Riding The New Wave of Farming Practices Using Conservation Tillage

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My interest in conservation tillage was sparked during a Swisher County Soil Fertility Day program six years ago. Although the presentation by Dr. Allen Wiese, Texas Agricultural Experiment weed scientist at Bushland, Texas, dealt with grain sorghum, I realized the practice might well be applied to cotton, a crop better suited to the semiarid region near Happy, Texas, where I farm 1,300 acres.

Like an ever-increasing number of growers in the Southwest, I have seen the Ogallala aquifer, the lifeblood of irrigated agriculture in portions of a six-state area, decline to the point that crop watering is not always possible. I realized that my farming methods had to change. I felt that the change had to be accomplished in two ways: quickly and cheaply. I felt if I could persuade Dr. Wiese to develop a tailor-made plan for me, I could achieve my goal of evolving into a conservation farming system cheaply and quickly.

Dr. Wiese's plan involved the use of Atrazine and Cotoran applied after the harvest of small grains. The residue of the harvested crop was to serve as a natural erosion control and a barrier to help prevent evaporation. The chemicals would kill any emerged seedlings as well as prevent further infestation. The field would be allowed to overwinter in this condition. Then the plan was to plant the cotton in an undisturbed seedbed the next spring. Finally, Caparol, a cotton herbacide, was to be applied after planting to ensure weed control through the growing season.

After reviewing the plan with Dr. Wiese and Dr. Wyatte Harman, TAEX economist from Amarillo, I embarked on a no-till cotton production program in 1979. The program was quite successful. The no-till dryland cotton resulted in a lint yield of 252 pounds per acre. A conventionally tilled dryland block produced only 100 pounds of lint per acre, thus proving that reduced cultivations had merit in conjunction with a sound chemical program. The first year we tried no-till was also one of the driest in more than 90 years. In fact, it was ***so*** dry that our conventionally tilled milo did not even head. It was then that I realized that I could not afford to plant the conventional way and hope to make a profit. I felt no-till was the answer.

I had developed such a keen interest in no-till that I launched a similiar program of reduced cultivations in conjunction with a sound chemical program for wheat, comparing it with a block where more traditional farming methods were used. In the spring of 1982, I was able to obtain Glean under the experimental-use label. For the first time, a chemical fallow program for small grains was a reality. With the use of Glean, only 5 bushels of wheat per acre was necessary to recoup my production costs, while the conventionally tilled block required four times that yield to recover my input expenses.

In another experiment, this one with no-till barley, I harvested 70 bushels per acre dryland as compared to 45 bushels per acre with a more traditional number of cultivations. The results of this successful barley experiment served a dual purpose: first, it broadened our cropping diversification, and second, the properties of barley residue are similiar to wheat. Therefore, this enabled us to expand our no-till cropping program because we had a greater acreage of residue.

At this point, I had tried a no-till program with all crops except milo. The expanded acreage of residue allowed me to go forth with a no-till milo plan. I felt that my apprehensions of being a pioneer in the field of no-till farming on the High Plains had passed and I was ready to proceed armed with the knowledge that my experiments and proven yields with cotton, wheat, and barley would be my guide in developing a no-till milo program. My no-till milo averaged from 2,000 to 2,500 pounds per acre dryland while my neighbor to the south averaged only 540 pounds per acre. Finally, I had successfully experimented with a no-till plan that included all my major crops. I have continued to follow the plan with minor alterations as new chemicals become available.

These experiments were carried out at very minimal costs. I already had a sprayer to apply the chemicals for weed control. I did purchase six coulters for my double disk planter to cut through the residue from the previous crop and also prepare a very narrow seedbed. I have converted my conventional-tillage equipment to no-till without large capital expenditures. As the popularity of no-till farming increases, more and more equipment manufacturers are joining in to make the transition in their product lines. I was able to adapt a Tye wheat drill by adding a Tye-manufactured coulter cart designed specifically for minimum and no-till planting. The chemical manufacturers have also joined in to develop products that have properties necessary for no-till production.

After six years of no-till farming, I believe I have been successful in fulfilling my original goal. I have succeeded in storing the natural precipitation and conserving the precious water from the Ogallala aquifer. I have also been able to prove there are other subtle benefits. I know the no-till method of farming has reduced soil losses by controlling wind and water erosion because of a constant residue cover. Another benefit of the no-till system is the improved tilth of the soils. This is due to the disappearance of the plowpan because of reduced traffic.

I do not believe the complex problems of the agriculture sector can be totally resolved with such a simplistic concept as no-till farming. But it has been a method that has helped me reduce operating expenses to make it possible to continue farming.