

Soybean Date of Planting and Maturity in Southwest Iowa

RFR-A1675

Mark Licht, assistant professor and extension cropping systems specialist
Department of Agronomy
Dan Schaben, ag specialist

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 Armstrong Research Farm as well as six additional Iowa State University research farms across Iowa in 2014, 2015, and 2016. In all years, three varieties (P25T51, P35T58, P39T67R) 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

The lower soybean yields in 2016 are attributed to a combination of untreated seed and cool, wet conditions during germination and early growth.

In both 2014 and 2015, the late April to early May dates of planting (DOP) had higher yields than subsequent DOP (Table 1). In 2016, the mid-May to early June planting dates were numerically higher than earlier or later plantings, but not statistically significant. 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 2014, the highest yield was achieved with the 3.9 maturity. In 2015 and 2016, the maturity did not significantly affect yield (Table 1). Yield potential was not improved by switching to shorter season varieties at later planting dates.

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 at four planting dates at the ISU Armstrong Research Farm, Lewis, IA, in 2014, 2015, and 2016.

| Actual date of planting | P25T51 (2.5 MG) | P35T58R (3.5 MG) | P39T67 (3.9 MG) | Average yield (bu/ac) |
|------------------------------|---------------------|---------------------|--------------------|-----------------------|
| | grain yield (bu/ac) | | | |
| 5/5/2014 | 61.8 | 69.6 | 75.2 | 69.5 |
| 5/19/2014 | 64.3 | 68.9 | 76.5 | 69.9 |
| 6/3/2014 | 54.2 | 61.0 | 60.3 | 58.5 |
| 7/3/2014 | 32.9 | 35.0 | 32.9 | 33.6 |
| Average yield (bu/ac) | 52.7 | 58.6 | 61.2 | P < 0.0001 |
| | P < 0.0001 | | | |
| 5/1/2015 | 74.6 | 67.8 | 70.8 | 71.1 |
| 5/21/2015 | 76.2 | 50.9 | 65.5 | 64.2 |
| 6/2/2015 | 60.9 | 60.7 | 58.0 | 59.9 |
| 7/1/2015 | 43.1 | 48.2 | 44.8 | 45.4 |
| Average yield (bu/ac) | 63.7 | 56.9 | 59.8 | P < 0.0001 |
| | P = 0.2002 | | | |
| 5/6/2016 | 37.0 | 32.8 | 35.2 | 35.0 |
| 5/20/2016 | 45.3 | 35.9 | 36.0 | 39.1 |
| 6/10/2016 | 36.0 | 37.7 | 38.3 | 37.3 |
| 6/29/2016 | 26.2 | 30.1 | 28.5 | 28.3 |
| Average yield (bu/ac) | 36.1 | 34.1 | 34.5 | P = 0.1250 |
| | P = 0.8729 | | | |

*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 = 0.0114; 2015, P = 0.1727; 2016, P = 0.9089.