

EFFECT OF COMMERCIAL FERTILIZERS AND NUTRIENT MANAGEMENT AIDS ON SUGARBEET

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Table 1. Basic soil properties of experimental sites

Site	Ada, MN	Downer, MN
Location	N 47°18'54.432" W 96°24'35.28"	N 46°48'3.92" W 96°31'42.959"
Previous Crop	Spring Wheat	Spring Wheat
Soil Series	Wheatville	Elmville
Textural Class	Loam	Fine Sandy Loam
Soil OM%	3.1	1.8
Soil pH	8.2	8.2
NO ₃ -N (lb/ac) of 2'	24	58
Olsen-P (ppm) of 0-6"	3	7
K (ppm) of 0-6"	68	50
Planting Date	May 3	April 28
Harvesting Date	September 22	September 23

Sugar beet growers are interested to know the benefits of specific fertilizer products and nutrient management aids to improve their production. Trial results are reported below for the 2016 growing season.

Fertilizer N rate were adjusted for residual soil N and recommended NPK fertilizers were broadcasted and mixed within 0-6" depth. Each plot was 30 ft long and 11 ft wide with 22-inch row spacing. Sugar beet was planted at the end of the April. Mid-season soil and plant tissue samples were collected for all sites. Plot level mechanical harvester was used to harvest middle two-rows of each plot and subsample from each plot was send to American Crystal Quality Lab at East Grand Forks, to determine quality parameters like percentage of sugar and sugar loss to molasses.

Table 2. Effect of commercial product trials on sugar beet yield and quality during 2016 growing season. Same letters indicate the difference is not significant at 95% significance level.

Trt#	Treatment details	Ada		Downer	
		Yield (ton/ac)	Sugar%	Yield (ton/ac)	Sugar%
Nachurs_1	Recommended NPK	42.36 ^{AB}	16.89	36.33	16.60
Nachurs_2	Recommended NPK+ NACHURS Finish Line @ 1 qt/ac applied with all fungicides	43.31 ^A	16.55	37.03	16.51
Nachurs_3	NACHURS Impulse @ 2.5 gal + Rhyzo-Link 0-0-15 @ 0.5 gal/ac + NACHURS 9% Zn EDTA @ 1 pt/ac + NACHURS 3% Ca EDTA @ 1 pt/ac + NACHURS FB21 @ 1 pt/ac + NACHURS FA20 @ 1 pt/ac	38.16 ^B	16.77	35.99	16.66
Nachurs_4	NACHURS 6-24-6 @ 1.5 gal + Rhyzo-Link 3-10-13 @ 1.5 gal/ac + NACHURS 9% Zn EDTA @ 1 pt/ac + NACHURS 3% Ca EDTA @ 1 pt/ac + NACHURS FB21 @ 1 pt/ac + NACHURS FA20 @ 1 pt/ac	40.32 ^{AB}	16.25	33.56	16.56
Nachurs_5	NACHURS 6-24-6 @ 1.5 gal + Rhyzo-Link 3-10-13 @ 1.5 gal/ac + NACHURS 9% Zn EDTA @ 1 pt/ac + NACHURS 3% Ca EDTA @ 1 pt/ac + NACHURS FB21 @ 1 pt/ac + NACHURS FA20 @ 1 pt/ac -fb- NACHURS Finish Line @ 1 qt/ac at 50 DAE w/fungicide	40.74 ^{AB}	16.80	34.11	16.68
Nachurs_6	NACHURS 6-24-6 @ 1.5 gal + Rhyzo-Link 3-10-13 @ 1.5 gal/ac + NACHURS 9% Zn EDTA @ 1 pt/ac + NACHURS 3% Ca EDTA @ 1 pt/ac + NACHURS FB21 @ 1 pt/ac + NACHURS FA20 @ 1 pt/ac -fb- NACHURS Finish Line @ 1 qt/ac at 50 DAE w/fungicide -fb- NACHURS EXPMoB @ 1 pt/ac at 100 DAE	39.15 ^{AB}	16.59	36.35	16.68
	LSD (P<0.05)	5.03	Not sign.	Not sign.	Not sign.
Conclusion	No significant increase in yield and sugar over recommended NPK application				
	Treatment details	Yield (ton/ac)		Sugar%	
Agrispon_1	Recommended NPK	36.15 ^B		17.00	
Agrispon_2	100%N+ Agrispon@13.2 oz/a@45DAP	37.36 ^{AB}		16.90	
Agrispon_3	90%N+ Agrispon@13.2oz/a@45DAP	37.33 ^{AB}		16.44	
Agrispon_4	85%N+ Agrispon@13.2oz/a@45DAP	36.31 ^{AB}		17.25	
Agrispon_5	80%N+ Agrispon@13.2oz/a@45DAP	39.78 ^A		16.76	
		3.61		Not significant	
Conclusion	Agrispon application only increased yield at 80% of recommended fertilizer N application but sugar did not increase				