Soybean Double Inoculant Trial

Trial ID: 2021-S2IN02 – R.M. of Dauphin

Objective: Quantify the agronomic and economic impacts of seed applied inoculant (single inoculation) vs. seed applied plus in-furrow inoculant (double inoculation) in soybeans. This trial requires a minimum field history of 2 previous soybean crops.

Summary: Nodulation ratings were very similar between treatments and indicated agronomically sufficient nodulation. There was no significant yield difference between single and double inoculated soybeans. Due to the lack of yield response, there was a decrease in profit/ac in the double inoculated area of the trial, equivalent to the cost of the in-furrow inoculant application.

Trial Information

Treatment	1x Nodulator (liquid on-seed) 6 lbs/ac Cell-Tech (granular)
Last Soybean Crop	2018
Soybean History	3-year history
Soil Texture	Clay
Previous Crop	Canola
Tillage	Zero Till
Seeding Date	May 14
Variety	Amirani R2
Seeding Rate	180 000 seeds/ac
Row Spacing	10"
Plant Stand @ V2	131 000 plants/ac
Harvest Date	September 15

Precipitation (mm)

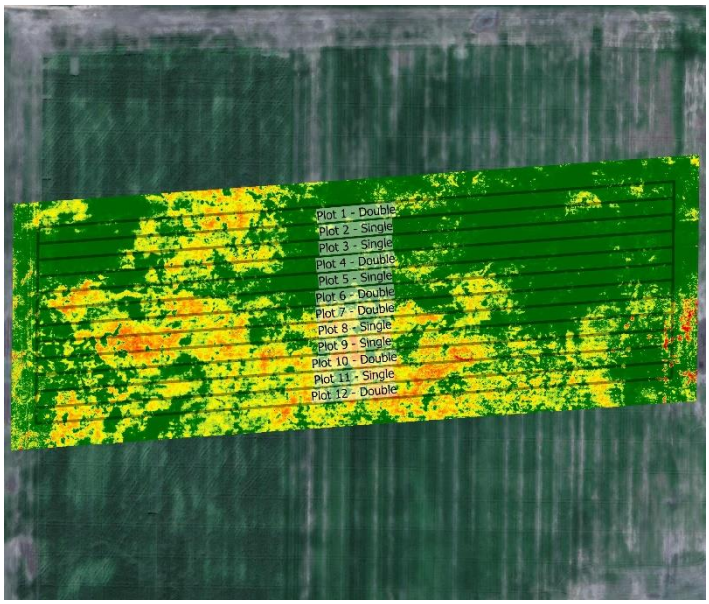
	May	Jun	Jul	Aug	Total
Rainfall	23.9	70.9	30.3	89.5	214.6
Normal	54.3	86.7	73.2	63.3	277.5
% Normal	44%	82%	41%	141%	77%

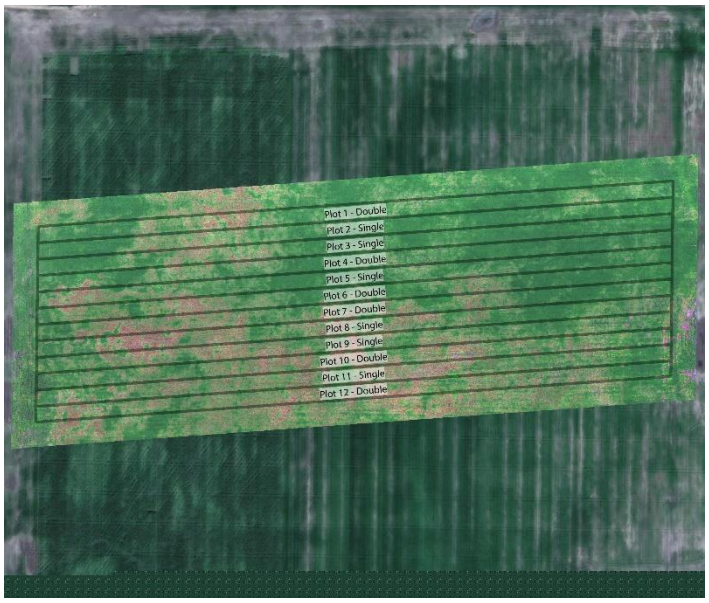
Nodulation†

	Average Nodulation Rating @ R1-2
Double	3.8
Single	3.6

† 0 = no nodules, 1 = Poor (<5/plant), 2 = Fair (<10/plant), 3 = Good (<20/plant), 4 = Excellent (>20/plant)

Field Images August 17





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Soybean Double Inoculant Trial

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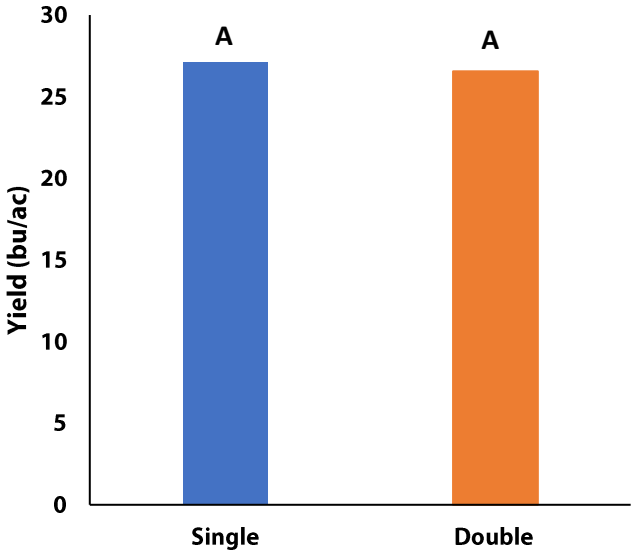
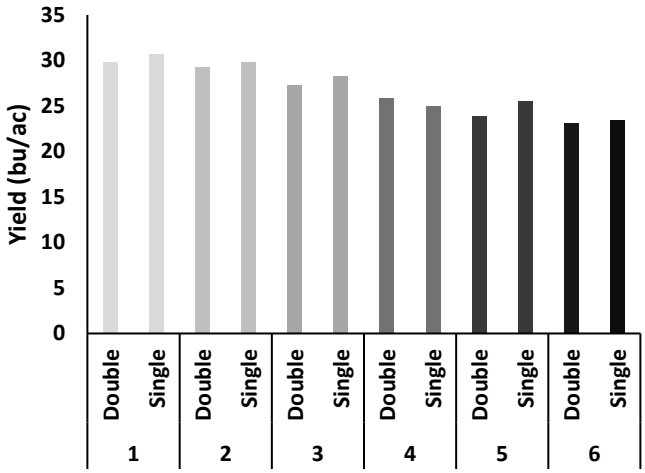
Yield by Treatment



Yield by Rep



Yield by rep is not useful for determining overall treatment effects. However, in this case where we have high variability across the trial (as seen in the NDVI image above), yield by rep is informative to determine whether data should be included or excluded from over treatment comparisons. In this case, yields from strips within reps are quite similar, and the majority of the variability is across replicates, rather than treatment strips within replicates. Thus, we determined yield data for all strips could be included in the overall analysis of treatment effects.

Overall Yield & Economics

	Mean (bu/ac)	Cost†	Change in Profit/ac††
Double Inoculant	26.6	$13.50/ac	-$10/ac
Single Inoculant	27.1	$3.50/ac	
Yield Difference	-0.5		
P-Value	0.1506		
CV	10%		
Significance	**No**	**Economic**	**No**

† Based on an estimated cost for on-seed + granular in-furrow vs. on-seed only

†† Because yields were not significantly different, there is no increased income with the double inoculant to offset the increase in price. Profit/ac declines by the increased cost as a result.

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