

**2009 Research Proposal to the Southern Region
Small Fruit Consortium – Progress Report
SRSFC Research Project 2009-20**

TITLE: Evaluation of *Vitis vinifera* Grape Cultivars and Clones for the Southern Region

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OBJECTIVE:

Characterize the viticultural, grape and wine quality potential of economically significant and emerging cultivars, scion and rootstock.

JUSTIFICATION:

Grape and grape products industries expanded in recent years, and are continuing to expand, across the United States. This growth is also occurring in the southeastern region of the U.S. as well as in the major grape producing regions. Reported grape acreage, combined, in Georgia, Virginia, and North Carolina in 2005 were 4,400 and in 2007 were 4,800 (USDA-NASS, 2008). However, the 1,400 reported acres in NC is thought to be underreported and that total NC acreage is closer to 3,000. Statistics for Tennessee and South Carolina are not reported to the USDA. Per capita wine consumption in the U.S. increased from 7.97 L in 2001 to a projected 11.4 L in 2007, while the U.S. is becoming the largest total wine consuming country in the world (Decanter Magazine, 2008). According to Wine America, “Grapes are the highest value fruit crop in the nation and the sixth largest crop overall (WineAmerica, 2008).” WineAmerica projected that grapes and their products have a \$162 billion impact on the U.S. economy. Value added grape products is between \$2 and \$4 per \$1 of farm gate value.

Research based knowledge is needed for each viticultural production region to provide a competitive foothold for that region. Grapevine growth and fruit quality are extremely responsive to the environment in which the vines are grown. Although there is an old and long tradition of grape and wine production in North Carolina and the Southeast U.S., there is limited research essential to maintain competitiveness for modern viticulture and enology operations. Adaptation of knowledge from other grape producing regions is possible, but does not provide the specific information needed to produce high quality grapes in the warm to hot, high humidity conditions of North Carolina. An integrated and comprehensive southeastern viticulture and enology research, extension

and education program is needed to advance the industry in North Carolina and throughout the Southeast.

PROCEDURES:

The NE-1020 (Multi-state Evaluation of Winegrape Cultivars and Clones) Project has selected and grouped cultivars and clones of potential economic value based on interest and need for various states and regions (<http://www.nimss.umd.edu/homepages/home.cfm?trackID=4034>). Actual protocols for the project exceed the allotted page numbers for this entire proposal. All items will be tested over a range of sites between the cooperating states so that genotypic influences may be distinguished from environmental influence, but all items will not be evaluated at every location. The project protocol requires that all vines will be propagated from a single source and that *Vitis vinifera* cultivars shall be grafted to a standard rootstock that is adapted to the site in question. Number of replicates and vines per cultivar per replicate will be established by the NE-1020. Standard measurements to be collected are: cane pruning weight, nodes retained at pruning, shoots per vine, shoot length, shoot weight, leaf area, yield per vine, clusters per vine, cluster morphology, berry weight, pest predation and disease status and cold hardiness. Vine phenology will be recorded. Berry sampling will be used to determine harvest date. After harvest, fruit sub-samples will be analyzed for juice soluble solids, pH, total acidity, and color (Ough and Amerine 1988). Winemaking trials will follow NE-1020 protocols.

Vines were planted in 2008 in cooperation with Surry Community College. We will take pruning weights of the young plants this winter and begin training vines summer 2009. The trellis will be installed this winter

2008

Vines were received in late Spring 2008. On April 16 vines were planted in cooperation with Gill Giese at Surry Community College. Marselan, Black Spanish and Sunbelt were not included in the order. The following varieties, all grafted on 101-14, were planted spring 2008:

Aglanico	Lemberger
Cabernet Sauvignon cl. 8 (sentinel variety)	Merlot cl 3 (sentinel variety)
Carmenere	Tinto Cao
Grignolino	Touriga nazionale
Nebbiolo	

Due to the missing varieties, Merlot cl 3 grafted on 3309 and Cabernet Sauvignon cl 337 grafted on 101-14 were substituted to allow comparison of Merlot on two different rootstocks and two clones of Cabernet Sauvignon on the same rootstock.

2009

The trellis system was installed spring 2009. The summer was spent training vines with the assistance of the Surry County Community College crew. Most of the vines have filled their space within the trellis system. Data collection will begin summer 2010. Pruning weights will be collected this winter for vines with sufficient growth.

Results, Conclusions, Impact Statement, Citation(s) for any publications arising from the project:

As indicated in the proposal and the Procedures section above, the funds were to be and were used to assist with the cost of establishing the vineyard. We will begin to collect data this winter. It is preliminary to draw any conclusions or impact at the present time. The project is at least 3-4 years out from producing publications. The outcome and expected benefits from the project are stated below.

OUTCOME AND EXPECTED BENEFITS:

The successful wine industries in the United States benefited from long-term studies that evaluated the suitability of grape cultivars and their clones to specific regions. Although some cultivars and clones have been evaluated under Southern Region conditions, further evaluation is needed to sort out from the hundreds of possibilities the cultivars that produce wines of optimal quality under warm day/night temperature regimes with high relative humidity and rainfall. By finding the appropriate cultivars and clones the competitiveness of wines produced from southern US grown grapes in the marketplace will be increased. This is the only trial being conducted in the southern region as a part of the NE-1020 program.