Soybean Date of Planting and Maturity

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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 Ag Engineering/Agronomy Research Farm as well as six additional Iowa State University research farms across Iowa in 2014, 2015, and 2016. Every year, four varieties (P22T69, P25T51, 92Y75, P35T58R) were planted at four target planting dates (May 1, May 20, June 10, and July 1). 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. Data collection included growth staging, grain yield, and grain moisture.

Results and Discussion

In both 2014 and 2015, the early and mid-May dates of planting (DOP) had higher yields than subsequent DOP (Table 1). However, in 2016 the highest yields were realized at the mid-May DOP. 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.

Although maturity was not statistically significant in 2014 and 2015, the highest yield was achieved with the 2.2 maturity and in 2016 the highest yield was achieved with the 3.5 maturity (Table 1). Yield potential was not improved by switching to shorter season varieties at later planting dates.

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Table 1. Soybean grain yield of four varieties at four planting dates at the ISU Ag Engineering/Agronomy Research Farm, Boone, IA, in 2014, 2015, and 2016.

Actual date of planting	P22T69 (2.2 MG)	P25T51 (2.5 MG)	92Y75 (2.7 MG)	P35T58R (3.5 MG)	Average yield (bu/ac)
	grain yield (bu/ac)				
5/6/2014	47.6	45.0	49.1	49.9	47.9
5/20/2014	53.4	50.3	50.7	44.8	49.8
6/10/2014	44.4	47.9	44.6	45.2	45.6
7/8/2014	20.5	30.1	29.0	27.7	26.8
Average yield (bu/ac)	41.5	43.3	43.4	41.9	P < 0.0001
		P = 0.8583			
5/6/2015	47.7	44.4	47.3	47.4	46.7
5/20/2015	52.8	50.3	50.0	44.9	49.3
6/10/2015	44.5	47.9	44.6	43.9	45.2
7/8/2015	20.6	30.1	29.0	27.8	26.8
Average yield (bu/ac)	40.6	43.2	42.7	41.0	P < 0.0001
		P = 0.7578			
5/6/2016	37.1	39.0	40.7	38.1	38.7
5/20/2016	44.4	41.4	34.1	49.1	42.3
6/10/2016	42.2	38.6	38.6	41.0	40.1
6/29/2016	31.9	20.2	32.6	28.1	28.2
Average yield (bu/ac)	38.9	34.8	36.5	39.1	P = 0.0009
		P = 0.5656			

*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 = 0.5938; 2015, P = 0.5582; 2016, P = 0.5890.