

Impact of Driving over Soybean Plants on Yield

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Introduction

With the development of narrow row soybeans, and postemergence herbicides that can be applied several times, and with the practice of spraying for late developing insect problems, the question arises of how late can soybean plants be driven over before yields are reduced. To answer this question an experiment was conducted in 2002 and 2003 on the farm.

Material and Methods

Because most herbicides are based on weed or crop stage, it was decided to use soybean development stages (ISU Special Report No. 53) rather than calendar dates as a guide on when to drive over the plots. The six drive-over stages were control (none), V2, V5, R3, R4, and R5. No plot was driven over on two different dates.

The experimental design was a randomized complete block. The plots were 12.5 ft wide and 40 ft long with the rows running across the plots. The soybeans were planted with 15-inch row spacing at 6 beans/ft of row. A Ford 7410 tractor with single 16.9R38 tires on the back and four ribbed 10.00-16 tires on the front was used

to drive over the plots. The rear tire tread width was 15 inches. Two parallel straight passes were made the length of a plot. As a result, 40% of a plot area was driven over. Weeds were controlled either by hand weeding or by spraying from the alleys.

Results and Discussion

Summarized in Table 1 are the results from 2002 and 2003. In 2002 soybeans were planted May 10. Due to wet weather in 2003, soybean planting was delayed until May 17 resulting in different early drive-over dates from 2002. Yields of soybeans were affected by when they were driven over. There was no significant difference between the control, V2, and V5 treatment. Because soybean plants at the V2 and V5 stages are still growing and can easily compensate for damage as can neighboring undamaged plants, the lack of yield reduction was expected. Although not significant, driving over soybeans reduced yields at the R3 stage by 4%. Only in one year of the study were the soybeans driven over at the R4 stage, resulting in the yield being slightly less than for beans driven over during the R3 stage. Driving over soybeans in August at the R5 stage reduced yields by 25%.

Table 1. Soybean yields (bu/acre) as affected by date of plant drive-over in 2002 and 2003.

Drive-over stage	2002		2003		Average
	Date	Yield	Date	Yield	
Control		52.5		48.7	50.7
V2	6/17	50.7	6/19	50.6	50.7
V5	6/26	53.3	7/7	49.8	51.6
R3	7/17	48.4	7/17	49.2	48.8
R4			7/30	46.7	
R5	8/9	34.7	8/11	40.8	37.8
LSD(0.05)		4.3		4.7	