

## Soybean Planting Speed Trial

Author, Wayne Dellinger, Ohio State University Extension Educator, Union County

Published August 21, 2023

### Objective

Evaluate the impact of planter speed on soybean stand and yield. The purpose of this study is to provide research-based information to base planting speed decisions.

This may help improve the overall return per acre by getting crops in the ground in a more timely manner between weather events.

### Background

Crop Year: 2022	Tillage: Vertical till in Fall and Spring
Location: 40.1173, -83.3531	Soil Test: Grid sampled Fall 2021
County/Town: Union County	Planting Date: 4/27/2022
Soil Type: Brookston Silty Clay Loam	Seeding Rate: 130,000 seeds/acre
Drainage: Tiled	Harvest Date: 10/12/2022
Previous Crop: Corn	

### Methods

A completely randomized block design was used where four planting speeds were randomized and replicated four times across a 112-acre field. Asgrow 38XF1 soybeans were planted on 30-inch row spacing at a fixed seeding rate of 130,000 per acre at speeds of 5 mph, 7.5 mph, 10 mph, and 12 mph with a John Deere ExactEmerge planter. Sixty-foot planting passes were made with GPS guidance and then 40-foot harvest passes on one side of each plot were made using the same GPS guidance. Field conditions were good with adequate moisture and good soil/seed contact. Stand count data was collected at the V3 growth stage. Yield was measured by a calibrated yield monitor.

### Results

An analysis of variant formula (ANOVA) was used with Fisher's Protected Least Significant Differences (LSD) test at alpha 0.1. There was no significant yield difference among the four planter speed treatments regarding stand count or yield. (See Table 1)

**Table 1 - Treatments, stand counts, and yield results**



Treatments	Stand Count (plants/ac)	Yield* (dry bu/ac)
<b>5 mph</b>	116,128	70.8 a**
<b>7.5 mph</b>	117,295	71.3 a
<b>10 mph</b>	117,660	70.6 a
<b>12 mph</b>	115,703	71.1 a
<b>LSD:</b>		<b>0.69 bu/ac</b>
<b>CV (%):</b>		<b>0.76%</b>

\* Dry yield is standardized based on 13% moisture.

\*\*Treatment means with the same letter are not significantly different.

### Summary

No significant differences exist across the four planting treatments in stand counts, grain moisture at harvest, or yield for this soybean study. This was year two of this study in soybeans. Both in year one and in year two, no significant emergence or yield differences were measured across any of the four planting speed treatments. Thereby, the two-year results for this corn-soybean rotation indicated that high speed planting technology works providing consistent emergence without yield loss over a wide range of planting speeds. It should be noted in both years of this study, the farmer performed a vertical till pass prior to planting with good planting conditions each spring.

With this knowledge, operators with this type of equipment and technology can plant at faster speeds (requiring less time) without impacting emergence or yield. This allows one to use the technology to its fullest potential and helps to maximize the weather windows of opportunity in the spring to successfully complete planting. Since the planter used in this study was only rated for speeds up to 10 mph, further study may be needed on the effects of the higher end planting speed on the equipment itself.

### Constraints

In the process of planting the study, it was noted that reaching higher ground speeds may be problematic when using the current equipment of the cooperating farmer. Field conditions, slope, and tillage all appear to be influential factors in reaching higher speeds without upgrading tractor to higher horsepower.

### Acknowledgements

The author expresses appreciation to JCW Farms, Plain City, OH.

For more information, contact:



**THE OHIO STATE UNIVERSITY**

COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

[agcrops.osu.edu](http://agcrops.osu.edu)

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information, visit [cfaesdiversity.osu.edu](http://cfaesdiversity.osu.edu).

Wayne Dellinger  
OSU Extension –Union County  
18000 St. Rt. 4, Suite E  
Marysville, OH 43040  
dellinger.6@osu.edu



**THE OHIO STATE UNIVERSITY**

COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

**[agcrops.osu.edu](http://agcrops.osu.edu)**

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information, visit [cfaesdiversity.osu.edu](http://cfaesdiversity.osu.edu).