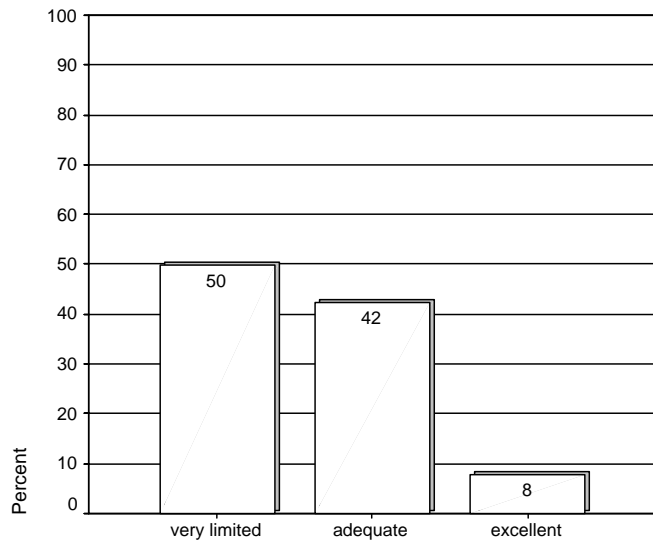
c. Impact analysis of adding new farm or ranch enterprises (n=399)



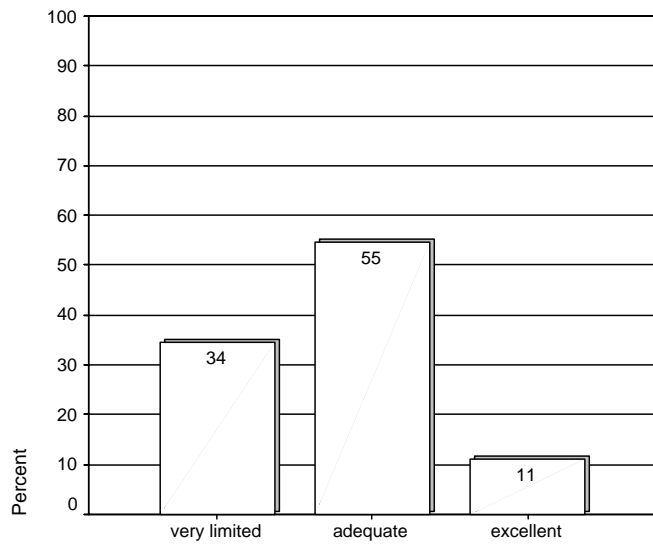
d. Community-based food systems (e.g., local markets for local production) (n=409)



e. Establishing farmer-to-farmer information networks (n=422)

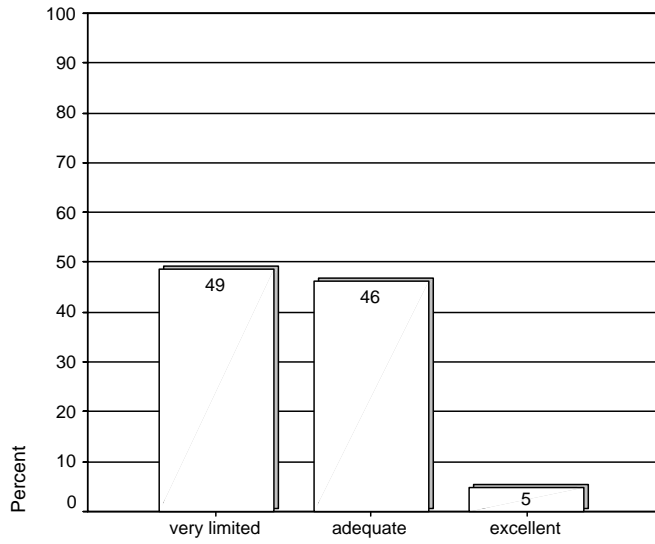


f. Integrated farming systems (n=427)

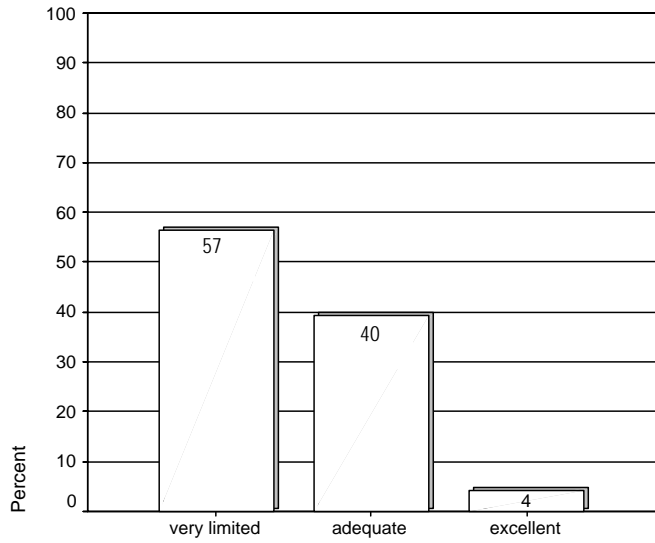


3. What is your knowledge level of Sustainable Agricultural Policy?

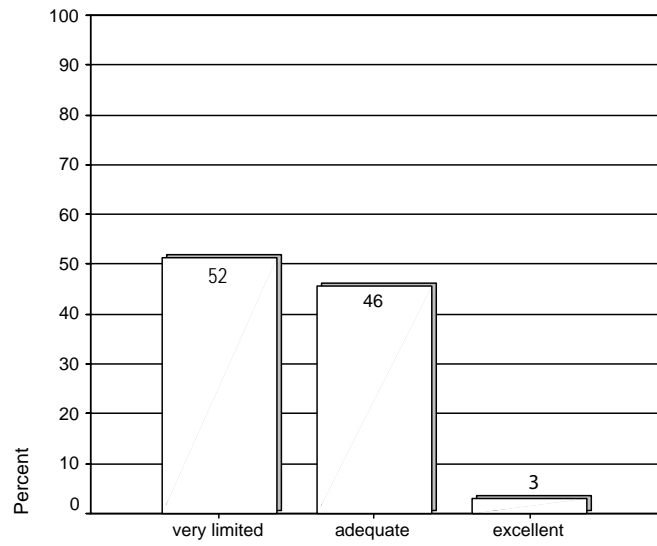
a. Farmland protection (n=427)



b. Federal programs to support sustainable agriculture (n=441)

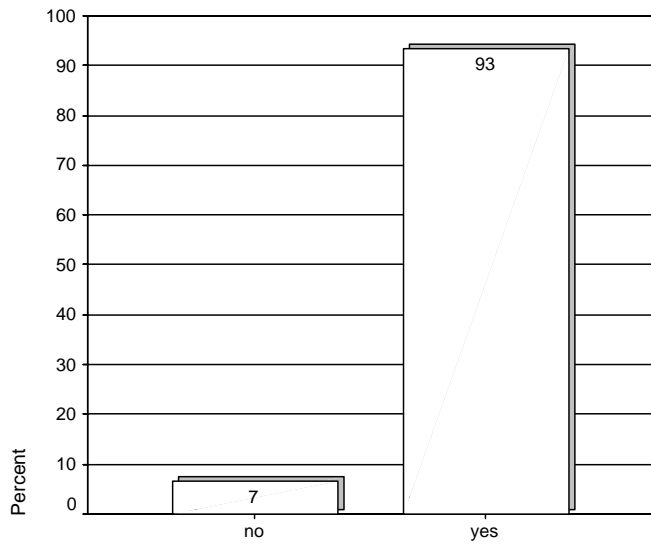


c. State programs to support sustainable agriculture (n=443)

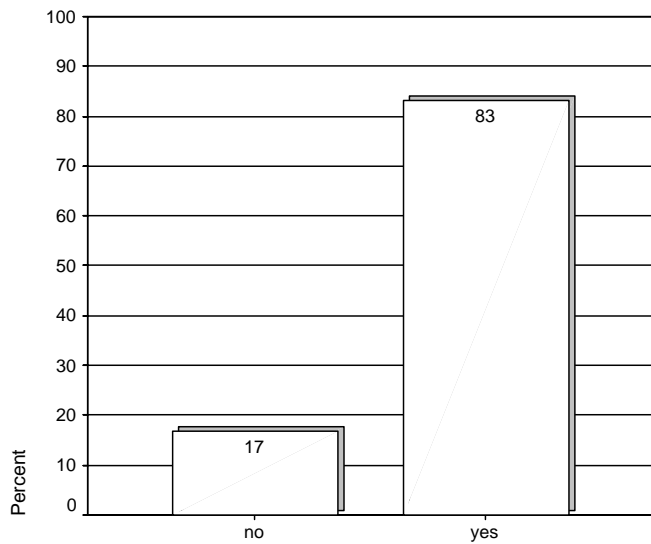


4. What are your sources of information on sustainable agriculture? (Please fill in all that apply.)

a. Other Extension educators (n=472)

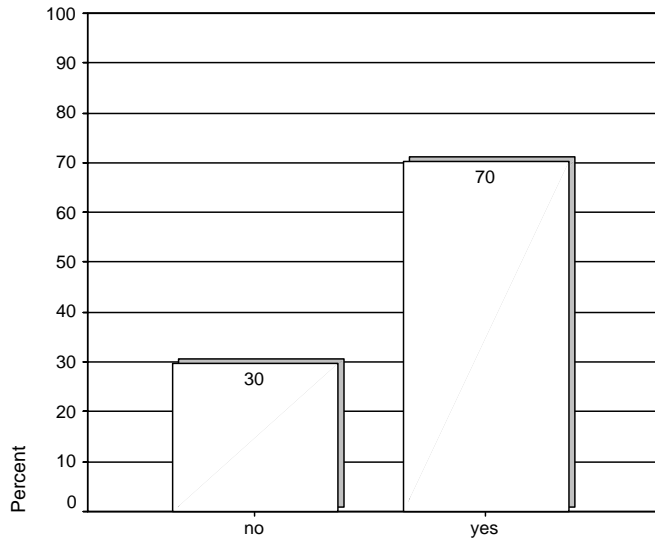


b. University researchers (n=472)

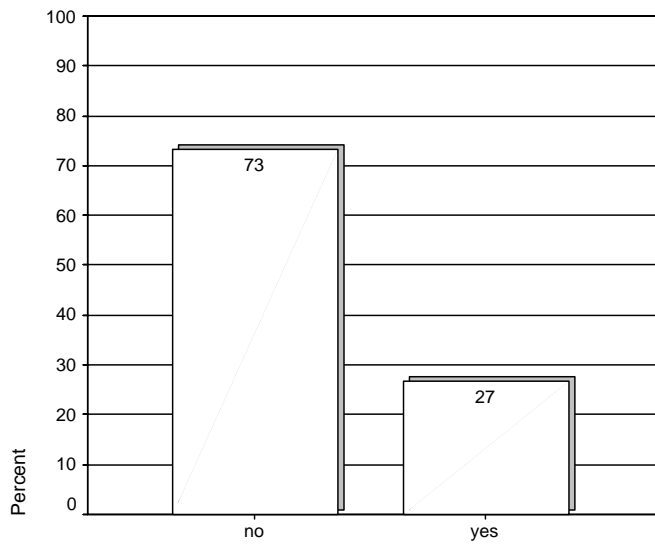




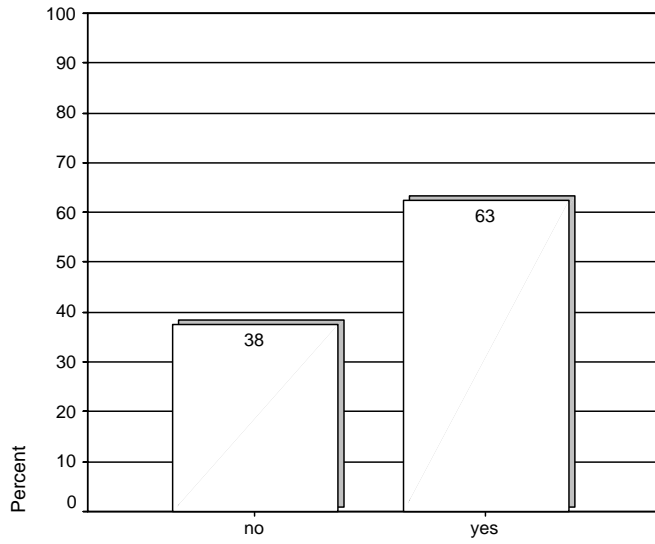
c. Farmers or ranchers using sustainable agriculture practices and systems (n=472)



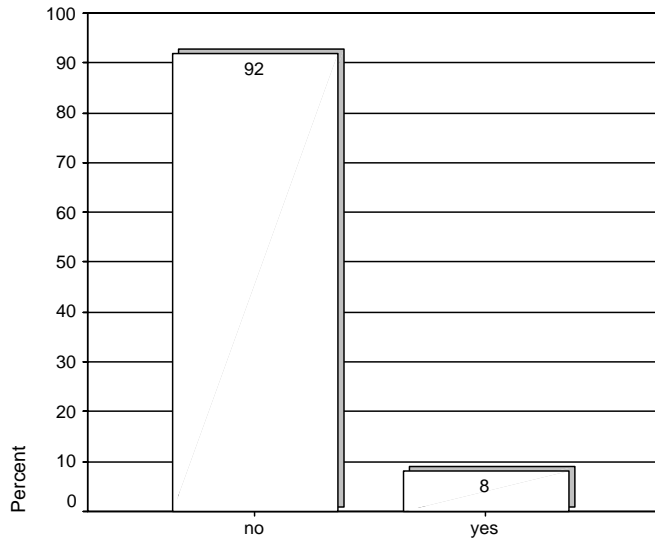
d. ATTRA (Appropriate Technology Transfer for Rural Areas) (n=472)



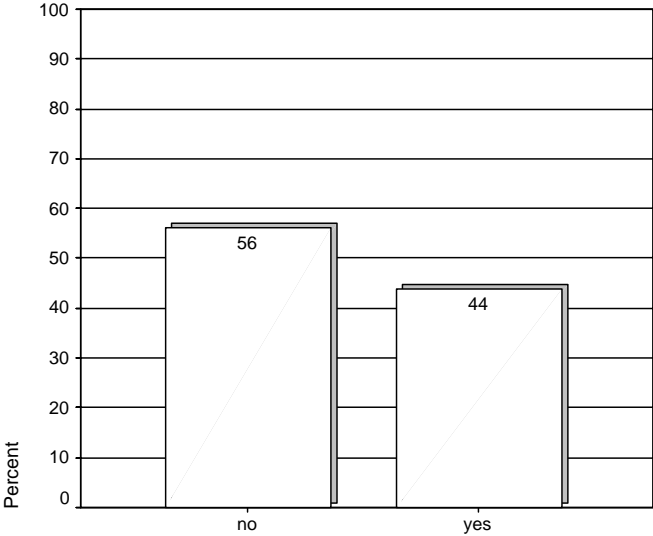
e. Sustainable Agriculture Research and Education (USDA SARE/SAN) (n=472)



f. Alternative Farming Systems Information Center (part of the National Ag Library) (n=472)

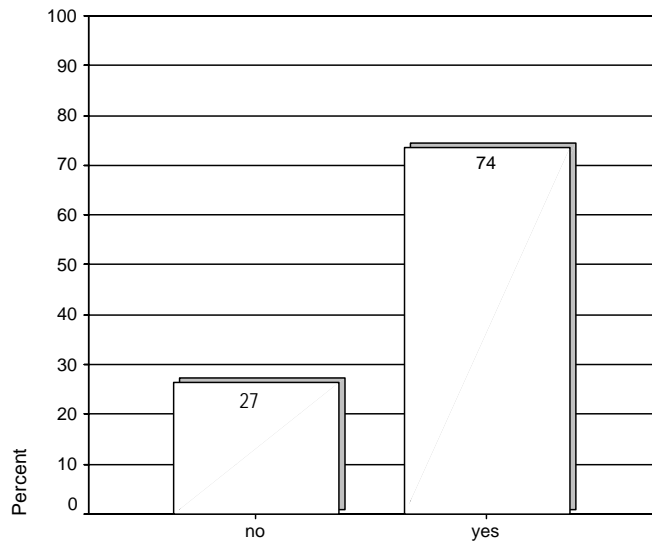


g. University-based sustainable agriculture program (n=472)

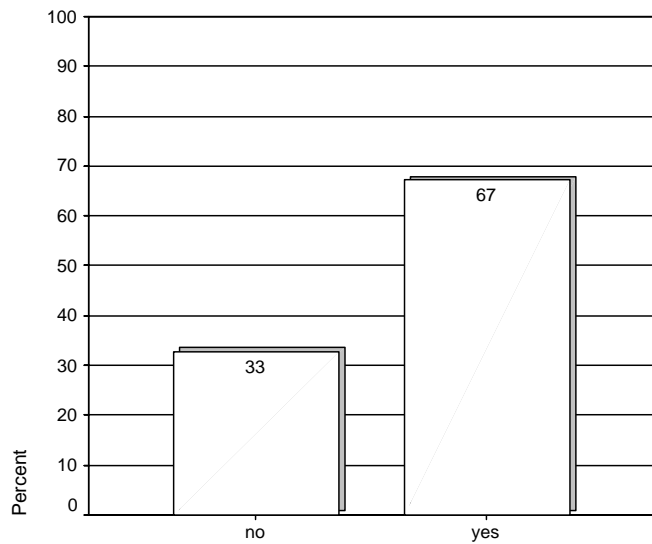


5. How do you get your sustainable agriculture information? (Please fill in all that apply.)

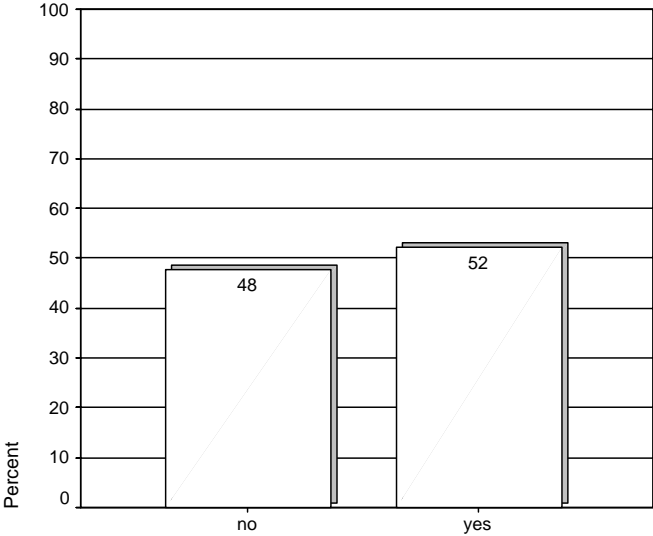
a. Professional publications (n=472)



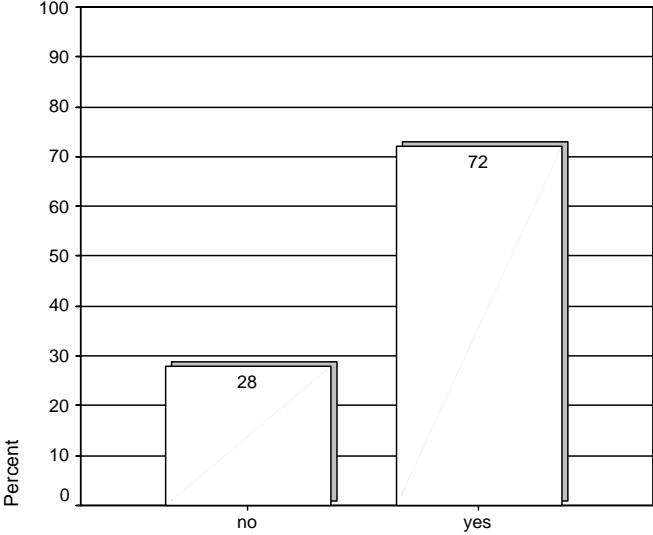
b. The World Wide Web (n=472)



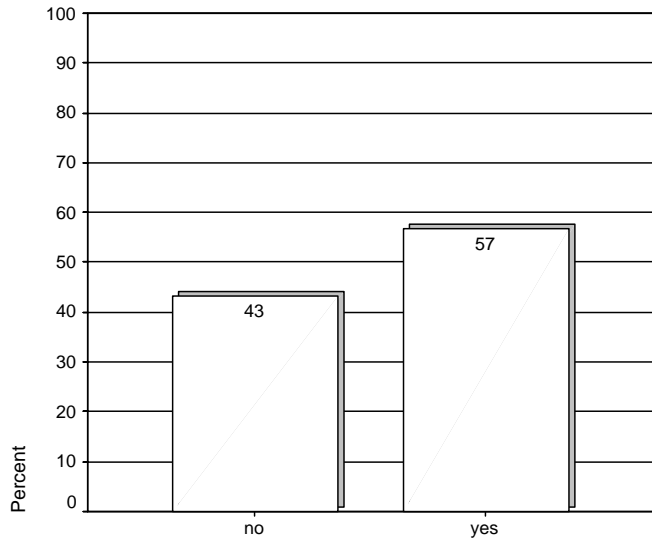
c. Agriculture press (n=472)



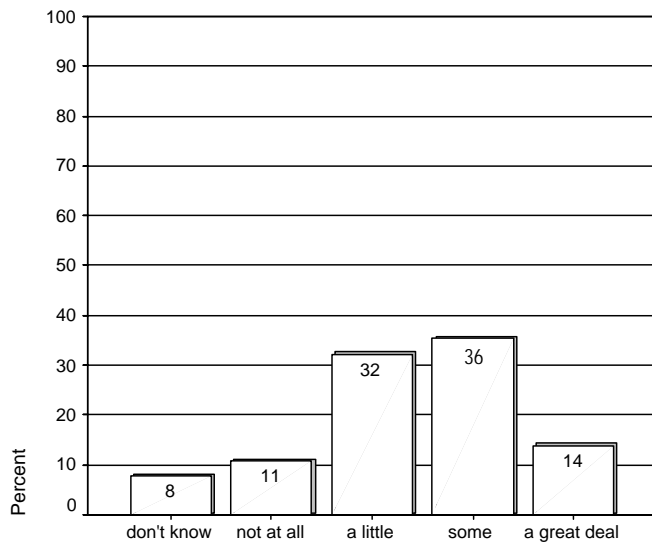
d. Workshops (n=472)



e. Farm or ranch tours (n=472)



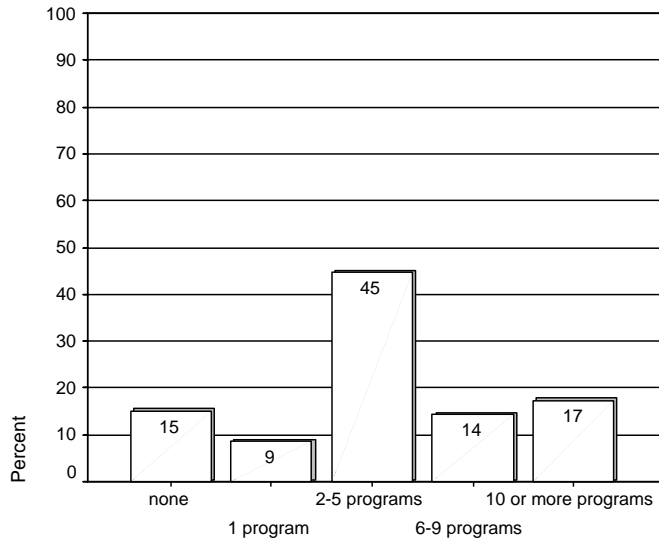
6. To what extent does your sustainable agriculture learning come through USDA SARE-funded projects or events? (n=468)



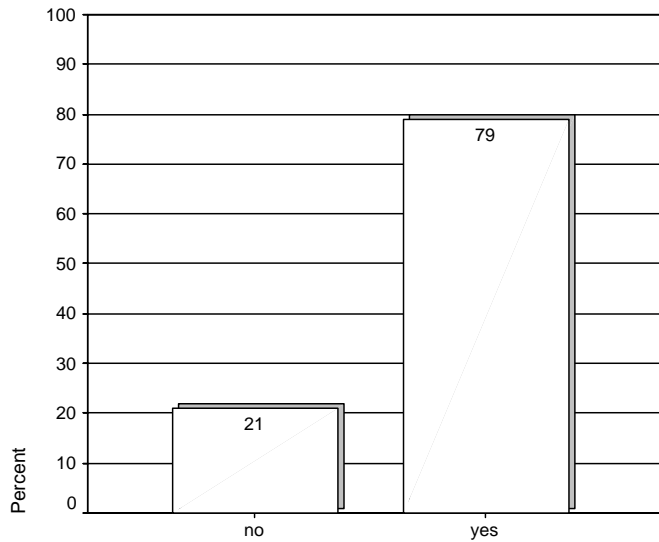
### Educator Practice

The next set of items asks about your delivery of educational programs in sustainable agriculture.

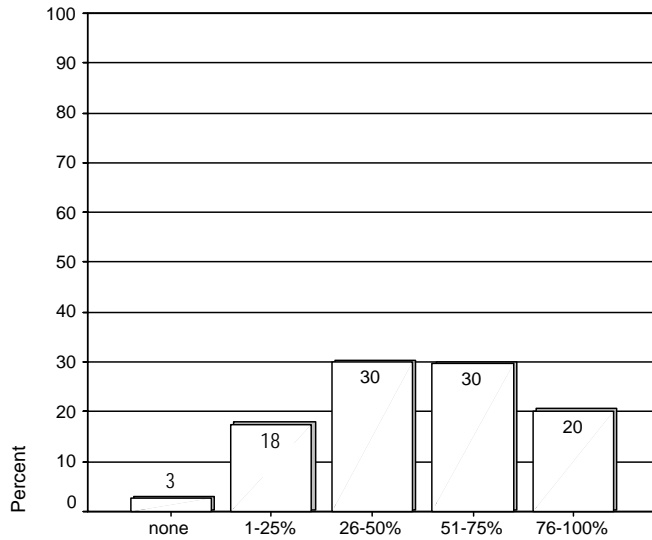
7. How many educational programs (workshops, presentations, seminars, etc.) have you conducted with farmers or ranchers during the 2002 and 2003 calendar years on some aspect of sustainable agriculture? (n=468)



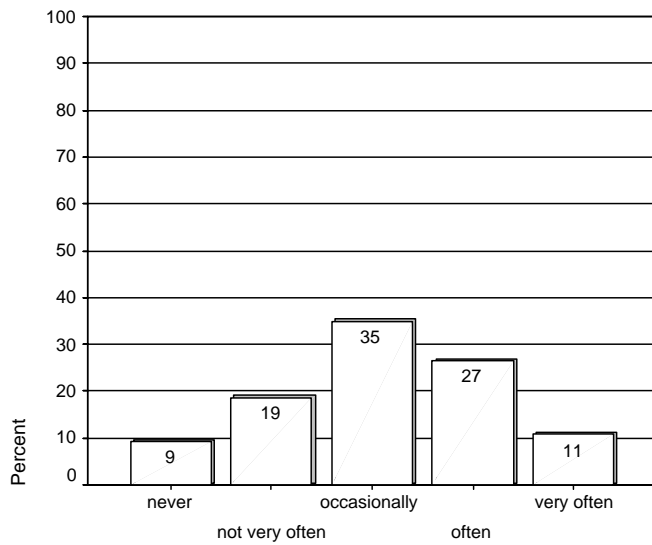
8. Please briefly describe the topic(s) or nature of the sustainable agriculture educational program(s) you conducted. (n=472)



9. How much of your work time are you expected to devote to educational programming? (n=464)



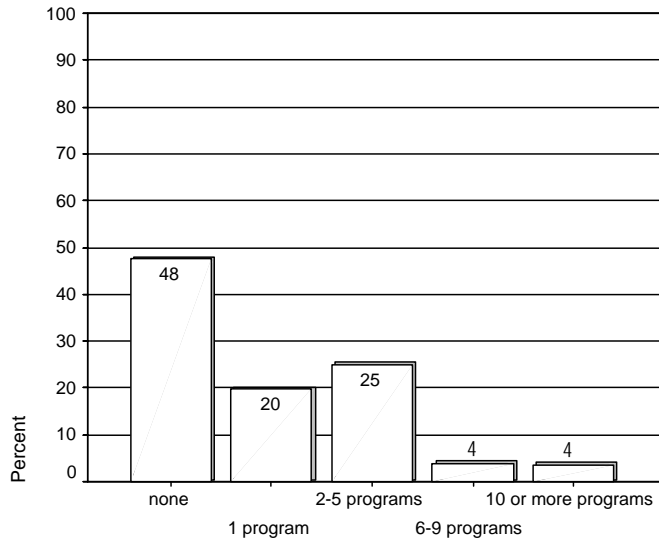
10. How often have you worked with farmers/ranchers, on their farm/ranch, in developing sustainable agriculture practices? (n=467)



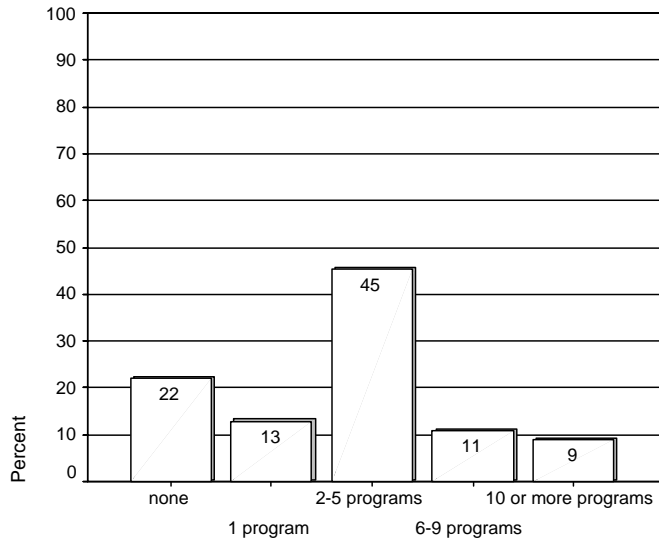
11. During 2002 and 2003, approximately how many sustainable agriculture educational programs did you deliver to the following groups?



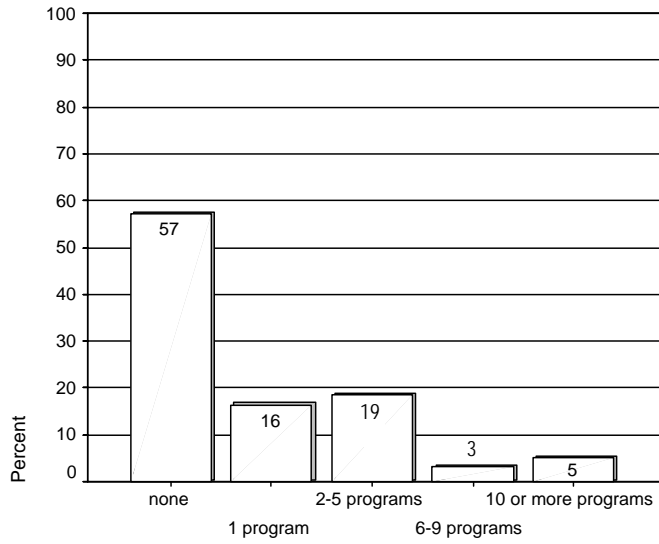
a. Consumer or general public groups (n=439)



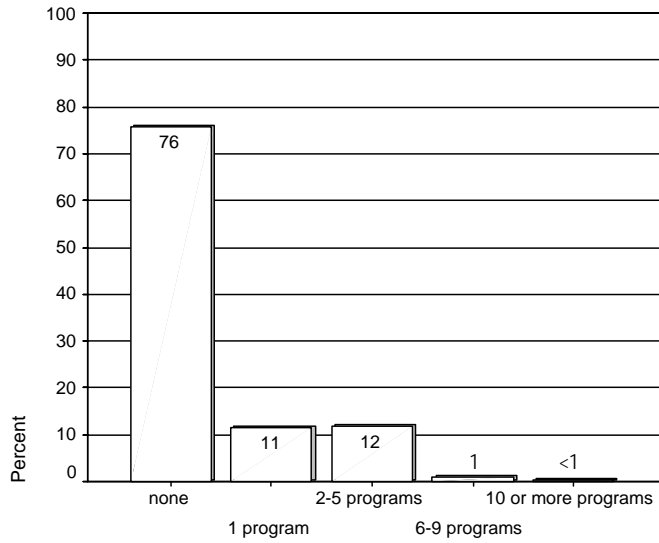
b. Small-sized family farmers or ranchers (n=450)



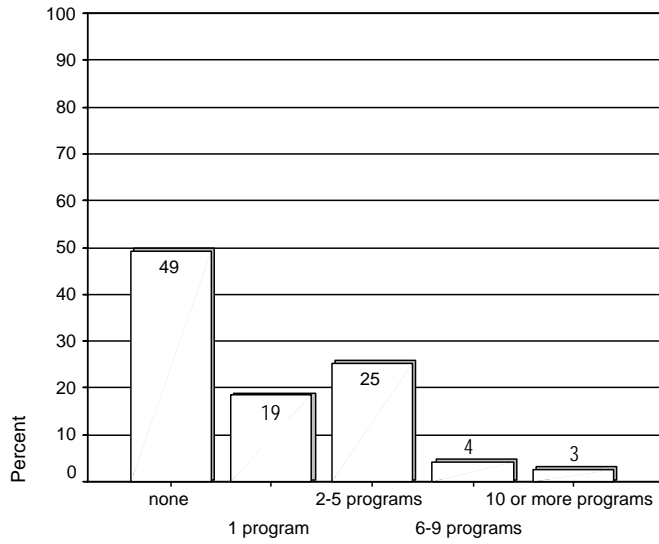
c. Indian, Hispanic or other  
minority farmers or ranchers  
(n=422)



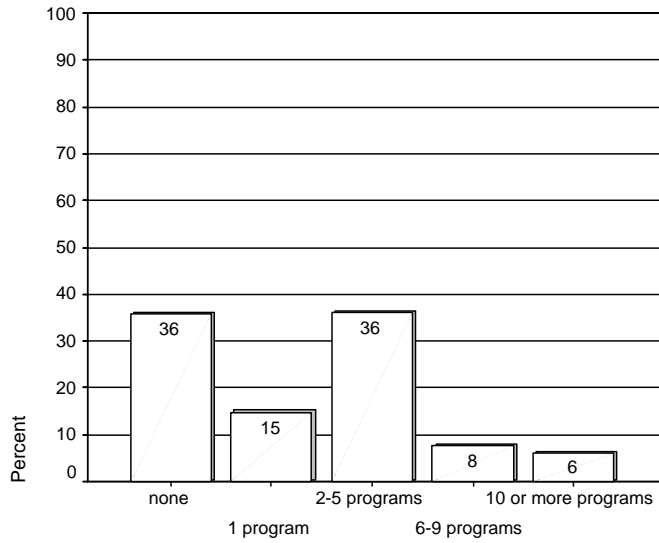
d. Environmental groups (n=411)



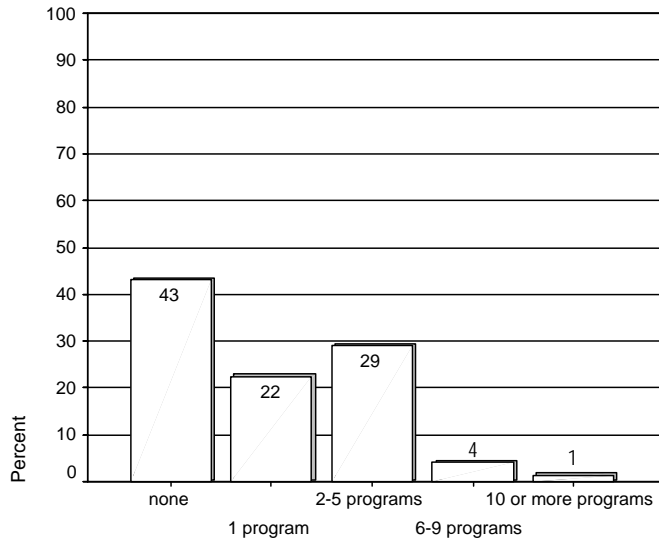
e. Youth groups (n=422)



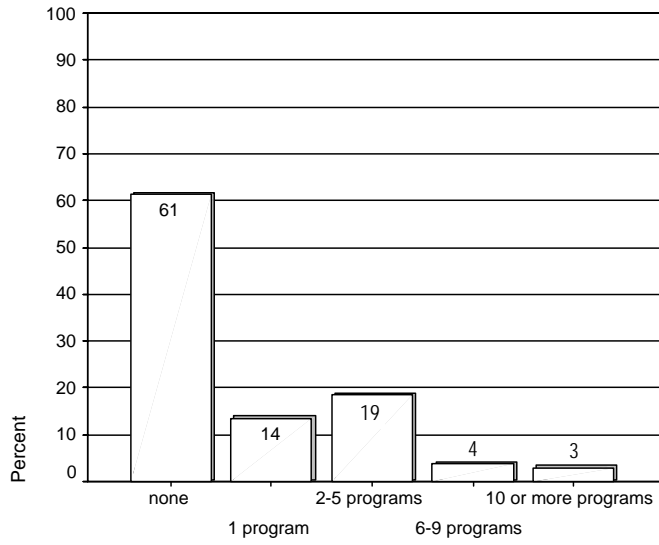
f. Farm or commodity groups (e.g. livestock association, Wheatgrowers, Farm Bureau) (n=439)



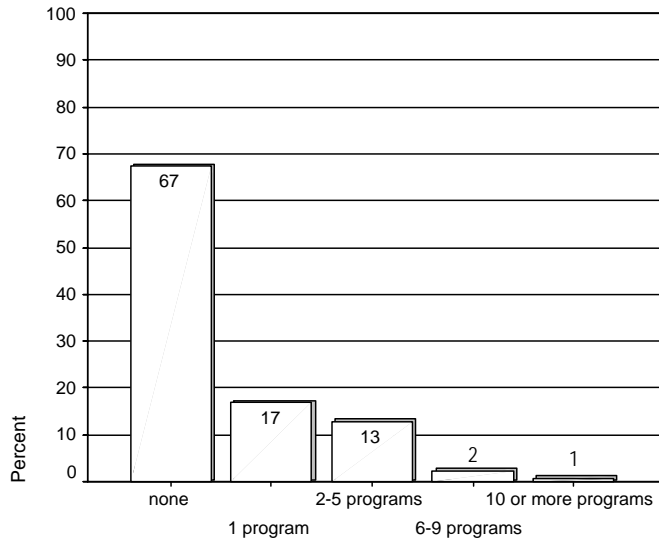
g. Peers or other Extension Educators (n=437)



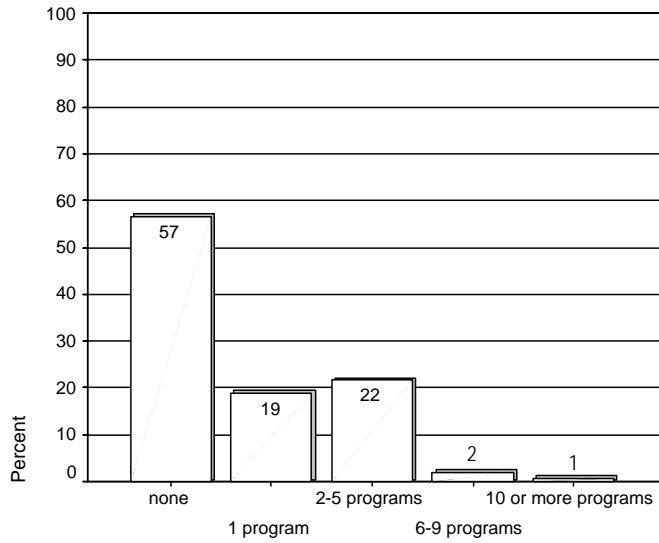
h. Agriculture consultants (n=444)



i. Organic or sustainable farming groups (n=435)

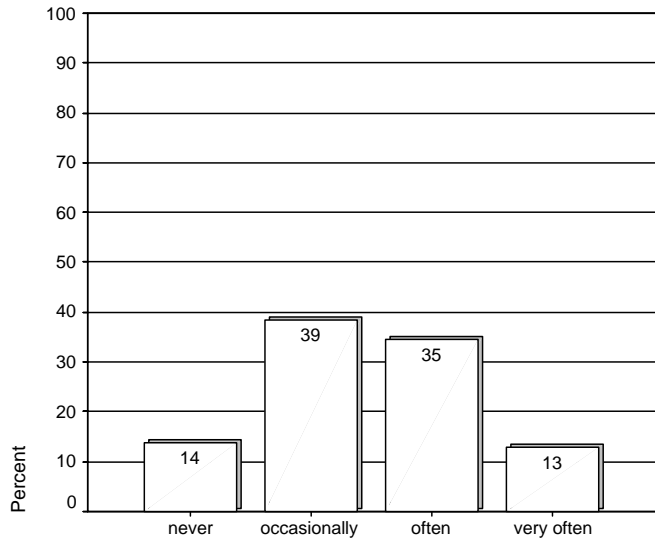


j. Other public agencies (e.g., NRCS, BLM, Forest Service, State Dept. of Ag) (n=434)

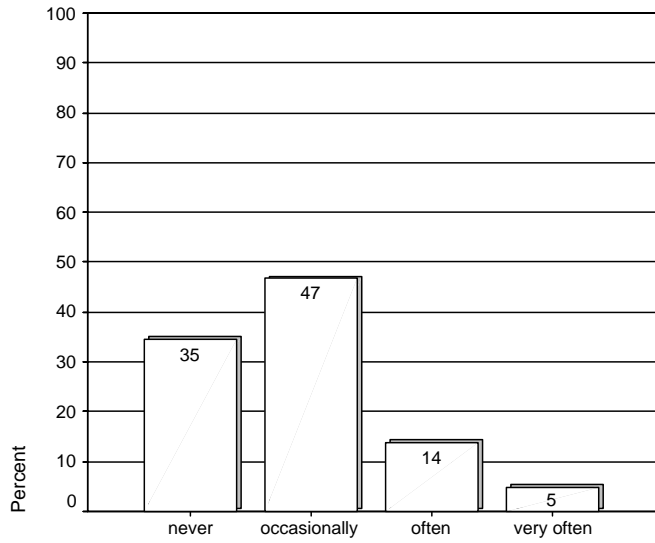


12. When you deliver educational programs on sustainable agriculture, how often do you partner with the following groups?

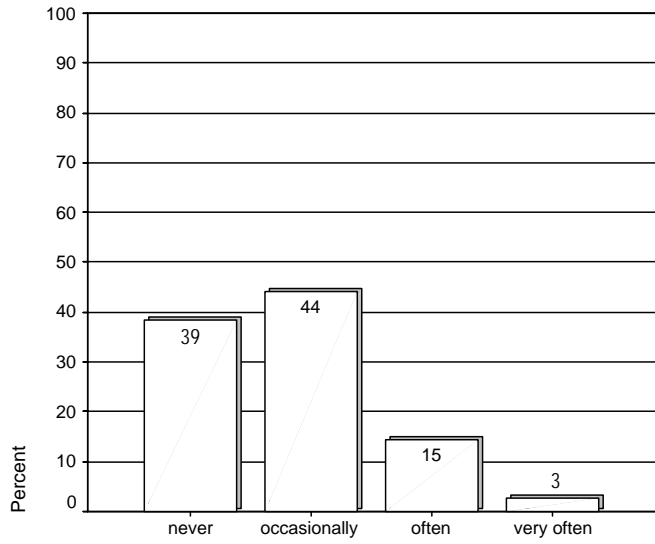
a. Farm or commodity organizations  
(n=394)



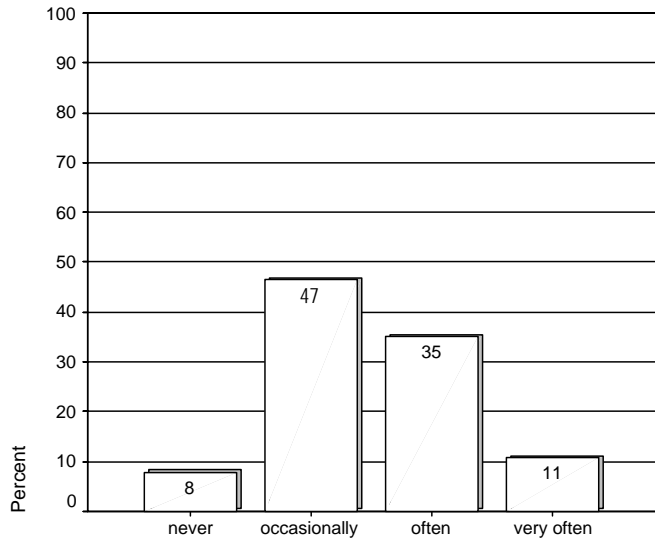
b. Agriculture consultants (n=376)



c. Organic or sustainable farming groups (n=364)

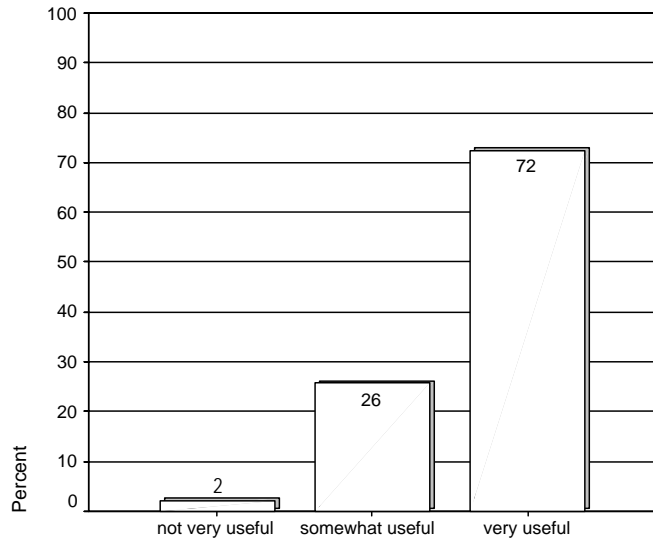


d. Other government agencies (n=411)

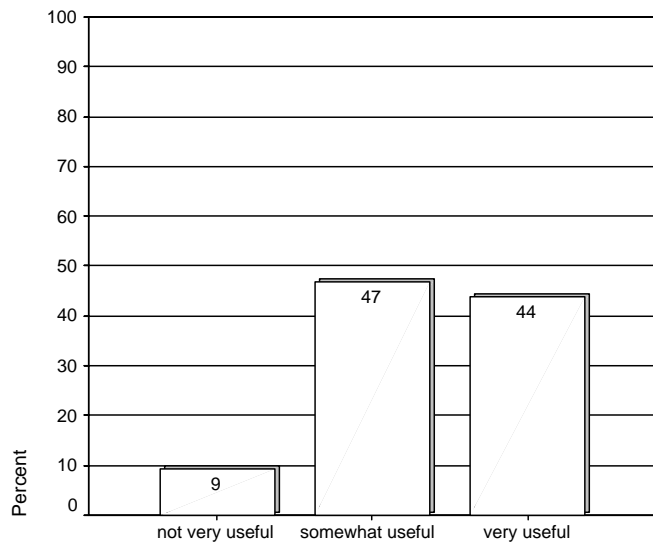


13. How would you rate the usefulness of information from the following sources when presenting information on sustainable agriculture?

a. A land-grant university (n=444)

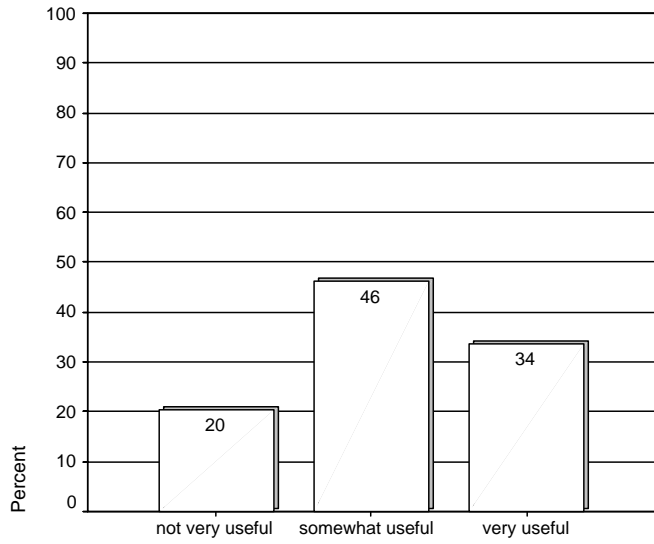


b. Sustainable Agriculture Research and Education Program (USDA SARE/SAN) (n=390)

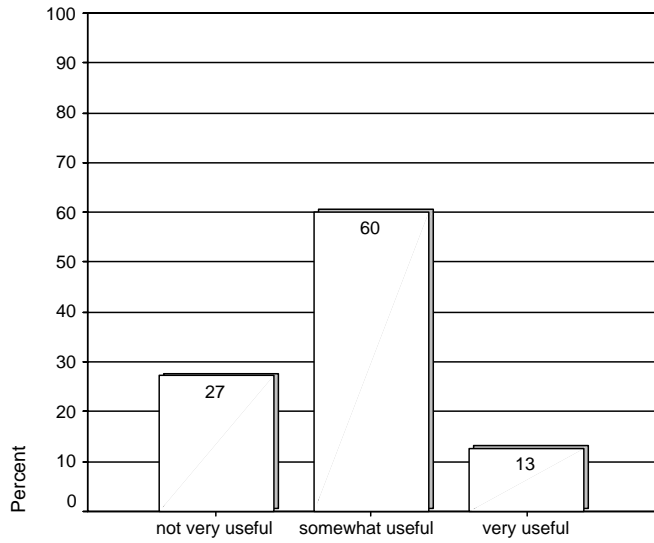




c. ATTRA (Appropriate Technology Transfer for Rural Areas) (n=197)

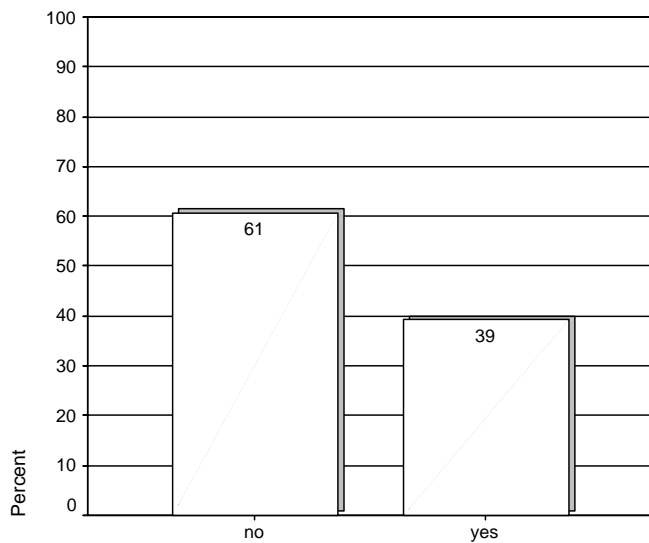


d. Alternative Farming Systems Information Center (AFSIC, part of the National Ag Library) (n=103)

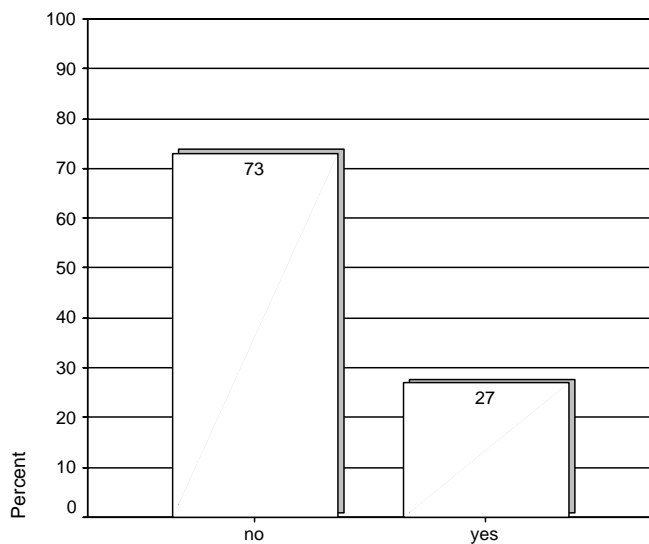


14. Which of the following USDA Western SARE functions have you participated in? (Please fill in all that apply.)

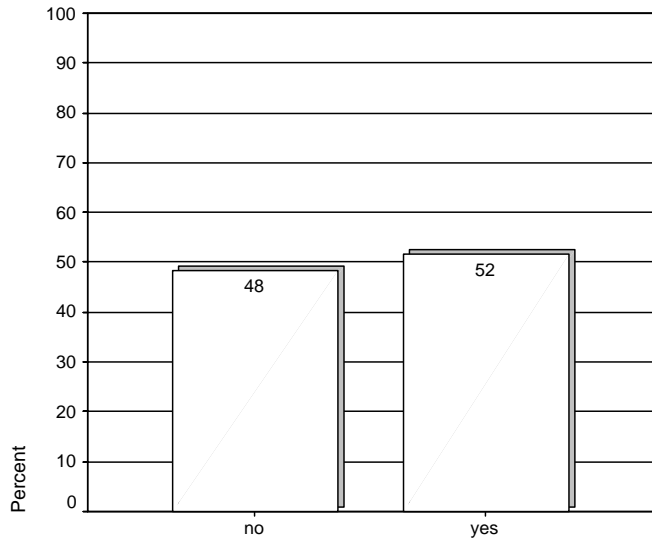
a. SARE-sponsored professional development activity (n=472)



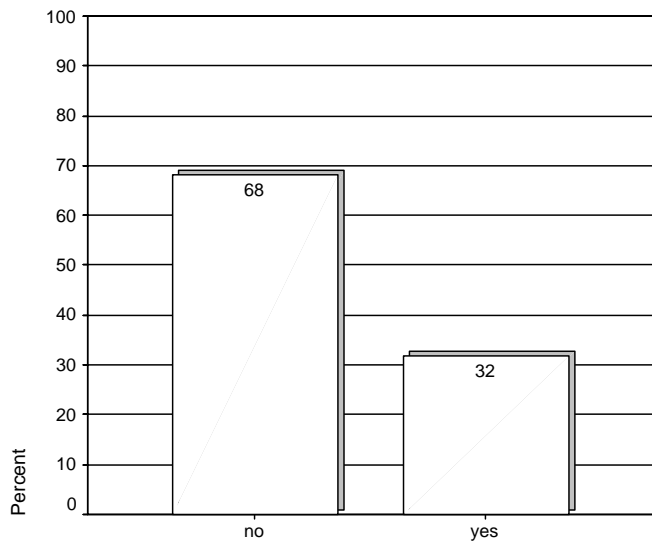
b. Tour of SARE-funded research (n=472)



c. A SARE-sponsored meeting or conference (n=472)

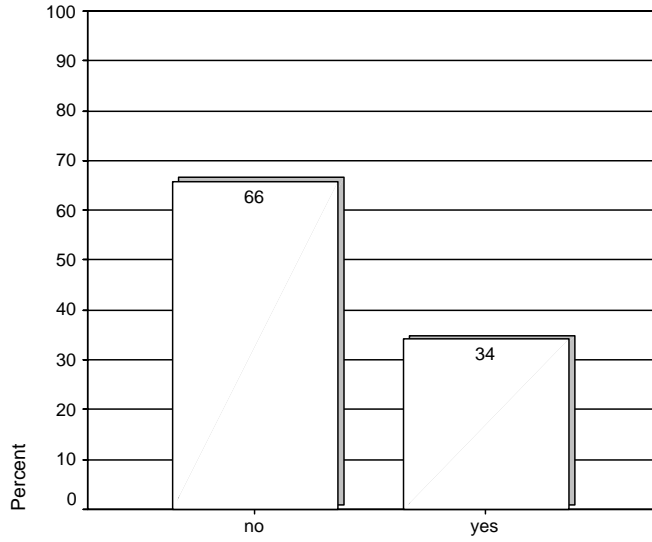


d. A program or tour funded by my state's SARE Professional Development Coordinator (n=472)

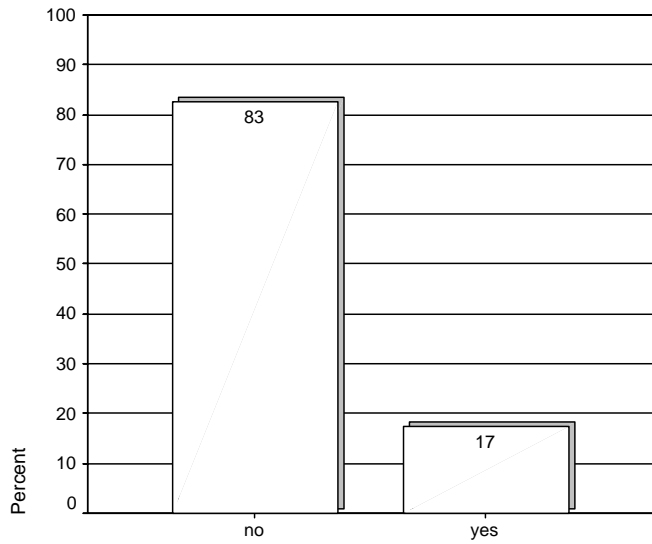


15. Which of the following USDA Western SARE functions have you participated in as a cooperator?  
(Please fill in all that apply.)

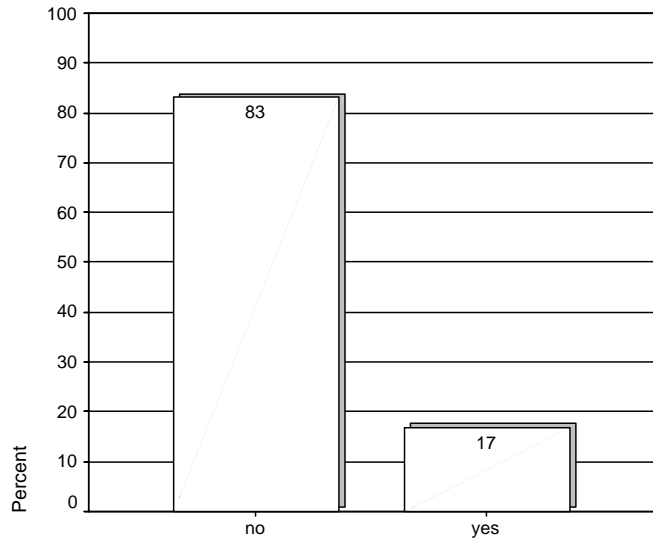
a. A SARE-funded research and education project (n=472)



b. A SARE-funded producer grant (n=472)

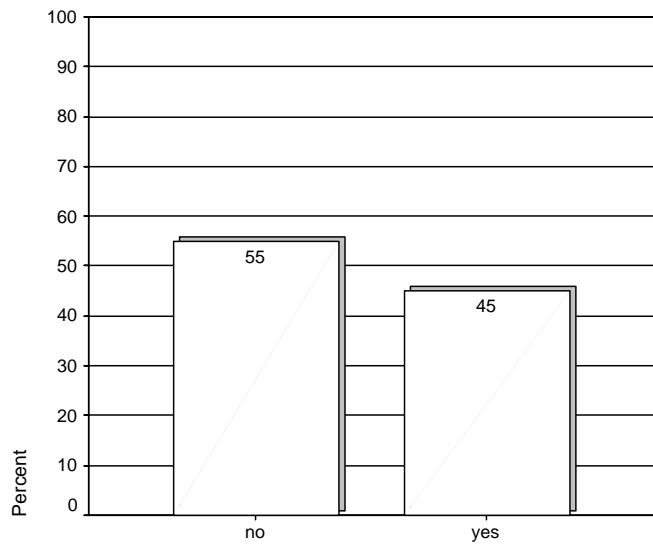


c. A SARE-funded Professional  
Development Program grant (n=472)

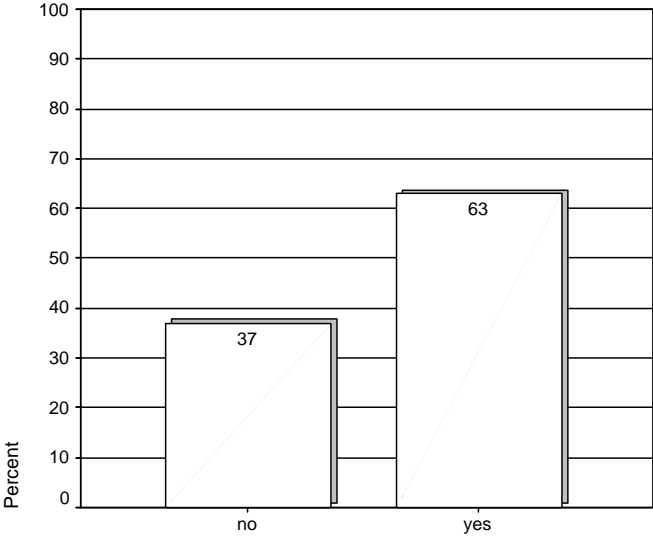


16. What type of sustainable agriculture information would be most helpful to you in your work?  
(Please fill in all that apply.)

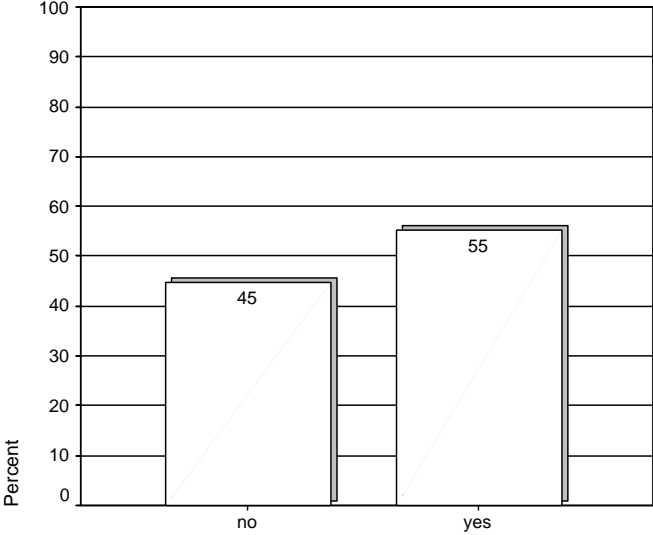
a. Soil-building crop rotations  
including cover crops (n=472)



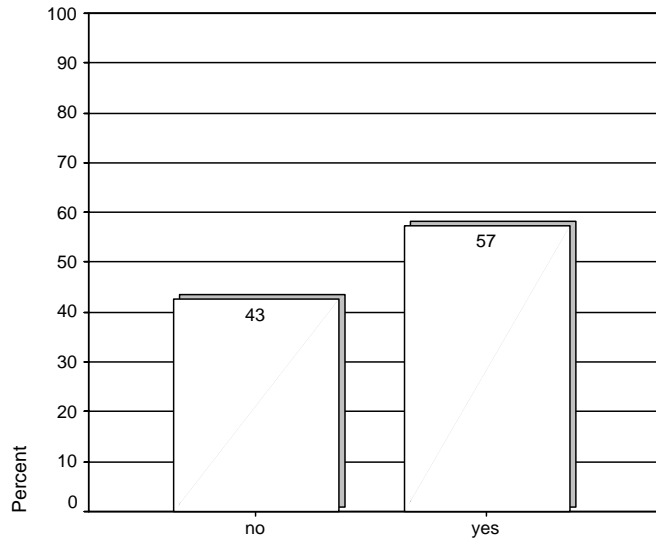
b. Ecologically-based weed management strategies (n=472)



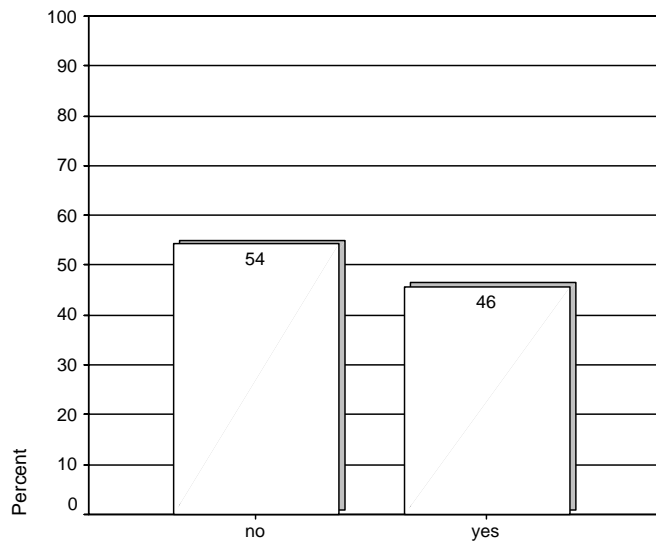
c. Ecologically-based insect and disease management strategies (n=472)



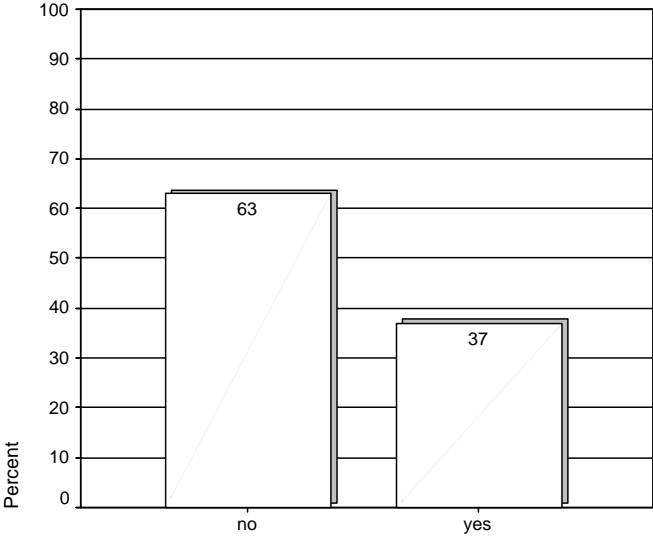
d. Alternative marketing approaches  
(e.g., direct marketing, eco-labeling)  
(n=472)



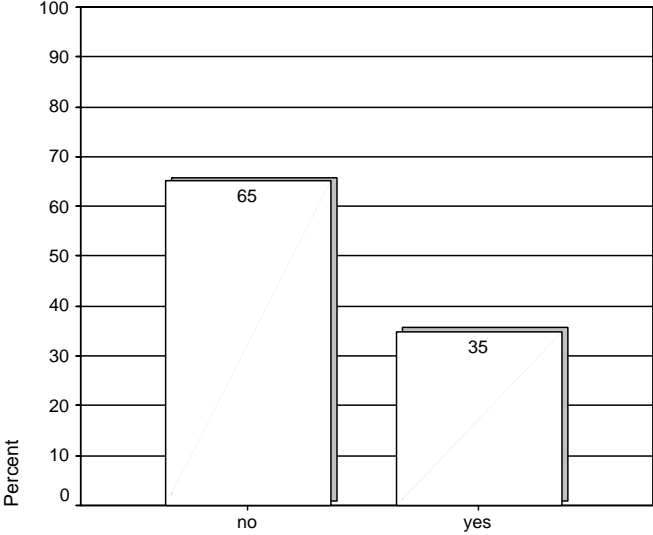
e. Organic agriculture (n=472)



f. Management of intensive grazing systems (n=472)

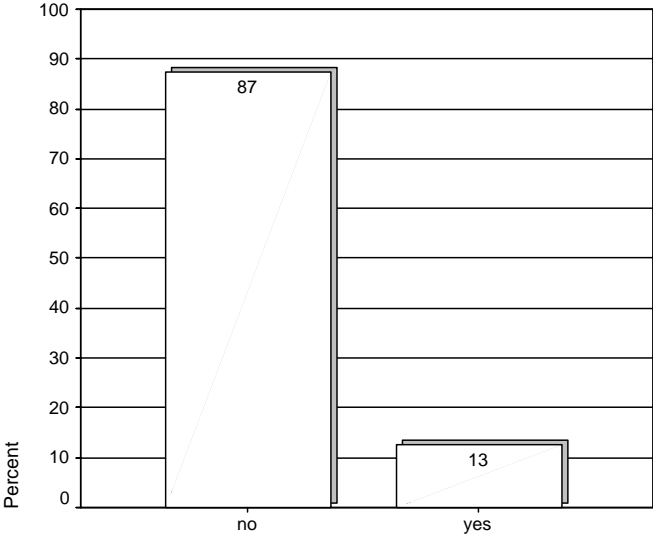


g. Alternative methods for maintaining livestock health (n=472)

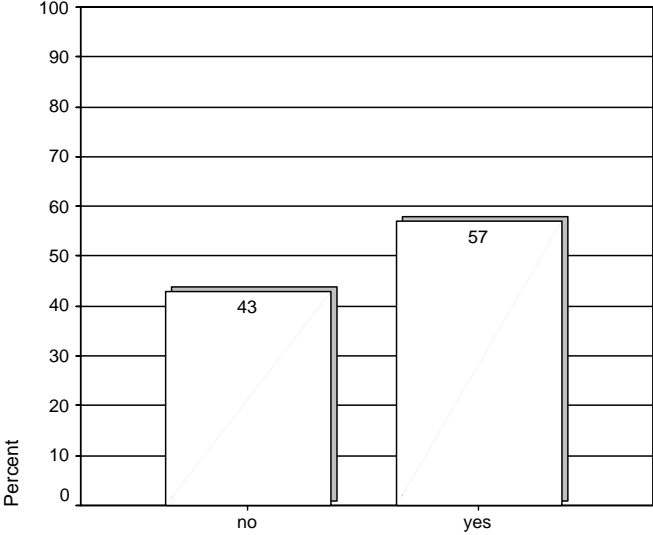




h. Agro forestry (n=472)



i. Economics of alternative farming systems, such as organics (n=472)



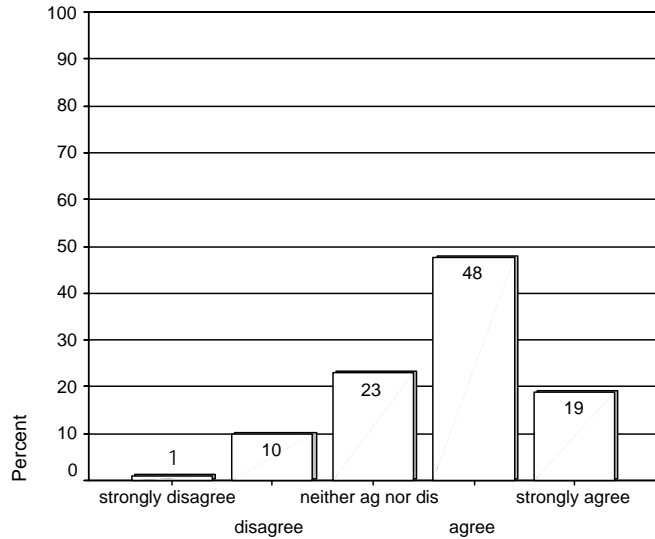
## Educator Attitudes

The following questions ask for your opinions about sustainable agriculture. Please indicate the level of agreement you have towards the following items.

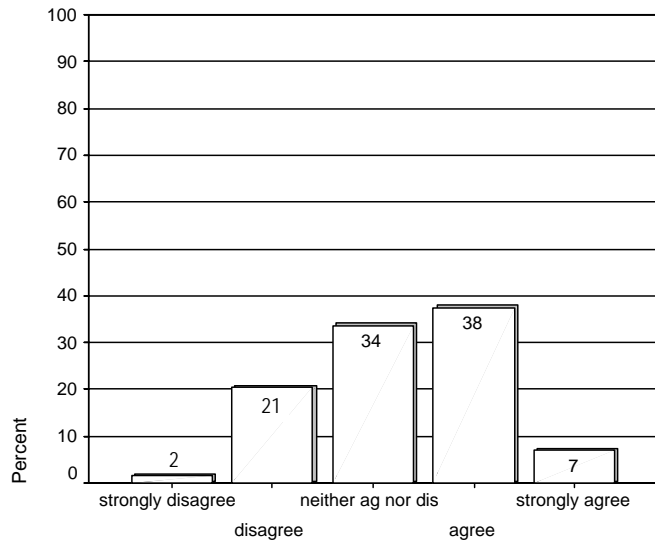
17. Agriculture as it is practiced in my area today:

a. enhances environmental quality

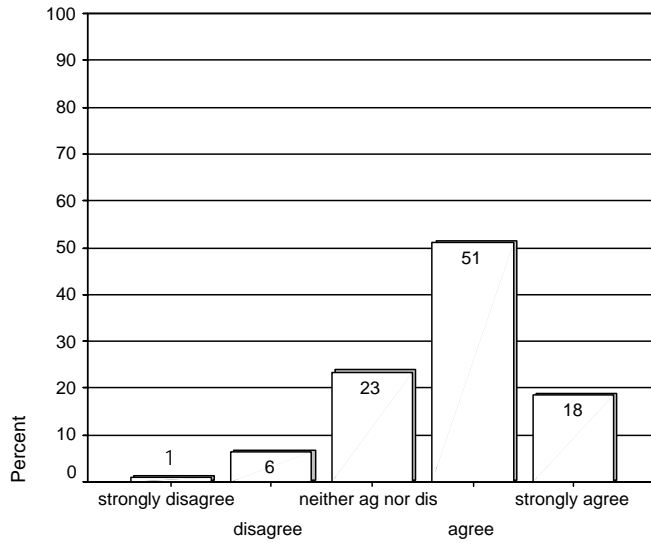
(n=464)



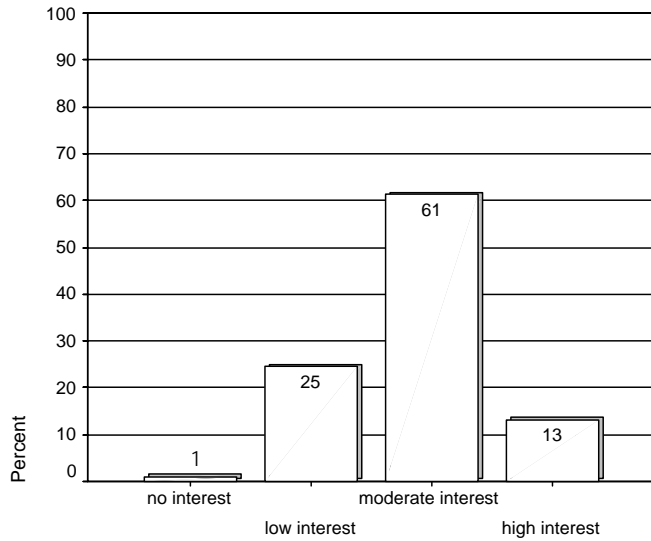
b. is economically profitable (n=464)



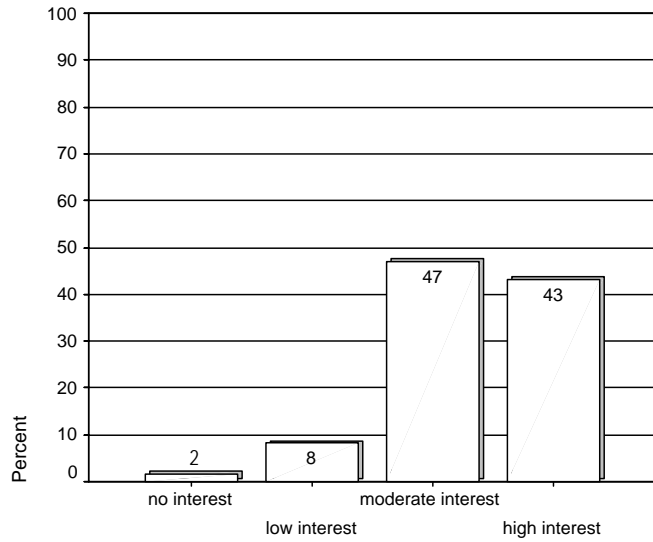
c. enhances the quality of life for farmers/ranchers (n=462)



18. How would you rate the level of interest farmers/ranchers in your area have in learning about sustainable agriculture? (n=464)

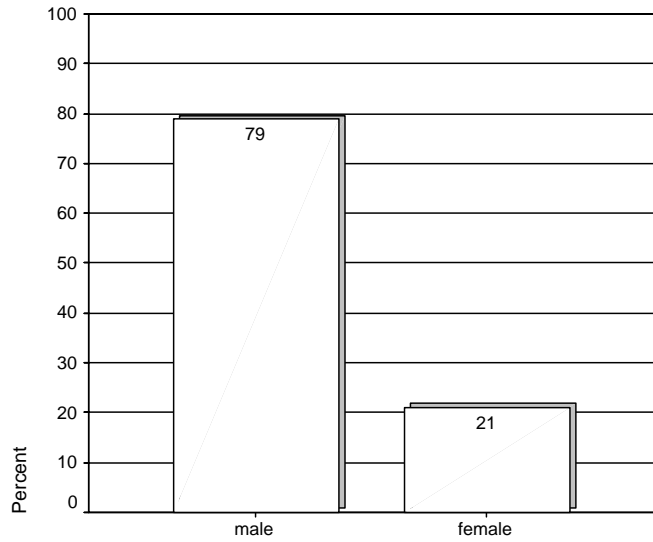


19. How would you rate YOUR level of interest in educating others in sustainable agriculture in your service area? (n=466)

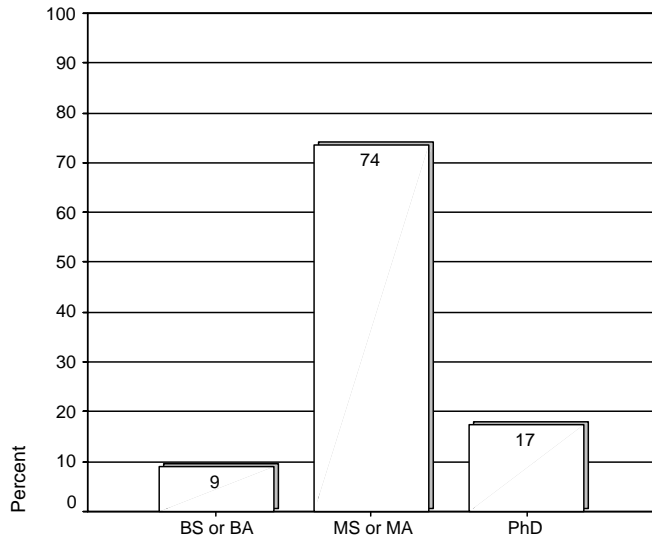


## Demographics

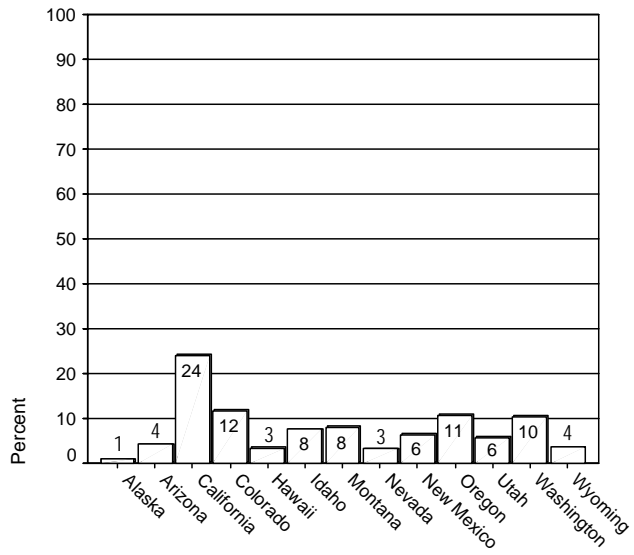
20. Please indicate your gender. (n=468)



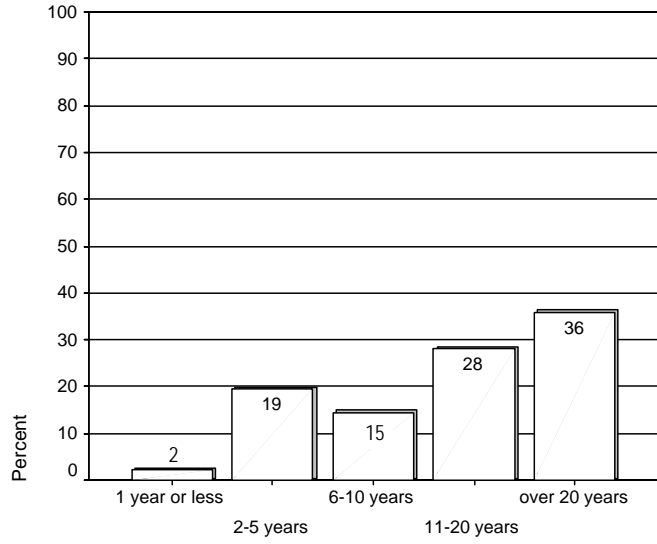
21. Please indicate your highest level of education. (n=467)



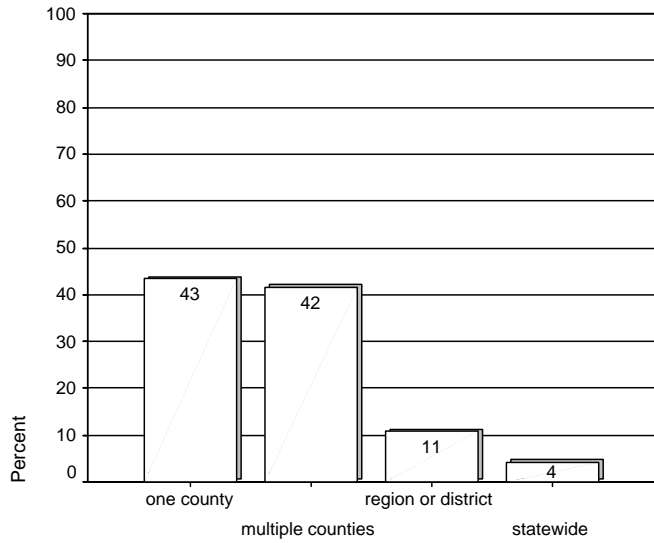
22. Please indicate the state in which you currently work. (n=472)



23. How many years of experience do you have with Extension Service?  
(n=469)



24. Which best describes the geographic area that you cover as an Extension Educator? (n=466)



# Appendix B: Survey Questionnaire

## **Western SARE Survey of Extension Educators**

Your response to this survey, along with those of your peers in the Western states, will help guide future Western SARE policy and program design. We sincerely encourage you to participate.

When finished with the survey, place it in the enclosed pre-addressed, stamped envelope and return within the next week to Western SARE Survey Team, The University of Arizona, P.O. Box 210033, Tucson, AZ, 85721-0033. The returned surveys will be identified by ID numbers only and your name will NEVER be connected with your answers. Your privacy will be carefully protected and your answers will be combined with those of others who are participating in this project.

Instructions for completing the survey:

- Use a pencil or pen
- Fill in the circle corresponding to your answer completely
- If you need to erase an answer, make sure that the erasure is complete

We would like to thank you in advance for completing and returning the survey. If you have any questions about the survey, please contact:

Sherry Betts, Ph.D.  
The University of Arizona  
P.O. Box 210033  
Tucson, AZ, 85721-0033  
Phone: 520-621-3399  
E-mail: [sbetts@ag.arizona.edu](mailto:sbetts@ag.arizona.edu)



**National legislation defines sustainable agriculture as: An integrated system of plant and animal production practices having a site-specific application that will, over the long term:**

- (a) Satisfy human food and fiber needs.**
- (b) Enhance environmental quality and the natural resource base upon which the agricultural economy depends.**
- (c) Make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls.**
- (d) Sustain the economic viability of farm operations. Enhance the quality of life for farmers and society as a whole.**

### Educator Knowledge

The following questions ask for your level of technical expertise in a number of areas pertaining to sustainable agriculture.

1. What is your knowledge level of **Sustainable Agricultural Practices?**

	Excellent	Adequate	Very limited	NA to my position
a. Soil building crop rotations including cover crops	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Ecologically-based weed management strategies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Ecologically-based insect and disease management strategies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Alternative marketing approaches (e.g., direct marketing, eco-labeling)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Organic agriculture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Management of intensive grazing systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Alternative methods for maintaining livestock health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Agro forestry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Other (please specify):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\_\_\_\_\_

2. What is your knowledge level of **Sustainable Agricultural Systems?**

	Excellent	Adequate	Very limited	NA to my position
a. Whole farm or ranch planning approaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Farm business planning for sustainable agriculture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Impact analysis of adding new farm or ranch enterprises	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. What is your knowledge level of **Sustainable Agricultural Systems?** (cont'd.)

	Excellent	Adequate	Very limited	NA to my position
d. Community-based food systems (e.g., local markets for local production)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Establishing farmer-to-farmer information networks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Integrated farming systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Other (please specify):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\_\_\_\_\_

3. What is your knowledge level of **Sustainable Agricultural Policy?**

	Excellent	Adequate	Very limited	NA to my position
a. Farmland protection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Federal programs to support sustainable agriculture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. State programs to support sustainable agriculture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Other (please specify):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\_\_\_\_\_

4. What are your sources of information on sustainable agriculture? (Please fill in all that apply.)

a. Other Extension educators	<input type="radio"/>
b. University researchers	<input type="radio"/>
c. Farmers or ranchers using sustainable agriculture practices and systems	<input type="radio"/>
d. ATTRA (Appropriate Technology Transfer for Rural Areas)	<input type="radio"/>
e. Sustainable Agriculture Research and Education (USDA SARE/SAN)	<input type="radio"/>

4. What are your sources of information on sustainable agriculture? (Please fill in all that apply.) (cont'd.)

f. Alternative Farming Systems Information Center (part of the National Ag Library)

g. University-based sustainable agriculture program (please specify):

\_\_\_\_\_

h. Other (please specify): \_\_\_\_\_

5. How do you get your sustainable agriculture information? (Please fill in all that apply.)

a. Professional publications

b. The World Wide Web

c. Agriculture press

d. Workshops

e. Farm or ranch tours

f. Other (please specify): \_\_\_\_\_

6. To what extent does your sustainable agriculture learning come through USDA SARE-funded projects or events?

A great deal

Some

A little

Not at all

Don't know

### **Educator Practice**

The next set of items asks about your delivery of educational programs in sustainable agriculture.

7. How many educational programs (workshops, presentations, seminars, etc.) have you conducted with farmers or ranchers during the 2002 and 2003 calendar years on some aspect of sustainable agriculture?

None

1 program

2-5 programs

6-9 programs

10 or more programs

8. Please briefly describe the topic(s) or nature of the sustainable agriculture educational program(s) you conducted: \_\_\_\_\_

\_\_\_\_\_

9. How much of your work time are you expected to devote to educational programming?

None	1-25%	26-50%	51-75%	76-100%
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. How often have you worked with farmers/ranchers, on their farm/ranch, in developing sustainable agriculture practices?

Very often	Often	Occasionally	Not very often	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. During 2002 and 2003, approximately how many sustainable agriculture educational programs did you deliver to the following groups?

	None	1 program	2-5 programs	6-9 programs	10 or more programs
a. Consumer or general public groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Small-sized family farmers or ranchers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Indian, Hispanic or other minority farmers or ranchers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Environmental groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Youth groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Farm or commodity groups (e.g. livestock association, Wheatgrowers, Farm Bureau)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Peers or other Extension educators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. During 2002 and 2003, approximately how many sustainable agriculture educational programs did you deliver to the following groups? (cont'd.)

	None	1 program	2-5 programs	6-9 programs	10 or more programs
h. Agriculture consultants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Organic or sustainable farming groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Other public agencies (e.g. NRCS, BLM, Forest Service, State Dept. of Ag)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. When you deliver educational programs on sustainable agriculture, how often do you partner with the following groups?

	Very Often	Often	Occasionally	Never	Not Applicable
a. Farm or commodity organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Agriculture consultants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Organic or sustainable farming groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Other government agencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. How would you rate the usefulness of information from the following sources when presenting information on sustainable agriculture?

	Very Useful	Somewhat Useful	Not Very Useful	I have not used this information
a. A land-grant university	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Sustainable Agriculture Research and Education Program (USDA SARE/SAN)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. How would you rate the usefulness of information from the following sources when presenting information on sustainable agriculture? (cont'd.)

	Very Useful	Somewhat Useful	Not Very Useful	I have not used this information
c. ATTRA (Appropriate Technology Transfer for Rural Areas)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Alternative Farming Systems Information Center (AFSIC, part of the National Ag Library)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Other (please specify): _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Which of the following USDA Western SARE functions have you participated in? (Please fill in all that apply.)

- a. SARE-sponsored professional development activity
- b. Tour of SARE-funded research
- c. A SARE-sponsored meeting or conference
- d. A program or tour funded by my state's SARE Professional Development Coordinator

15. Which of the following USDA Western SARE functions have you participated in as a *cooperator*? (Please fill in all that apply.)

- a. A SARE-funded research and education project
- b. A SARE-funded producer grant
- c. A SARE-funded Professional Development Program grant

16. What type of sustainable agriculture information would be most helpful to you in your work? (Please fill in all that apply.)

- a. Soil-building crop rotations including cover crops
- b. Ecologically-based weed management strategies
- c. Ecologically-based insect and disease management strategies
- d. Alternative marketing approaches (e.g., direct marketing, eco-labeling)

16. What type of sustainable agriculture information would be most helpful to you in your work? (Please fill in all that apply.) (cont'd.)

- e. Organic agriculture
- f. Management of intensive grazing systems
- g. Alternative methods for maintaining livestock health
- h. Agro forestry
- i. Economics of alternative farming systems, such as organics

**Educator Attitudes**

The following questions ask for your opinions about sustainable agriculture. Please indicate the level of agreement you have towards the following items.

17. Agriculture as it is practiced in my area today:

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
a. enhances environmental quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. is economically profitable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. enhances the quality of life for farmers/ranchers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. How would you rate the level of interest farmers/ranchers in your area have in learning about sustainable agriculture?

High Interest	Moderate Interest	Low Interest	No Interest
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. How would you rate YOUR level of interest in educating others in sustainable agriculture in your service area?

High Interest	Moderate Interest	Low Interest	No Interest
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Demographics

20. Please indicate your gender.

Male

Female

21. Please indicate your highest level of education.

B.S./B.A.

M.S./M.A.

Ph.D.

22. Please indicate the state in which you currently work.

Alaska

Arizona

California

Colorado

Hawaii

Idaho

Montana

Nevada

New Mexico

Oregon

Utah

Washington

Wyoming

23. How many years of experience do you have with Extension Service?

1 year or less

2-5 years

6-10 years

11-20 years

Over 20 years

24. Which best describes the geographic area that you cover as an Extension Educator?

One county

Multiple counties

Region or district

Statewide

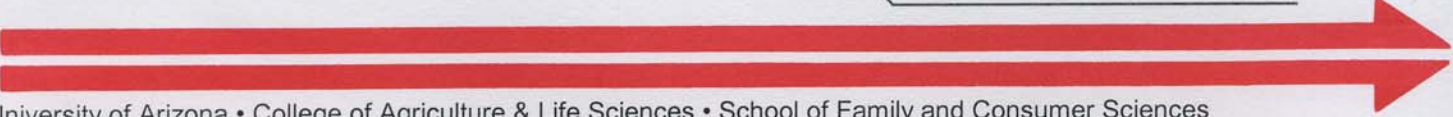
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**Now that you have completed the questionnaire, we invite your comments.  
Please feel free to write your comments on the space provided below.  
You may also use the back side of this page if necessary.**

***Thank you for your participation in this survey. Please send completed surveys in the enclosed stamped, pre-addressed envelope to: Western SARE Survey Team, The University of Arizona, P.O. Box 210033, Tucson, AZ, 85721-0033.***

# Appendix C: Survey Correspondence

# Cooperative Extension



University of Arizona • College of Agriculture & Life Sciences • School of Family and Consumer Sciences  
Division of Family Studies and Human Development, P.O. Box 210033, Tucson, Arizona 85721-0033  
Telephone: (520) 621-3399 • Fax: (520) 621-9445

January 30, 2004

Address  
City, State Zip

Dear Colleague,

You are invited to take part in a survey about sustainable agriculture. For almost 10 years, the USDA's Western Region Sustainable Agriculture Research and Education Professional Development Program (WSARE PDP) has provided grants for agriculture professionals' training and education opportunities in sustainable agriculture principles, systems and practices. Western SARE PDP, in cooperation with the University Of Arizona Cooperative Extension Service, is conducting a region-wide survey of agricultural Extension educators. The survey results will help guide and shape the WSARE PDP state and competitive grants program in the future.

This is where you come in. Because you play a critical role in Extension work with farmers and ranchers, your experiences and thoughts on the topic are extremely important. It is crucial that each questionnaire be completed and returned so that the results will truly represent the experiences of Extension personnel in your state. **Participation is voluntary.** Please take the time to complete the questionnaire and return it in the enclosed stamped, pre-addressed envelope as soon as possible.

Please be assured that your responses are strictly **confidential**. All responses will be identified only by code numbers. Your name will **NOT** be connected to your answers in any way. A person who is not seeing the actual responses will track responses and send out reminders. All information will be published only in summary form and your individual answers **CANNOT** be identified.

We so value your input that we would like to offer you a free SARE book for completing the survey. A SARE publications order blank is enclosed. Fill out the order blank and send it with your completed survey. The book order will be separated from the survey and forwarded to Western SARE.

All questions and concerns regarding the overall study should be directed to Jim Freeburn via phone at (307) 532-8892 or via e-mail at [freeburn@uwyo.edu](mailto:freeburn@uwyo.edu) OR to Al Kurki via phone at (406) 449-0104 or via e-mail at [alk@ncat.org](mailto:alk@ncat.org).

If you have any questions about this survey, feel free to contact Sherry Betts at The University of Arizona via phone at (520) 621-3399 or via e-mail at [sbetts@ag.arizona.edu](mailto:sbetts@ag.arizona.edu).

Thank you in advance for your cooperation in making this effort a success!

Sincerely,

Sherry C. Betts, Ph.D.  
Extension Specialist/Professor

Lynne M. Borden, Ph.D.  
Associate Extension Specialist/Associate Professor

Enclosure

April 26, 2004

Thank you for participating in the recent Western SARE Professional Development Program survey. After September 1, you'll be able to see a summary of the survey results at the Western SARE website

If you ordered a SARE book, you can expect to receive it in the next two months. If you ordered SARE bulletins, you'll see those much sooner.

Thanks again,

Sherry Betts at the University of Arizona  
for  
Jim Freeburn  
Regional Coordinator  
Western SARE PDP

April 26, 2004

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# Cooperative Extension

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Division of Family Studies and Human Development, P.O. Box 210033, Tucson, Arizona 85721-0033  
Telephone: (520) 621-3399 • Fax: (520) 621-9445

February 20, 2004

Address  
City, State Zip

Dear Colleague:

About three weeks ago, you were mailed the Western SARE Survey of Extension Educators seeking your views about sustainable agriculture. As of today, your completed questionnaire has not yet been received.

For almost 10 years, the USDA's Western Region Sustainable Agriculture Research and Education Professional Development Program (WSARE PDP) has provided grants for agriculture professionals' training and education opportunities in sustainable agriculture principles, systems and practices. The results of this region-wide study will help guide and shape the WSARE PDP state and competitive grants program in the future. We strongly believe that your input is critical because of the role you play in Extension work with farmers and ranchers.

We are writing to you again because of the importance of your responses to the success of this project. For the results of this survey to truly represent the experiences and opinions of colleagues in your state and the Western region, it is essential that each person return the completed questionnaire.

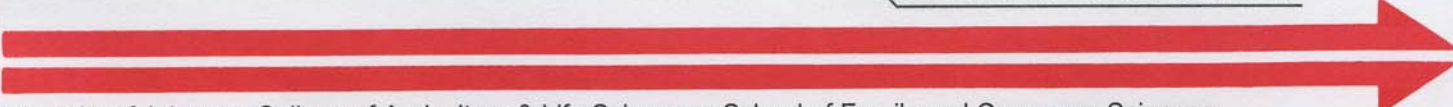
If you did not receive the questionnaire or if it got misplaced, please call Sherry Betts at (520) 621-3399 so we can get another one in the mail to you immediately. We greatly appreciate your cooperation in letting your views be known.

Sincerely,

Sherry C. Betts, Ph.D.  
Extension Specialist/Professor

Lynne M. Borden, Ph.D.  
Associate Extension Specialist/Associate Professor

# Cooperative Extension



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Telephone: (520) 621-3399 • Fax: (520) 621-9445

March 19, 2004

Address  
City, State Zip

Dear Colleague:

We are writing to you again about the Western SARE Survey of Extension Educators seeking your views about sustainable agriculture. Your completed questionnaire has not yet been received. If you believe this survey has been sent to you in error, please contact Sherry Betts at The University of Arizona via phone at (520) 621-3399 or via e-mail at sbetts@ag.arizona.edu to be removed from the mailing list.

The large number of completed questionnaires being returned is very exciting. The results of this region-wide study will help guide and shape the WSARE PDP state and competitive grants program in the future. We strongly believe that your input is critical because of the role you play in Extension work with farmers and ranchers.

The usefulness of the results, however, will depend on how accurately we are able to represent the experiences of people like you. We need your responses because you may have different experiences and views than those who have returned completed questionnaires.

We urge you to complete and return the questionnaire as quickly as possible. We would like to ensure that your responses are represented. In case the questionnaire has been misplaced, we have enclosed a replacement along with an addressed, stamped return envelope. We have also enclosed Western SARE's free book offer. If you'd like one of the publications on that list, just send the completed form back with your completed survey. We'll separate the survey from the order form and pass your order onto Western SARE.

All questions and concerns regarding the overall study should be directed to Jim Freeburn via phone at (307) 532-8892 or via e-mail at freeburn@uwyo.edu OR to Al Kurki via phone at (406) 449-0104 or via e-mail at alk@ncat.org. Contact Sherry Betts with questions about the survey.

We greatly appreciate your cooperation in letting your views be known. Watch for a summary of the survey results at the Western SARE website later this year – <http://wsare.usu.edu>.

Sincerely,

Sherry C. Betts, Ph.D.  
Extension Specialist/Professor

Lynne M. Borden, Ph.D.  
Associate Extension Specialist/Associate Professor

Enclosure

February 6, 2004

Last week you received the WSARE Survey in the mail seeking your views about sustainable agriculture. You were invited to participate because you play a critical role in Extension work with farmers and ranchers.

If you have already returned the questionnaire, please accept our sincere thanks. If not, please do so today. It is critical that your responses be included so that the results accurately represent the opinions and experiences of your state's Extension personnel.

If you did not receive the questionnaire or if it got misplaced, please call Sherry Betts at (520) 621-3399 so we can get another one in the mail to you immediately. Thank you again for your cooperation.

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