EFFECT ON OLD CORN ROWS ON PLANTING, STANDS AND YIELDS OF NO-TILL WHEAT

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OBJECTIVE

Determine if planting no-till wheat across corn rows from the previously harvested corn reduces stands and yields of no-till wheat.

BACKGROUND

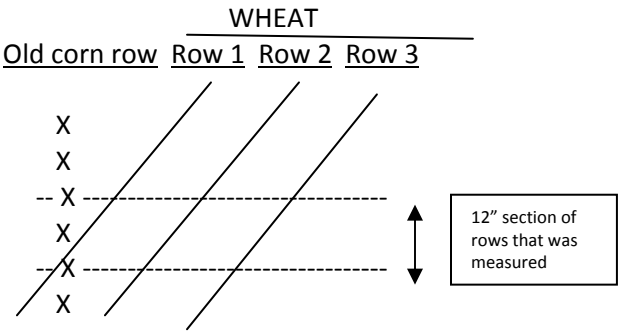
Some farmers see a change in their no-till wheat stand as they look down the old corn rows. They wonder what causes this and if it results in a reduced yield in this area and also the overall yield.

METHOD

This trial was done on the C.C. and Mark Morris Farm in southern Christian County. No-till wheat (Branson variety) was planted at a 7 degree angle to the old, existing corn rows. Six sites in the planted wheat were established to determine the effect of the old corn row on the planted wheat. At each site, a 12 inch section of the wheat row was flagged in 3 rows that were beside each other and were:

Row 1. Wheat row as it crossed over old corn row.
Row 2. Wheat row beside row 1.
Row 3. Wheat row beside row 2 which would have a good wheat row on each side.

Row 1 would be affected by the old corn row. Row 2 would be influenced by the amount of growth in row 1 and row 3. Row 3 had a good wheat row on each side of it.



RESULTS

As the wheat row crossed the old corn row about 12 inches was affected in the planting. Some rows were more affected than others depending on how the wheat planter unit did or did not contact the old corn stalk stub. The 6 sites were averaged in table 1.

There was a definite reduction in yield when a wheat row (row 1) crossed the old corn row (table 1). This was caused by a reduction in the stand (heads in 12 inches of row). As would be expected, the number of seeds in this 12 inches was also reduced. However, there was little affect on the number of seeds per head yet the size of the seeds were a little larger (table 1).

The greatest yield was in the row (row 2) boarding the bad row (row 1) see table 1. It was significantly higher than the normal row (row 3). This row had the highest yield, most heads, highest number of seeds of the 3 measured rows. This indicates that this row compensated for the bad row and its yields were statistically higher than the normal row. It was primarily due to more seeds from about 10% more heads as well as 7% more weight in each seed.

Was the compensation in row 2 enough to offset the reduced yields in the bad row (row 1)? Table 2 shows that it was. When row 1 and 2 are averaged and compared to row 3. The yields are almost the same. The seed count and head count in this average is a little lower than the normal row but the seed weight is higher. The overall effect seems to be neutral.

SUMMARY

Previous UK research looking at the small areas with no stands in no-till wheat has shown that the yields are not reduced and the surrounding plants compensate for this loss. This trial in a farmer's field planted by the farmer show that there will be small areas in no-till wheat plantings with only a few plants. This research substantiates previous research and shows the adjoining rows and plants with adequate stands will compensate for this loss by adding additional heads which will produce more seeds and each seed will be a little large.

Table 1. Effect of Row Position on Wheat Yield, Stands, Seed Weight, Seed Count and Seed Number

Position	Wheat Row in Old Corn Row	Compensating Row Next to Old Corn Row	Normal Wheat Row
	ROW 1	ROW 2	ROW 3
YIELD – Grain Yield in 12 Inches of Wheat Row			
Weight (bu/a)	59.1 C	96.8 A	75.0 B
STANDS – Head Count in 12 Inches of Wheat Row			
Heads	49.6 B*	80 A	72 A
SEEDS COUNT – Number of Seeds in 12 Inches of Wheat Row			
Seed Number	849 B	1438 A	1189 AB
SEEDS PER HEAD – Number of Seeds Per Wheat Head			
Seeds/Head	26.7 A	28.8 A	27.8 A
GRAIN WEIGHT – Weight of Seed Expressed as Grams of 1000 Seeds			
Seed Weight	27.1 A	26.3 AB	24.6 B
*** Letters that are different in the same row indicate a difference at the 0.1 level**			

Table 2. Compensation Effect of Wheat Rows

Position	Average of Wheat Row in Old Corn Row and Compensating Row	Normal Wheat Row
	AVERAGE OF ROW 1 AND 2	ROW 3
Yield – Grain Yield in 12 Inches of Wheat Row		
Weight (Bu/a)	77.9	75.0
STANDS – Head Count in 12 Inches of Wheat Row		
Heads	64.8	72
SEEDS COUNT – Number of Seeds in 12 Inches of Wheat Row		
Seed Number	1143	1189
SEEDS PER HEAD – Number of Seeds Per Wheat Head		
Seeds/Head	27.8	27.8
GRAIN WEIGHT – Weight of Seed Expressed as Grams of 1000 Seeds		
Seed Weight	26.7	24.6