

Years: 2000 – 2003

Title: Planting Speed Impact on Crop Yield

Crop: Corn

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Cooperator: Keith Glewen, Extension Educator

Objective: To determine and document the effect of planter speed operation using three speeds and two seed classes on the yield and profitability of producing corn

Treatments:

- 2000 - Three planting speeds (4.5, 5.3, & 6.0 mph) and 2 hybrids.
- 2001 – Two seed sizes (41.8 and 58.0 lbs/bag Pion. 33B51) and three speeds (4.5, 5.3, & 6.0 mph)
- 2002 – One seed (Pion. 33B51 @ 50.2 lbs/bag) and three speeds (4.5, 5.3, & 6.0 mph)
- 2003 – Two seed classes (PDF 55.26# and PDR 54.03#/80,000 Pion 33B51) and three speeds (4.5, 5.3, & 6.0 mph)

On-Farm Comparison Results

- SABATA

Nebraska Soybean & Feed Grains Profitability Project

Results: 2000

Yield, bu/ac at 15.0%

<u>Planter Speed</u>	<u>Hybrid 33A14</u>	<u>Hybrid 33B51</u>	<u>Mean</u>
4.5 mph	148	159	154
5.3 mph	146	161	154
6.0 mph	144	159	151
Mean	146	160	153

Statistical Analysis: (Prob >F)

Planter speed (P)	0.370 ns
Hybrid (H)	0.0001***
P x H	0.438 ns

On-Farm Comparison Results

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Nebraska Soybean & Feed Grains Profitability Project

Results: 2001

Yield, bu/ac at 15.0%

<u>Planter Speed</u>	<u>Seed</u>	<u>Seed</u>	<u>Mean</u>
	<u>41.8 lbs/bag</u>	<u>58.0 lbs/bag</u>	
4.5 mph	109	106	107
5.3 mph	113	107	110
6.0 mph	106	103	104
Mean	109	106	107

Statistical Analysis: (Prob >F)

Planter speed (P)	0.133 ns
Seed Size (S)	0.002**
P x S	0.435 ns

On-Farm Comparison Results

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Nebraska Soybean & Feed Grains Profitability Project

Results: 2002

Yield, bu/ac at 15.0%

<u>Planter Speed</u>	<u>Grain Yield</u>	<u>Moisture</u>	<u>Population</u>
<u>mph</u>	<u>bu/ac at 15.5%</u>	<u>%</u>	<u>1,000 plants/ac</u>
4.5	65	30.3 *	23.620
5.3	63	30.7	23.880
6.0	64	30.9	24.260
Prob > F	0.791 ns	0.030 **	0.095 *

On-Farm Comparison Results

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Nebraska Soybean & Feed Grains Profitability Project

Results: 2003

Yield, bu/ac at 15.5%

<u>Planter Speed</u>	<u>Seed PDR</u>	<u>Seed PDF</u>	<u>Mean</u>
4.5 mph	134	136	135
5.3 mph	136	136	136
6.0 mph	135	136	136
Mean	135	136	

Grain Moisture, %

4.5 mph	16.5	16.4	16.5
5.3 mph	16.4	16.5	16.5
6.0 mph	16.5	16.6	16.5
Mean	16.5	16.5	

<u>Statistical Analysis</u>	<u>Grain Yield</u>	<u>Grain Moisture</u>
Planter Speed (P)	0.867 ns	0.947 ns
Seed Class (S)	0.375 ns	0.309 ns
PXS	0.837 ns	0.284 ns

Summary: Planting speed had no significant effect on grain yield in 2000. The two hybrids used were significantly different in terms of grain yield. In 2001, the difference in grain yield due to planter speed is significant at the 85% level of confidence which suggests 5 mph as the optimum speed. Smaller seed size resulted in slightly higher grain yield. Need plant density values to determine if that is a factor. Grain yield was not affected by planting speed in 2002; however, planting at 4.5 mph resulted in drier grain at harvest and planting at 6.0 mph resulted in the highest plant population. In 2003, planting speed nor seed class had any effect on grain yield or moisture.