

**Pop-Up Fertilizer Applications in Sugarbeet**

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<b>Location:</b> Saginaw Valley Research and Extension Center	<b>Tillage:</b> Conventional
<b>Planting Date:</b> April 12, 2012 (Harvest 10/5/12)	<b>Rates:</b> See below
<b>Soil Type:</b> Clay loam; 2.9 OM; 7.8 pH; 40 ppm P; 183 ppm K	<b>Population:</b> 4 ¼ in. spacing
<b>Variety:</b> Crystal RR059	<b>Replicated:</b> 4 replications

Trt.	Rate	Placement	Plants/ 100 ft	RWSA	RWST	Tons/A	% Sugar	% CJP	NH <sub>2</sub>	Amino-N
Check <sup>a</sup>	----	----	140	9896	286	34.6	19.4	94.6	219	13.6
10-34-0	3 gpa	In furrow	111	9167	291	31.5	19.8	94.3	231	13.2
10-34-0	5 gpa	In furrow	106	9870	292	33.8	19.8	94.6	226	13.0
10-34-0	7 gpa	In furrow	86	7896	279	28.3	19.2	93.9	264	16.3
10-34-0 with MMREE	3 gpa and 2 qt/A	In furrow	126	9109	282	32.3	19.3	94.3	242	14.2
6-24-6	2 gpa	In furrow	117	9682	297	32.6	20.0	94.7	192	11.1
6-24-6 with MMREE	2 gpa and 2 qt/A	In furrow	114	9009	286	31.5	19.5	94.3	229	13.3
MMREE	2 qt/A	In furrow	120	9291	285	32.6	19.3	94.7	250	14.8
Gavilon 30 (8-18-4)	2 gpa	In furrow	131	10119	295	34.3	19.9	94.9	191	10.9
Pro-Germinator Micro-500 28% UAN	2.5 gpa 2 qt/A 40 lb.N/A	In furrow In furrow 2x2	114	9501	277	34.3	19.0	94.2	272	16.4
Pro-Germinator Micro-500 Pro-Germinator Sure-K 28% UAN	2.5 gpa 2 qt/A 1.5 gpa 7.5 gpa 40 lb.N/A	In furrow In furrow 2x2 2x2 2x2	131	10226	308	33.2	20.5	95.3	197	10.7
Pro-Germinator Sure-K Micro-500 28% UAN	4 gpa 7.5 gpa 2 qt/A 40 lb.N/A	2x2 2x2 2x2 2x2	154	10441	308	33.9	20.6	95.2	211	11.8
<b>LSD<sub>(0.10)</sub><sup>b</sup></b>	----	----	<b>7</b>	----	<b>15</b>	<b>2.5</b>	<b>0.7</b>	<b>0.6</b>	<b>59</b>	<b>3.6</b>

<sup>a</sup> All plots received 40 lbs. P<sub>2</sub>O<sub>5</sub>/A, 100 lbs. K<sub>2</sub>O/A, and 2 lbs. Mn/A applied broadcast preplant incorporated on April 12. Nitrogen applications in the form of urea were applied broadcast, pre-plant incorporated at a rate of 140 lbs. N/A. For treatments receiving 40 lbs N/A specifically as a 2x2 application, this total was subtracted from the pre-plant N rate resulting in 100 lbs N/A applied PPI.

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

**Comments/Summary:** Trial was conducted to investigate the effects of pop-up/in-furrow fertilizer application for sugarbeet production. All treatments received 40 lbs. P<sub>2</sub>O<sub>5</sub>/A, 100 lbs. K<sub>2</sub>O/A. and 2 lbs. Mn/A applied broadcast pre-plant incorporated (PPI) on April 12. Nitrogen applications in the form of urea were applied broadcast, pre-plant incorporated at a rate of 140 lbs. N/A. For treatments receiving 40 lbs N/A specifically as a 2x2 application, this total was subtracted from the pre-plant N rate resulting in 100 lbs N/A applied PPI. The control treatment received no pop-up or 2x2 fertilizer application but did receive P, K, and Mn.

The high N and K rates applied PPI in this study likely resulted in some degree of salting-out due to the extremely dry weather conditions encountered immediately after planting and throughout 2012. Pop-up fertilizer applications are intended to assist early-season plant emergence and growth when planting into cold and or wet spring soils, conditions frequently encountered with sugarbeet production. Data from this study demonstrate the sensitivity of the beet seed to fertilizer salts placed in close proximity as all treatments receiving pop-up applications displayed significantly reduced harvest stand counts, thus indirectly influencing yield, RWST, and RWSA. Data from the final treatment in the study, which only received 2x2 fertilizer applications, show greater plant population numbers due to not having pop-up fertilizer and only receiving 100 lbs N/A as PPI. Yield and sugar quality data from check plots as compared to all other treatments show no benefit from using pop-up fertilizers in 2012. Caution is advised if considering experimenting with pop-up fertilizer applications as product, rate, and precision of application all need to be considered. Study will continue in 2013.

**Mention or use of any specific product does not indicate endorsement of that product or of the company that produces/distributes that product.** Micro-500 is a micro-nutrient product containing 0.02% B, 0.25% Cu, 0.37% Fe, 1.20% Mn, and 1.8% Zn. MMREE is a micro-nutrient product containing 0.23% Ca, 0.35% Cu, 0.40% Fe, 0.50% Mn, and 0.70% Zn. Gavilon 30 is a 8-18-4 product containing 0.07% Cu, 0.20% Fe, 0.08% Mn, and 0.50% Zn. Pro-Germinator is a 9-24-3 product also containing 0.10% Fe. Sure-K is a 2-1-6 product.