

Results of a Two-Year Study on the Performance of Table Grape Cultivar Jupiter with Cluster Thinning Treatments Under High Tunnels at Two Locations in Arkansas



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Results: Fayetteville-2018

Table 2. 2018 Main and interaction effects of Fayetteville harvest vine yield performance for table grape Jupiter with cluster thinning treatments applied.

	Total Yield (kg) ^z	Number Clusters per Vine ^z	Weight of 1 Cluster (g) ^z	Weight of 1 berry (g) ^z
CV				
Jupiter	22.23	89.61	281.66	4.22
Trellis System				
MDHCE	27.31a	114.00a	264.69	4.11
GDC	15.61b	60.50b	279.97	4.41
MDHCW	23.70b	94.17a	300.06	4.19
<i>P-value</i>	0.0193	0.0028	NS	NS
Thinning				
No Thinning	22.64	99.44	252.63	199.93b
Pea size	21.77	79.67	310.48	223.42a
<i>P-value</i>	NS	NS	NS	0.0206
Interactions (<i>P-values</i>)				
Thinning x Trellis	NS	NS	NS	NS

^z Means with different letter(s) for each attribute are significantly different (p<0.05) using Tukey's Honesty Significant Differences

Results: Fayetteville-2019

Table 3. 2019 Main and interaction effects of Fayetteville harvest vine yield performance for table grape Jupiter with cluster thinning treatments applied.

	Total Yield (kg) ^z	Number Clusters per Vine ^z	Weight of 1 Cluster (g) ^z	Weight of 1 Berry (g) ^z
CV				
Jupiter	42.50	197.11	220.84	4.78
Trellis System				
MDHCE	36.71	159.50	234.75	4.66
GDC	49.89	248.50	203.73	4.89
MDHCW	40.90	183.33	224.05	4.79
<i>P-value</i>	NS	NS	NS	NS
Thinning				
No Thinning	39.86	189.89	210.32	4.84
Pea size	45.15	204.33	231.37	4.72
<i>P-value</i>	NS	NS	NS	NS
Interactions (<i>P-values</i>)				
Trellis x Thinning	NS	NS	NS	NS

^z Means with different letter(s) for each attribute are significantly different ($p < 0.05$) using Tukey's Honest Significant Differences

Results: Cabot-2018

Table 4. 2018 Main and interaction effects of Cabot harvest vine yield performance for table grape Jupiter with cluster thinning treatments applied.

	Total Yield (kg) ^z	Number Clusters per Vine ^z	Weight of 1 Cluster (g) ^z	Weight of 1 berry (g) ^z
CV				
Jupiter	10.84	39.40	221.04	4.04
Trellis System				
MDHCE	14.78a	48.67a	248.00a	4.05
GDC	4.72b	17.91b	161.56b	4.03
MDHCW	13.14a	51.57a	253.56a	4.05
<i>P-value</i>	0.0035	0.0077	0.0075	NS
Thinning				
No Thinning	12.44	47.22	196.67	3.92
Pea size	9.27	30.47	241.56	4.19
Veraison	10.82	40.44	224.89	4.01
<i>P-value</i>	NS	NS	NS	NS
Interactions (<i>P-values</i>)				
Thinning x Trellis	NS	NS	NS	NS

^z Means with different letter(s) for each attribute are significantly different ($p < 0.05$) using Tukey's Honest Significant Differences

Results: Cabot-2019

Table 5. 2019 Main and interaction effects of Fayetteville harvest vine yield performance for table grape Jupiter with cluster thinning treatments applied.

	Total Yield (kg) ^z	Number Clusters per Vine ^z	Weight of 1 Cluster (g) ^z	Weight of 1 berry (g) ^z
CV				
Jupiter	26.88	157.07	173.10	4.69
Trellis System				
MDHCE	25.10	161.89	163.62	4.60
GDC	25.35	135.78	167.70	4.54
MDHCW	30.20	173.56	187.98	4.93
<i>P-value</i>	NS	NS	NS	NS
Thinning				
No Thinning	35.10	223.44a	165.85	4.61
Pea size	22.77	126.67b	173.47	4.83
Veraison	22.77	121.11b	179.98	4.62
<i>P-value</i>	NS	0.0058	NS	NS
Interactions (<i>P-values</i>)				
Thinning x Trellis	NS	NS	NS	NS

^z Means with different letter(s) for each attribute are significantly different (p<0.05) using Tukey's Honesty Significant Differences

Conclusions: Fayetteville -2018 and 2019

- ‘Jupiter’ performs well in the high tunnel
 - Differences in yield from year to year
 - Trellis had a significant effect on yield and cluster number in 2018
 - Thinning treatments had a significant effect on berry weight in 2018
 - There were no significant effects for any variables measured in 2019
 - Cluster weights were not significant for either year



Conclusions: Cabot 2018 and 2019

- ‘Jupiter’ performed well at this location
 - Did not have excessive yields
- Trellis systems had a significant effect for total yield, number of clusters, and cluster weight in 2018
- There was a significant thinning effect for number of clusters per vine in 2019
 - Non-thinned vines had the most clusters



Overall Project Conclusions

- The sustainability of table grape production can be enhanced in geographic areas where there are climatic challenges by utilizing HTs
 - Improved yields
 - Improved fruit quality
 - Reduced pesticide sprays
- Requires more labor inputs



Acknowledgements

This research was funded by the Southern Sustainable Agriculture Research and Education Grant, United States Department of Agriculture (RD309-137/S001415).



Thank you!

- Dr. Elena Garcia
- Dr. Jackie Lee
- Dr. Amanda McWhirt
- Dr. Renee Threlfall
- Dr. Don Johnson
- Karlee Pruitt
- Lizzy Herrera
- Virginia Beasley
- Brittany Lowery
- Lesley Smith
- Kooper Cavender



Questions?