

COVER CROP AND SOIL HEALTH PROGRAM

For the past several years, Nebraska Extension has tried to initiate educational programming around cover crop use and soil health. The amount of researched-based information pertaining to the benefits of using cover crops and their effects on soil health has grown exponentially in recent years. Initial adopters of cover crops had very little data available to them on how to successfully incorporate the practice into their own cropping systems. The primary goal of this program was to bring educational events and opportunities to provide producers with research based information about cover crops and soil health here in Nebraska. Secondly, to determine cover crops' potential for use to improve the resilience and sustainability of crop/livestock systems in Nebraska. Extension Educators from across the state engaged in educational programs focusing on cover crops and soil health, to accomplish these goals. Programs included Cover Crop & Soil Health Conferences, Field Days, On-Farm Research Projects, Extension publications, and articles through "CropWatch" the University of Nebraska's Crop Newsletter, and social media, used particularly in 2020 in response to the pandemic. These events provided the opportunity to collaborate with producers, Ag businesses, governmental agencies, i.e., NRCS, SARE, NRDs (Natural Resource Districts, and NGOs, such as the Nebraska Grazing Lands Coalition and the Nature Conservancy). The On-Farm Research Network is an excellent method for producers to investigate and evaluate how cover crops can be implemented into their operations, providing educational sites for field days and tours. In 2020, Nebraska Extension's On-Farm Research Network had 24 cover crop-related on-farm research projects, with 17 producers participating as part of the NRCS Soil Health Initiative's Demonstration Fields across the state. In 2018 and 2019, Extension Educator Gary Lesoing organized two field day/tours (attendance of 25 at each event) held on five farms in two counties to demonstrate the use of cover crops to improve soil health in crop and livestock grazing systems. In the fall of 2018, an educational field lab was conducted on an NRCS Demonstration Farm with 50 in attendance. Allowing participants the opportunity to look at soil microbiology firsthand.

Two major Cover Crop/Soil Health Conferences have been held in eastern Nebraska for the past several years. Keith Glewen organized a committee of Educators, Specialists, NRCS experts, farmers, and Ag industry, to plan and develop the Nebraska Cover Crop and Soil Health Conference. This conference has been held annually in February at the Eastern Nebraska Research and Extension Center since 2016, with a strong attendance of 200 or more people. The focus of this conference is the use of cover crops in a corn and soybean cropping system. Another key conference is the Southeast Nebraska Soil Health Conference. Established in 2014, by educators Paul Hay, Randy Pryor, Gary Lesoing, and Paul Jasa, Extension Engineer. This program has rotated between 5 communities in southeastern Nebraska and is held in early March with an attendance ranging from 150 to 230. For this conference utilizing cover crops as forage for livestock is the main focus. These conferences have been the primary vehicle for providing education on incorporating cover crops into cropping systems and providing short and long-term benefits. A staple of these programs is having farmers who are using cover crops successfully, present and provide a producer panel for a question and answer session. These in-person programs have been an excellent opportunity for producers, Extension Educators, researchers, and Ag industry professionals to network and engage. Historically we receive significant sponsorship for these conferences from commodity boards, NCR SARE, USDA NRCS, local Natural Resource Districts, plus ag industry. After careful planning and consideration, in February of 2021, we held one hybrid conference due to the constraint of the pandemic, participants were able to join virtually or attend in-person at one

of seven watch sites across Nebraska. We had over 280 attendees attend this conference virtually and 41 in-person.

In the past three years, the Cover Crop and Soil Health Team has held 13 programs (conferences, field days, and workshops) focusing on cover crops and soil health reaching 1,634 farmers and advisors. From these programs participants indicated a value of \$12.04 per acre with (n=440), when asked about the estimated value of the knowledge and/or practice changes.. For the seven conferences reported, the value of the programs ranged from \$9.27/ac with (n=35) for a cover crop conference in Columbus, NE in January of 2019 to \$17.75/ac with (n=36) at the Southeast Nebraska Soil Health Conference in March of 2020. The 2019 Nebraska Cover Crop and Soil Health Conference had a \$15.00/ac (n=71) value for the 1.53 million acres influenced leading to an estimated value of the program of \$23 million. The 2020 Southeast Nebraska Soil Health Conference showed changes resulting from this educational effort include 63% are likely to very likely to change how cover crops are used in their operation (n=46), and 57% are likely to very likely to start grazing cover crops (n=42). From the 2020 Nebraska Cover Crop and Soil Health Conference, a survey indicated 90% were likely to very likely to change how cover crops are used in their operation (n=99) in response to this educational event. As a result of a cover crop conference in Columbus, 90% (n=40) of attendees said they will encourage others to make a change in their agricultural management from what they learned at this educational program.

The Soil Health Team has observed the following longer-term or behavioral changes from our educational programs. In the 2020 and 2021 Nebraska Cover Crop and Soil Health Conference survey, producers were asked if they attended the conference last year and if they did, did they plant a cover crop this year. In 2020, 70% (n=61) and in 2021, 74% (n=66) planted a cover crop. Another program the team participated in the past two years is Husker Harvest Days. Husker Harvest Days is the premier Farm Show in the Plains States held in Grand Island, NE. In 2019, it was a face-to-face event that spanned three days. A team of 14 Extension Educators provided education on cover crops and soil health via a booth located in the Nebraska Extension building. This year we made videos to engage and inform people about soil health and cover crops for the Virtual Husker Harvest Days. During the summer of 2020, Jenny Rees and Steve Melvin, part of our Soil Health and Cover Crop Team, made several videos on Interseeding cover crops and explained the on-farm research projects conducted during the 2020 growing season. These videos were made available via Tweeter gaining 7547 views. Gary Lesoing recorded two interviews with producers using cover crops, and Michael Sindelar provided demonstration videos measuring soil health properties, gaining 317 views. Feedback from programs held included "Excellent, something new each year." "Current information and experience. Need to continue these types of conferences." "A lot of good practical ideas."