

Dry Bean Nitrogen Fertility Trial

Trial ID: 2020-DBN02 – R.M. of Morten

Objective: Quantify the agronomic and economic impacts of nitrogen fertilizer rates in dry beans

Summary: Overall nodulation was low at this trial with no apparent pattern corresponding to N rate. Black bean yield did not significantly differ between nitrogen fertilizer rates. As a result, the 70 and 100 lb N/ac rates led to an economic loss equivalent to the increased cost/ac over the low N rate.

Trial Information

Treatment	40 vs 70 vs 100 lb N/ac
Soil Texture	Loamy Clay Loam
Previous Crop	Wheat
Tillage	Spring Harrow
Seeding Date	June 3
Variety	CDC Blackstrap
Seeding Rate	80lbs/ac
Row Spacing	10"
Plant Stand @ VC	131 000 plants/ac
Harvest Date	September 14

Precipitation (mm)

	May	June	July	August
Normal	46.9	83.7	65.2	57.6
Rainfall	21.4	53.8	119.5	29

Nodulation†

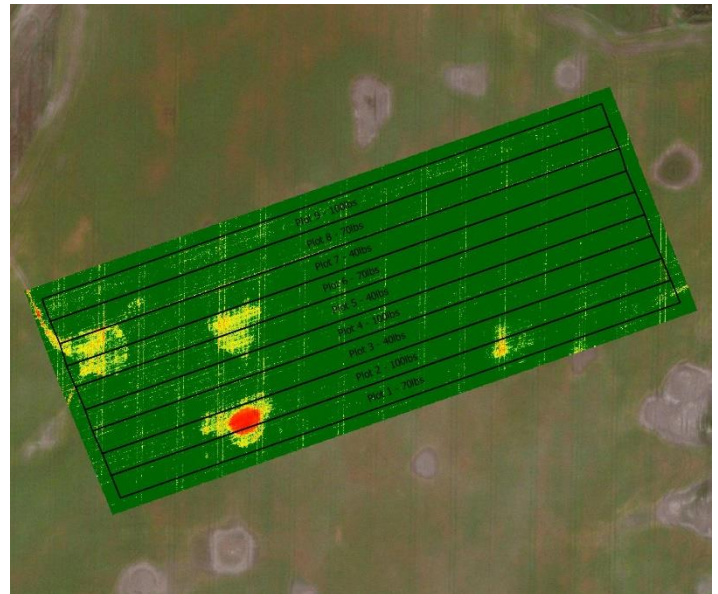
	Average Nodulation Rating @R2†
40 lb N/ac	0.683
70 lb N/ac	1.0
100 lb N/ac	0.86

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

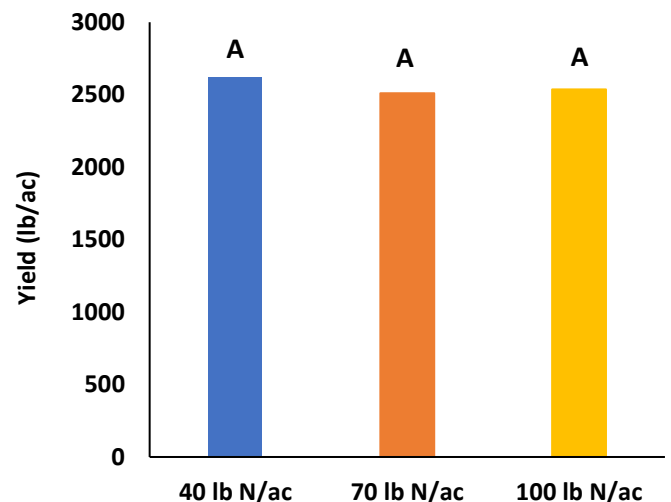
Soil Test N

Treatment	0-24" Fall N (lb N/ac)
40 lb N/ac	24
70 lb N/ac	40
100 lb N/ac	30

NDVI Field Image July 24



Yield by Treatment





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Overall Yield & Economics

	Mean (lb/ac)	Cost †	Change in Profit/ac ††
40 lb N/ac	2619	\$18/ac	
70 lb N/ac	2510	\$32/ac	-\$14/ac
100 lb N/ac	2536	\$46/ac	-\$28/ac
P-value	0.3929		
CV	3.6%		
Significance	No	Economic	No

† Based on estimated urea cost of \$472/MT, from an MB Ag survey of retailers

†† No significant yield difference between N rates to offset the increased cost/ac with increased N rate, therefore profit declines by the change in cost/ac with increasing N rate over 40 lb N/ac.