Soybean Relative Maturity and Planting Date Influence on Optimal Yield

Cooperator: NW Research & Outreach Center
Nearest Town: Crookston
Soil Type: Bearden silty clay loam
Harvest Populations: 140,000
Harvest Date: 9-24-08 & 10/9/08
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 northwestern 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 18 and concluding on June 2. Due to cool soil temperatures, it took 38 days for the first planting date to emerge and the first 4 planting dates all emerged on May 26 & 27. Optimum yield was achieved with the first four planting dates due to the lateness of emergence as is noted in Graph 1. Average soil temperatures at the 2” depth reached 55 degrees May 25.

Graph 1. 2008 Planting Date Yields

2008 Planting Date Soybean Yields

Source: 2008 On-Farm Cropping Trials Northwest and West Central Minnesota
U of MN Extension Service, published January 2009

Partnership/Funding: Minnesota Soybean Research and Promotion Council NW Research and Outreach Center
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Soybean Relative Maturity and Planting Date Influence on Optimal Yield (continued)

Results continued . . .

Protein percentage was not affected by planting date and oil percent significantly decreased with delayed planting as is noted in Graph 2. These are identical results to the 2006 & 2007 Planting Date Trials.

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

Graph 4 gives the average daily 2 inch soil temperatures for 2006 - 2008 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.

The growing conditions during 2008 were rather harsh for soybean production in the Red River Valley starting with a cool dry spring approaching borderline drought conditions by mid-July and extending into the first part of August. 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.