AGRO-CULTURE LIQUID FERTILIZERS

Fertility program comparisons on Concord grape production in Central Michigan. Experiment 13-P104.

Experiment Info:

Exp.	13-P104
Planted:	5-29-10
Variety:	Concord
Population:	545
Plot Size:	10'x32' (four vines)
Replications:	Three
Harvest:	10-18-13

Soil Test Values (ppm):

Farm / Field	108
pH	7.3
CEC	8.6
OM	1.3
P1	211
K	124
S	2
% K	3.7
% Mg	21.6
% Ca	74.4
% H	-
% Na	0.3
Zn	13
Mn	5
Fe	34
Cu	1.7
B	0.8

Objective:

Compare fertility programs impact on the development and yield of young Concord grape vines in Central Michigan.

Materials & Methods:

In the spring of 2010, this research vineyard was established with two rows of concord grapes. The rows were spaced ten feet apart and the in-row spacing for the vines was eight feet. Each plot contained four vines (4 vines x 8 ft.). These vines were established and growth directed for a Single Curtain, Bi-lateral Cordon with a standard two-wire trellis without any crop load during the first two seasons of growth. Little or no cane pruning occurred prior to 2012. Only the removal of all but one renewal spur at the base of each vine regularly occurred each season. Each fall after all leaves had dropped, the graft union on each vine was covered with 2-3" of soil to provide some frost/freeze protection for these vines. During early March of 2013, the vines were all pruned back to a uniform number of nodes prior to bud break. After bud break and early leaf development, the soil coving the graft union was removed from all vines and any unnecessary renewal spurs were cut back to near the base of the vine and spring fertilizer treatments were applied. Pesticide applications to provide disease and insect control were applied uniformly across all plots as necessary during the growing season. Foliar fertilizer applications were applied to selected plots at full bloom, bunch closure and Veraison utilizing a backpack sprayer. At maturity, all clusters were harvested and weighed for all four vines within each plot. Four random clusters were then selected from each plot, combined, crushed and the Brix levels determined just after harvest.

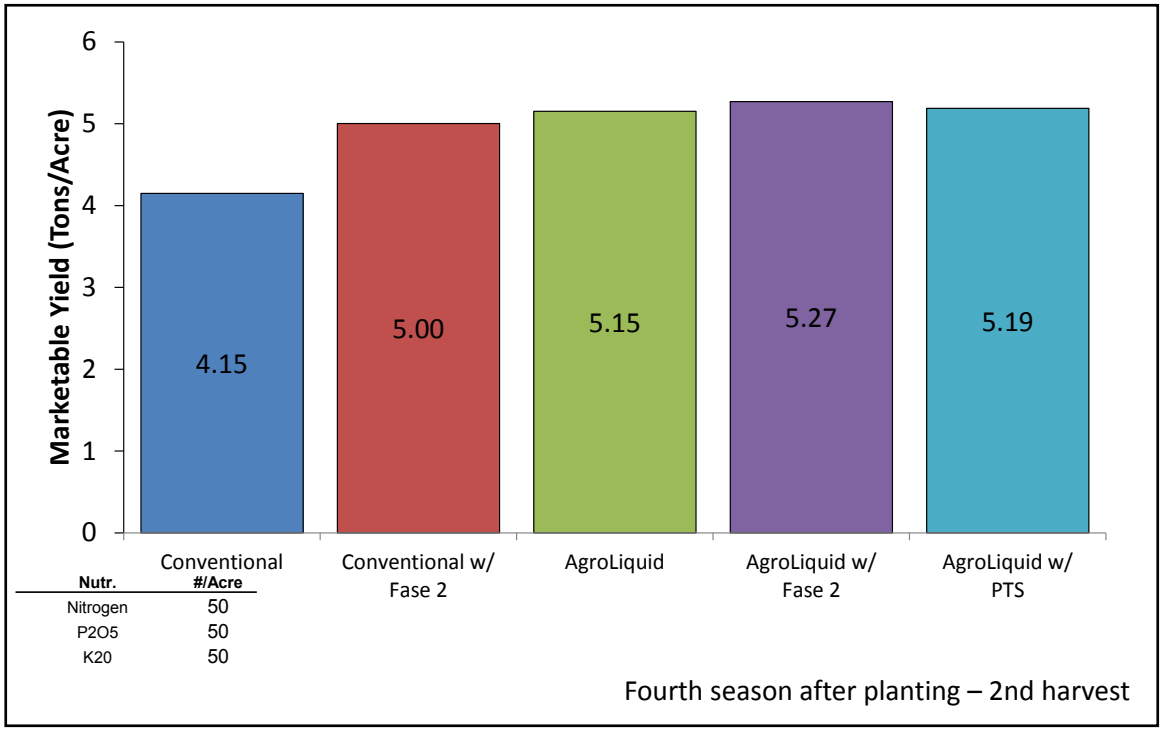

Figure CG1. Yield results by treatment for Concord grape from the 2013 growing season.

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CG1. Fertility programs and yield information for Concord Grapes, 2013. Experiment 13-P104

	Treatment	Rate/A (gal or lb/A)	"Method of Application"	Nut.* Lb/A	NUE**	Yield Tons/A
1	Conventional 28% UAN + 10-34-0 + SOP	12 + 12.9 + 100#	Band	155.8	53.2	4.15
2	Conventional w/ Fase 2 28% UAN + 10-34-0 + SOP Fase 2	12 + 12.9 + 100# 2 qt x 3 apps	Band Foliar	206.0	48.6	5.00
3	AgroLiquid HN + PG + SK + Micro 500 + Mn	11 + 4.2 + 4.2 + 1 + 0.125	Band	97.1	106.1	5.15
4	AgroLiquid w/ Fase 2 HN + PG + SK + Micro 500 + Mn Fase 2	11 + 4.2 + 4.2 + 1 + 0.125 2 qt x 3 apps	Band Foliar	54.5	193.5	5.27
5	AgroLiquid w/ PTS HN + PG + SK + Micro 500 + Mn PTS	11 + 4.2 + 4.2 + 1 + 0.125 2 oz x 3 apps	Band Foliar	52.1	199.1	5.19

*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, PTS = Protriastim

Conclusions:

- The yield of Concord grapes (Figure CG1) was 1.0 ton/Acre (24%) greater for the full AgroLiquid fertility program (Trt 3) compared to the conventional fertility program (Trt 1).
- Three applications of Fase 2 at selected growth stages (treatments 2 & 4) resulted in yield increases of 0.85 and 0.12 tons per acre for the Concord grapes produced with the conventional fertility products or the AgroLiquid products compared to their respective programs without the foliars. There was a 22% increase from the use of Fase 2 with the conventional fertility program and only 2% over the AgroLiquid program. Still, the AgroLiquid program out yielded both conventional fertilizer based program by more than 5%.
- The soluble solids or Brix values were relatively similar for all the Concord grape treatments this season. Therefore, it was assumed that all the treatments had similar maturity at the time of harvest. Data not shown. Still, the Brix levels in these grapes at the time which they were harvested averaged just over 19 degrees Brix, well beyond when they would typically be harvested. Had the harvest occurred a week or more earlier, significant differences may have existed.