

Soybean Yield Response to Planting Depth

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Objective

To determine the response of soybean yield to planting depth.

Background

Crop Year: 2016	Tillage: Field cultivation
Location: Wapakoneta, Ohio	Planting Date: May 23, 2016
County/Town: Auglaize County	Nitrogen: None
Soil Type: Blount and Glynwood silt loam	Seeding Rate: 168,300 seeds/A
Drainage: Systematic	Harvest Date: November 2, 2016
Previous Crop: Soybean	

Methods

A soybean planting depth trial was established having three replications in a randomized complete block design. Planting depth was 0.75 and 1.5 inches. A John Deere 750, 15 foot grain drill was used to seed the soybean. Planted plot width was 30 feet by the length of the field (~1,400 feet). Stand counts were taken May 29, May 31, June 6, June 13 and October 18, 2016. Plants were counted in a single row for 69 feet 8.5 inches to represent 1/1000th of an acre at 7.5 inch row spacing. Stand counts were taken three times in each plot and averaged. The center 25 feet of the plot for a length of 990 feet was harvested with a commercial combine. Yield was adjusted to 13% moisture. Data were analyzed using the ANOVA procedure and mean separation at $\alpha = 0.05$.

Results

Table 1. Soybean Population and Yield Response to Planting Depth.

Depth Inches	-----Population -----					Yield Bu/A
	May 29	May 31	June 6	June 13	Oct. 18	
0.75	54,595 B	57,209 B	155,364 A	147,814 A	111,222 A	52.2 A
1.5	121,968 A	138,230 A	159,139 A	168,432 A	109,833 A	53.0 A
	LSD (0.05)	LSD (0.05)	LSD (0.05)	LSD (0.05)	LSD (0.05)	LSD (0.05)
	35,255	80,780	N.S.	N.S.	N.S.	N.S.
	C.V. = 11.4	C.V. = 23.5	C.V. = 10.2	C.V. = 4.3	C.V. = 6.3	C.V. = 4.1

Summary

In a Michigan State trial, the optimal seeding depth was 1.75 inches and other research has talked about 1.5 inches being optimal. This study was established to compare 0.75 and 1.5 inches planting depth.



More soybeans had emerged from the 1.5 inch planting depth on May 29th and May 31 compared to the 0.75 inch planting depth. The increased germination at the 1.5 inch depth was likely due to a dry upper soil surface at planting for the 0.75 inch planting depth. Plant populations were not different for June 6 and 13 and October 18. A rain event on June 1st provided moisture to stimulate soybean emergence before June 6th. There was no difference in soybean yield for the two planting depths. These results contradict previous research, but this is just a single year's worth of data.

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