Soybean Relative Maturity and Planting Date Influence on Optimal Yield

Cooperator: Tyler Ross  
Nearest Town: Crookston  
Soil Type: Bearden silty clay loam  
Harvest Populations: 140,000  
Harvest Date: 24 September 2009, 30 September 2009 and 9 October 2009  
Experimental Design: Split plot with varieties as main plot and planting date as subplot

Purpose of Study:  
To evaluate soybean relative maturity and planting date influence on optimal yield and soybean quality in northwest Minnesota.

Results:  
The plots were established utilizing two Asgrow cultivars with 00.9, and 0.4 relative maturities planted at eight different dates commencing April 28 and concluding on June 16. Due to cool soil temperatures, it took 23 days for the first two planting dates to emerge. Optimum yield was achieved with planting date 4 for the AG0401 cultivar and date 7 for the AG00901 cultivar. Average soil temperatures at the 2” depth reached 55 degrees May 11.

Figure 1. 2009 Planting Date Yields

![Figure 1. 2009 Planting Date Yields](image-url)
Results continued . . .

Protein percentage was not affected by planting date and oil percent significantly decreased with delayed planting for the early RM cultivar AG 00901 as is illustrated in Figure 2. The later maturing AG 0401 cultivar oil content decreased 0.8% and protein increased 1.5% with delayed planting. These results differ from the 2006 and 2007 Planting Date Trials.

Soil temperature had a large effect on days from planting to emergence as can be seen in Figure 3, ranging from 14 days to 7 days from planting to emergence in 2007 to 38 days to 14 days in 2008 and 20 days to 9 days in 2009.

Figure 4 gives the average daily 2 inch soil temperatures for 2006 -2009 trials. Mean soil temperatures at the 2 depths had achieved 55 degrees as early as April 25 in 2007. This was well above normal. It was May 1 of 2006 before soil temperatures exceeded 55 degrees.

In 2008, it was May 25 before the average 2 inch soil temperature exceeded 55 degrees and May 11 in 2009.

To utilize this information to make planting date decisions, several years of different environments need to be considered to determine a risk assessment of early planting of soybean.