MLRA Soil Survey Office: 9-NAC

Workshop Offers Discussions and Demonstrations of Soil Ecology, Health, Economics, and Real-Life Experiences

Purpose

The USDA-NRCS, Texas State Soil and Water Conservation Board, Texas Wildlife Association, and Anderson County SWCD hosted its second Soil Health Workshop from February 26 to 27 in Palestine, TX. Despite the raining weather, the workshop was well attended and attracted over 100 participants. Attendees included farmers, ranchers, foresters, conservationists, academics, and people with an interest in soil ecology.

Dr. Christine Jones and Dr. Richard Teague were keynote speakers. Dr. Jones is an internationally renowned groundcover and soils ecologist. She broadened the scope of agriculture by sharing experiences from Australia, Germany, and New Zealand. She delved deeply into plant, fungal, and soil interactions while challenging the conventional ways of modern agriculture. Dr. Teague is an ecologist with Texas A&M Agrilife in Vernon, TX. He has enjoyed a career in Texas since 1991 and has a vast knowledge of grazing systems that he has honed while working with ranchers across the world. He specifically provided well-tested research and real-life examples of successful applications of Adaptive Multi-Paddock (AMP) grazing systems.

Attendees of the Soil Health Workshop gather around a soil pit. Explanations focused on the different soil horizons as well as how to read the soil map of the surrounding area.

Key Outcomes

Attendees toured two local ranches, Joe Beall's B2 Ranch and Jimmy Downe's Downe Wholesome Beef. Joe Beall spoke of the operations of his newly purchased ranch in east Texas, as he had expanded his ranching business from south Texas. Joe discussed the challenges and surprises that he has faced in a completely new ecosystem. After listening to Mr. Beall, NRCS personnel Ben Davis and Matt Machacek exhibited innovative electric fencing techniques. They had several types of chargers, posts, and wires available to view. The participants were able to watch a live demonstration showing the ease of moving cattle with the use of electric wire.

Jimmy Downe provided a tour of his ranch that has been running for over 23 years. Mr. Downe worked with the NRCS to develop an ongoing soil health study. The experimental design compared soil health metrics on differing land use practices. Practices included continuous grazing, high-intensity low-frequency grazing, cover crops, double-rate cover crops, as well as others. NRCS range conservationists revealed preliminary results from their findings, while Mr. Downe gave anecdotal insight. At Mr. Downe's ranch, a 6-foot soil pit was opened so that Texas NRCS soil scientists Dennis Brezina and Alan Stahnke could describe the soil profile. The soil scientists showed everyone the different horizons, unique features, and useful ways to interpret their own properties from soil maps. Tyson Hart, ecologist, Soil and Plant Science Division, described the surrounding ecological site, and identified vegetation. Many landowners had never seen a detailed description of the soil below the immediate surface, or the unique features of the soils that sustain the ecological site, so the experience was eye opening.

The tour of Jimmy Downe's ranch exhibited experimental trials of soil health measures put into practice.

Upon returning from the field visits, Tyson Hart demonstrated a rainfall simulator that showed five differing land uses, each were allowed 1 inch of rainfall on a 5 percent slope. The land uses compared included bare cropland, forested pine straw, ungrazed pasture, cover crops, and rotationally grazed pasture. The bare soil produced more than one gallon of runoff, and excessive amounts of erosion were evidenced in the collection system. Tyson explained how fragile bare soil is when exposed to heavy precipitation and the magnitude of erosion that accompanies such events. The covered and vegetated land uses allowed for maximum protection from raindrop splash, illustrating how land managers can bank more precipitation in their soil, protect against soil erosion, and increase infiltration. The experiment helped the viewers realize how repeated occurrences of heavy rainfall can be detrimental to the overall health, productivity, profitability, and ultimately, the sustainability of the land.

NRCS ecologist Tyson Hart demonstrates heavy rainfall on five different land use practices showing effects of erosion, rainfall splash, and infiltration.

Tyson Hart displays infiltration differences caught within plastic jugs from the rainfall simulator.

At the end of the 2-day workshop, the group had an honest talk of economics, pitfalls, and positive strategies from personal experiences of land operations. Everyone felt the workshop was informative, organized, provided great ideas to consider in their own operations, and despite the weather conditions, very successful. By sharing soils and ecological information, landowners will have the knowledge to implement some of the ideas and further progress agriculture in east Texas and beyond.