

Effects of Several Biostimulants on Emergence and Yield of Two Snap Bean Cultivars, 2001

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Interpretative Summary

Except for the first day of emergence, no differences were found between cultivars in plant stands and biostimulant treatments had no effect on seedling emergence. **>Hystyle** exhibited more seedling damage in the form of Abald heads@ than >Romano 942= but biostimulant treatments had no effect on plant damage. Beans treated with Focus 15G had the highest yields in the study with both >Romano 942= and >Hystyle= cultivars and this biostimulant merits further investigation as a material to enhance snap bean yield.

Objectives

The objective of this study was evaluate liquid formulations of two biostimulants as seed- or soil-applied treatments and one granular formulation of a soil-applied biostimulant to determine effectiveness of the materials on stimulating growth and yield of snap beans.

Materials and Methods

The study was at the West Tennessee Experiment Station, Jackson, TN. Prior to planting, 200 lbs/acre of 15-15-15 fertilizer and 4 qts/acre of Diazinon were broadcast and incorporated into the plots. The experiment was arranged as a split-plot with four reps and snap bean cultivars as main plots and biostimulant treatments as sub-plots.

Two snap bean cultivars, >Romano 942= and >Hystyle=, were used in the study. Biostimulant treatments were 1) Focus seed treatment @ 7.9 fl. ozs. of product/100 lbs. of seed; 2) Focus in-furrow spray @ 0.1837 fl. oz. of product/100 ft. of row; 3) Launch seed treatment @ 34.9 fl. ozs. of product/100 lbs. of seed; 4) Launch in-furrow spray @ 0.8080 fl. oz. of product/100 ft. of row; 5) Focus 15G in-furrow @ 1.598 oz. of product/100 ft. of row; and 6) untreated control.

Data collected included seedling emergence, percent Abald heads@, pod yield. The two center rows of each plot were harvested for yield with a one-row Pull Pix snap bean harvester.

>Hystyle= was harvested on 14 June and >Romano 942= was harvested on 19 June. Yield

data were converted to lbs/acre and analyzed using the SAS statistical program and mean separation was by LSD.

Results and Discussion

Fastest emergence by 27 Apr was by >Romano 942= (Table 1). This difference was not observed three days later or on 4 May. The number of damaged seedlings was significantly higher in the >Hystyle= cultivar but biostimulant treatment had no effect on seedling emergence. There were no interactions between cultivars and biostimulant treatments.

As expected, >Romano 942= produced significantly higher yields than >Hystyle= (Table 2) since it was harvested 5 days later and has larger individual pods than >Hystyle=

Treatment with Focus 15G had the highest yield in the study, and produced 500 to 1000 pounds more pods than other biostimulant treatments and about 700 pounds more than the untreated control. It is recommended that Focus 15G be investigated further as a yield enhancing material for snap beans and possibly other vegetables.

Table 1. Seedling emergence on three days and number of seedlings without a growing point in biostimulant study on 'Romano 942' and 'Hystyle' snap beans at the West Tennessee Experiment Station, Jackson, TN

Treatment	Application method	Rate ^z	Emergence (no/20 ft row) Bald heads Apr 27 Apr 30 May 4 (No.)			
Cultivar						
Romano 942	----	----	14.4a ^x	56.9a	67.0a	3.0b
Hystyle	----	----	5.6b	60.4a	69.1a	10.5a
LSD 5%			3.1	Ns	ns	2.9
Biostimulant						
Focus	Seed	7.9	8.3a	56.1a	66.8a	6.6a
Focus	In-furrow	0.1837	9.7a	55.0a	67.3a	7.9a
Launch	Seed	34.9	8.8a	56.7a	69.2a	8.4a

Launch	In-furrow	0.808	10.8a	62.7a	70.3a	6.3a
Focus 15G	In-furrow	1.598	12.7a	62.5a	70.14a	5.1a
Untreated control	-----	-----	9.9a	58.7a	64.7a	7.1a
LSD 5%			ns	ns	ns	ns
Interaction Cultivar x Biostimulant			ns	ns	ns	ns

^zFluid ounces per 100 lbs of seed or ounces of product per 100 row feet.

Xmeans for treatment variables within columns followed by the same letter are not significantly different, LSD 5%.

Table 2. Yield of 'Romano 942' and 'Hystyle' snap beans with several biostimulant treatments at the West Tennessee Experiment Station, Jackson, TN

Treatment	Application method	Rate ^z	Yield (
Cultivar			
Romano 942	----	----	5768a
Hystyle	----	----	3136b
LSD 5%			623
Biostimulant			
Focus	Seed	7.9	4016b
Focus	In-furrow	0.1837	4541a
Launch	Seed	34.9	4334a
Launch	In-furrow	0.806	4516a

Focus 15G	In-furrow	1.598	5023a
Untreated control	-----	-----	4284ab
LSD 5%			835
Interaction			ns
Cultivar x Biostimulant			

²Fluid ounces per 100 lbs of seed or ounces of product per 100 row feet.

^xmeans for treatment variables within columns followed by the same letter are not significantly different, LSD 5%.

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This research represents one season's data and does not constitute recommendations. After sufficient data is collected over the appropriate number of seasons, final recommendations will be made through research and extension publications.