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Soybean Date of Planting and Maturity in Northeast Iowa

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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 Northeast Research Farm as well as six additional Iowa State University research farms across Iowa in 2014, 2015, and 2016. Every year the same three varieties (P22T69R, P25T51, 92Y75) 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. Data collection included growth staging, grain yield, and grain moisture.

Results and Discussion

In 2014 and 2015, the early to mid-May dates of planting (DOP) had higher yields than subsequent DOP (Table 1). In 2016, the mid-May DOP had the highest yields across all the hybrids. These results support the ISU Extension and Outreach planting date recommendations of planting in early May as long as soil temperature and the weather forecast are favorable.

The highest yields were achieved with the 2.2 maturity group in 2016 (Table 1). Although yields were numerically greater for the 2.2 maturity group in 2014 and 2015, it was not statistically significant. Additionally, at later planting dates there was not a yield advantage with earlier maturity varieties.

The dates of emergence, silking, and maturity are presented in Table 2.

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Table 1. Soybean grain yield of three varieties at four planting dates at the ISU Northeast Research Farm, Nashua, IA, in 2014, 2015, and 2016.

Actual date of planting	P22T69 (2.2 MG)	P25T51 (2.5 MG)	92Y75 (2.7 MG)	Average yield (bu/ac)
grain yield (bu/ac)				
5/5/2014	73.7	68.1	71.9	71.2
5/19/2014	73.2	71.1	70.1	71.5
6/9/2014	63.8	67.8	62.8	64.8
6/28/2014	46.9	52.6	46.0	48.5
Average yield (bu/ac)	64.4	64.9	62.7	P < 0.0001
P = 0.1507				
5/1/2015	68.0	65.4	61.7	65.0
5/19/2015	64.7	65.0	62.3	64.0
6/9/2015	59.0	58.2	58.8	58.7
6/30/2015	52.0	55.3	54.8	54.0
Average yield (bu/ac)	60.9	61.0	59.4	P < 0.0001
P = 0.1112				
5/4/2016	60.7	51.6	50.2	54.2
5/18/2016	63.5	53.7	59.1	58.8
6/8/2016	54.6	51.7	53.5	53.2
6/30/2016	46.0	47.3	44.1	45.8
Average yield (bu/ac)	56.2	51.1	51.7	P < 0.0001
P = 0.0003				

*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 = 0.0138; 2015, P = 0.0188; 2016, P = 0.0101.

Table 2. Soybean dates of emergence (VA), flowering (R1), maturity (R8) of three varieties at four planting dates at the ISU Northeast Research Farm, Nashua, IA, in 2014, 2015, and 2016.

Actual date of planting	Emergence (VE)			Flowering (R1)			Maturity (R8)		
	P22T69 (2.2 MG)	P25T51 (2.5 MG)	92Y75 (2.7 MG)	P22T69 (2.2 MG)	P25T51 (2.5 MG)	92Y75 (2.7 MG)	P22T69 (2.2 MG)	P25T51 (2.5 MG)	92Y75 (2.7 MG)
5/5/2014	5/21	5/21	5/21	6/24	6/25	6/30	9/25	9/28	10/3
5/19/2014	5/27	5/27	5/27	6/24	7/2	6/30	9/28	10/1	10/6
6/9/2014	6/17	6/17	6/17	7/18	7/20	7/24	10/10	10/12	10/17
6/28/2014	7/5	7/5	7/5	8/1	8/4	8/5	10/20	10/23	10/25
5/1/2015	5/18	5/18	5/18	6/24	6/27	7/1	9/10	9/15	9/17
5/19/2015	5/29	5/29	5/29	7/1	7/6	7/2	9/19	9/21	9/21
6/9/2015	6/15	6/15	6/15	7/22	7/22	7/25	9/28	9/30	9/30
6/30/2015	7/5	7/5	7/5	8/4	8/4	8/5	10/10	10/11	10/12
5/4/2016	5/18	5/18	5/18	6/23	6/27	7/2	9/15	9/20	9/24
5/18/2016	5/25	5/25	5/25	6/30	7/5	7/7	9/25	9/27	9/29
6/8/2016	6/13	6/13	6/13	7/13	7/15	7/22	10/1	10/7	10/12
6/30/2016	7/4	7/4	7/4	7/30	8/2	8/5	10/12	10/14	10/16

*Some dates were averaged across replications.