

The Sixth Year of Strip-Till Comparison Study at Irrigation Research Foundation - 2006

**Written by: Mike Petersen – Orthman Agronomist and
Jeffrey Tichota – Monsanto Technical Development Manager**

The growing of 2006 was thought to become something of a turnaround from 2005 for growers on the Central High Plains of Nebraska , Kansas and Colorado . Short on rain and some ugly periods of triple digit heat and winds really hurt the pollination period putting irrigators right to their limits and diminished kernel set. The strip-till and conventional tilled corn suffered alike during days when ET exceeded 0.44 in/day.

This year we prepared the plots just one month prior to planting and plant date was April 20th. We fertilized and tilled with both strip-till implements available at the farm; Orthman 1tRIPr and the DMI 5310 Nutri-Till unit so both companies would have representation (equal portions) in the plots. The conventional tillage portion of the study was disked the same time, which the conventional area had been fertilized with dry spread by M&M Coop earlier. Our strip-till units were run at 9-10 inch depths and both applied N-P-K-S-Zn product at the 8 inch depth. Planting depth was one inch below the soil surface in all plots, we planted the Dekalb 61-68 stacked corn at 32,000 seeds per acre with a harvest population of 31,700 plants. Alongside of this long term study the IRF joined hands with Monosem to put in 24 rows of twin row planted corn on a plot that also was strip-tilled. It was planted 7 days later the 27th of April, fertilized at one depth as was the regular strip-till portion of the long term study. Seed drop amounted to 37,000 seeds per acre with a harvest population of 36,800.

Emergence was excellent in the strip-till and in the conventional the emergence was a little uneven for the first seven days then caught up with the rest. The root growth in the strip-till was again observed early, mid-season, and at maturity. Strip-Till corn grew

roots to 68 inches, the conventional tilled corn grew roots to 56 inches in depth at the 105 days after emergence.

In our efforts to be judicious with out Nitrogen fertilizer program we inadvertently ended up with 0.56 lb. of N per bushel sought – 250 bu/acre. Our goal was to feed the crop with a nitrogen load of 0.75lb N/bushel sought or 187 lbs and with remnant NO₃-N in the soil and N in the organic fraction we considered we were in good shape to reach that goal. Hot, dry conditions; a judicious but not enough Nitrogen package gave us decent corn but not nothing of the expectations, see chart below.

Table 2.

At Irrigation Research Foundation Experimental Farm, near Yuma, CO			
Harvested October 25th, 2006			
Conventional-Strip-Till Yield Results (bu./acre)			
Conventional	Strip-Till	Twin-Row	
213	208	198	
Plots were fertilized at a rate of 106 lbs of actual N, 60 lbs P, 16 lbs K			
Residual NO ₃ was 11-18ppm; 35.2 to 51.2 lbs left from previous year			

In Summary:

In the long term plots the irrigation was even with an application of 13.5 inches and just over 5 inches from rainfall. Because of our miss in total N our yields were down from previous years 2005 and 2003, 2004 the IRF experienced four hailstorms. Every year since the inception of this study we have seen the strip-till be the top yielding plots. This year heat and fertilization gave us an education. It is our observation with the strip-tilled twin-row crop the heat, competition with 30 inch centered twin-row did experience problems. Another learning treat from 2006.