

2011

Impact of Rolling on Soybean Yields

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Recommended Citation

Rusk, Ryan and Sievers, Joshua L., "Impact of Rolling on Soybean Yields" (2011). *Iowa State Research Farm Progress Reports*. 263.
http://lib.dr.iastate.edu/farms_reports/263

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Impact of Rolling on Soybean Yields

Abstract

Rolling soybeans has become very popular in the past few growing seasons, especially in north central Iowa. Reasons for its popularity include, pushing rocks beneath the cutting height of bean heads, less dirt in the combine and cleaner beans, faster cutting speeds, less damage to cutting systems, and increased soybean yields. The last claim was studied at the Northwest Research Farm in 2009 and 2010 in both tilled and no-till conditions. Both tilled and no-till studies included a control treatment and rolling the soybeans pre-emerge and post-emerge when the beans were in the V1 stage of development. Soybean plots were rolled with a 20 ft Degelman Landroller from Custom Made Products in Humboldt, IA.

Keywords

RFRA1049

Disciplines

Agricultural Science | Agriculture

Impact of Rolling on Soybean Yields

RFR-A1049

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Introduction

Rolling soybeans has become very popular in the past few growing seasons, especially in north central Iowa. Reasons for its popularity include, pushing rocks beneath the cutting height of bean heads, less dirt in the combine and cleaner beans, faster cutting speeds, less damage to cutting systems, and increased soybean yields. The last claim was studied at the Northwest Research Farm in 2009 and 2010 in both tilled and no-till conditions. Both tilled and no-till studies included a control treatment and rolling the soybeans pre-emerge and post-emerge when the beans were in the V1 stage of development. Soybean plots were rolled with a 20 ft Degelman Landroller from Custom Made Products in Humboldt, IA.

Materials and Methods

The tilled rolling study consisted of chopping stalks and chiseling in the fall followed by disking and field cultivating prior to planting. Kruger 201 RR/SCN soybeans were planted in all roller studies in both 2009 and 2010 and all studies consisted of three replications. Tilled beans were planted May 16, 2009. Pre-emerge rolling was completed on May 20 and post-emerge treatments on June 10.

Soybeans were planted on May 17, 2010. Rolling treatments were completed on May 19 and June 3. Pre and post-emerge herbicides were used to control weeds. Insecticide was applied in both 2009 and 2010 for soybean aphids. Plots were harvested the last week of September in both 2009 and 2010.

In 2009, the no-till beans were planted on May 18 and rolling treatments were completed on May 20 and June 10. Soybeans were planted May 18, 2010 and rolling was done on May 19 and June 3. Burndown + pre- and post-emerge herbicides were used to control weeds. Plots were sprayed with insecticide for soybean aphids in both 2009 and 2010. Harvest was done the last week of September both years.

Five rows (12.5 ft wide) were harvested for yield from each eight row (20 ft wide) plot. Soybean yields were adjusted to 13 percent moisture. Statistical analysis was used to analyze the yield data, with a significance level of $P \leq 0.10$.

Results and Discussion

No statistical differences in yield were found between treatments in either the tilled or no-till studies in 2009 and 2010 (Table 1). No visual differences were noticed in the cutting height of the soybeans or the number of pods left on the soybean stubble after harvesting. Rolling operations can be done early post-emerge with little or no crop damage and no loss of yield.

There does not seem to be any yield advantage or disadvantage to rolling soybeans in either tilled or no-till conditions. The other potential benefits of rolling were not analyzed in this study and they need to be evaluated on a field-by-field basis prior to rolling.

Acknowledgements

The authors would like to thank Gary Naeve from Custom Made Products in Humboldt for the use of the landroller used in this study.

Table 1. Yield response of soybeans to landrolling in 2009 and 2010.

Tillage	Treatment	2009	2010	Average
No-till	Control	59.6	61.1	60.4
	Pre-emerge	60.8	61.7	61.3
	Post-emerge	60.5	61.3	60.9
Tilled	Control	64.7	58.6	61.7
	Pre-emerge	64.2	57.9	61.1
	Post-emerge	65.5	57.7	61.6

All yields adjusted to 13% moisture.

No statistical differences were found between any of the treatments ($P > 0.10$).