AGRO-CULTURE LIQUID FERTILIZERS

Effect of fertility programs and potassium options for growing Russet Burbank potatoes. Rupert, ID 2014

Experiment Info:	
Exper.:	ACL-1401
Planted:	24-Apr-14
Variety:	Russet Burbank
Population:	1450 (12" spacing)
Plot size:	3.3 ft x 50 ft
Replications:	Four
Harvest:	3-Oct-14

Soil Test Values (ppm):	
Soil	Sandy Loam
pH:	6.9
CEC:	11.8
%OM:	0.70
Bray P1:	23 ppm
Bicarb P:	-
K:	100 ppm
S:	4 ppm
%K:	-
%Mg:	1.9 meq/100g
%Ca:	4.2 meq/100g
%H:	-
Na:	0.2 meq/100g
Zn:	1.8 ppm
Mn:	4.3 ppm
Fe:	9.3 ppm
Cu:	0.8 ppm
B:	0.7 ppm

Objective:

Determine how well AgroLiquid fertility products compare. Additionally, to look at potassium comparisons within the AgroLiquid products available on this high potassium demanding crop.

Materials & Methods:

- During the Week of April 24th, the plot was established in a Tindahay sandy loam soil near Rupert ID. Certified Russet Burbank seed potatoes were planted in 36" rows with 12" in-row spacing to a depth of 7". The planting rate was approximately 2,196 lb. /acre. Each plot was four rows wide, 29 ft long with a 7 ft border between plots. The trials was established in a randomized complete block design.
- Table P1. Lists all pre-plant, at planting and foliar sprays. After the plants were established, regular irrigation was applied as necessary. At the 6" growth stage, 30 units of nitrogen were applied as 32% UAN weekly by the center-pivot with the irrigation water across the entire plot area.
- As the season neared the end, the center two rows of each plot were harvested with a Lockwood 4620 harvester on October 3rd. USDA standards were then utilized in grading the tuber samples collected. Specific gravity was also determined from a 15 tuber sample of 6-10 oz tubers retained after grading.
- Fungicides, insecticides and herbicides were applied uniformly to all plots throughout the season as necessary.

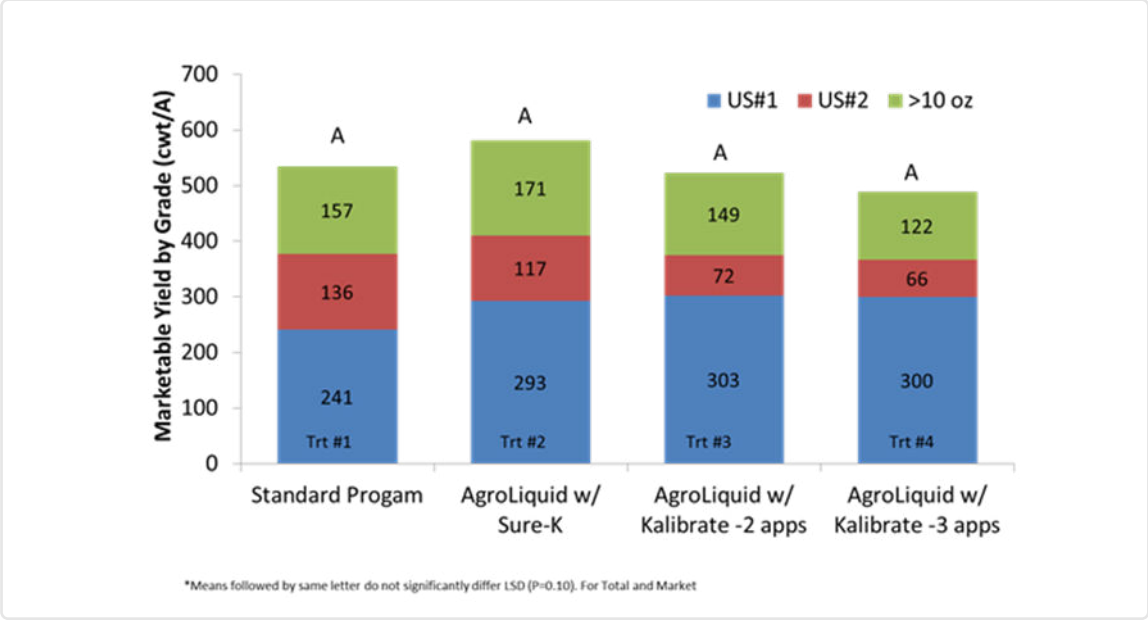

Figure P1. Effect of fertility program s and potassium type on potato yields.

Table P1. Fertility treatment programs evaluated on Russet Burbank potatoes, Rupert, ID 2014

	At Planting* (April 24)	Hilling (May 12)	In-season (June 25)	Foliar (July 14 and 28)	Total Units#
1.	10-34 (25 gal; 100 P_2O_5) Boron (0.5 gal; 0.55 B) Mn (0.5 gal; 0.55 Mn) Zinc (1.0 gal; 1.2 Zn) Humic Acid (1.0 gal) **(GROWER STANDARD)** (29 gallons total)	300 lb K Sulfate (~150 lb K_2O, 54 lb S) 67 lb KCl (~40 lb K_2O) 187 lb Urea (~86 lb N) 134 lb 11-52 (15 lb N, 70 lb P_2O_5) (688 lb/Acre Dry Fertilizer)	100 lb K sulfate (~50 K_2O, 18 lb S) (100 lb/Acre)		~425 N** 170 P_2O_5 240 K_2O 72 S 21 Cl 0.55 B 0.55 Mn 1.2 Zn
2.	Pro-germinator (10 gal) High NRG-N (8 gal) **Sure K** (5 gal) Micro 500 (1 gal) eNhance (2 gal) Boron (1 qt) (26.75 gallons total)	Pro-germinator (7 gal) High NRG-N (21 gal) **Sure K** (7 gal) accesS (10 gal) (45 gallons total)	**Sure K** (7 gal) (7 gal total)	Sure K (2.5 gal) two weeks apart. (5 gal total)	~425 N** 170 P 240 K 74 S 4.0 Mn 0.25 Cu 0.50 Fe 2.50 B 8.00 Zn
3.	Pro-germinator (10 gal) High NRG-N (8 gal) **Kalibrate** (5 gal) Micro 500 (1 gal) eNhance (2 gal) Boron (1 qt) (26.75 gallons total)	Pro-germinator (7 gal) High NRG-N (21 gal) **Kalibrate** (7 gal) accesS (10 gal) (45 gallons total)	**Sure K** (7 gal) (7 gal total)	Sure K (2.5 gal) two weeks apart. (5 gal total)	~425 N** 170 P 240 K 74 S 4.0 Mn 0.25 Cu 0.50 Fe 2.50 B 8.00 Zn
4.	Pro-germinator (10 gal) High NRG-N (8 gal) **Kalibrate** (5 gal) Micro 500 (1 gal) eNhance (2 gal) Boron (1 qt) (26.75 gallons total)	Pro-germinator (7 gal) High NRG-N (21 gal) **Kalibrate** (7 gal) accesS (10 gal) (45 gallons total)	**Kalibrate** (7 gal) (7 gal total)	Sure K (2.5 gal) two weeks apart. (5 gal total)	~425 N** 170 P 240 K 74 S 4.0 Mn 0.25 Cu 0.50 Fe 2.50 B 8.00 Zn

*Water added to bring total volume to 29 gallons. **32-0-0 applied weekly (~30 units/week) depending on crop need, beginning at 6" tall plants. #AgroLiquid product rates were based on established performance value and not actual analysis

Conclusions:

- The AgroLiquid program (Trt. #2) resulted in the highest marketable yield in this trial. Grade distribution and pricing assigned by the researcher showed a **process values** for the Grower Standard of $4267 and AgroLiquid program was $4,460 or a $193/A difference. Similarly, had these potatoes been sold with **Fresh Market** pricing, the values were $5046 (Trt #1) and $5,463 (Trt #2) respectively or a $417 advantage to the AgroLiquid program (Trt #2).

- Potato yields for US #1 tubers was highest when Kalibrate was substituted for Sure-K (Trt #3 &#4). However, the quantity of US #2 and >10 oz. tubers was lower than other treatments. Still, all treatments were statistically similar for total yield ($P \leq 0.10$).

- Complete details from this trial are available upon request, these pages are intended to summarize key points from this contract research trial by Miller Research, 425 East 200 North, Rupert, ID 83350