Cover Crops Hold Cotton Soils

Practice helps South Alabama growers triple soil organic levels and reduce erosion.

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PHOTOS BY VIRGINIA H. HARRIS

Cotton has long been subject to the myth of being hard on the soil. That's in large part because producers have tended to plant it in poorer soils where its tolerance for low nutrient load and salinity made it an ideal crop. That was then. Soil health has a large role in cotton-management systems today.

In Covington County, Ala., Ricky Wiggins and his son, Russell, farm 2,650 acres, raising cotton, peanuts and beef cattle. Most of their land is in cotton, and about 25 to 30% is in peanuts. "We were conventional till on highly erodible soil here in south Alabama for a long time," Wiggins explains. "We spent a lot of time repairing terraces and dealing with erosion."

Steve Yelverton, district conservationist with the Natural Resources Conservation Service (NRCS) in Auburn, Ala., says cotton producers have a tough fight with nature because the region's sandy soils are easily eroded by intense rainfalls, not to mention hurricanes.

He says the NRCS has been promoting conservation tillage since the 1970s. However, it wasn't until the last 20 years or so that agriculture has had the kind of herbicides to make conservation tillage work well. Producers no longer have to cultivate soil prior to planting and during the growing season to control weeds.

Ricky Wiggins, left, and his son, Russell, have used conservation tillage practices since the mid-1990s. They have seen dramatic improvements in the quality of their soils.

CONSERVATION CONVERTS. The Wigginses first employed conservation tillage practices in 1994 and were the first producers in Covington County to try it. "We made a lot of mistakes early on," Wiggins says, "but we have seen a dramatic reduction in soil erosion, better soil absorption and water retention in the last 20 years." Wiggins adds he and his son can actually produce crops now on land that was entirely unproductive prior to the farm's adoption of conservation tillage.

The Wigginses use rye as a heavy cover crop, broadcasting seed and using a Turbo-Till to ensure good seed emergence. From Great Plains, the Turbo-Till is a vertical tillage tool that manages residue and reduces compaction.

They fertilize the rye with chicken litter, allow it to mature and then roll it down flat onto the ground to kill it about 30 days before planting. To minimize compaction, they roll the rye and apply herbicides in the same trip.

"We've found rye works better than wheat," Wiggins says, "because it has so much more biomass, and [it] rolls down a lot better."

The Wigginses plant both peanuts and cotton directly into the cover crop and don't till once the land is seeded. As a result, they save fuel, have less wear and tear on equipment and can produce better yields with fewer acres in production. ▶

CONSERVATION TILLAGE. The Alabama farmers also contour farm. "We don't have many flat fields," Wiggins says. Along with no-till, the contour farming prevents excessive runoff and helps the soil retain moisture, a critical need in south Alabama. "Irrigation is a challenge in our area because we have small, irregular fields, and our water supply isn't that good," Wiggins explains. "We depend on surface water."

He says the farm's soil is healthier as a result of conservation tillage. "In the spring, when I'm checking seed depth, I find earthworms, which is pretty unusual in Coastal Plain soils," he explains.

Water quality has also improved. "After our cover crop gets established, the water is clear running out of the ends of the terraces," he says. "We have terraces that have not been plowed since 1994."

Today, 95% of the commercial farmers in Covington County employ conservation tillage practices. The results have been dramatic, particularly on the Wiggins' farm, where conservation tillage has been used for two decades. Yelverton says in southern Alabama, the typical percentage of organic matter in the soil is less than 1%. On the Wiggins' farm, that rate is 3% where soil tests have been conducted by the NRCS.

Conservation tillage has improved soil organic levels as much as three times higher than normal for the area and has helped to increase cotton yields on the Wiggins' farm.

MODEL WORK. The Wiggins' farm is a model of how well conservation tillage works. "You can see the soil health with your eyes," Yelverton says. "As the soil gets better, it gets darker and holds together better."

The practices followed on the Wiggins' farm are not unique but are critical in areas like lower Alabama.

"Because we're so warm here, it's hard to build up residue on the soil. We don't have cold spells like the Midwest," Yelverton says.

He advises farmers with high-residue crops to leave the residue on the soil surface and then plant a good cover crop. Yelverton says rye is the best cover crop for the area. He recommends a target of 4,000 pounds of residue per acre in the spring, using nitrogen to make it grow.

Wiggins admits conservation tillage is a lot harder than conventional-till practices. "You have to be committed to this," he says. "When you're dealing with heavy cover, it's more challenging to work with. It will drag up on you."

Wiggins says he sees himself as a conservationist but adds, "We're not extreme. We are farmers. We want to leave the land better for the next generation." ●