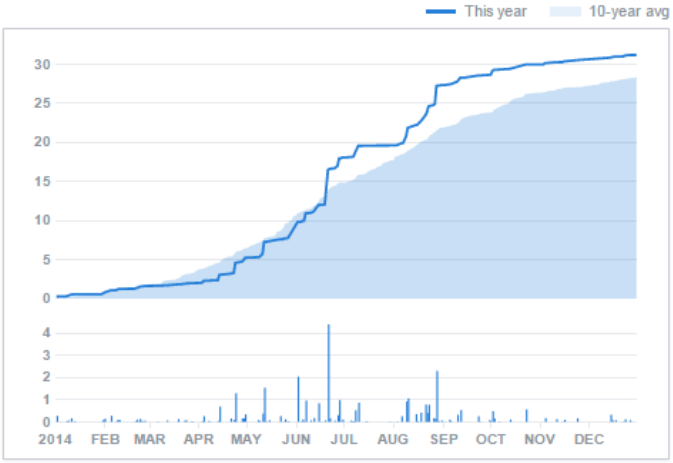
Nebraska On-Farm Research Network

Sugar on Corn

Study ID: 038035201402
County: Clay
Soil Type: Hastings silt loam
Planting Date: 5/3/2014
Harvest Date: Unknown
Population: 34,000
Row Spacing: 30”
Hybrid: DK 63-07
Reps: 5
Previous Crop: Corn
Tillage: Ridge till, stalks shredded 4/25/2014
Herbicides:
Pre: None
Post: 1 qt/ac Roundup PowerMAX and 1 qt/ac TripleFLEX on 5/26/2014

Insecticides/Fungicides: Acceleron
Fertilizers: 6 gal/ac 10-34-0 in furrow, 229 lb/ac 46-0-0, 50 lb/ac 11-50-0, 15 lb/ac sulfur, 3 lb/ac zinc broadcast.
Irrigation: Furrow irrigation, amount unknown.
Rainfall:



Introduction: This is the fourth year these producers have applied sugar to their corn fields in which their objective was to determine the impact of sugar application on corn yield, economics, and standability. In 2010-2011, 3 pounds of granulated sugar/acre in 10 gallons of water was applied at the V7-V8 time-frame. In 2013, 3 qts of Plen-T-Sweet/acre was added to 10 gallons of water and applied at the V7-V8 time-frame. The company does not recommend more than 1 qt of Plen-T-Sweet/acre for all future applications. In 2014, 10 oz of liquid brown sugar was applied in 10 gallons of water during V7. Three of the four years resulted in no statistically significant yield increase with the sugar application. In 2013, the check treatment yielded significantly higher than the Plen-T-Sweet treatment. It is thought the high rate of sugar coupled with gravity irrigation problems of getting water through the rows in a portion of the field which had the sugar-treated plots contributed to the yield differences. Soil tests taken for microbial activity (Phospholipid Fatty Acid-PLFA) in 2013 resulted in higher microbial activity in the sugar treated plots, but they were not statistically significant. An interesting trend is that the sugar treated plots consistently showed reduced stalk rot compared to the untreated check. Statistics were only conducted for stalk rot in 2014 in which the difference was not statistically significant.

Sponsored by: University of Nebraska Lincoln

In partnership with: Soybeans Nebraska Soybean Board; Nebraska Corn Board; Nebraska Corn Growers Association

Nebraska On-Farm Research Network

2010-2011, 2013-2014 Sugar Applied to Corn Trials- Clay Co. Producer		
Producer	**Avg Yield Check**	**Avg Yield Sugar**
2010 Clay Co. (6 reps) 3 lb gran. Sugar/ac	208.9 (22% stalk rot)	210.6 ns (3% stalk rot)
2011 Clay Co. (6 reps) 3 lb gran. Sugar/ac	209.6 (19% stalk rot)	213.2 ns (12% stalk rot)
2013 Clay Co. (6 reps) 3 qts Plen-T-Sweet**/ac	222.6 (19% stalk rot)	214.2* (16% stalk rot)
2014 Clay Co. (6 reps) 13 oz liquid brown sugar/ac	226.2 (24% stalk rot)	228.6 ns (16% stalk rot) ns

*Indicates statistically significant at 95% confidence level. (2014 stats at 90% level).
**Recommended rate is 1 qt of Plen-T-Sweet so the high rate coupled with irrigation problems may have affected study in 2013.
3 lbs sugar (2010-2011), 3 qts Plen-T-Sweet (2013), 13 oz liquid brown sugar (2014) added to 10 gallons of water applied at V7-V8 leaf stage. Stalk rot ratings taken 2 weeks prior to harvest using the pinch test. Cost of sugar was $1.25/acre in 2010-2011, $6/ac in 2013 (should be $2 with correct rate), and $3.04/ac in 2014.

Results:

	Yield† (bu/acre)	Moisture (%)	Test Weight (lb/bu)	Harvest Pop	Stalk Rot (%)	Net Return ‡
Check	226 A*	14.5 A	63.0 A	28,600 A	24.2 A	$791.00
Liquid brown sugar	229 A	14.6 A	63.2 A	29,200 A	16.0 A	$791.65
P-Value	*0.5548*	*0.8420*	*0.7100*	*0.7607*	*0.2856*	--

†Bushels per acre corrected to 15.5% moisture.

*Values with the same letter are not significantly different at a 90% confidence level.

‡Net return based on $3.50/bu, $3.04/ac liquid brown sugar cost, $6.81/ac application cost.

Summary: There was no significant yield, moisture, test weight, harvest population, or stalk rot difference between the check and the liquid brown sugar treatment.

Sponsored by: University of Nebraska Lincoln

In partnership with: Soybeans Nebraska Soybean Board; Nebraska Corn Board; Nebraska Corn Growers Association