

BREAKING APICAL DOMINANCE IN SOYBEAN

TRIAL OVERVIEW

- Stressing soybean plants during early growth (up to stage V4) by using tactics such as herbicide treatments, mowing, or rolling can break apical dominance and encourage branching.
- Studies on the effectiveness of this strategy to increase yield potential have shown mixed results.^{1,2}

RESEARCH OBJECTIVE

- The purpose of this study was to determine if breaking apical dominance in soybean provides a yield benefit and if so, to determine the most effective method and the most effective timing.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Gothenburg, NE		Wheat	No-till	06/06/2016			

SITE NOTES:

- The same 2.4 RM soybean product was planted in all plots.
- A total of six treatments were tested which include three common methods used to break apical dominance (herbicide applications of 12.5 oz/acre Cobra®, mowing with a lawn mower, and rolling with a lawn roller) at two different growth stages (V2 applied on June 22, 2016 and V4 applied on June 30, 2016).
- The trial was set up using a randomized complete block design with 6 replications.

UNDERSTANDING THE RESULTS

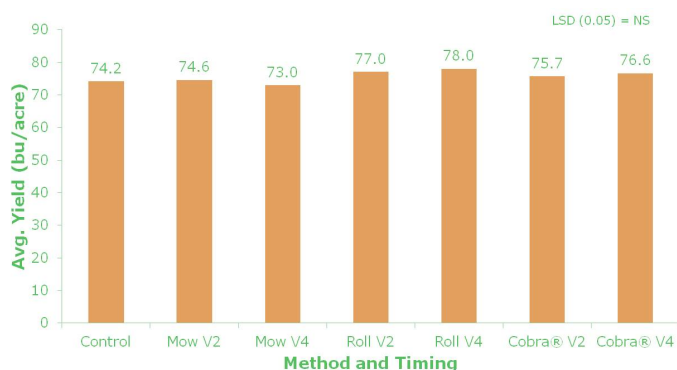


Figure 1. Soybean Yields under the Different Treatments



Figure 2. Plots Showing Delayed Leaf Senescence

- Some of the treatments had higher yields than the control, but none were significantly different (Figure 1). This indicates that, statistically, the treatments were unlikely to have any effect on yield.
- The stage of growth when the treatments were performed had no significant effect on yield.
- Varying levels of delayed leaf senescence were observed in the treatments applied to break apical dominance compared to the untreated plots, resulting in a “checkerboard” pattern (Figure 2).

WHAT DOES THIS MEAN FOR YOUR FARM?

- Based on the results of this and other studies, breaking apical dominance in order to encourage branching likely has a limited ability to improve yield potential.
- These results could vary based on environmental conditions and management practices. For example, plant damage caused by mowing or rolling can increase the potential for pathogen invasion, especially in wet springs. Significant yield differences could occur with earlier planting.

SOURCES



1 DeJong-Hughes, J., Holen, D., and Glogoza, P. Management considerations for rolling soybean in the upper Midwest. University of Minnesota Extension. www.extension.umn.edu/agriculture/soybean/soil-and-water/ground-rolling-in-the-midwest/#plant

2 Cope, A. Early season soybean stress matters. Farm Journal. <http://www.agweb.com/mobile/article/early-season-soybean-stress-matters-naa-aimee-cope/?sf26242348=1>

LEGAL STATEMENT

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