

SERA014 Progress Report 2005

**USDA-ARS Small Fruit Research Station
Poplarville, MS 39466**

Stephen J. Stringer
Geneticist
USDA-ARS Small Fruit Research Station
PO Box 287
Poplarville, MS, 39470
(601) 795-8751
sjstringer@msa-stoneville.ars.usda.gov

The consumption of fresh fruit and vegetables has always been known to provide essential nutrition to mankind and, both anecdotally and clinically, has been linked to the prevention or alleviation of chronic diseases. The muscadine grape, a fruit native to the southeastern U.S., contains numerous phenolic compounds that act as antioxidants and also other compounds, such as resveratrol, that acts as a chemopreventative. The concentrations of these compounds present in the muscadine grape equal or exceed that known for other small fruit. Fruit of selected muscadine grape genotypes, including breeding lines and cultivars, were evaluated over a 2-year period to assess the existing genetic base for these nutraceutical compounds. Results demonstrated that concentrations of total phenolics, ellagic acid, and resveratrol differ significantly among cultivars and breeding lines. These results suggest that it should be possible to breed for increased concentrations of the health-promoting compounds in muscadine grapes.

Utilizing the results of these studies, in 2005 crossing was conducted in the grape research vineyard at McNeil, MS to begin breeding to enhance the nutraceutical composition of Muscadine grape germplasm. Unfortunately, as a result of Hurricane Katrina, a significant number of the trellises in the vineyard were broken, most fruit was knocked to the ground, and very little of the seed resulting from these crosses was recovered. This work will be continued in 2006, as will studies to evaluate the ability of these and other cultivars and breeding lines to recover from wind damage in excess of 150 m/p/h.