



## Field Observations of Machine-harvest Inefficiencies and Suggested Corrective Measures for a Commercial ‘Noble’ Muscadine Grape Block Trained to a Single Cordon

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‘Noble’ and ‘Carlos’ muscadine grapes are two leading commercially harvested cultivars for contract to Florida vintners. For two growing seasons, 2010 and 2011, in northeastern Florida, several producers sharing the same mechanical harvester had reported difficulty harvesting ‘Noble’ muscadine grape berries. Single cordons in a block were trained in the same direction. Field observation during the 2011 harvest of a ‘Noble’ muscadine by a model 2720 Braud<sup>®</sup> harvester showed visual differences in berry harvest depending on whether harvesting in the direction of the single-cordon or against it. An adjacent block of ‘Carlos’ muscadine did not display signs of alternating patterns. A field transect of the ‘Noble’ grape was conducted. Paired-row replicated hand-harvests with and against-cordon harvests were systematically sampled on a diagonal field transect at progressive, four-row intervals between harvested sample pairs for a total of four replications. The entire 20-ft cordon of each pair was harvested. Mean berry weight left in the vineyard was 2,158 lb per acre when harvested in the direction of the cordon compared to 674 lb per

acre when harvested against the direction of the cordon (F-test,  $P = 0.001$ ). Field recommendation was to harvest every other row against the direction of the single cordon immediately. This second pass was costly time-wise, as complete rounds of the block were required of the mechanical harvester for each alternating row. The additional 1,484 lb of harvestable berries per acre justified the second pass by the mechanical harvester. It would have been advantageous if cordons had been trained in alternating directions in alternating rows for this block of ‘Noble’. Fruiting wood also appeared to have been aggressively pruned, placing the fruiting nodes close to the cordon. Winter pruning recommendation was to not prune so closely to the cordon, so berries would be further from the cordon and perhaps more harvestable. Harvest direction efficiencies may need to be tested across cultivars and multiple seasons before recommending training cordons in alternating directions for future plantings of machine-harvested ‘Noble’ vineyards. For these growers and with this harvester, cordon direction and pruning may be worthy of investigation.

Table 1. Direction of machine harvest and pounds of ‘Noble’ left on the vine.

Paired rows	Cordon against direction of harvest <sup>z</sup> (lb/acre)	Cordon with direction of harvest <sup>z</sup> (lb/acre)	Harvestable difference (lb/acre)	Harvestable difference value at \$500/ton contract (\$/acre)
1	525	2787	2263	\$565.63
2	688	1774	1086	\$271.50
3	525	2226	1701	\$425.35
4	959	1846	887	\$221.73
Means	674	2158	1484	\$371.05

<sup>z</sup>F value is 34.25 with a  $P$  value of 0.001, for direction of cordon machine-harvested pounds of berries per acre left on the vine.

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