AGRO-CULTURE LIQUID FERTILIZERS

Effect of fertilizer type and application timing on the development and yield of yellow onions. Experiment# 13-1201

Experiment Info:

Experiment:	13-1201
TransPlanted:	April 30, 2013
Variety:	Patterson
Population:	250,000
Plot Size	5 ft x 30 ft
Replications:	Four
Harvest:	October 5, 2013

Soil Test Values (ppm):

Farm/Field	1217
pH:	7.6
CEC:	22.6
OM:	11
P1:	15
K:	111
S:	11
% K:	1.3
% Mg:	17.9
% Ca:	80.6
% H:	0
% Na:	0.2
Zn:	2.6
Mn:	2
Fe:	70
Cu:	1.6
B:	0.8

Objective:

Determine if fertility program and/or the timing of nutrient application can impact the yield and quality of yellow onions.

Materials & Methods:

- The plot was established originally on April 29th by spreading dry fertilizer and dry micronutrients into their respective plots. Then 24" wide by 4" tall raised beds were formed in the center of each 5' wide plot area. A twin row push type onion planter was operated twice on the top of the bed for each plot. Therefore, two pairs or four rows of onions were seeded into each plot resulting in a population of approximately 200,000 seeds per planted acre. The respective surface band fertilizer applications shown in Table O1 were made across the top (24") of each bed in the afternoon of the same day.
- Onions from this planting began to emerge about two weeks after planting. Two side dress nitrogen applications were made to each plot as described in Table O1.
- During the course of the growing season, irrigation, herbicide, fungicides and insecticides were each applied uniformly to all plots as necessary.
- Two weeks prior to the actual harvest, all onion bulbs were lifted and placed back in the plots to allow the tops and roots to dry. On October 10th, all the marketable sized onions were collected from each plot and bagged. The following week the harvested onions were mechanically topped and sorted for size. The weights of the onions in each grade category were combined to determine total yields.
- Adequate Irrigation water was applied by drip irrigation through-out the entire season. Fungicides, insecticides and herbicides were applied uniformly to all plots throughout the season as necessary.

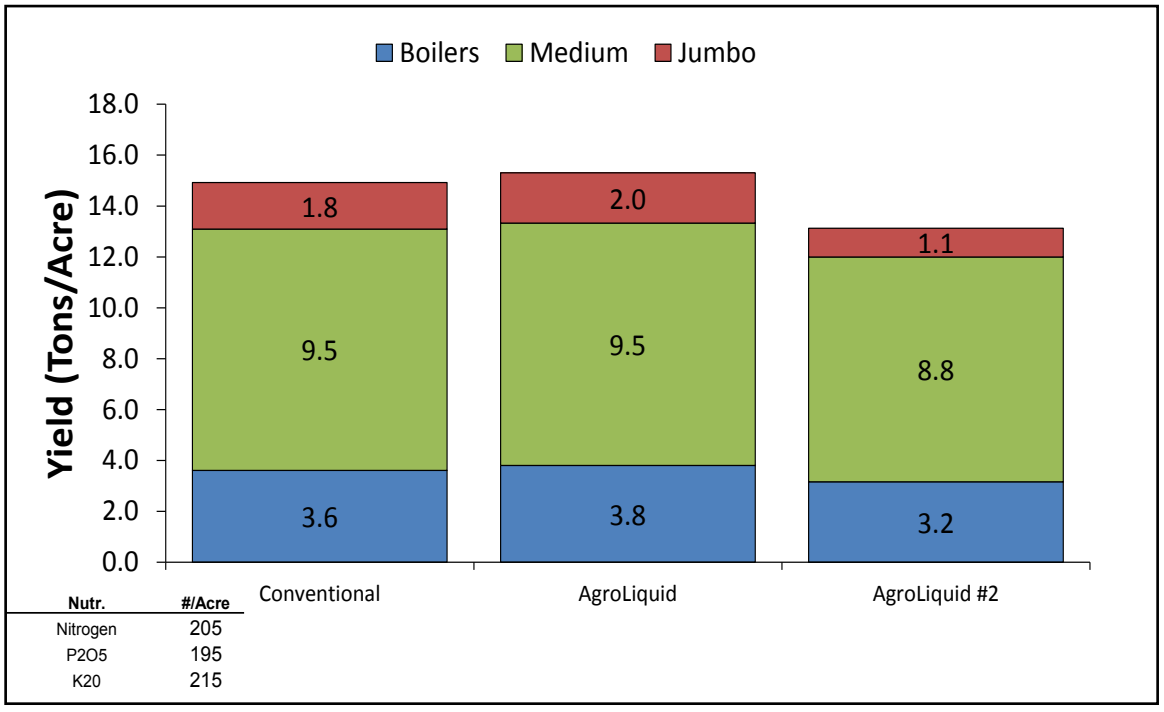

Figure O1. Effect of the fertility program on the yield and sizing of yellow onions

AGRO-CULTURE LIQUID® FERTILIZERS

O1. Fertilty program comparisons for yield of yellow onions. 13-1201. Patterson Variety

	Treatment	Rate/A (gal or lb/A)	"Method of Application"	Total Nutrients #\	NUE**	Yield Ton/A
1	0-0-60 + Micro Blend	360# + 5#	PPI	617	49.3	14.9
	10-34-0	12	Surface Band			
	28% UAN +10-34-0	(25 + 18.6) x 2	Side dress			
	Conventional					
2	PG + SK + Micro 500	10, 2.5, 1	Surface Band	220	138.9	15.3
	HN+SK+PG	21+10+10	Side dress			
	HN + SK	21 + 10	Side dress			
	AgroLiquid					
3	PG+M-500	5+1	Surface Band	220	119.2	13.1
	HN+SK+PG	(21+11.5+7.5)x2	Side dress			
	AgroLiquid #2					

*Micronutrients not included in total fertilizer per acre calculations. **NUE = Nutrient Use Efficiency =Lbs Yield / Total Lb. N,P,K&S as Fertilizer Applied, HN=High NRG-N, PG= Pro-Germinator, SK= Sure-K, PPI = preplant incorporated

Conclusions:

- The total yield for the conventional fertilizer (Trt #1) and the AgroLiquid program (Trt #2) were very similar. The AgroLiquid program did show slightly better yields in most grade categories and the end result was 0.4 tons per acre yield improvement over the conventional program. While this fertility program utilized approximately 400 lbs less actual plant nutrients per acre, yields were improved (Table O1).
- The AgroLiquid #2 fertility program (Trt #3) utilized he exact same amount of plant nutrition as the first AgroLiquid program (Trt #2). However, there was less fertility applied at planting and more during the growing season with the side dress applications. This was especially true for the phosphorus or Pro-Germinator which was placed in all three applications instead of only the first two with treatment #2. It is very likely that delaying the application of at least some of these nutrients limited the early season development of these onions and therefore the yields.