Compliance and Cotton Tillage Trends

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The 1985 Farm Bill, The Food Security Act, required that a conservation compliance plan must exist on Highly Erodible Lands (HEL) if a producer wishes to receive USDA benefits. These plans were to be developed by January 1, 1990, and be fully implemented by January 1, 1995. The HEL designation was calculated for each soil by multiplying those factors of the Universal Soil Loss Equation and the Wind Erosion Equation that are unaffected by management, and dividing by the soil loss tolerance. If the resulting erosion index was eight or above, the soil map unit was designated HEL. If one-third of the field, or 50 acres, were HEL soil map units, then the field was designated highly.erodible and a compliance plan was required.

The climate, growing conditions, and soils are different in each cotton-growing region. The conservation and management alternatives an individual farmer chose also varied based on his management style and individual operation. The available options, therefore, varied.

Structural practices are an option anywhere if the potential for water erosion is a concern and the soil permits construction. Examples of these practices are terraces, grassed waterways, and water and sediment control basins. Associated with terraces is contour farming, a cultural operation which helps divert water around the slope at nonerosive velocity.

Generally, farmers chose some form of vegetative management as the major part of their compliance plan. The Conservation Technology Information Center annually conducts a survey to determine the acres of major crops planted into different residue levels and the forms of conservation tillage that are used. The three residue levels are 0 to 15%, 15 to 30%, and more than 30% of the soil surface covered. Those acres in the category of more than 30% are further divided into three recognized forms of conservation tillage; i.e., no-till, ridge-till, and mulch-till.

In the cotton-growing region from Texas to North Carolina, the total acres for all crops planted into the lower residue levels have steadily decreased since 1990. Although mulch-till has increased somewhat, the most dramatic increase has been in no-till in the Southeast and Midsouth. In the Southern Plains states, the 15 to 30% level and mulch-till categories had the greatest increase.

In the Southeast, a popular practice is contour stripcropping. This practice involves cotton, or other row crop, grown on the contour and alternated with an equal width strip of sod or close growing crop such as wheat. The benefit here is that water from the row crop enters the sod or close-grown crop in a sheet flow. Some of the sediment is filtered out, and some of the water is slowed, which allows more time for water to infiltrate. Crop rotation, along with some form of residue management, is a part of most compliance plans. An example is cotton planted into last year's corn or wheat residue that covers 30% or more of the soil surface.

Each year, a sample of tracts is reviewed to determine the status of progress toward implementation of the conservation compliance plan. This review includes all cropped land regardless of the crop grown. Therefore, the figures include other crops as well as cotton.

Although the final 1994 Status Review results have not been published, preliminary data as of November 1994, show that in the Southeast, 3,328 tracts were checked and that 1,987, or 60%, had fully applied systems, while 31% were actively applying an approved system. Nine percent were not actively applying an approved system.

In the Midsouth, residue management is primarily the choice of producers. Where crop rotations are involved, corn or other residue from the previous year is managed to leave 30% of the ground covered.

Where continuous cotton is grown, two kinds of systems are generally employed. On flat to gently sloping land, leaving alone the previous year's cotton stalks, or leaving stalks with volunteer winter weeds will adequately protect the soil surface. The weeds are then killed prior to planting, and cotton is no-tilled directly into the cover. This system, commonly referred to as stale seedbed, is a cost-effective method of controlling erosion. On land that is more sloping, a cover crop is usually required to provide adequate protection. The cover crop is either drilled, or broadcast seeded early enough for germination and growth prior to cold weather. The cover crop is killed in the spring prior to planting cotton.

A status review in the Midsouth region was made on 1,837 tracts. The results show that 941, or 51%, had fully applied systems. There were 15 percent that were not actively applying an approved system.

In the Southern Plains states, both wind and water erosion can occur. As a general rule, vegetative treatment that is effective for water erosion control is also adequate for wind erosion control. An exception to this is where water concentrates, thus requiring additional help to control washing.

Where crop rotations are performed, residue from previous crops can be managed to control erosion. Cover crops are usually grown where continuous cotton is grown, particularly on irrigated land. On nonirrigated land where continuous cotton is grown, wind stripcropping, ridging, and/or surface roughening is usually practiced.

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In the Southern Plains states, of the 2,417 tracts that have had a status review, 1,913, or 79%, were found to have a fully applied system. Three percent, or 76 in number, were found to be not actively applying an approved system.

In summary, conservation tillage for cotton is increasing. A high percentage of compliance plans relied on some form of vegetative measures such as crop rotations, cover crops, and crop residue use for the key treatment.

A large majority of farmers are voluntarily applying an approved system.