

Polymer-Coated Urea Blending Ratios for Sugarbeet Production

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Location: Saginaw Valley Research and Extension Center	Tillage: Conventional
Planting Date: May 2, 2013 (Harvest 10/18/13)	N Trts: See below
Soil Type: Clay loam; 2.7 OM; 7.8 pH; 38 ppm P; 203 ppm K	Population: 4 ¼ in. spacing
Variety: Hilleshog 9042 Roundup Ready	Replicated: 4 replications

160 lb N/A Total (%PCU:%Urea)	RWSA	RWST	Tons/A	% Sugar	% CJP	NH2	Amino-N	Gross Grower Payment (\$/A) ^b
100:0	9112	289	31.6	19.3	95.3	95	5.6	1663
75:25	7884	282	28.0	19.2	94.4	154	9.2	1439
50:50	7394	276	26.8	18.9	94.2	137	8.2	1349
25:75	7899	268	29.5	18.5	93.9	137	8.5	1442
0:100	8537	287	29.7	19.4	94.8	144	8.7	1558
LSD_(0.10)^a	1365	13	4.7	0.6	0.8	45	2.7	249

^a LSD, least significant difference between means within a column at ($\alpha = 0.10$).

^b Gross grower payment based upon a \$51/ton payment and an average RWST equal to the company average.

Summary: Trial was conducted to determine how to best utilize polymer-coated urea (PCU) in sugarbeet production. All treatments received 40 lbs. N/A as 28%, 20 lbs. P₂O₅/A, 50 lbs. K₂O/A. and 2 lbs. Mn/A as starter placed 2x2 on May 2. PCU and urea were applied in 5 blending ratios consisting of 100:0, 75:25, 50:50, 25:75, and 0:100 (%PCU : %urea) for a total of 160 lbs N/A (minus 40 lbs N/A as 2x2 starter). All treatments containing PCU (and the associated percentage of urea) were applied pre-plant incorporated the day of planting. The 100% urea treatment was applied at sidedress on June 11. The source of PCU was ESN, Environmentally Smart Nitrogen.

Wet, cool spring conditions likely increased the time period of N loss yet few significant differences were noticed between treatments. Either 100% PCU or 100% urea produced the greatest yield and % sugar with a slight advantage to 100% PCU for RWSA and gross grower payment. The 100% PCU treatment did produce lower NH₂ and amino-N concentrations as compared to treatments including urea but this may be due to greater residual soil nitrate after harvest (data still being analyzed). Slow emergence and delayed spring plant development may have hindered treatment differences as a few additional weeks of bulking may have added significant tonnage to further separate out treatment differences. Net economic return is based on a \$51/ton payment and an average RWST equal to the company average.