

10-1-2018

Shaping Soil Watershed Stewardship Through Combined Producer and Influencer Education: A Pilot Program

Melissa R. Wuellner
South Dakota State University

Roger Gates
South Dakota State University

Benjamin Turner
Texas A&M University

Hector M. Menendez
South Dakota State University

Recommended Citation

Wuellner, M. R., Gates, R., Turner, B., & Menendez, H. M. (2018). Shaping Soil Watershed Stewardship Through Combined Producer and Influencer Education: A Pilot Program. *Journal of Extension*, 56(6). Retrieved from <https://tigerprints.clemson.edu/joe/vol56/iss6/3>

This Research in Brief is brought to you for free and open access by TigerPrints. It has been accepted for inclusion in *Journal of Extension* by an authorized editor of TigerPrints. For more information, please contact kokeefe@clemson.edu.

Shaping Soil Watershed Stewardship Through Combined Producer and Influencer Education: A Pilot Program

Abstract

Changes in land use from grassland to row crop agriculture may contribute to environmental degradation. Outreach efforts on this topic have largely targeted producers, but interactions with "influencers" may affect producers' conservation decisions. Consequently, we conducted a pilot implementation of a 1-day workshop for both producers and influencers on soil health and its impact on watersheds. We measured producers' knowledge gains and all participants' satisfaction with the workshop content and instruction. We also collected information from all participants regarding their past, present, and potential future use of or recommendations for using conservation practices. Our results may be useful for improving future workshop offerings and other initiatives intended to connect producers and influencers in learning.

Keywords: [soil health](#), [land conversion](#), [watersheds](#), [conservation](#), [andragogy](#)

Melissa R. Wuellner
Assistant Professor
Department of Natural
Resource Management
South Dakota State
University
Brookings, South
Dakota
wuellnermr@unk.edu

Roger Gates
Professor
West River Ag Center
South Dakota State
University
Brookings, South
Dakota
roger.gates@uga.edu

Benjamin Turner
Assistant Professor
Texas A&M University–
Kingsville
Kingsville, Texas
benjamin.turner@tamuk.edu

Hector M. Menendez III
Graduate Research
Assistant
Department of Natural
Resource Management
South Dakota State
University
Brookings, South
Dakota
hector.menendez@exchange.tamu.edu

Introduction

The Western Corn Belt of the United States has experienced rapid rates of land conversion from grassland–wetland complexes to corn and soy row crop production. Between 2006 and 2011, annual land conversion rates in Iowa, Minnesota, Nebraska, North Dakota, and South Dakota varied between 1.0% and 5.4%, comparable to rainforest deforestation rates in Brazil, Indonesia, and Malaysia (Wright & Wimberly, 2013). Recent estimates show that 24% of land east of the Missouri River in South Dakota has no tillage history (Bauman, Carlson, & Butler, 2016) and that conversion is expected to continue into the future (Turner et al., 2017).

Conversion from grassland to row crop agriculture contributes to increased soil erosion (Lal, 2004; Pimentel, 2006), decreases in soil water infiltration rates (Bharati, Lee, Isenhardt, & Schultz, 2002; Gerla, 2007), and reduced water quality in wetlands, lakes, streams, and rivers due to sedimentation and nutrient runoff (Verhoeven, Arheimer, Yin, & Hefting, 2006). Loss of soils and nutrients from

converted fields affects producers as yields may decrease or inputs may increase over time (Doran, 2002).

Soil and nutrient conservation practices have become more commonly used in recent years. For example, no-till farming increased 8% on South Dakota croplands between 2004 and 2015 (Natural Resource Conservation Service, 2015). Benefits of various conservation practices have been reported in media, including popular articles, social media, radio, and television, as well as through educational efforts (e.g., workshops, field tours). The primary target audience of these efforts is most often producers. Yet producer decisions are also influenced by interactions with advisors (e.g., federal and state agents, financiers, private consultants). Very few, if any, education efforts bring together producers and these "influencers" in learning activities.

We describe a pilot program during which producers and influencers participated in a 1-day workshop on soil health and the impact that enhancing, maintaining, or degrading soil health may have in watersheds. To measure the success of the workshop and identify areas for improvement and expansion in the future, we assessed (a) knowledge gained by producers, (b) overall participant satisfaction with workshop content and instruction, (c) past and current conservation practices in use by producers or recommended by influencers, and (d) future conservation practices considered by both producers and influencers.

Methods

We conducted pilot testing of the 1-day workshop, which combined classroom activities with in-the-field demonstrations of the benefits of soil conservation practices, in three locations (Watertown, Pierre, and Sioux Falls, South Dakota). We invited both producers (i.e., farmers and ranchers) and influencers to participate, using electronic and print advertisements distributed through multiple channels, including email, websites, and online news outlets. The workshop was free to all participants. Due to the breadth of our notifications about the workshop, we assumed that our pilot project participants were representative of producers and influencers in the state.

The classroom portion of the workshop featured three speakers presenting information on the principles of soil health and the consequences of future land conversion. In-field demonstrations included the Natural Resource Conservation Service's Rainfall Simulator, a soil slake test, and a nitrate leaching test, each of which indicated the benefits of commonly promoted conservation practices and illustrated the basic soil science principles underlying them. After the classroom and in-field scientific presentations, on-farm demonstrations of successful conservation practice implementation were conducted. These demonstrations varied slightly by location, but all were held on active operations, and each addressed at least one conservation practice, such as conversion of cropland to pasture, no-till implementation, or cover crop use.

To measure the knowledge gained by producers during the workshop, we conducted a 10-question pre- and postworkshop quiz on soil health principles (see Appendix A). The quiz results were anonymous. We administered the same quiz at the start and the immediate conclusion of the workshop. We combined quiz scores across all locations to calculate medians and 90% confidence intervals for both the pre- and postworkshop administrations. We determined differences in quiz performance between the two administrations using a Mann-Whitney U-test as scores for the two administrations were

assumed to be non-normally distributed and the shapes of the score distributions were the same according to a Kolmogorov-Smirnov test ($p = .89$). Significance was determined at $\alpha = .10$.

Producers and influencers were asked to complete a postworkshop survey at the immediate conclusion of the workshop (see Appendixes B and C). Both groups were asked about their satisfaction with the workshop content and instruction. Because most questions were scaled as Likert items, we assumed that the data was non-normally distributed. We also found the shapes of the score distributions to be similar according to a Kolmogorov-Smirnov test ($p > .10$ for all questions compared). Thus, we compared differences in satisfaction with content and instruction between producers and influencers using multiple Mann-Whitney U-tests. Bonferroni corrections were applied, and significance was determined at $\alpha = .10/11$ (i.e., the total number of comparisons) = .01.

Producers' surveys also inquired about what conservation practices had been previously implemented in their operations, were in place at the time of the survey, and may be implemented in the subsequent 3 years. Influencers' surveys inquired about the conservation practices that had been recommended in the past year and may be recommended in the subsequent year. Influencers who also produced were asked the same questions about conservation practices used on their operations that producers were asked. Survey results were summarized as a percentage of the total respondents, either producers or influencers.

Results

A total of 51 participants attended one of the three workshops. Of those participants, 39 (19 producers and 20 influencers) completed the pre- and postworkshop quizzes and the surveys.

Producers made notable gains in knowledge on soil health principles. The median score on the preworkshop quiz was $70.0\% \pm 8.4\%$, compared to the postworkshop score of $80.0\% \pm 7.7\%$. However, the difference between the two administrations was not significant ($U = 48, p = .12$).

Overall, participants were generally positive toward the content and instruction of the workshop (Tables 1 and 2). No respondent reported dissatisfaction with either workshop content or instruction. No differences in responses were noted in satisfaction between producers and influencers (p -value for all comparisons $\geq .48$).

Table 1.

Satisfaction Ratings by Participating Producers (P) ($n = 19$) and Influencers (I) ($n = 20$), Reported as Percentages of Respondents, on the Content of a Soil Health Workshop

Statement	Strongly agree		Slightly agree		Neutral		Slightly disagree		Strongly disagree	
	P	I	P	I	P	I	P	I	P	I
The content of the workshop was appropriate.	73	74	27	26	0	0	0	0	0	0

I learned more about soil health in the course of this workshop.	54	53	46	32	0	16	0	0	0	0
I learned more about how to better achieve soil health in the course of this workshop.	54	42	38	47	8	11	0	0	0	0
Classroom activities were appropriate for this workshop.	54	37	31	53	15	11	0	0	0	0
Field activities were appropriate for this workshop.	77	74	23	26	0	0	0	0	0	0
I would recommend this workshop to a colleague in the future.	77	63	23	37	0	0	0	0	0	0
I would attend an additional or advanced workshop related to this topic in the future.	73	84	27	16	0	0	0	0	0	0

Table 2.

Satisfaction Ratings by Participating Producers (P) (*n* = 19) and Influencers (I) (*n* = 20), Reported as Percentages of Respondents, on the Instruction of a Soil Health Workshop

Statement	Strongly agree		Slightly agree		Neutral		Slightly disagree		Strongly disagree	
	P	I	P	I	P	I	P	I	P	I
The presenter(s) explained content clearly and concisely.	73	68	27	32	0	0	0	0	0	0
The presenter(s) answered participant questions effectively.	82	74	18	26	0	0	0	0	0	0
The presenter(s) stimulated additional learning about the workshop topic that	73	58	27	37	0	5	0	0	0	0

was not covered during the event.

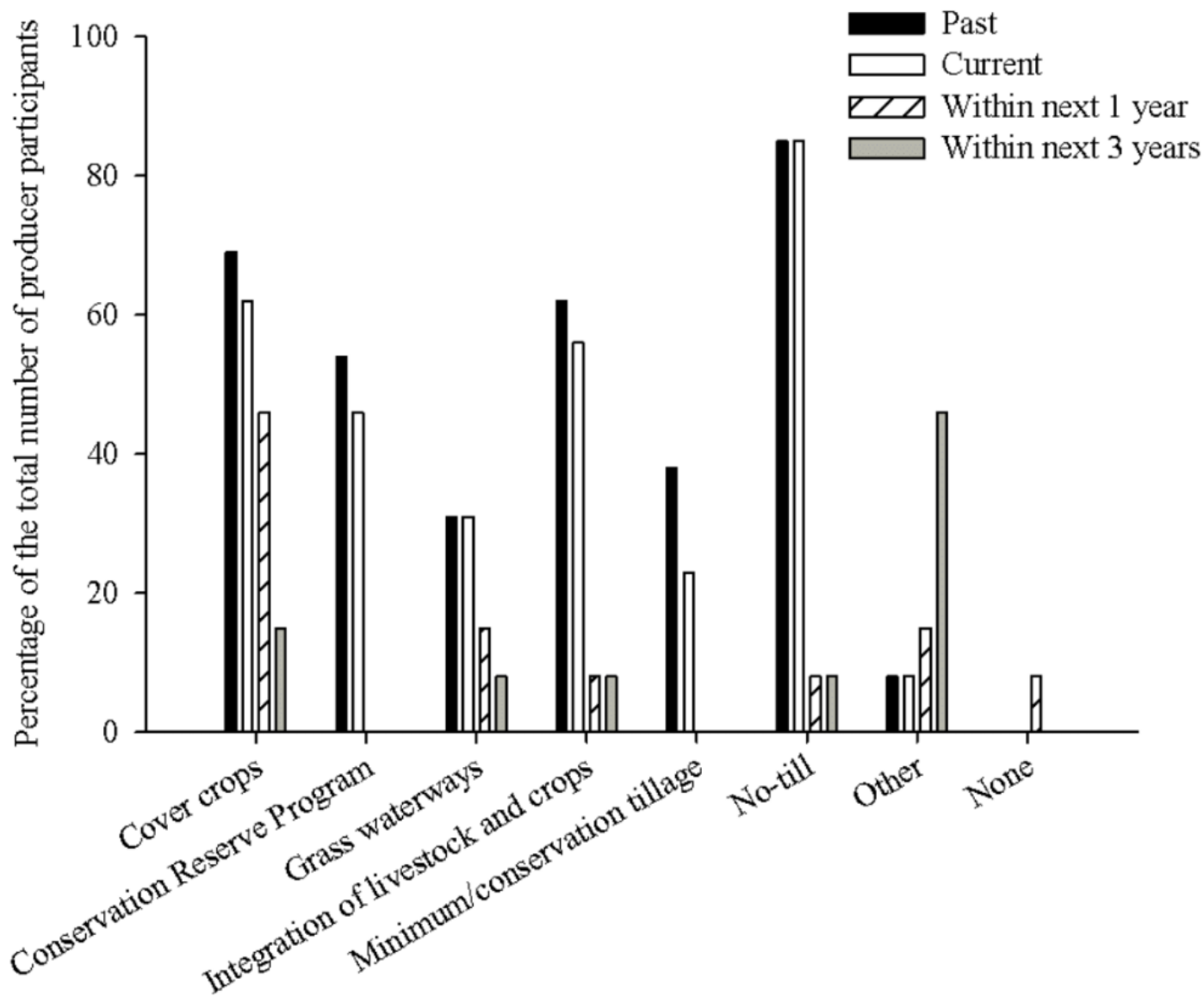
I would attend another workshop by this/these presenter(s) in the future. 82 74 18 21 0 5 0 0 0 0

I would recommend this/these presenter(s) to others in my community. 73 68 27 26 0 5 0 0 0 0

All producers had implemented at least one conservation practice on their operations in the past. No-till farming, cover crop planting, integrating livestock and crops, and enrolling land in the Conservation Reserve Program (CRP) were the most common past-use practices reported, and nearly all producers who had used these practices were still using them (Figure 1). Most producers planned to implement a new conservation practice within the subsequent year (63%) or subsequent 3 years (69%). Planting cover crops was the most common practice producers planned to try in the future (Figure 1).

Figure 1.

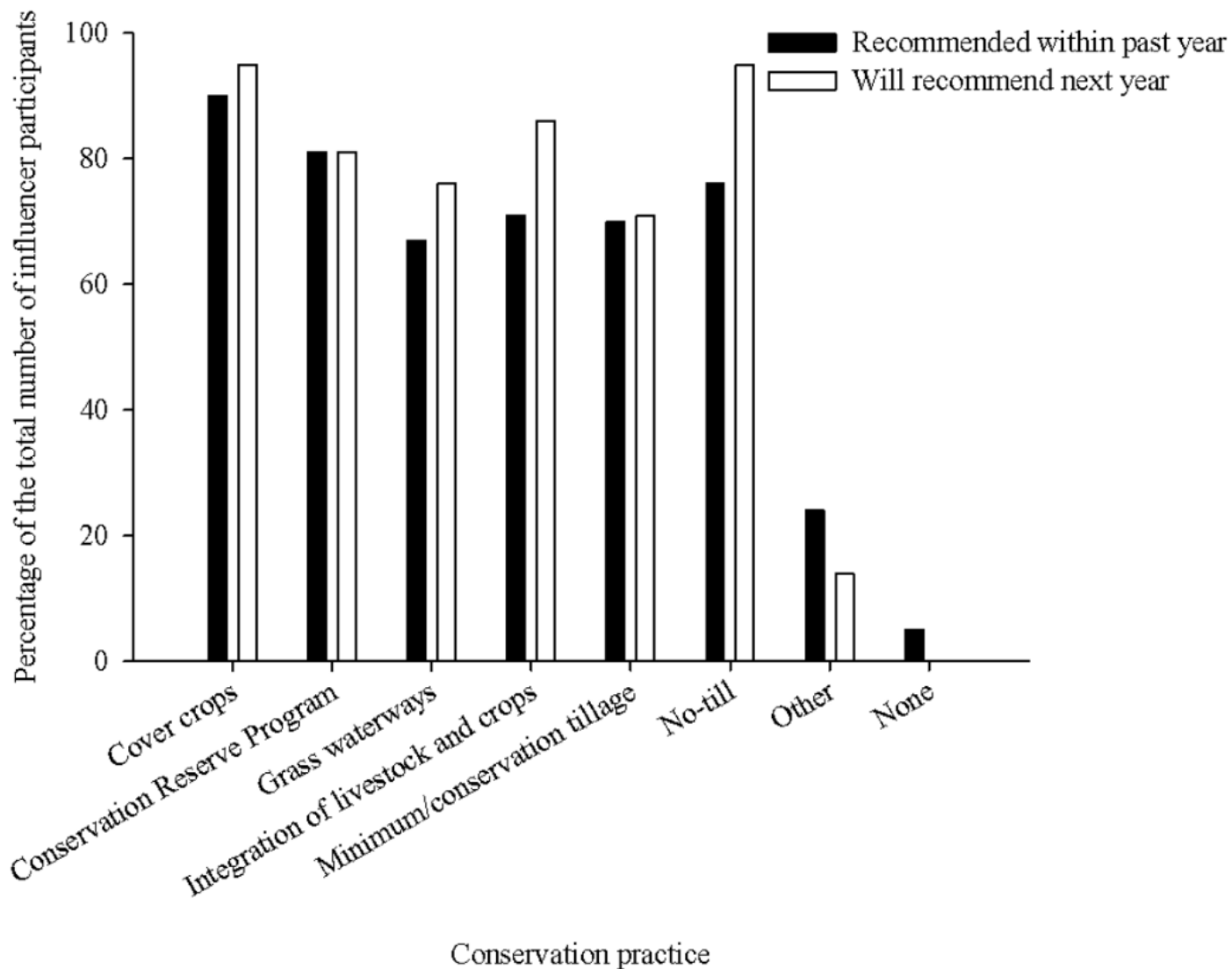
Conservation Practices that Had Been Implemented, Were Being Implemented, or Would Be Implemented by Producers (*n* = 19)



During the year preceding the workshops, most influencers had made recommendations to producers to adopt each of the identified conservation practices (Figure 2). Furthermore, most intended to continue to make those recommendations in the subsequent year (Figure 2).

Figure 2.

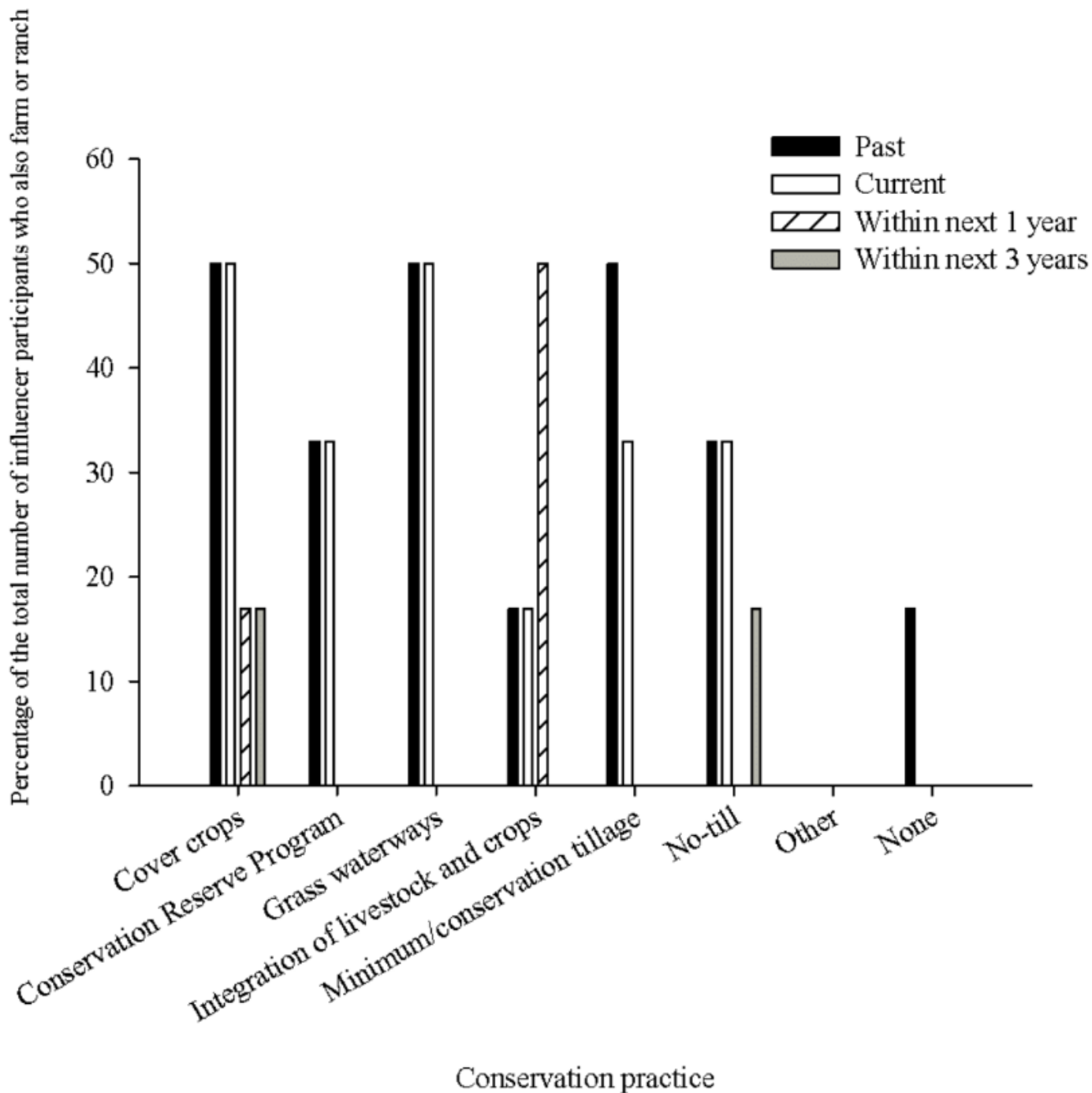
Conservation Practices that Had Been Recommended, Were Being Recommended, or Would Be Recommended by Influencers (*n* = 20)



A small number of influencers also produced ($n = 6, 32\%$). Five of these six participants (80%) had implemented some conservation practice on their operations in the past, and nearly all practices were still being used (Figure 3). The most common practices used in the past and present were cover crop and grass waterway planting and no-till farming (Figure 3). Four of the six participants (67%) planned to implement a new conservation practice within the subsequent year or subsequent 3 years. Integrating livestock and crops, planting cover crops, and implementing no-till farming and were practices influencers planned to try in the future (Figure 3).

Figure 3.

Conservation Practices that Had Been Implemented, Were Being Implemented, or Would Be Implemented by Influencers Who also Farmed or Ranched ($n = 6$)



Discussion

Overall, both producers and influencers seemed to have learned or had positive experiences at the workshops and were satisfied with the quality of both the content and the instruction.

Some gains in soil health knowledge were noted among producers, though these results were not statistically significant. There may be at least two explanations for these results. First, producers who participated in the workshop were likely already knowledgeable on the subject. Many were members of conservation organizations such as the South Dakota Soil Health Coalition or South Dakota Grassland Coalition. Thus, their life experiences as producers and interactions with members of these groups likely contributed to their prior expertise on the subject of the benefits of conservation practices. Second, our

results are based on a small and nonrandom sample. Future workshops might be targeted to a wider audience that would include more diverse participants (i.e., those who are members of other organizations, those without a conservation focus).

Relatively high levels of satisfaction with workshop content and instruction reported by both producers and influencers were another marker of success. We believe that much of our success is due to the substantial and helpful suggestions we received from several groups of producers and influencers during the workshop planning phase. This input was used to identify the best time of year for the workshop, the length and structure of the workshop agenda, and the most engaging learning activities. These same groups also helped advertise the events on our behalf through their distribution channels (e.g., newsletter, electronic mailing list). We recommend that others developing such workshops follow a similar approach to planning and promotion.

A second probable reason for the high participant satisfaction we observed was our instructional approach that combined both classroom and in-the-field demonstrations. This approach likely met the desires of our adult learners. Researchers in adult learning theory (i.e., andragogy) have suggested that adult learners often learn best when learning is problem centered rather than subject centered (Dollisso & Martin, 1999; Knowles, Swanson, & Holton, 2005). Further, adults' readiness to learn is stimulated by their motivation to "enhance their place in society" (Strong, Harder, & Carter, 2010, p. 2). The themes of enhancing soil health and the environmental consequences of land-use change were emphasized during the classroom portion of the workshop. We believe that the focus on these personal and societal issues may have stimulated learners to find out more during the field demonstrations about the practical solutions that can be implemented to address these issues. Our demonstrating these practices and their benefits on working farms helped participants understand how various management actions (e.g., restoring pastures, planting cover crops) may benefit individual properties and society.

Some of our achievements in learning and satisfaction should be interpreted cautiously. It may be likely that most, if not all, of our producers were previously conservation oriented or "early adopters" of conservation practices as evidenced by membership in one or both of the conservation organizations named previously or a previous history of adoption of conservation practices. Future offerings of the program should include a broader range of producers (including those with little or no previous history of organization membership or conservation adoption) so that an evaluation can be made as to whether similar gains occur among those audiences as compared to participants in the events described here.

In addition to our results on learner knowledge gains and satisfaction, some of the results we found from our postworkshop survey questions revealed interesting patterns. Specifically, producers' past and current conservation practices do not completely match with those recommended or used by influencers. For example, influencers who also produce implemented grass waterways at a higher rate than the other producers in our audience. A possible reason for this observed difference is that influencers likely have other forms of income and are therefore more willing to reduce their cultivated landscape for conservation purposes, whereas producers relying solely on income from agricultural production are more sensitive to the income foregone due to reduced cultivated area. As a point of comparison, adoption of grass waterways by beef cattle operators in Texas has been significantly related to income, membership in a livestock organization, and operator gender (Peterson, 2014). In general, we could not use surveys or interviews of workshop participants to understand why various conservation practices were adopted or not.

In all, we were able to deliver a successful workshop that met the learning expectations of both producers and influencers. We hope to expand on our accomplishments on the basis of what we learned, reach a wider audience, and gain further knowledge on how to bring together both of these groups to advance on-the-ground conservation in future workshops. In addition, the lessons we learned from this pilot project can be used by Extension professionals to build similar workshops that bring together producers and influencers into a mutual learning experience.

Author Notes

The affiliations of several members of our author team have changed since completion of our research. Contact information for first author Melissa Wuellner is now as follows: 2401 11th Avenue, Bruner Hall of Science, University of Nebraska at Kearney, Kearney, NE 68849; 308-865-8006. Contact information for Roger Gates is now as follows: College of Agricultural and Natural Resources, Whitfield County Extension, P.O. Box 1385, 104 South Thornton Avenue, Dalton, GA 30722-1385. Contact information for Hector Menendez is now as follows: Texas A&M AgriLife Research, Agriculture and Life Sciences Building, 600 John Kimbrough Boulevard, Suite 512, Mail Stop 2142, College Station, TX 77843.

Acknowledgments

The work reported here was supported by an Environmental Protection Agency Section 319 Information and Education Project grant administered through the South Dakota Discovery Center and the U.S. Department of Agriculture National Institute of Food and Agriculture Hatch Project [Accession Number: 1003233]. We thank the South Dakota Soil Health Coalition and South Dakota Grasslands Coalition and several South Dakota Natural Resource Conservation Services personnel (Dillon Blaha, James Dylla, Collette Kessler, and Deron Reusch) for their support and advice in making our workshop successful. Our deepest appreciation is extended to Jay Fuhrer, soil health specialist with the Natural Resource Conservation Service, for substantial contribution to our workshop as an instructor and demonstrator and to the producers who volunteered their operations for field demonstrations (Tony Gelderman, Barry and Eli Little, Al Miron, and Levi and Crystal Neuharth). Finally, we thank the producers and influencers who participated in our workshop and provided the data presented.

References

- Bauman, P., Carlson, B., & Butler, T. (2016). *Quantifying undisturbed (native) lands in eastern South Dakota: 2013*. Retrieved from <https://igrow.org/up/resources/07-2001-2016.pdf>
- Bharati, L., Lee, K.-H., Isenhardt, T. M., & Schultz, R. C. (2002). Soil-water infiltration under crops, pasture, and established riparian buffer in midwestern USA. *Agroforestry Systems*, 56(3), 259–267. doi:10.1023/A:1021344807285
- Dollisso, A. D., & Martin, R. A. (1999). Perceptions regarding adult learners' motivation to participate in educational programs. *Journal of Agricultural Education*, 40(4), 38–46.
- Doran, J. W. (2002). Soil health and global sustainability: Translating science into practice. *Agriculture, Ecosystems and Environment*, 88(2), 119–127. doi:10.1016/S0167-8809(01)00246-8
- Gerla, P. J. (2007). Estimating the effect of cropland to prairie conservation on peak storm run-off. *Restoration Ecology*, 15(4), 720–730. doi:10.1111/j.1526-100X.2007.00284.x

Knowles, M. S., Swanson, R. A., & Holton, E. F., III (2005). *The adult learner: The definitive classic in adult education and human resource development* (6th ed.). San Diego, CA: Elsevier.

Lal, R. (2004). Soil carbon sequestration impact on global climate change and food security. *Science*, 304(5677), 1623–1627. doi:10.1126/science.1097396

Natural Resource Conservation Service. (2015). *Cropping systems in South Dakota: A 2015 inventory and review*. Retrieved from <https://www.nrcs.usda.gov/wps/portal/nrcs/site/sd/home/>

Peterson, J. L. (2014). *Factors influencing adoption of water quality best management practices by Texas beef cattle producers* (Unpublished doctoral dissertation). Texas A & M University, College Station, TX.

Pimentel, D. (2006). Soil erosion: A food and environmental threat. *Environment, Development, and Sustainability*, 6(4), 221–226. doi:10.1007/s10668-005-1262-8

Strong, R., Harder, A., & Carter, H. (2010). Agricultural Extension agents' perceptions of effective teaching strategies for adult learners in the master beef producer program. *Journal of Extension*, 48(3), Article 3RIB2. Available at: <https://www.joe.org/joe/2010june/rb2.php>

Turner, B. L., Wuellner, M., Nichols, T., Dunn, B., Gates, R., & Tedeschi, L. O. (2017). A systems approach to forecast agricultural land transformation from economic, policy, and cultural scenarios in the north central United States (2012–2062). *International Journal of Agricultural Sustainability*, 15(2), 102–123. doi:10.1080/14735903.2017.1288029

Verhoeven, J. T. A., Arheimer, B., Yin, C., & Hefting, M. M. (2006). Regional and global concerns over wetlands and water quality. *Trends in Ecology and Evolution*, 21(2), 96–103. doi:10.1016/j.tree.2005.11.015

Wright, C. K., & Wimberly, M. C. (2013). Recent land use change in the Western Corn Belt threatens grasslands and wetlands. *Proceedings of the National Academy of Sciences*, 110(10), 4134–4139. doi:10.1073/pnas.1215404110

Appendix A

Voluntary Soil Health Principles Pre- and Postworkshop Quiz Administered to Producers Who Participated in a Soil Health Workshop

Directions: Please read and answer each of the following questions to the best of your knowledge. Results of this quiz will not be identified by individual, so please do not put your name on the top of this page.

- 1) Which of the following definitions best describes the term "soil health"? (Select the single best answer.)
 - a) the continued capacity of soil to function to support either row crop production and/or grazing
 - b) the capacity of soil to respond to agricultural intervention
 - c) a well-draining soil that needs very little external inputs in order to be productive
 - d) the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans
 - e) None of the above

- 2) If a landowner converts grazing lands to row crop production, how far downstream will his or her neighbors experience any effects? (Select the single best answer.)
 - a) 5 miles
 - b) 10 miles
 - c) 20 miles
 - d) 50 miles or more
 - e) I don't know.

- 3) Which of the following definitions best describes the term "soil resilience"? (Select the single best answer.)
 - a) the ability of a soil to resist or recover the healthy state in response to destabilizing influences
 - b) the capacity of soil to take up important nutrients such as phosphorous and nitrogen
 - c) the ability of a soil to avoid animal or plant pest infestations
 - d) the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans
 - e) None of the above

- 4) True or False (Circle one): Everyone on Earth lives in a watershed.

- 5) Under current economic, policy, and cultural conditions, the rate of conversion of grasslands to row crop agriculture is expected to _____ over the next 50 years. (Select the single best

answer.)

- a) increase
- b) decrease
- c) stay the same
- d) I don't know.

6) Which of the following definitions best describes the term "soil externality"? (Select the single best answer.)

- a) impacts of soil organic matter and soil site stability due to switching land uses
- b) impacts of soil loss and/or change in soil properties due to a management system
- c) impacts of soil loss and/or change in soil properties felt by others due to a particular management system
- d) impacts of soil conservation practices to enhance soil organic matter and stability

7) What is the "glue" that holds soil together?

- a) glucose
- b) glomalin
- c) ghrelin
- d) glyoxalin
- e) I don't know.

8) Which of the following are keys to achieving soil health? (Select **ALL** that apply.)

- a) Minimizing soil disturbance
- b) Providing soil armor (cover)
- c) Always having live roots growing in the soil
- d) Using diverse plants, rotations and (where possible) animals
- e) Using only the manufacturer's recommended amount of fertilizers or pesticides

9) Which of the following best describes the definition of a "land steward"? (Select the single best answer.)

- a) Someone who's land is pristine, showing no signs of flaws or poor management.
- b) Someone entrusted with something with the understanding that it will be returned in the same or better condition than when it was given.
- c) Someone whom others in the community aspire to be like in terms of land productivity.
- d) Someone who follows all land management recommendations to the letter.

e) Not sure.

10) Using cover crops to manage or reduce soil loss can _____ a producer's risk of his/her land becoming infested with weeds or animal pests. (Select the single best answer.)

a) increase

b) decrease

c) neither increase nor decrease

d) Not sure.

Thank you for your participation in this quiz!

Appendix B

Voluntary Producer Postworkshop Survey Administered to Producers Who Participated in a Soil Health Workshop

Dear Workshop Participant:

Thank you very much for participating in today's workshop! We request your feedback on your experience in order to help us improve future workshops like this one. Please complete the short survey below before you depart today. We realize that your time is valuable and have attempted to keep the requested information as brief and concise as possible. It will take approximately 5-10 minutes of your time. Your participation in this project is voluntary. You may elect to withdraw from this survey at any time without consequence.

There are no known risks or direct benefits to you for participating in this survey. Your responses are strictly confidential. When the data and analysis are presented, you will not be linked to the data by your name, title, or any other identifying item. Please do not put your name on this survey form so that we can ensure that the data are anonymous. When you are finished, please return the completed survey in the enclosed envelope.

Your consent is implied by the return of the completed questionnaire. Please keep this letter for your information. If you have any questions, now or later, you may contact us at the number below. Thank you very much for your time and assistance. If you have any questions regarding your rights as a research participant in this study, you may contact the SDSU Research Compliance Coordinator at 605-688-6975, SDSU.IRB@sdstate.edu.

Sincerely,
Melissa Wuellner
Roger Gates
Ben Turner
Hector Menendez

This project has been approved by the SDSU Institutional Review Board, Approval No.: IRB-1606004-EXM.

1) What conservation practices have you implemented on your property in the past? (Select all that apply.)

- Cover crops
- Enrollment of land in Conservation Reserve Program
- Grass waterways
- Integration of livestock and crops
- Minimum or conservation tillage
- No-till

Other Please describe: _____

I have yet to implement any of the above conservation practices on my property.
(If selected, please skip to Question #3)

2) Which of the conservation practices identified in Question #1 are currently functional on your operation? (Select all that apply.)

Cover crops

Enrollment of land in Conservation Reserve Program

Grass waterways

Integration of livestock and crops

Minimum or conservation tillage

No-till

Other Please describe: _____

3) Are you considering implementing any new conservation practices within the next year?

Yes

No **(If selected, please skip to Question #5.)**

Not sure **(If selected, please skip to Question #5.)**

4) Which of the conservation practices are you considering implementing within the next year? (Select all that apply.)

Cover crops

Enrolling land in Conservation Reserve Program

Grass waterways

Integration of livestock and crops

Minimum or conservation tillage

No-till

Other Please describe: _____

5) Are you considering implementing any new conservation practices within the next three years?

Yes

No **(If selected, please skip to Question #7.)**

Not sure **(If selected, please skip to Question #7.)**

6) Which of the conservation practices are you considering implementing within the next three years? (Select all that apply.)

Cover crops

Enrollment of acres in the Conservation Reserve Program

Grass waterways

Integration of livestock and crops

- Minimum or conservation tillage
- No-till
- Other Please describe: _____

7) Rate your level of agreement with each of the following aspects of the workshop's content by circling one number for each statement.

(5 = Strongly agree; 4 = Slightly agree; 3 = Neutral; 2 = Slightly disagree; 1 = Strongly disagree; 0 = Not applicable/ Don't know.)

The content of the workshop was appropriate.	5	4	3	2	1	0
I learned more about soil health in the course of this workshop.	5	4	3	2	1	0
I learned more about how to better achieve soil health in the course of this workshop.	5	4	3	2	1	0
Classroom activities were appropriate for the topic.	5	4	3	2	1	0
Field activities were appropriate for this topic.	5	4	3	2	1	0
I would recommend this workshop to a colleague in the future.	5	4	3	2	1	0
I would attend an additional or advanced workshop related to this topic in the future.	5	4	3	2	1	0

**If you rated "slightly disagree" or "strongly disagree" on any of the statements listed above, please provide additional explanation of your ratings below:

8) Rate your level of agreement with each of the following aspects of the workshop's presenter(s) by circling one number for each statement.

(5 = Strongly agree; 4 = Slightly agree; 3 = Neutral; 2 = Slightly disagree; 1 = Strongly disagree; 0 = Not applicable/ Don't know.)

The presenter(s) explained content clearly and concisely.	5	4	3	2	1	0
The presenter(s) answered participant questions effectively.	5	4	3	2	1	0
The presenter(s) stimulated additional learning about the workshop topic that was not covered during the event.	5	4	3	2	1	0
I would attend another workshop by this/these presenter(s) in the future.	5	4	3	2	1	0
I would recommend this/these presenter(s) to others in my community.	5	4	3	2	1	0

****If you rated "slightly disagree" or "strongly disagree" on any of the statements listed above, please provide additional explanation of your ratings below:**

9) Please briefly share with us why you decided to attend this workshop today?

10) Where did you hear about this workshop? (Select all that apply.)

iGrow Website

Newspaper

Online newsletter

Radio

Other Please describe: _____

11) OPTIONAL: Approximately how many acres is your operation? _____ acres

Appendix C

Voluntary Soil Health Principles Pre- and Postworkshop Quiz Administered to Influencers Who Participated in a Soil Health Workshop

Dear Workshop Participant:

Thank you very much for participating in today's workshop! We request your feedback on your experience in order to help us improve future workshops like this one. Please complete the short survey below before you depart today. We realize that your time is valuable and have attempted to keep the requested information as brief and concise as possible. It will take approximately 5-10 minutes of your time. Your participation in this project is voluntary. You may elect to withdraw from this survey at any time without consequence.

There are no known risks or direct benefits to you for participating in this survey. Your responses are strictly confidential. When the data and analysis are presented, you will not be linked to the data by your name, title, or any other identifying item. Please do not put your name on this survey form so that we can ensure that the data are anonymous. When you are finished, please return the completed survey in the enclosed envelope.

Your consent is implied by the return of the completed questionnaire. Please keep this letter for your information. If you have any questions, now or later, you may contact us at the number below. Thank you very much for your time and assistance. If you have any questions regarding your rights as a research participant in this study, you may contact the SDSU Research Compliance Coordinator at 605-688-6975, SDSU.IRB@sdstate.edu.

Sincerely,
Melissa Wuellner
Roger Gates
Ben Turner
Hector Menendez

This project has been approved by the SDSU Institutional Review Board, Approval No.: IRB-1606004-EXM.

1) Which conservation practices have you recommended to your clients in the past year? (Select all that apply.)

- Cover crops
- Enrollment of land in Conservation Reserve Program
- Grass waterways
- Integration of livestock and crops
- Minimum or conservation tillage

- No-till
- Other Please describe: _____
- I have yet to implement any of the above conservation practices on my property.

2) Which conservation practices will you recommend to your clients in the next year?
(Select all that apply.)

- Cover crops
- Enrollment of land in Conservation Reserve Program
- Grass waterways
- Integration of livestock and crops
- Minimum or conservation tillage
- No-till
- Other Please describe: _____
- Not sure.
- I have no plans to recommend any specific conservation practices to my clients in the next year.

3) Do you also farm or ranch on your personal property?

- Yes
- No **(If selected, please proceed to Question #10.)**

4) What conservation practices have you implemented on your property in the past? (Select all that apply.)

- Cover crops
- Enrollment of land in Conservation Reserve Program
- Grass waterways
- Integration of livestock and crops
- Minimum or conservation tillage
- No-till
- Other Please describe: _____
- I have yet to implement any of the above conservation practices on my property.
(If selected, please skip to Question #10)

5) Which of the conservation practices identified in Question #4 are currently functional on your operation? (Select all that apply.)

- Cover crops
- Enrollment of land in Conservation Reserve Program
- Grass waterways
- Integration of livestock and crops
- Minimum or conservation tillage
- No-till

Other Please describe: _____

6) Are you considering implementing any new conservation practices within the next year?

- Yes
- No **(If selected, please skip to Question #8.)**
- Not sure **(If selected, please skip to Question #8.)**

7) Which of the following conservation practices are you considering implementing within the next year?
(Select all that apply.)

- Cover crops
- Enrolling land in Conservation Reserve Program
- Grass waterways
- Integration of livestock and crops
- Minimum or conservation tillage
- No-till
- Other Please describe: _____

8) Are you considering implementing any new conservation practices within the next three years?

- Yes
- No **(If selected, please skip to Question #10.)**
- Not sure **(If selected, please skip to Question #10.)**

9) Which of the conservation practices are you considering implementing within the next three years?
(Select all that apply.)

- Cover crops
- Enrollment of acres in the Conservation Reserve Program
- Grass waterways
- Integration of livestock and crops
- Minimum or conservation tillage
- No-till
- Other Please describe: _____

10) Rate your level of agreement with each of the following aspects of the workshop's content by circling one number for each statement.

(5 = Strongly agree; 4 = Slightly agree; 3 = Neutral; 2 = Slightly disagree; 1 = Strongly disagree; 0 = Not applicable/ Don't know.)

The content of the workshop was appropriate.	5	4	3	2	1	0
I learned more about soil health in the course of this workshop.	5	4	3	2	1	0
I learned more about how to better achieve soil health in	5	4	3	2	1	0

the course of this workshop.

Classroom activities were appropriate for the topic. 5 4 3 2 1 0

Field activities were appropriate for this topic. 5 4 3 2 1 0

I would recommend this workshop to a colleague in the future. 5 4 3 2 1 0

I would attend an additional or advanced workshop related to this topic in the future. 5 4 3 2 1 0

**If you rated "slightly disagree" or "strongly disagree" on any of the statements listed above, please provide additional explanation of your ratings below:

11) Rate your level of agreement with each of the following aspects of the workshop's presenter(s) by circling one number for each statement.

(5 = Strongly agree; 4 = Slightly agree; 3 = Neutral; 2 = Slightly disagree; 1 = Strongly disagree; 0 = Not applicable/ Don't know.)

The presenter(s) explained content clearly and concisely. 5 4 3 2 1 0

The presenter(s) answered participant questions effectively. 5 4 3 2 1 0

The presenter(s) stimulated additional learning about the workshop topic that was not covered during the event. 5 4 3 2 1 0

I would attend another workshop by this/these presenter(s) in the future. 5 4 3 2 1 0

I would recommend this/these presenter(s) to others in my community. 5 4 3 2 1 0

**If you rated "slightly disagree" or "strongly disagree" on any of the statements listed above, please provide additional explanation of your ratings below:

12) Please briefly share with us why you decided to attend this workshop today?

13) Where did you hear about this workshop? (Select all that apply.)

- iGrow Website
- Newspaper
- Online newsletter
- Radio
- Other Please describe: _____

14) OPTIONAL: If you also farm or ranch, approximately how many acres is your operation?
_____ acres

Copyright © by *Extension Journal, Inc.* ISSN 1077-5315. Articles appearing in the Journal become the property of the Journal. Single copies of articles may be reproduced in electronic or print form for use in educational or training activities. Inclusion of articles in other publications, electronic sources, or systematic large-scale distribution may be done only with prior electronic or written permission of the Journal Editorial Office, joe-ed@joe.org.

If you have difficulties viewing or printing this page, please contact [JOE Technical Support](#)