2017

Soybean Date of Planting and Maturity

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RFR-A1628

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Introduction

Inevitably, every year soybean planting gets delayed or needs to be replanted because of weather somewhere in Iowa. Even if soybean planting starts and progresses in a timely manner, there always is the question of what maturity group should be planted. This trial was setup to determine what maturities are well suited for a given geographic location, but also how maturity selection should be adjusted as planting dates get pushed into late spring.

Materials and Methods

This project was conducted at the ISU Northwest Research Farm as well as six additional Iowa State University research farms across Iowa in 2014, 2015, and 2016. In 2014, three varieties (P22T51, P25T51, 92Y75) were planted at four target planting dates (May 1, May 20, June 10, and July 1). In 2015 and 2016, P19T01 replaced 92Y75 with the same target planting dates. The plots were setup in a split plot arrangement with four replications. Target planting date was the whole plot and hybrid was the split plot. A target seeding rate of 140,000 seeds/acre was used with a Kinze brush-style planter. Data collection included growth staging, grain yield, and grain moisture. The statistics were conducted at a 95 percent confidence interval.

Results and Discussion

In both 2014 and 2015, the late April to early May dates of planting (DOP) had higher yields than subsequent DOP (Table 1). A yield potential of 85 percent or greater was achieved when planting prior to May 20. These results support the ISU Extension and Outreach planting date recommendations of planting in late April or early May as long as soil temperature and the weather forecast are favorable. In 2016, the 1.9 and 2.2 maturity group variety had a similar response to 2014 and 2015. Conversely, the 2.5 maturity group variety resulted in greater yields at later DOP compared with earlier DOP.

In all years, the highest yield was achieved with the 2.5 maturity. Yield potential was not improved by switching to shorter season varieties at later planting dates. However, grain moisture was approximately 2 percent wetter with longer season varieties planted later.

Acknowledgements

This project was supported by the ISU Research and Demonstration Farms and the Iowa Agriculture and Home Economics Experiment Station. Seed was provided by DuPont-Pioneer.

Table 1. Soybean grain yield of three varieties/year at four planting dates at the ISU Northwest Research Farm in 2014, 2015, and 2016.

Actual date of planting	P19T01 (1.9 MG)	P22T69 (2.2 MG)	P25T51R (2.5 MG)	92Y75 (2.7 MG)	Average yield (bu/ac)
	grain yield (bushels/acre)				
4/22/2014	-	67.8	70.5	68.9	69.1
5/9/2014	-	62.4	64.2	59.6	62.1
6/6/2014	-	52.8	56.4	54.5	54.6
7/3/2014	-	29.9	31.5	27.1	29.5
Average yield (bu/ac)	-	53.2	55.7	52.5	P < 0.0001
		P < 0.0001			
4/30/2015	72.7	72.3	75.0	-	73.3
5/19/2015	67.4	67.0	70.5	-	68.3
6/9/2015	61.6	60.3	62.5	-	61.5
6/30/2015	48.8	52.2	57.0	-	52.7
Average yield (bu/ac)	62.6	63.0	66.3	-	P < 0.0001
		P < 0.0001			
5/7/2016	82.4	76.1	82.7	-	80.4
5/20/2016	85.0	76.1	75.6	-	78.9
6/7/2016	62.2	68.3	86.3	-	72.3
7/1/2016	63.6	68.9	91.0	-	74.5
Average yield (bu/ac)	73.3	72.4	83.9		P = 0.0172
		P < 0.0001			

*The P-values below the columns indicate the main effect of variety on yield. The P-values to the right of the table refer to the main effect of planting date on yield. P-values for the interaction effect between planting date and variety are as follows 2014, P = 0.0577; 2015, P = 0.0462; 2016, P < 0.0001.