

Corn Performance with Tillage Systems and Fertilizer Placement, Carrington, 2008

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A field study was conducted at the NDSU Carrington Research Extension Center to examine the performance of corn under several tillage systems and with various fertilizer placement methods. Experimental design was a randomized complete block with four replications. The previous crop was wheat. The dryland trial was established on a Heimdal loam soil with 2.6% organic matter and 6.3 pH. The fall strip-till treatments were applied on October 23 using a Yetter strip-till opener with 30-inch row spacing using a 6- to 7-inch tillage depth that established a berm 10- to 12-inches wide. Conventional-till plots were tilled on October 26, 2007, using a roto-tiller at a 3-inch depth and twice at a 2- to 3-inch depth using a field cultivator plus spring harrow on May 2, 2008. Mycogen '2K154' corn was planted with a John Deere 71 4-row flex planter in 30-inch rows on May 13. 10-34-0 was applied at 5 gal/A. Plant stand counts were taken on June 9. Conventional-till plots were cultivated between crop rows on July 1. The seed was harvested with a plot combine on November 3.

Plant emergence date and stand, and seed yield and quality were similar among treatments (Table). Due to a very high level of soil phosphorus (20 ppm), crop response did not occur except with corn days to silk. Corn silk date was delayed one to two days without banded fertilizer.

Table. Corn performance with tillage and fertilizer placement.

Tillage system/ fertilizer placement	Plant Emerge	Silk Date	Stand	Yield	Test Weight	Seed Moisture	Seed Protein	Seed Starch
	Jday		plt/A	lb/A	lb/bu	%	%	%
Conventional/ band	149	217	29,880	109.5	55.5	22.7	11.2	67.6
No-till/band	150	218	27,890	104.0	54.6	22.5	10.9	67.7
Strip till	150	219	26,560	92.8	54.5	24.4	11.3	68.0
Strip till/fall band	150	218	26,560	95.6	54.0	24.2	10.9	67.4
Strip till/band	150	218	31,875	96.2	54.9	23.6	11.1	68.0
Strip till/in-furrow	151	217	24,570	100.5	55.1	21.9	11.2	68.3
mean	150	218	27,700	99.6	54.8	23.4	11.1	67.8
CV (%)	0.4	0.4	15	7.7	1.9	7.6	3.7	1.1
LSD (0.05)	NS	1	NS					



Strip tillage in-furrow phosphorus placement.