

Strip Tillage vs. Fall Chisel Effects on Corn Yield

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Objective

Future Farm Bills may have more conservation compliance associated with payments. Strip tillage would assist in preventing soil erosion and conserving carbon in the soil. To be adopted, it must also be productive relative to existing practices. The objective of this study is to evaluate the effect of strip tillage on corn yields compared to the use of fall chiseled tillage.

Background

Cooperator:	County Commissioners	Fertilizer:	planting: 20 gal/A 28% UAN
County:	Morrow		sidedress: 20 gal/A 28% UAN
Nearest town:	Mt. Gilead	Herbicide:	
Drainage:	Random tiled	PRE	3 qt/A Degree Xtra
Soil type:	Centerburg silt loam		1 qt/A Gramoxone on strips
Tillage:	Strip tillage and fall chisel	POST	4 oz/A Distinct
Previous Crop:	Soybeans	Planting Date:	June 1
Variety:	DKC 60-08	Planting Rate:	26,000 seeds/A
Soil Test:	pH 7.0, P 44 ppm, K 90 ppm	Row Width:	30-inch
		Harvest Date:	November 18, 2002

Methods

The plot was laid out in alternating strips with five replications. Each individual treatment was 12 rows wide and approximately 3/4 acre in size. The entire area was harvested and weighed using a weigh wagon. The strips and chisel plow areas were completed during November. The strips were developed using a Yetter Strip Till Tool. The six-row mounted unit was pulled at 4 to 5 mph using a 135 hp tractor. The strips were 11-inches wide. The mole knife was running 7-inches deep, and the strips were 5-inches tall in the fall. The strips were the same height as the adjoining soil in the spring.

Results

Table 1. Corn Population and Yields.^a

Treatment	Harvest Population (plants/A)	Yield (bu/A)
Strip tillage	21,580 a	45.9 a
Fall chisel	23,380 b	58.1 b
LSD (0.05)	1,626	7.9
F test	9.4	18.1

^aMeans followed by the same letter within a column are not significantly different.

Summary

The 2002 crop year was a poor one for tillage comparisons. We had a very wet spring, which prevented planting until June 1. The strips built in the previous fall were completely settled down, and weeds made it difficult to keep the planter on the strips. The strips were void of residue, which was the only way to determine where the strips had been built. The wet spring was followed by a very dry summer.

Our plot design using alternating strips was not the best choice. We measured areas using tapes and flags and should have used a completely randomized block design for our plot layout. In future years we will mark the whole field with the strip till tool using the markers and leave the tool in the transport position in the areas we want to chisel.

This year's plot was more of a comparison of no-till vs. chisel. We did achieve a higher population and yield on the chisel areas. Due to our plot design and weather problems in 2002, this study will be repeated in future years.

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