

**TITLE:** No-Till Rotation Systems for Winter Wheat Production

**PRINCIPAL INVESTIGATOR:** Dwayne Beck

**OBJECTIVE:** Determination of the most profitable rotations for no-till production of winter wheat in central and western South Dakota.

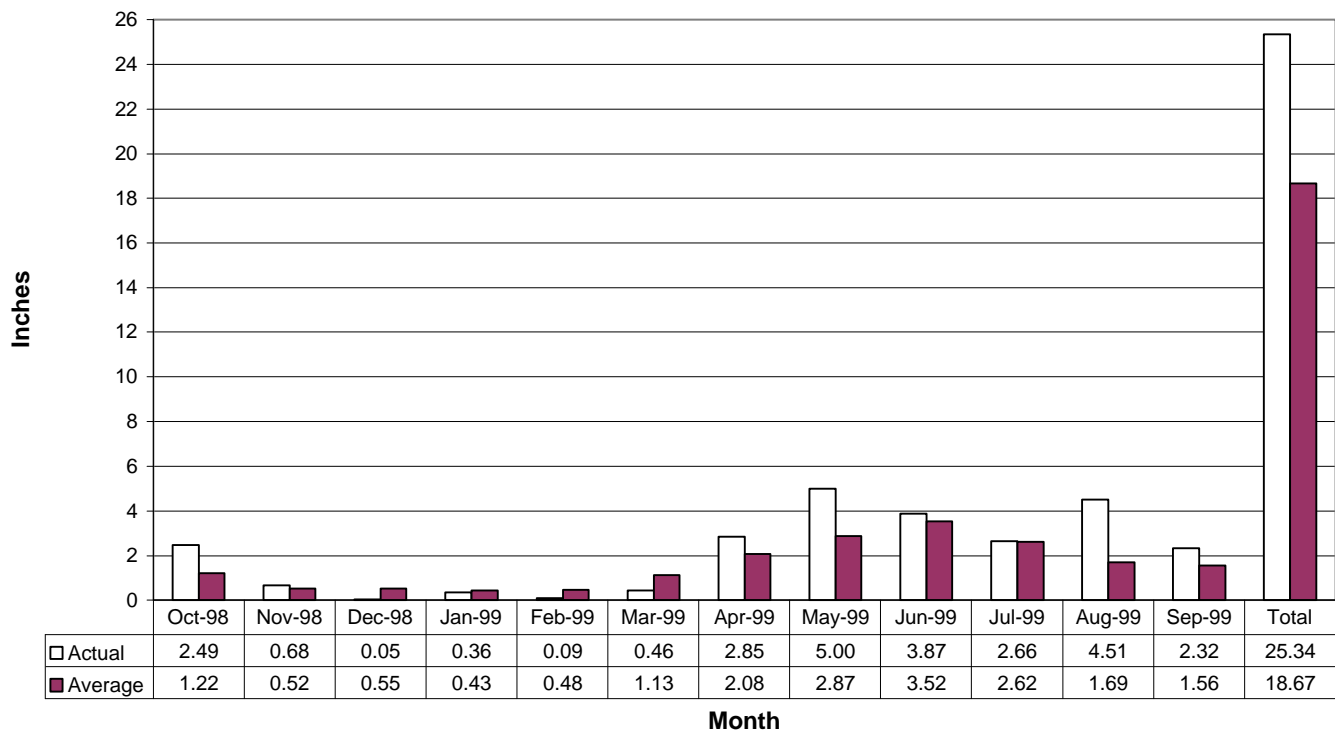
**DURATION:** Present plans call for performing at least two rotation cycles (1991-2001).

**PROGRESS REPORT/ACCOMPLISHMENTS:** The no-till rotation study is located on a half section of land approximately 17 miles southeast of Ft. Pierre on an Opal-Promise soil series. Research procedures utilize field scale equipment, weigh wagon yields, and best management practices.

The fall 1998 and spring 1999 (October through March) precipitation was about average. However, the farm received above average moisture in April, May, June, July, August, and September. August was dry with only 1.24 inches of precipitation falling from July 31 to August 28. The research site had 19 days of temperatures equal to or exceeding 95 degrees F and **seven** of those days exceeded a high of 100 degrees F. The recorded high at the site this year was 109 degrees F on July 29<sup>th</sup>.

See the chart below for actual precipitation received at the research site from October 1998 through September 1999 versus average precipitation.

**Wheat Commission Rotation Study  
Precipitation vs. Average  
October 1, 1998 to September 30, 1999**



Fifteen no-till rotations are included in the study and 1999 yields are as follows: [Please click on the corresponding number to view inputs, operations & economics.](#)

1.	Winter Wheat 64.1 bu	-	Fallow			
2.	Winter Wheat 56.9 bu	-	Green Fallow			
3.	Winter Wheat 54.3 bu	-	Chickpea 745 lbs			
4.	Winter Wheat 43.1 bu	-	Canola* 286 lbs			
5.	Winter Wheat 58.7 bu	-	Corn 85.6 bu	-	Fallow	
6.	Winter Wheat 62.5 bu	-	Corn 82.4 bu	-	Canola* 462 lbs	
7.	Winter Wheat 67.0 bu	-	Corn 70.8 bu	-	Field Pea 22.5 bu	
8.	Winter Wheat 64.6 bu	-	Corn 85.9 bu	-	Chickpea 816 lbs	
9.	Winter Wheat 51.8 bu	-	Corn 61.6 bu	-	Soybean 20.2 bu	- Spring Wheat 42.8 bu
10.	Winter Wheat 51.8 bu	-	Soybean 23.7 bu	-	Corn 61.8 bu	- Spring Wheat 44.5 bu
11.	Winter Wheat 72.3 bu	-	Corn 65.4 bu	-	Soybean 21.7 bu	- Field Pea 17.6 bu
12.	Spring Wheat 46.3 bu	-	Corn 71.5 bu	-	Canola* 417 lbs	
13.	Spring Wheat 44.9 bu	-	Corn 66.0 bu	-	Soybean 21.8 bu	
14.	Winter Wheat 60.2 bu	-	Soybean 17.1 bu	-	Canola* 466 lbs	
15.	Corn 66.6 bu	-	Soybean 21.6 bu			

\* The canola experienced heavy shattering (estimated at 40 to 50%) due to the fact it wasn't swathed prior to the hot, dry, and windy weather in mid to late July.