

## Final SSARE Soil for Water Report: September 2024

This report summarizes cumulative evaluation data for the entire grant award period (September 2021 - September 2024) for NCAT’s SSARE-funded Soil for Water project based in Arkansas, Mississippi, Texas, and Virginia. It includes summaries of the following evaluation data:

- Workshop and other event data collected through participant surveys
- Comparative analysis of knowledge system mapping exercises conducted at the beginning and end of the project period for each of the four states
- Content analysis of 58 project publications
- A focus group discussion with the state coordinators

### Workshop evaluations

The primary way in which Soil for Water project activities were evaluated and participant feedback was gathered was through post-event surveys. Overall, event evaluation data is limited, with survey data collected for only a small proportion of all Soil for Water events throughout the program period. Throughout the project, event information—including the number of participants in attendance—was tracked using NCAT’s online tracking system (Intranet). However, not all Soil for Water events through the SSARE project were recorded on Intranet and only a small proportion of total participants completed a post-event survey.

A list of project events that were recorded through Intranet throughout the project period are provided in Table 1 below along with their evaluation status and the number of participants. In total, 2,657 participants attended 68 events. Of those, evaluation data was recorded for 404 participants, or 15% of the total known participants.

Date of event	State	Event name	Number of attendees	Evaluation (Y/N)?
5/15/2021	TX	Texas Legends Workshop	55	Yes
9/11/2021	TX	Texas Legends Workshop II	35	No
9/20/2021	Virtual	Growing Community and Climate Resilience	111	No
9/27/2021	Virtual	Collaborating with the Essential Workforce of Other Species	no data	No
9/30/2021	Virtual	Measuring Change for Longterm Success	no data	No
10/4/2021	Virtual	Money, Life, and Land	no data	No
10/27/2021	TX	Ogallala Field Day	no data	No
1/13/2022	virtual	Soil for Water presentation at Texas Hispanic Farmer & Rancher Conference	30	No
1/22/2022	VA	Lee Rinehart presentation at Virginia Association for Biological Farming conference	350	No
3/16/2022	Virtual	Soil for Water presentation at Soil Health Innovation Conference	6	Yes
4/23/2022	AR	Profitable Production on Pastures: Grazing for Soil and Water	24	Yes
4/23/2022	AR	Profitable Production on Pastures: Grazing for Soil and Water	24	Yes
4/26/2022	virtual	All-state meeting	25	No

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6/11/2022	AR	Pasture Walk at Stan and Coral Oller farm	50	No
7/18/2022	Virtual	Soil Health Academy (scholarship)	16	No
7/19/2022	AR	Soil for Water ARKANSAS Core Group	9	No
7/21/2022	virtual	Regenerative lunch series: Ann Wells	21	No
8/24/2022	virtual	Regenerative lunch series: Kelly Lyons	12	No
9/10/2022	AR	Maginot Farm Pasture Walk	57	No
9/14/2022	virtual	Regenerative Grazing with Travis Krause of Grazing Lands	50	Yes
9/21/2022	virtual	Regenerative lunch series: Barbara Bellows	12	No
9/22/2022	Virtual	Drought resilient agriculture webinar series	138	Yes
10/13/2022	MS	Soil for Water: Burch Farm Tour	25	No
10/21/2022	TX	Regenerative grazing and soil health: on-farm workshop w/ Travis Krause	12	Yes
10/21/2022	TX	Pasture Walk: Regenerative Grazing w/ Travis Krause	12	yes
11/18/2022	AR	Profitable Regenerative Grazing	63	Yes
11/22/2022	Virtual	What is Holistic Management?	27	No
12/1/2022	Virtual	Let's talk regenerative grazing	42	Yes
12/14/2022	Virtual	Women, Livestock, and the Land gathering	8	No
12/15/2022	Virtual	Women, Livestock, and the Land gathering	6	No
12/16/2022	Virtual	Conservation Champions Training	10	No
2/9/2023	Virtual	Regenerative grazing in the mid-Atlantic	35	Yes
2/15/2023	TX	Feed Your Soil Urban Farm Workshop	47	No
3/30/2023	Virtual	Regenerative grazing in the mid-Atlantic	57	yes
3/31/2023	TX	Pasture Walk: Multispecies grazing and marketing	23	No
4/5/2023	VA	Regenerative grazing cover crop field day	45	yes
4/6/2023	VA	Regenerative grazing field day	59	yes
4/13/2023	Virtual	All-state meeting	28	No
4/15/2023	AR	S4W/Grassroots Group pasture walk: Emily Jost	38	No
4/28/2023	AR	RAMP kickoff meeting	13	No
5/5/2023	AR	Grazing 101: AR Grazing school	50	Yes
5/5/2023	TX	Grazing workshop	25	No
5/11/2023	Virtual	Regenerative Grazing in the Southwest: Adam Isaacs	40	yes
5/18/2023	TX	Regenerative Grazing in Action: Safe to Fail Trials	25	no
6/9/2023	TX	Regenerative Grazing in Action: Safe to Fail Trials	7	yes
6/15/2023	Virtual	Regenerative Grazing in the Southwest: Philip Boyd	44	yes
7/24/2023	AR	Working effectively with livestock producers (WELP)	31	no
7/28/2023	VA	Grazing with warm season grasses	6	yes
8/22/2023	VA	Soil Health Field day	71	no
10/24/2023	AR	HMI RAMP meeting	7	no
10/28/2023	AR	Small ruminant field day	55	no
11/2/2023	TX	Webb County Soil and Water Conservation District Field Day	63	no
11/9/2023	Virtual	Sheep grazing for Soil Health	55	no
11/18/2023	AR	GGG Pasture Walk	12	no
11/30/2023	Virtual	AR Soil for Water Core Group meeting	9	no

12/7/2023	AR	HMI RAMP meeting	7	no
12/11/2023	VA	VA Farm to Table Conference	220	no
2/3/2024	AR	GGG Winter Conference	57	yes
3/2/2024	TX	Kleberg-Kennedy SWCD Soil Health Workshop	105	no
4/27/2024	AR	GGG Pasture Walk	25	no
5/18/2024	AR	Soil for Water Field Day/GGG Pasture Walk	14	no
6/15/2024	AR	GGG Pasture Walk	37	no
8/3/2024	AR	Screening of "Roots so Deep" GGG	20	no
8/15/2024	Virtual	A Journey to Regenerative Grazing with Servando Leal	18	no
8/22/2024	Virtual	Things We've Learned: Safe to Fail Trials Part 2	20	no
8/24/2024	AR	Screening of "Roots so Deep" GGG	13	no
9/6/2024	TX	Grazing Management Workshop Uvalde	46	no
<b>Total number of participants</b>			<b>2657*</b>	

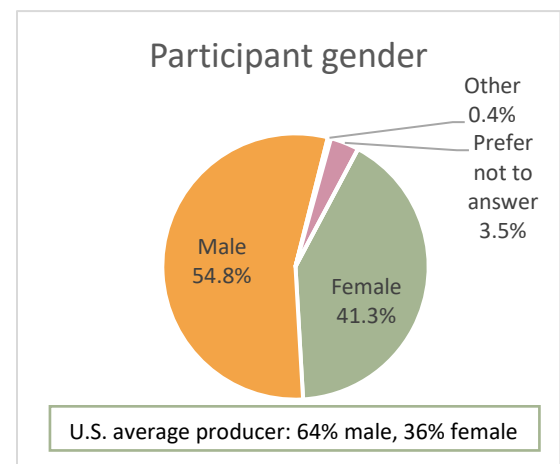
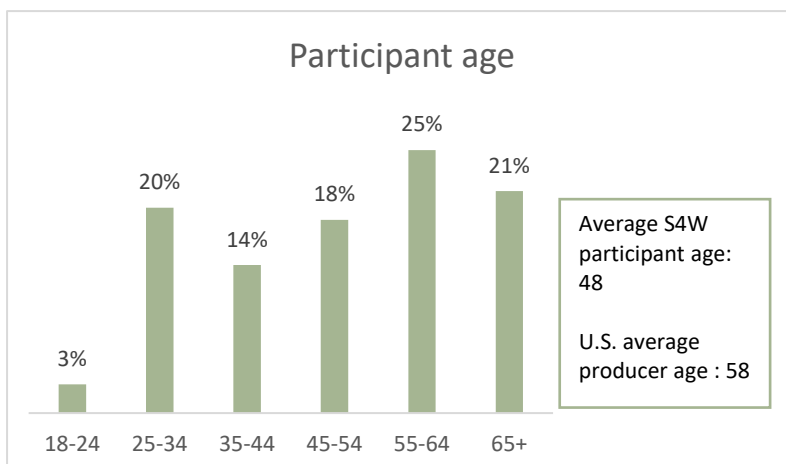
\*Note: total number of participants are not unique, individuals may have attended multiple events

## Soil for Water events

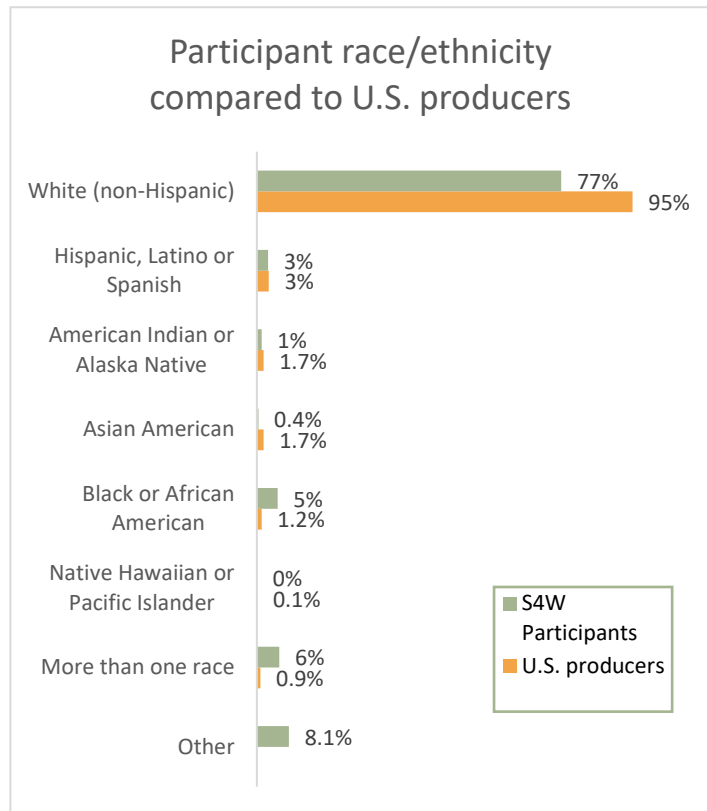
### Participant profile

Of the events where evaluation data was captured, about two-thirds (64%) included questions about demographic and additional participant information. Participant characteristics are detailed below for the 260 participants who provided this information.

In general, the age of participants varied quite a bit, with significant participation from all age groups, except for the youngest (18-34), which only had a handful of participants. Overall, the average age of the producers participating in SSARE Soil for Water events was 48, ten years younger than the average U.S. producer based on 2022 Census of Agriculture data (USDA NASS, 2022). The majority of producers participating in events were male (55%), however, the proportion of female participants (41%) was higher than the average among U.S. producers (36%).

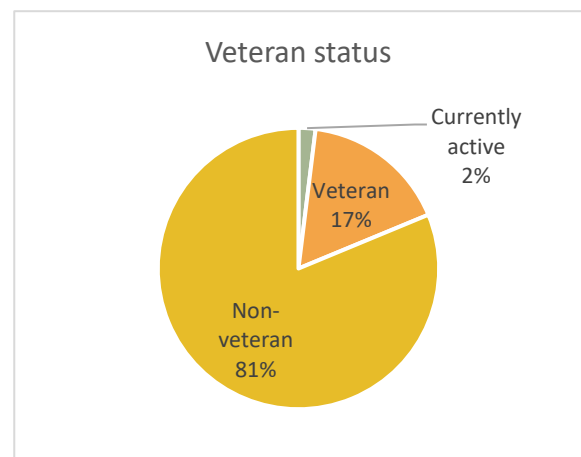


Over three-quarters (77%) of participants identified as White (non-Hispanic), however, racial and ethnic diversity among participants was considerably higher than U.S. producers in general. Approximately 15% of participants identified as a race or ethnicity other than White, whereas only 5% of U.S. producers identified as non-White. In particular, the proportion of participants who identified as Black or African American and more than one race were notably higher than the U.S. average.



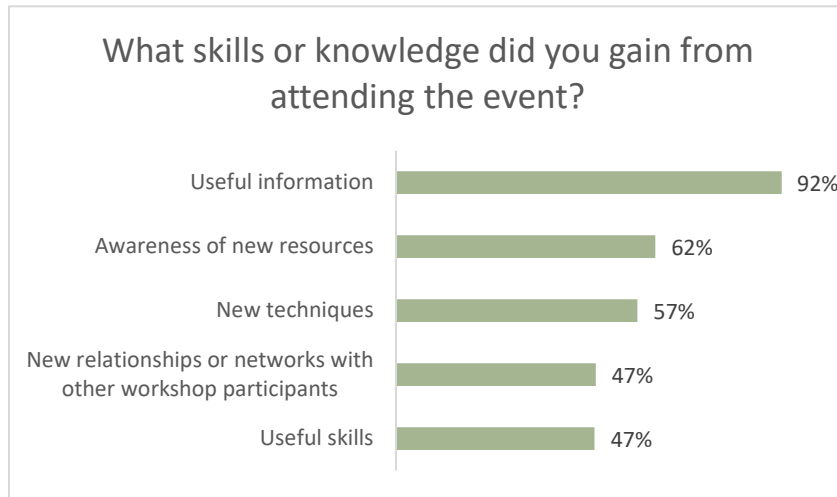
In addition to demographic information, participants were also asked if they were currently operating as a commercial producer (currently selling their products for profit) and about their veteran status. Among the participants completing an evaluation, over one-third (39%) reported being a commercial producer. Among Soil for Water event participants, 17% identified as veterans and 2% reported being currently active in the military.

Nationally, 9% of U.S. producers identify as veterans, suggesting that Soil for Water events served a notably higher proportion of veterans.

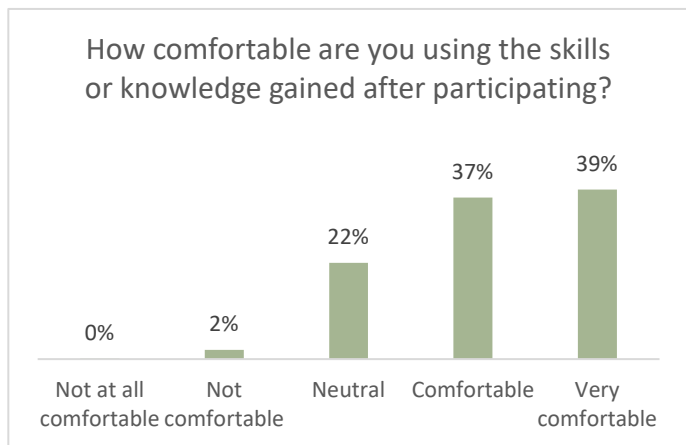
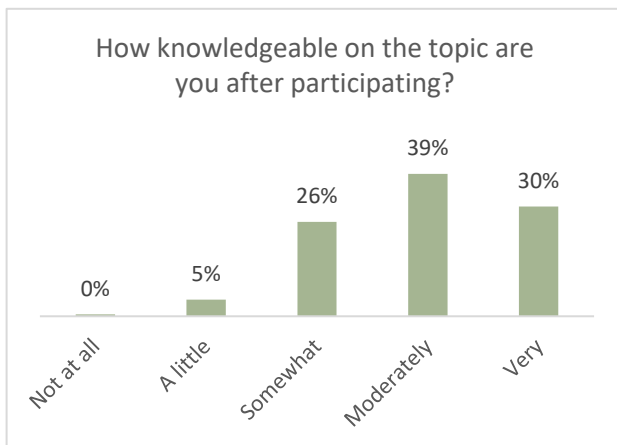


### Event outcomes

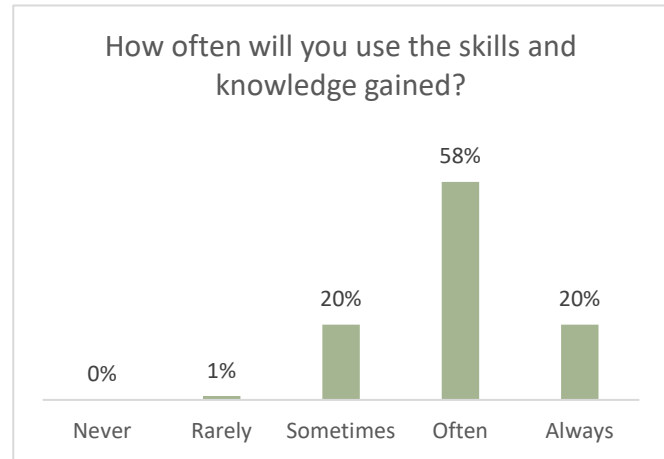
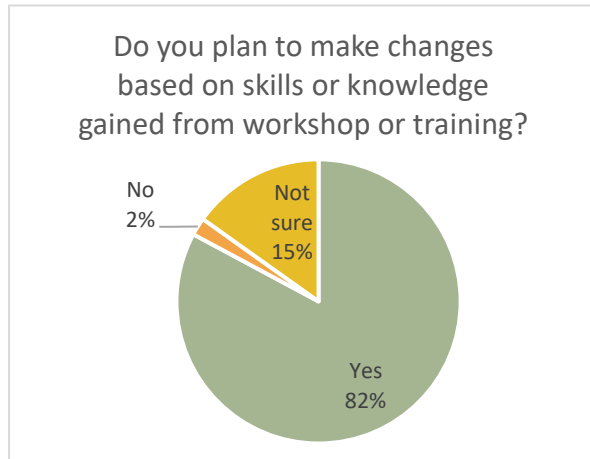
Based on available post-event evaluations, a total of 392 farmers/ranchers, or 97% of participants who completed an evaluation, reported changes in knowledge, attitude, skills and/or awareness after participating in a SSARE Soil for Water event. Of those, 370 (92%) gained useful information, 250 (62%) gained awareness of new resources, 230 (57%) learned new techniques, and 189 (47%) gained useful skills and built new relationships or networks with other participants.



Nearly one-third of participants (30%) reported being very knowledgeable on the topic after participating in the Soil for Water event and another 39% reported being moderately knowledgeable. A large majority (76%) of participants also reported being either comfortable or very comfortable applying the skills or knowledge gained from participating in the workshop or event, suggesting that the event had a considerable impact on participant knowledge, skills, attitudes, and awareness relating to regenerative grazing topics.



Further, a large majority (82%) of participants reported that they planned to make changes to their operation based on the knowledge and skills they gained in the workshop or training event. Over three-quarters (78%) of participants also reported that they planned to apply the knowledge or skills gained from the Soil for Water event either often or always. Taken together, these evaluation results suggest that SSARE Soil for Water events had a notable impact on producers' knowledge, skillset, management approach, and network.



Based on the events for which evaluations were captured, and the feedback shared by participants, the following are key areas in which farmers reported changes in knowledge, attitude, skills and/or awareness as a result of participating in SSARE Soil for Water events:

### Knowledge

- Management impacts to and benefits of native grasses; the seasonal growing characteristics of native grasses
- Principles of soil health
  - Importance of aggregates
  - Microbiology
  - Role of living roots
- How an operation interacts/impacts/is impacted by the broader ecosystem
- Intersections between soil health, water infiltration, and climate resilience
- Health benefits of quality forage and rotational grazing techniques on livestock
- Multispecies grazing and management techniques

### Attitudes

- New perspective to management than one taught by previous generations
- The value of not getting “locked into a system,” keeping an open mind
- “You need grass to grow grass”
- Starting small, keeping it simple
- Shifting orientation from livestock production to grass/forage production

### Skills

- Learning to read one’s pasture
- Native grass and forb identification
- Calculating appropriate stocking rate based on land size and forage quality/quantity
- Soil health testing and analysis

- How to interpret weather/climate projections to inform management decisions
- Using electric and woven wire fencing
- Determining water infrastructure needs, basics of setting up water systems

### Awareness

- What healthy biodiversity looks like on the landscape and the benefits of high biodiversity
- Profitable production techniques, regenerative markets, and business management
- How to manage operation and minimize risk under drought conditions
- The personal, social, cultural benefits that a regenerative operation can yield
- Available regenerative resources, technical support, and educational materials
- Regenerative operations and producers throughout AR, MS, TX, VA

## Knowledge system mapping

In an effort to capture broader, system-wide changes to the regenerative grazing network in each of the four states as a result of this project, a series of knowledge system mapping exercises was conducted in each state at the beginning and end of the project period. These exercises were virtual discussions among working group members in each state facilitated by the evaluation team and visually recorded using the digital platform, Miro. Through these exercises, a knowledge system “map” of the relevant stakeholders and their relationships, as well as barriers and opportunities to expanding regenerative grazing that these knowledge systems help to create, was generated both at the beginning and end of the project (see figure below). The initial and final maps were then compared to draw conclusions about how the knowledge system in each state shifted throughout the course of the project. A summary of the key takeaways of the working group discussions and comparative mapping process for the four states is provided below.

Knowledge system mapping process



## Defining regenerative grazing

### Collective takeaways:

- Regenerative grazing refers to the whole system, not just part(s) of it
  - For some, this represents a departure from how they learned to manage a livestock operation
- It’s a journey, not a destination
  - Practicing regenerative grazing entails a continual process of observing, adapting, and improving management techniques

- ‘Regenerative grazing’ as a concept is not prescriptive, rather it’s a set of principles that are meant to be adapted to the specifics of an operation, or even a pasture
  - Not one-size-fits-all
  - It’s up to the producer to apply the principles in a manner that fits their operation
- The term itself is not so important, it’s the principles that matter
  - While the words used to convey agricultural practices matter, they can also be co-opted and/or have certain connotations
  - In some contexts, “regenerative grazing” is just a new term for an old practice, therefore its important to acknowledge cultural history associated with these practices
  - Keep it simple—define it in a way that producers can relate to (e.g. healthy land = healthy pasture = healthy animals = healthy operation)

*Comparing before and after discussions:*

- Overall, the concepts and principles discussed did not change significantly
- In the final mapping, more inclusion of social, cultural aspects of regenerative practices (i.e. how it impacts quality of life, community)
- Definitions of the term became more producer-focused and less conceptual—there was more focus on the autonomy that regenerative grazing provides producers and the fact that successful regenerative operations require adaptive decision-making to work in harmony with the broader ecosystem

## Barriers to adoption

In the initial mapping, a lot of time was spent discussing the many potential barriers to adoption, whereas in the final mapping, the discussion focused on a handful of barriers and was oriented more toward how the project has helped to break down barriers. The barriers that still rise to the top across the four states included:

- The up-front investment that is required can be significant, including money, time, and labor and there are inherent risks in investing in a new way of doing things
  - Relatedly, the returns on investment are slow to realize and are not necessarily cash returns
- Often, adopting regenerative practices requires a paradigm and/or mindset shift
  - It’s often not how people learn to manage an operation from their family, peers, agencies, or institutions
  - It shifts the orientation from maximizing livestock production to maximizing forage production and soil health; it’s ecosystem-focused approach
- There are still persistent misperceptions about what adopting regenerative practices entails
  - Cost: While there are upfront costs, the long-term costs are minimized as reliance on off-farm inputs are greatly reduced
  - Labor: While the labor required is often different than relying on equipment/machinery, the long-term labor commitment is greatly reduced as livestock become familiar and even comfortable with rotation



Overall, activities by the working groups in each state helped to reduce or overcome barriers for producers. A summary of these activities in each state:

<b>Arkansas</b> <ul style="list-style-type: none"><li>• Grazing school breaking down the “how” and building peer network</li><li>• Numerous pasture walks and field days</li></ul>	<b>Mississippi</b> <ul style="list-style-type: none"><li>• Growing network of producers using their operation to show how simple, intuitive it can be</li><li>• HMI RAMP program providing ongoing support</li></ul>
<b>Texas</b> <ul style="list-style-type: none"><li>• Safe-to-fail trials minimizing risk, building experience/habit</li><li>• Growing support network</li></ul>	<b>Virginia</b> <ul style="list-style-type: none"><li>• Case studies demonstrating how others have overcome barriers</li><li>• Mentorship creating safe learning environment</li></ul>

### Facilitators of adoption

In addition to barriers to adoption, the final mapping exercises included a discussion about the facilitators to adoption of regenerative practices, based on the working group’s experience working to encourage adoption over the project period. The top facilitators across the four states included:

- Mentorship by experienced producer
- On-farm learning opportunities
- Hands-on learning opportunities
- Trusted messenger/educator

Further, when considering the types of engagements and opportunities that help to facilitate adoption of regenerative practices among producers, the working groups had the following reflections:

- While scientific research must be foundational to promoting regenerative, it alone is often not an effective facilitator to adoption. When it comes to scientific research and evidence,
  - Producers need to trust in it
  - The research itself needs to be relevant to real producers
  - It needs translation to meet producers where they are at, often through a trusted organization
- Success stories that are honest about the challenges are key to successful promotion
- Producers need to ‘see it to believe it’ hence why pasture walks, field days, and hands-on demonstrations are effective
- It’s important that those promoting regenerative grazing practice empathy
  - Adopting new/different practices is hard and is an ongoing practice, those promoting it need to meet producers where they are at and appreciate the challenges
- Agencies and technical assistance providers need to be on the same journey

- A lot of agents are not experienced in regenerative practices, they also need training to be able to effectively support adopters

### Key mapping takeaways

In comparing the initial and final knowledge system map in each state, several key takeaways emerged across the four states. These takeaways included:

- Each map shows evidence of new/stronger partnerships across ‘actor’ types (i.e. agency, non-profits, university, etc.)
- The regenerative grazing network has expanded and is more connected and active in each state
- Each state emphasized growing awareness of, interest in, and momentum for regenerative agriculture/grazing among producers
- The pathway between research and practice has strengthened in each state
- Reaffirmed what works:
  - Hands-on & on-farm learning opportunities
  - Mentorship
  - Trusted educators/messengers

Specific takeaways for each state are summarized in the figure below:

<p><b>Arkansas</b></p> <ul style="list-style-type: none"> <li>• Grazing school facilitated new partnerships across non-profits, agencies, universities, and producer groups</li> <li>• Universities are more involved/doing more to promote regenerative</li> <li>• More actors characterized as “leading the way”</li> <li>• Agency (NRCS, ARS) role is stronger</li> </ul>	<p><b>Mississippi</b></p> <ul style="list-style-type: none"> <li>• Added non-profits, university entities, and producer groups to map</li> <li>• More organizations and producers supporting on-farm training opportunities</li> <li>• University/extension resources have expanded</li> <li>• Agency expertise/support continue to be significant challenge</li> </ul>
<p><b>Texas</b></p> <ul style="list-style-type: none"> <li>• New partnerships across universities, non-profits</li> <li>• Needle has moved within more conventional institutions/operations (TAMU, King Ranch)</li> <li>• Some supportive local agency folks, but overall agency support continues to be limited</li> </ul>	<p><b>Virginia</b></p> <ul style="list-style-type: none"> <li>• Several farmer mentors added to map</li> <li>• New/stronger partnerships across non-profits, agencies, universities, producers (conferences)</li> <li>• More university actors “leading the way”</li> <li>• Expanded peer-peer mentoring network</li> </ul>

Overall, the knowledge system mapping exercises provided an effective means for capturing complex relationships within the regenerative grazing network of each state, capturing clear changes in each state between the beginning and end of the project. The maps helped to demonstrate how the activities of each working group and the project overall helped to effectively ‘move the needle’ on regenerative grazing adoption.

## Summary of publication content analysis

In addition to workshop evaluations and the knowledge system mapping, the evaluation team analyzed 58 publications, including blogs, case studies, podcasts, and videos, that were published as part of the SSARE Soil for Water project using content analysis. A separate document summarizes the findings of the content analysis in more detail, while a brief summary is provided herein.

Key topics/themes that emerged across the publications:

- Principles of regenerative grazing/agriculture
- Barriers to adoption of regenerative practices
- Facilitators of adoption of regenerative practices
- Keys to successful adoption
- On-farm outcomes as a result of implementing regenerative practices
- Motivations for adopting regenerative practices (the why)

Overall, the publications emphasized the fact that practicing regenerative grazing is an ongoing journey that is specific to each operation and producer and the environmental conditions at any given time. While there are key principles to uphold, there is no one-size-fits-all prescription for regenerative. This reality is what both makes regenerative difficult to initially invest in, as it requires considerable knowledge and expertise, and transformational. If new adopters learn to read their pasture, practice patience, keep an open-mind, and continue to learn from their peers and regenerative experts, they can reduce their reliance on off-farm inputs and ultimately become more autonomous of their operation. Further, these publications offer evidence of the myriads of benefits that can come from operating regeneratively, including improved quality of life, healthier animals, increased labor efficiency, improved climate resilience, and improved profitability.

## Coordinator focus group discussion

In the project’s final year, the evaluation team facilitated a conversation with the state coordinators to capture what they had learned from the project so far and identify next steps for the project in its final months. Some key takeaways from this discussion:

- Increased profitability and efficiency—as a result of reduced off-farm inputs—are top motivators among producers for adopting regenerative practices
  - Important to continue sharing success stories and the potential benefits of regenerative
- An effective way of addressing the perceived risks of adoptions are information and financial resources and experts sharing their personal experiences
- Trust and time are significant barriers to adoption
  - Overcoming these barriers entails building relationships and consistent engagement

- Producers sharing their stories and showing what it looks like in practice (i.e. through pasture walks, field days) helps
- Organizations (like NCAT) need to put in the time, show up without an agenda to build trust
- Peer-to-peer learning is more powerful than technical assistance
- Producer engagement and communication takes time and is often most effective when it happens organically
  - Conventional producers still remain difficult to engage at all
- Ecological monitoring and data are most relevant and valuable when it's easy for producers to collect and they can see the benefit of
  - Effective monitoring is focused on: 1) reading the land, 2) the power observation, 3) principles before practices

Based on these lessons, the evaluation team then facilitated a follow-up discussion with state coordinators in which they discussed the objectives outlined in the SSARE proposal and identified next steps for the project. Some of the next steps identified:

- Generate in-depth case studies for each state, highlighting several producers and their operations
- Apply “things we’ve learned” framework to forthcoming deliverables
- Work to identify and document indicators of change according to state coordinators
- Elevate peer-to-peer learning by highlighting it in existing deliverables (e.g. when documenting field days, pasture walks)
- Share content across states

These discussions served as a way to both highlight what the state coordinators and the work in each state had accomplished and learned throughout the project to date and identify opportunities to reach the project objectives and outputs.

## Conclusion

NCAT's SSARE Soil for Water project made considerable progress in each state in promoting and accelerating the adoption of regenerative grazing practices. Further, the project facilitated the development of a broader, interstate network of regenerative champions throughout the southern region of the U.S. While the project saw initial challenges in engaging a new network of producers, researchers, and technical assistance providers (primarily virtually), the persistence and dedicated capacity of state coordinators and the project PI ultimately led to the following outcomes:

- Jumpstarted numerous partnerships within and across states
- Facilitated a variety of peer-led, hands-on, and on-farm learning opportunities in each state
- Supported stronger engagement by universities, extensions, and agencies in the promotion of regenerative practices.
- Built new relationships among producers
- Generated on-farm evidence to support the benefits of regenerative management practices

- Identified persistent barriers and challenges to adoption specific to each state/region, allowing for the identification and pursuit of effective opportunities to overcome or minimize barriers
- Developed and implemented a variety of successful strategies for accelerating the adoption of regenerative grazing practices, for example:
  - Grazing school
  - Multi-media producer case studies
  - Safe-to-fail trials
  - Multi-day training and mentorship programs
- Increased the awareness of and interest in regenerative practices among diverse producers in each state
- Strengthened the pathways between scientific research, monitoring, and producers
- Identified opportunities for continued and future progress for expanding the adoption of regenerative grazing practices

Although only a fraction of individual workshops and training events were evaluated throughout the project, the evaluation data that are available suggest that farmers/ranchers who participated in project events gained valuable information, skills, tips, and insights into regenerative grazing practices. Feedback from state coordinators and working group participants in individual state and all-state meetings further suggest a burgeoning regenerative grazing network in each state and growing interest among young, new/beginning producers, and even among conventional producers. Key activities in each state served to expand the number and type of opportunities available to producers to learn about, practice, and discuss regenerative practices. In each state, the project has helped to build trust between and among producers, universities, agencies, and producer groups and generate momentum around the adoption of regenerative practices.