

Experiment Info:

Experiment: 13-203

TransPlanted: May 16th

Variety: Fletcher & Marinia

Population: 1730

Plot Size 5' x 30'

Replications: Four

Harvests: Four Starting Aug 12th

Soil Test Values (ppm):

Farm / Field 205

pH 6.1

CEC 7

OM 1.9

P1 42

K 111

S 11

% K 4.7

% Mg 14.6

% Ca 66.7

% H 13.6

% Na 0.4

Zn 1.8

Mn 13

Fe 84

Cu 0.4

B 0.4

Objective:

Determine if fertility program and/or nitrogen type can impact the growth, development and ultimately the yield of fresh market tomatoes.

Materials & Methods:

- During the Week of May 13th the beds for evaluating two fertility programs on two market type tomatoes were prepared according to the information in Table MT1. The specified treatments were broadcast and/or banded down the center of each plot and then the bed layer was used to incorporate the fertilizer and covered these raised beds with plastic mulch. On May 16th, approximately 4.1 oz. of transplant solutions (300 GPA) was applied to each plant according to the rates shown in Table MT1 as they were planted. The 30 foot long plots were planted on alternating sides of the central drip line having a 10.5 inch inter-row spacing and 34 plants per plot.
- This trial was planted with fresh market tomato varieties, Mariana – Roma type and Fletcher – globe type. Each variety was planted into ½ of each plot in this study. As this trial was hand harvested, the two varieties were harvested and weighed separately. At the end of the trial, the resulting yields were analyzed separately by variety and combined by plot. As there were no statistical differences by variety, data were combined for this report.
- 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. Starting on Aug 12th, the earliest tomatoes reached a sufficient level of maturity to begin harvesting. Over the several weeks, as tomatoes matured in this trial they were harvested. A total of four harvests were completed before frost ended the season.

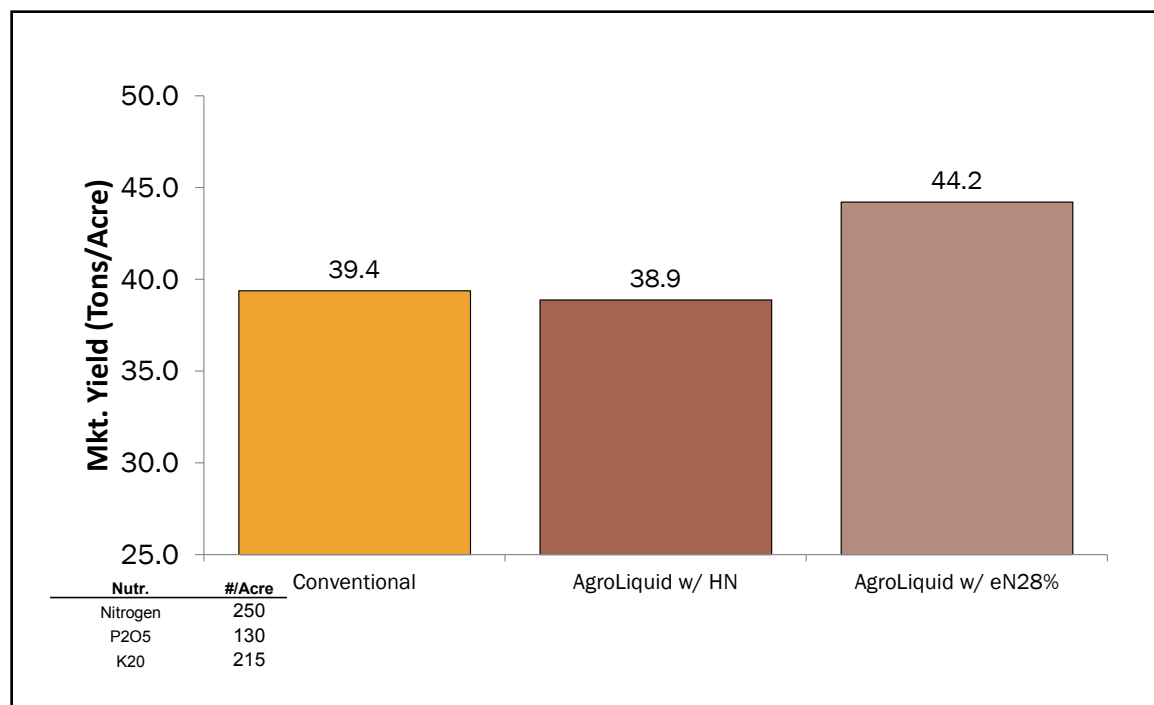


Figure MT1. Effect of the fertility program and nitrogen type on the yield of fresh market type tomatoes.

Table MT1. Fertility program and nitrogen type comparisons on the season yield of market tomatoes, 13-203. Fletcher & Marina Varieties

Treatment		Rate/A (gal or lb/A)	"Method of Application"	Nutrients* lbs/A	NUE**	Yield Tons/A
				Lbs/A	tons/Lb.	Tons/A
1	0-0-60 + Mn + B + Zn 10-34-0 28% UAN + 10-34-0 Conventional	400# + 5# + 1# + 4# 4 70 + 30	PPI Transplant band	623.4	15.8	39.4
2	PG + SK + Micro 500 + Mn + B HN + SK + PG	2 + 1 + 1, + 1 pt + 1pt 50 + 17 + 9	Transplant PPI/band	203.6	5.2	38.9
3	PG + SK + Micro 500 + Mn + B eN28% (80%) + SK + PG	2 + 1 + 1, + 1 pt + 1pt 56 + 17 + 9	Transplant PPI/band	218.0	4.9	44.2

*Micronutrients not included in total fertilizer per acre calculations. **NUE = Nutrient Use Efficiency = Tons Yield / Total Lb. N,P,K&S as Fertilizer Applied, HN = High NRG-N, PG = Pro-Germinator, SK = Sure-K, eN28% = 28% UAN w/ eNhance @ 2 gallons per ton.

Conclusions:

- The total yield of the conventional fertilizer (Trt #1) and the AgroLiquid program with High NRG-N (Trt #2) were statistically similar (Figure MT1). The AgroLiquid program with eN28% nitrogen had the highest total yields in this trial. Despite having a 4.8 ton per acre yield advantage over the conventional fertilizer program, these treatments were not statistically different ($P < 0.10 = 5.3$ tons/A).
- The only difference between treatments #2 and #3 was the nitrogen source and therefore the rate of application. High NRG-N has more stability of nitrogen characteristics than the 28% UAN combined with eNhance (eN28%) and therefore the application rate was 5 GPA less. This did give the High NRG-N a slightly higher NUE value (Table MT1), but the overall yield was lower. This may be primarily due to tomatoes nitrogen demand and the slower release by High NRG-N. The early canopy development was delayed and the overall stature of the tomatoes produced with High NRG-N was smaller and more compact compared to the two other treatments with both utilized 28% UAN.
- The AgroLiquid treatment with eN28% (Trt #3), used 14 less gallons of 28% UAN than the conventional fertilizer program (Trt #1). Based on the canopy development of these two treatments, the early season nitrogen availability must have been similar. Still the total yields were enhanced from using approximately only 80% of the actual pounds of nitrogen per acre (Table MT1). That is a part of why the nutrient use efficiency for this treatment was 3X that of the conventional fertility program.