

Evaluation of Foliar Fertilizers for Delaying Flowering in Soybeans

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Objectives

This trial was designed to determine the effect of using different foliar fertilizer applications to delay and trigger flowering in soybeans. The objective was to allow more time for vegetative growth prior to flowering which could translate to increased yields.

Background

Crop Year:	2008	Herbicide:	
Cooperator:	Farm Focus/Marsh Foundation	PREPLANT:	Sonic at 3 oz/A + Durango
County/Town:	Van Wert/Van Wert	(April 23)	DMA at 1.5 pt/A + 2,4-D LVE6
Soil Type:	Hoytville Clay, Hoytville Silty Clay Loam, Haskins Loam	POST:	Durango DMA at 1.5 pt/A +
Drainage:	Tile- systemic	(July 1)	AMS at 17 lb/100 gal
Previous Crop:	Corn	Variety:	Dairyland Seed DSR-3320
Tillage:	No-till		RRSTS
Soil Test (2005):	pH 6.5, P 44 ppm, K 140 ppm	Row width:	15 inches
Fertilizer:	195 lb/A 0-0-60 surface broadcast (November 2007)	Planting Rate:	200,000 seeds/A
		Planting Date:	May 27, 2008
		Harvest Date:	October 7, 2008

Methods

This study was designed with two treatments replicated six times in a randomized complete block design. The treatments consisted of a nontreated check and a foliar applied fertilizer program. The foliar fertilizer program consisted of two spray applications. The first application to delay flowering was a 3-0-20 fertilizer blend at a rate of 1.0 gallon per acre sprayed on July 1 with soybeans at V3 growth stage. This application was combined with the post emergence herbicide application to save a trip across the field. Three weeks later on July 24 the delayed blossom plots were sprayed with a fertilizer blend to trigger flowering which contained 1 gallon liquid 23% urea, 1 gallon 3-20-15, 36 ounces high fructose sugar, 12 ounces EDTA Manganese, and 2.3 ounces 10% Boron per acre. Both applications were mixed with water as the carrier and applied with a ground sprayer at 15 gallons per acre total spray volume at 40 psi boom pressure using wide angle flat fan Turbo TeeJet nozzles (TT11002) on 15 inch spacings. Plot size was 45' wide (one sprayer pass) by 1090' in length.

Harvest populations were estimated on October 6 by counting the number of plants in a row on each side of a 10 foot section at three different locations in each plot. The average number of plants counted per 10 feet was converted to plants per acre. Harvesting was accomplished with a John Deere 6620 combine equipped with a calibrated AgLeader PF3000 yield monitor. Plot weights were determined with a calibrated weigh wagon. Moistures were taken from the combine yield monitor average reading for each plot. All yields were adjusted to 13% moisture.

Results

Table 1. Harvest population, moisture, and yield means for each treatment.

Treatment	Harvest Population (plants/A)	Moisture (%)	Yield (bu/A)
Nontreated check	124,200	10.8	52.2
Foliar Fertilizer Program	122,000	10.8	53.0
LSD (P=0.05)	NS	NS	NS
CV (%)	3.7	<1	2.6

NS= not significant

Summary

Results indicate there were no differences between the two treatments in this trial. The additional cost of \$14.58/A for the fertilizer blends and \$6/A for one additional spray application in the delayed blossom plots would not be recovered based on the results from this trial. A similar study conducted in 2007 did show a 3 bushel yield response with the foliar fertilizer applications, but the net return after the cost of product and application was minimal. The 2007 study can be accessed on the Farm Focus website at (http://farmfocus.osu.edu/bean_delayed_blossom-07.pdf).

This trial was conducted in cooperation with P & L Fertilizer Company. P & L's theory is a foliar fertilizer high in potassium applied to soybeans just prior to flowering might delay flowering, thus leading to increased vegetative growth. The second application of fertilizer high in phosphorus and nitrogen is intended to help to trigger flowering after the delay, thus leading to more potential nodes/pods and increased yields. For more information on the fertilizers used in this study, contact P & L Fertilizer at (419) 968-2230.

Acknowledgement

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