

**Sunflower response to tillage systems, Carrington, 2006.** (Greg Endres and Paul Hendrickson)

A field study was conducted at the NDSU Carrington Research Extension Center to examine the performance of sunflower under several tillage systems. 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 3.1% organic matter and 6.8 pH. Conventional-till plots were tilled on September 29 using a roto-tiller at a 3- to 4-inch depth. The fall strip-till treatment was applied on October 13 using a Yetter strip-till opener with 30-inch row spacing using a 3- to 4-inch tillage depth that established a berm 12-inches wide and 8-inches high. The spring strip-till treatment was applied on April 19 at a 2- to 4-inch tillage depth that established a berm 12-inches wide and 3- to 4-inches high. Mycogen ‘8N429CL’ oil sunflower was planted with a John Deere Max-Emerge II row crop planter in 30-inch rows on May 15. Conventional-till plots were cultivated between crop rows on June 21. The trial was hand harvested and seeds threshed with a plot combine on October 16.

Plant emergence and days from planting to flower were delayed one day with no-till compared to other tillage systems (Table). Sunflower stand was low in all tillage systems, with stands tending to be highest with spring strip till. Seed yield tended to be greater with no-till and spring strip till. Seed quality was similar among treatments.

Table.							
Treatment	Plant emerge	Plant stand	First flower	PM	Seed yield	Test weight	Oil
	Jday	plt/A	Jday	Jday	bu/A	lb/bu	%
conventional till	146	10292	205	251	1160	24.2	38.3
no-till	147	10624	206	252	1338	24.1	39.0
strip till - fall	146	10624	205	249	1134	24.7	39.4
strip till - spring	146	12616	205	251	1379	24.6	39.5
mean	146	11039	205	251	1253	24.4	39.0
CV (%)	0.2	21.1	0.1	0.5	11.3	4.8	3.5
LSD (0.05)	1	NS	1	NS	NS	NS	NS