2020 Alabama State Report
NCCC212 Small Fruit and Viticulture Research Cooperative Project
Dr. Elina Coneva

Objective 1: Develop improved small fruit germplasm through cooperative breeding and evaluation programs:

1. Evaluation of UC Davis Developed Pierces Disease (PD) Resistant Predominantly *V. vinifera* Grapes in AL. E. Coneva, and M. Price, Auburn University, Auburn, AL, and Andy Walker, UC Davis.

2. Assessment of Recently Released Muscadine Grape Cultivars and Advanced Selections from the UoG breeding program in AL conditions. E. Coneva, M. Price, Auburn University, Auburn, AL, and P. Conner, UoG.

3. Assessment of Newly Released UoG Blueberry Cultivars, E. Coneva and M. Price, Auburn University, Auburn, AL, and Scott NeSmith, University of Georgia, Griffin, GA.

4. Evaluation of Newly Bred Seedless Table Grape Selections from the University of Arkansas Breeding Lines. E. Coneva, Auburn University, Auburn, AL; and John Clark, University of Arkansas.

Objective 2 - Develop practices for small fruit production tailored for climatic and market needs of growers.

5. Determining the Optimal Planting Density of Pierces Disease (PD) Resistant Predominantly *V. vinifera* Grapes trained to a Watson training System in Alabama conditions. E. Coneva, and M. Price, Auburn University, Auburn, AL, and Andy Walker, UC Davis.

6. Evaluations of selected scion-rootstock combinations for sustainable hybrid bunch grape production in Alabama. E. Coneva and James Pitts, Auburn University, Auburn, AL.

Impact: The fruit industry in the state of Alabama is provided new knowledge on the performance of newly released and improved small fruit cultivars and the best production practices for enhanced sustainability and profitability of high-value specialty crops.

Viticultural Potential of Pierce's Disease-Resistant Predominantly *Vitis vinifera* L. Selection Grown in Central Alabama (Experiment 1 and 5**)**

Vitis vinifera grape production in the southeastern United States is limited by the endemic bacterium, *Xylella fastidiosa*, causal agent of Pierce's Disease (PD). Predominantly *V. vinifera* selection '502-20' bred at the UC Davis and grafted on 'Salt Creek' rootstock, was planted at three densities and trained to a Watson training system in the winter of 2017. The experimental plot is located at the Chilton Research and Extension Center in central Alabama. The goal is to determine the vine viticultural performance and the optimal planting density while utilizing the Watson training system. Vine survival in the high PD risk conditions of Alabama is also being assessed. Data is being collected to determine vine phenology, total yield, fruit quality and vigor of 'U0502-20' grape at each planting distance. Fruit cluster production was observed during the second growing season, when clusters were removed before flowering in order to encourage root system establishment of the young vines. The experimental vines were dormant pruned to 12 spurs per vine (6 spurs/cordon) with two buds per spur retained for a total number of 24 buds per vine. Shoot thinning was conducted during spring to maintain the desirable shoot number. Additionally, cluster thinning was applied to adjust the crop load to one cluster per shoot. The 'U0502-20' vines produced the first commercial crop during the 2019 season. Current season results for total yield per vine (Fig. 1, 2) suggest similar cropping level regardless of planting distances with the 6' in-row treatment producing 18.7 lb/vine, and the 7' and 8' in-row distance treatments producing 19.4 lb/vine. No statistical differences were found in cumulative yield per vine during 2019-2020, when the plants produced between 36.2 and 36.8 lb/vine. Mean cluster weight varied between 367.2 g for vines planted at 6' X 12' to 394.3 g for vines planted at 7' X 12' during the current season, when the number of clusters harvested per vine ranged from 27.7 for plants at 7' X 12' to 31.6 for vines at 8' X 12'. Mean berry size for all planting distances was slightly above 2.0 g with soluble solids content of 18.4-18.7 %.

Research will continue to more fully assess the vegetative and productive responses of PD resistant predominantly European grape 'U0502-20' and determine the optimal planting distance in Alabama conditions.

Assessment of Newly Released UoG Blueberry Cultivars in Alabama (Experiment 3**)**

Blueberries are a high value fruit crop and are becoming increasingly popular worldwide. In the last decade, Alabama's blueberry farm gate value has increased by approximately 13 percent. Research currently being conducted could determine that Alabama blueberry growers have several more varieties to choose from.

The blueberry breeding program at the University of Georgia, has released new blueberry varieties that have been created to keep up with the commercial and home garden demands. Some of these varieties include 'Titan' and 'Krewer', new large-fruited rabbiteye blueberry cultivars. The USDA released 'Pink Lemonade' rabbiteye blueberry possess a unique pink fruit color and ripens late.

A study plot was established in 2019 to test and compare ten well-established and newly released rabbiteye blueberry varieties for production in Alabama. This research, done at the Chilton Research and Extension Center, will evaluate the plants productivity and fruit quality under central Alabama growing conditions. The varieties evaluated in the study include:

- Titan
- Krewer
- Pink Lemonade
- Alapaha
- Climax
- Vernon
- Premier
- Powderblue
- Tifblue
- Oclockonee

Data on bloom period, cold hardiness, crop load, season of maturity, total yield, and fruit quality will be gathered over multiple growing seasons to establish cultivar growth, productivity, pest resistance, and overall adaptability to Alabama conditions.

Publications:

Journal Articles:

1. Andrej W. Svyantek*, **Elina D. Coneva**, J. Raymond Kessler, James D. Spiers, Edgar L. Vinson III, A. Walker, and James A. Pitts. 2020. Assessment of Pierce's Disease Resistant 87.5% *Vitis vinifera* L. Selections in Central Alabama. Catalyst Discovery Into Practice: https://www.asevcatalyst.org/content/early/2020/07/06/catalyst.2020.19008

2. Vinson, E.L. III*, **Elina D. Coneva**, Joseph M. Kemble, J. Raymond Kessler, Jr., Esendugue G. Fonsah, Penelope M. Perkins-Veazie, Floyd M. Woods and Jeff L. Sibley. 2020. Reflective Mulch Application and Cover Crop Usage to Stimulate Earlier Banana Flowering. J. Am. Pomological Society. 74(3): 169-179.

3. Jacob T.K., J.D. Spiers, J. R. Kessler, **Elina D. Coneva**, and E.L. Vinson. 2020. Effect of hydrogen cyanimide on flower production of 'AU Golden Sunshine' and 'AU Gulf Coast Gold' kiwifruit. Journal of the American Pomological Society. (Accepted).

1. Extension Publications:

E. Coneva. Novel grape varieties: https://www.thepacker.com/article/novelty-grapes-among-24-varieties-new-plus

E. Coneva. New Large-Fruited Blueberry Cultivars Evaluation: Alabama IPM Communicator Newsletter Volume 11, Issue 10, May 15, 2020:

https://www.aces.edu/blog/topics/crop-production/new-blueberry-varieties-being-tested-for-alabama-growers/

E. Coneva. ACES Your Friday - Dayli Briefing May 29, 2020 :

https://www.aces.edu/blog/topics/crop-production/time-to-watch-out-for-japanese-beetle/

E. Coneva. ACES Your Friday - Dayli Briefing May 29, 2020:

https://www.aces.edu/blog/topics/crop-production/mummy-berry-blueberry/

E. Coneva. May 29: IPM Communicator Vol. 11, Issue 11:

https://www.aces.edu/blog/topics/crop-production/time-to-watch-out-for-japanese-beetle/

E. Coneva. May 29: IPM Communicator Vol. 11, Issue 11:

https://www.aces.edu/blog/topics/crop-production/mummy-berry-blueberry/

E. Coneva. AL IPM Communicator, Volume 11, Issue 14: Grape root borer: https://www.aces.edu/blog/topics/crop-production/grape-root-borer/

E. Coneva. IPM article: Alabama IPM Communicator Newsletter Volume 11, Issue 17 https://www.aces.edu/blog/topics/crop-production/yield-and-fruit-quality-of-pierces-disease-resistant-grapes-in-alabama/

E. Coneva. CAESWEB SR SFC Newsletter October 15 Vol 20 No. 4 Fall issue: https://smallfruits.org/2020/10/assessment-of-pierces-disease-resistant-predominantly-european-grape-in-alabama/;

Appendix

Figure 1. Crop load and fruit quality of PD resistant predominantly European grape 'U0502-20' trained to a 'Watson' trellis system, grown at the CREC, Clanton, AL, 2020.

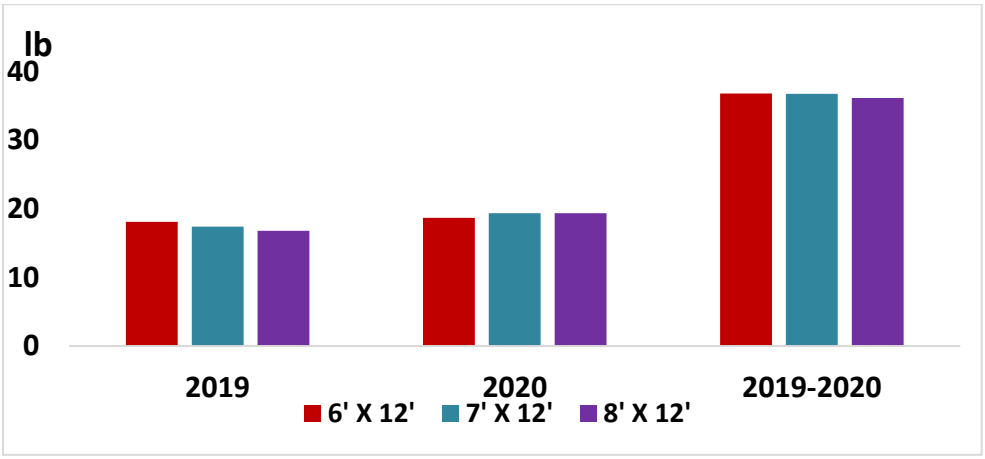

Figure 2. Total yield of PD resistant predominantly European hybrid 'U0502-20' grape trained to a 'Watson' system and grown at three planting distances at the CREC, Clanton, AL, 2019-2020.