

# Soybean Date of Planting, Maturity, and Seed Treatment Trial in Northeast Iowa

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Brian Lang, extension agronomist  
Ken Pecinovsky, farm superintendent

### Introduction

Inevitably, every year soybean planting can get delayed or needs to be replanted because of adverse weather conditions. Even with timely planting, there often is a question about which maturity group should be planted. This trial compares four planting dates and three relative maturities, along with one additional comparison of one variety planted with or without a seed treatment.

### Materials and Methods

This project was conducted at the ISU Northeast Research Farm in 2020. The three soybean varieties and their relative maturity (RM) were P18A98X at 1.8 RM, P21A28X at 2.1 RM, and P25A04X at 2.5 RM. The four planting dates were April 7, April 24, May 9, and June 1.

The seed treatments were an untreated control and a DuPont™ Lumisena™ seed treatment containing Evergol Energy SB at 0.5 oz/140k, Lumisena 200 FS at 0.285 oz/140k, ILeVO 600 FS at 1.18 oz/140k, Gaucho 600 at 0.8 oz/140k, and PPST 2030 at 1 oz/140k.

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 emergence, growth stage, observations for Sudden Death Syndrome (SDS), grain yield, and moisture.

For weed management, the planting operation included 5 oz/acre Zidua SC. This was

followed with a post-emergence application of 32 oz/acre Roundup PowerMax plus 6 oz/acre Select with 1 percent crop oil concentrate at 20 gallons/acre.

### Results and Discussion

April planting dates provided the highest yields for all three varieties (Table 1). Yields from the early May planting date were similar to those from the late April planting date. The early June planting date provided the lowest yields for all three varieties. Yields were similar across all three RM for each planting date except for the 2.5 RM planted June 1. Past research has shown to stay with a full season variety through mid-June to maximize yield.

As planting dates were delayed, the number of GDU's from emergence to maturity decreased (Table 3). A 15-day delay in planting date (April 24 and May 9), amounted to a 3- to 5-day delay to reach R1, and a 3- to 5-day delay to reach R8 achieving similar yields and grain moisture content (Table 2).

There was no significant difference between the untreated and seed treated variety in yield or harvest moisture for all four planting dates. Observations during the trial for plant diseases found no significant development of SDS or other foliar diseases.

### Acknowledgements

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**Table 1. Soybean grain yield and harvest moisture of three varieties at four planting dates at the ISU Northeast Research Farm, Nashua, IA.**

Planting date	Variety (RM) + Seed Treatment						Variety (RM) Untreated	
	P18A98X (1.8)		P21A28X (2.1)		P25A04X (2.5)		P18A98X (1.8)	
	Yield	Moisture	Yield	Moisture	Yield	Moisture	Yield	Moisture
April 7	67.9 a	10.2 a	67.8 a	10.4 a	67.8 a	12.4 a	66.0 a	10.4 a
April 24	66.2 ab	10.4 a	65.1 a	10.4 a	65.0 ab	13.3 b	62.5 ab	10.5 a
May 9	62.2 bc	10.4 a	63.6 ab	10.9 a	61.0 b	13.5 bc	61.8 bc	10.3 a
June 1	58.1 c	11.8 b	59.4 b	12.0 b	64.5 ab	17.8 c	58.1 c	11.9 b
LSD <sub>0.05</sub>	4.1	0.7	4.3	0.8	4.1	0.9	4.0	0.7

LSD<sub>0.05</sub> = least significant difference. Entries that differ by one LSD or more are considered to be in different classes with 95 percent certainty. Entries with the same letter are not considered to be significantly different.

**Table 2. Soybean dates of emergence (VE), first flower (R1), and maturity (R8) for three varieties at four planting dates at the ISU Northeast Research Farm, Nashua, IA.**

Planting date	Variety (RM) + Seed Treatment									Variety (RM) Untreated		
	P18A98X (1.8)			P21A28X (2.1)			P25A04X (2.5)			P18A98X (1.8)		
	VE	R1	R8	VE	R1	R8	VE	R1	R8	VE	R1	R8
April 7	5/9	6/21	9/13	5/9	6/24	9/17	5/9	6/26	9/20	5/9	6/21	9/10
April 24	5/11	6/21	9/13	5/11	6/24	9/17	5/11	6/27	9/20	5/11	6/21	9/10
May 9	5/23	6/26	9/16	5/23	6/28	9/20	5/23	6/30	9/25	5/23	6/25	9/15
June 1	6/6	7/6	9/26	6/6	7/8	9/30	6/6	7/10	10/5	6/6	7/6	9/25

**Table 3. Soybean growing degree units (GDU) for emergence (VE), first flower (R1), and maturity (R8) for three varieties at four planting dates at the ISU Northeast Research Farm, Nashua, IA.**

Planting date	Variety (RM) + Seed Treatment									Variety (RM) Untreated		
	P18A98X (1.8)			P21A28X (2.1)			P25A04X (2.5)			P18A98X (1.8)		
	VE	R1	R8	VE	R1	R8	VE	R1	R8	VE	R1	R8
April 7	204	897	2,546	204	939	2,600	204	982	2,628	204	897	2,517
April 24	135	826	2,474	135	868	2,529	135	935	2,557	135	826	2,446
May 9	119	787	2,396	119	835	2,433	119	893	2,522	119	764	2,383
June 1	145	791	2,285	145	845	2,315	145	894	2,340	145	791	2,266