Table 1. Segregation for resistance to black rot in the F_2 generation of a cross between Fla. 43-47 (resistant) and Caco (susceptible) bunch grape.

Replication	Resistant:susceptible Observed	Expected (15:1)	Chi square	Probability
A	28:2	28.1:1.9	0.006	.90-.95
B	28:5	30.9:2.1	4.277	.02-.05*
C	18:2	18.7:1.3	0.403	.50-.70
Total	74:9	77.8:5.2	2.985	.05-.10

*Chi-square value greater than that observed would be expected by chance in 5% or less of cases.

(susceptible). S_1 seedlings from 'Blue Lake' are actually F_2 seedlings from the cross between resistant and susceptible parents (Fla. 43-47 x 'Caco'). The F_2 segregation observed was reasonably close to a 15:1 ratio of resistant to susceptible progeny (Table 1).

One possible explanation of the observed segregation is that two resistance genes were heterozygous in 'Blue Lake' and that these genes segregated as in Table 2 in the S_1 progeny.

The distinct segregation reported here differs from the continuous variation reported by Barrett (3) on resistance to black rot of the foliage. However, this segregation was based on resistance in the fruit clusters and not on the foliage, and Barrett noted that foliar resistance may not necessarily correspond to fruit resistance in species such as *V. bicolor* LeConte (2).

While resistance in the fruit appears to be digenic dominant in the case of 'Blue Lake,' it is likely that additional genes would be segregating in crosses between resistant and highly susceptible cultivars. More research is needed to determine the overall pattern of inheritance.

Table 2. A possible explanation of the segregation of S_1 seedlings of 'Blue Lake' grape for black rot resistance in the fruit.

Genetic segregation	Genotype	Phenotype	Observed segregation
9	Br^1— Br^2—	resistant	
3	Br^1— br^2br^2	resistant	15
3	br^1br^1 Br^2—	resistant	
1	br^1br^1 br^2br^2	susceptible	1

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Attempts at Cherry Breeding in Florida[1,2]

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There are no palatable cherries in the deep South of the U.S. Sweet *(Prunus avium)*, sour *(P. cerasus)* and duke (hybrids) cherries are grown in more northern U.S. climates because they have high winter chilling requirements. Many cherry cultivars and their seedlings have been planted in

the South and tropical highland areas but none have been grown with success as they lack genes for low chilling (1, 2, 3).

Native black cherry *(P. serotina)* and cherry laurel *(P. caroliniana)* are relatives of edible cherries but crosses with them have not been successful, Taiwan flowering cherry *(P. campanulata)* is adapted to the Northcentral Florida area (4) but attempts to hybridize it with sweet cherries have thus far been unsuccessful. Capulin cherry (*P. serotina,* sometimes referred to as *P. salicifolia*) of South America (2) has also been tested in Florida but fruit is only slightly better than local types. *P. pseudocerasus* from China has also been established at Gainesville, but it has shown delayed foliation due to inadequate chilling and has not fruited.

P. pleiocerasus, native of Shensi in China (32°lat), was obtained from Reid Brooks, University of California in 1954. An F_1 hybrid, *P. pleiocerasus* x 'Black Tartarian,' (cross by W. E. Lammerts), was obtained in 1957, *P. pleiocerasus* is a tropical evergreen at Gainesville and trees have been injured by cold, with rare fruiting. It was eventually lost due to freeze injury and attempts to relocate this species have failed. The F_1 hybrid is very low chilling but is not self-fruitful. Its chilling requirement is similar to lowest chilling Florida peaches (< 200 hrs below 45F).

Many attempts have been made during the last 20 years to obtain crosses with the F_1 hybrid, *P. pleiocerasus* x 'Black Tartarian.' Pollen of *P. pleiocerasus* was applied to 50 flowers of the F_1 hybrid and 3 fruit set. The resulting seedlings were transplanted in south Florida but they did not survive. Pollen of *P. campanulata* was applied to several hundred flowers with no fruit set. Attempts involving approximately 20,000 hand pollinations have been made in an effort to cross the F_1 hybrid with sweet cherry but all failed. Pollen from the F_1 hybrid was applied to cultivars representing many incompatability groups, including self-fertile 'Stella' and reciprocal crosses. Applications of benzyladenine, gibberellic acid and NAA following pollination delayed fruit abscission through shuck split but have not resulted in mature fruits. Embryos were observed microscopically but an attempt to grow them in tissue culture failed.

Two seedlings were obtained in 1976 and 3 in 1977 on the F_1 hybrid, using mixed pollen to create a recognition-pollen situation. Pollen applied was F_1, 'Stella' and *P. campanulata* in a 1:1:1 proportion. It should be possible to intercross these seedlings or cross them with other sweet cherries in order to get recombinants with palatability similar to that of sweet cherry. These seedlings will add to the cherry germplasm pool.

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