Effect of AgroLiquid sulfur and magnesium nutrient application compared to Epsom Salts on development and yield on chipping potatoes. Demonstration Trial # 14-P1

Experiment Info:	
Exper.:	14-303
Planted:	April 9th
Variety:	Snowden
Population:	14,500
Plot size:	3' x 25'
Replications:	One
Harvest:	Sept 16 2014

Soil Test Values (ppm):	
Farm/ Field	301
pH:	7.0
CEC:	7.3
%OM:	1.6
Bray P1:	15
Bicarb P:	27
K:	67
S:	11
%K:	2.4
%Mg:	16.7
%Ca:	80.1
%H:	0.0
% Na:	0.8
Zn:	1.1
Mn:	7
Fe:	45
Cu:	0.5
B:	0.5

Objective:

Determine how different rates of sulfur and magnesium from AgroLiquid compare to a commonly applied foliar application of Epsom salts on potatoes.

Materials & Methods:

- During the Week of April 29th, several rows of Snowden potatoes were planted as the borders of replicated trials at the North Central Research Station. A standard fertility program used within the research trials was applied to all potatoes in these border rows, Table P1. On June 9th, a portion of two neighboring border rows were divided into 25 ft. long plots. Foliar applications were applied once weekly for five consecutive weeks as described in Table P1. These rates of fertilizers were mixed with water and applied at a total volume of 15 GPA with a CO_2 powered backpack sprayer operated at approximately 40 PSI.
- Several tissue tests were collected and sent for analysis during the course of this experiment and then yields were taken from each separate plot area on Sept 16th.
- Fungicides, insecticides and herbicides were applied uniformly to all plots throughout the season as necessary
- Treatments in this study and all data presented were NOT replicated. Because these treatments were performed on border rows, potatoes yields might not reflect commercial levels.

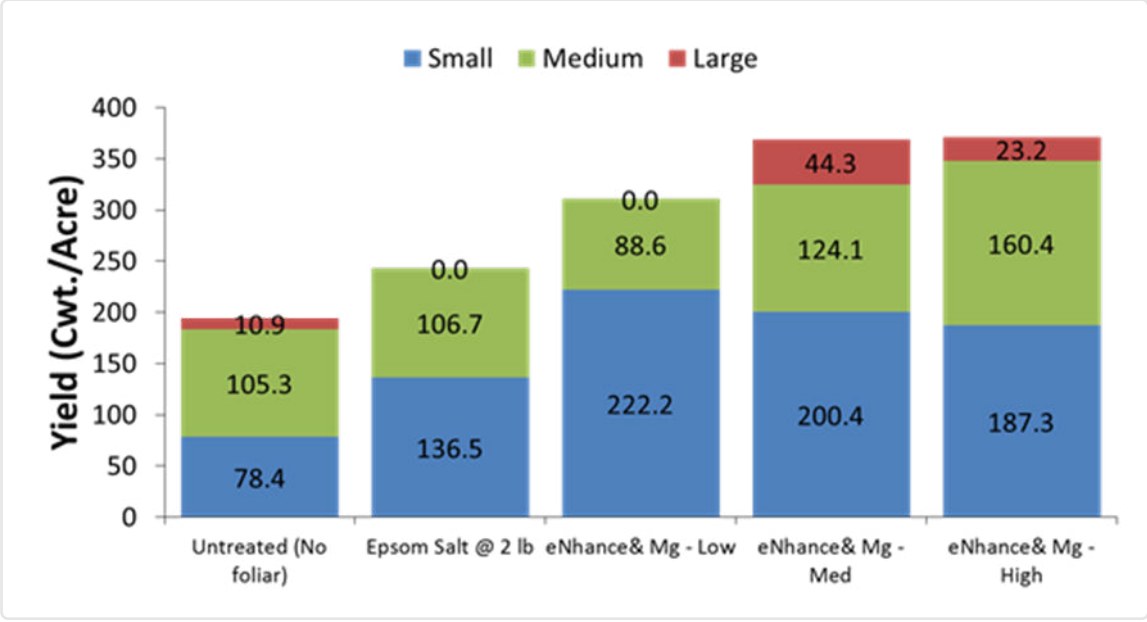

Figure P1. Effect of sulfur and Magnesium foliar treatments on potato yields, 2014.

Table P1. Affect of foliar sulfur and magnesium applications on the yield of chipping potatoes. 2014. Experiment 14-P1

	Treatment	Rate/A (gal/A)	Method of Application	Small under2	Medium 2-2.5	Large 2.5+	Total cwt/A
1	HN+PG+SK+Micro 500+Mn+B HN x 2	11+8+20+.75+.125+.125 22.5	beside seed 2 x Side dress	78	105	11	195
2	HN+PG+SK+Micro 500+Mn+B HN x 2 Epsom Salt	11+8+20+.75+.125+.125 22.5 2 lb	beside seed 2 x Side dress Foliar	136	107	0	243
3	HN+PG+SK+Micro 500+Mn+B HN x 2 eNhance & P-M14 (Mg) 50:50	11+8+20+.75+.125+.125 22.5 0.15	beside seed 2 x Side dress foliar	222	89	0	311
4	HN+PG+SK+Micro 500+Mn+B HN x 2 eNhance & P-M14 (Mg) 50:50	11+8+20+.75+.125+.125 22.5 0.30	beside seed 2 x Side dress foliar	200	124	44	369
5	HN+PG+SK+Micro 500+Mn+B HN x 2 eNhance & P-M14 (Mg) 50:50	11+8+20+.75+.125+.125 22.5 0.45	beside seed 2 x Side dress foliar	187	160	23	371

*HN=High NRG-N, PG= Pro-Germinator, SK= Sure-K.

Conclusions:

- While the tissue levels of Magnesium tended increased over time, there were no significant differences among all applications at the final sampling, the untreated trended down over time.
- Sulfur levels in the potato tissues were similar for all treatments with all samples trending lower for the last sample dates – data not shown.
- While the tissues test levels didn't show any clear differences in the treatments, the yields and sizing information showed strong treatment differences favoring the AgroLiquid product based applications.
- The two highest rates of applications for the AgroLiquid treatment (Trt # 4&#5) produced similar yields in total, but with some difference in the distribution among the sizing.