

### Sugarbeet Nitrogen Response Following Soybean

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<b>Location:</b> Saginaw Valley Research and Extension Center	<b>Tillage:</b> Conventional with light S-tine at sidedress
<b>Planting Date:</b> April 5, 2012 (Harvest 10/5/12)	<b>N Rates:</b> See below
<b>Soil Type:</b> Clay loam; 3.0 OM; 8.2 pH; 29 ppm P; 223 ppm K	<b>Population:</b> 4 ¼ in. spacing
<b>Variety:</b> Hilleshog 9042 Roundup Ready	<b>Replicated:</b> 4 replications

N Trt. (Total lb. N/A)	RWSA	RWST	Tons/A	% Sugar	% CJP	NH <sub>2</sub>	Amino-N
0 – Check	7239	302	24.0	20.4	94.7	132	7.5
40	8084	303	26.7	20.3	95.1	146	8.4
80	8171	294	27.8	19.9	94.6	182	10.4
120	8955	301	29.8	20.4	94.6	190	10.9
160	8990	292	30.8	20.0	94.0	210	12.1
<b>LSD<sub>(0.10)</sub><sup>a</sup></b>	<b>518</b>	<b>7</b>	<b>1.5</b>	<b>NS</b>	<b>0.5</b>	<b>49</b>	<b>2.8</b>

<sup>a</sup> LSD, least significant difference between means within a column at ( $\alpha = 0.10$ ).

N Trt. (Total lb. N/A)	Gross Grower Payment (\$/A)	Net Economic Return Minus N Costs (\$/A) <sup>b</sup>	Net Economic Return Minus N Costs and Trucking (\$/A) <sup>c</sup>
0 – Check	1684	1684	1600
40	1880	1854	1761
80	1901	1849	1751
120	2083	2005	1901
160	2091	1987	1879
<b>LSD<sub>(0.10)</sub><sup>a</sup></b>	<b>121</b>	<b>121</b>	<b>116</b>

<sup>a</sup> LSD, least significant difference between means within a column at ( $\alpha = 0.10$ ).

<sup>b, c</sup> Gross grower payment and net economic returns based upon a \$65/ton payment, an average RWST equal to the company average, an N price of \$0.65/lb., and trucking costs of \$3.50/T.

**Comments/Summary:** Trial was conducted to more accurately determine sugarbeet nitrogen fertilizer needs and nitrogen response following soybean. All treatments received 40 lbs. N/A as 28%, 20 lbs. P<sub>2</sub>O<sub>5</sub>/A, 50 lbs. K<sub>2</sub>O/A, and 2 lbs. Mn/A as starter placed 2x2 on April 5 (check plots did not receive any N). The 40 lb. N/A treatment received no supplemental N beyond the starter application. Sidedress N (urea) applications were completed on May 14 and

were followed by a light cultivation to avoid N volatilization. With the exception of % sugar, all yield, sugar quality, and economic parameters were significantly affected by total N application rate. Though providing slightly less tonnage than 160 lb N, the 120 lb. N treatment provided greater RWST. When factoring in grower payment in addition to nitrogen and trucking costs, 120 lb N/A provided the greatest return on investment. If fertilizing at N rates less than 120 lbs. N/A and following soybean, data show no benefit above 40 lbs. N placed as a 2x2 starter application. Soluble N compounds increased with increasing N rate but were not excessive even at the high rate of N. Net economic return is based on a \$65/ton payment, an average RWST equal to the company average, an N price of \$0.65/lb., and trucking costs of \$3.50/T.