BREEDING HAS PRODUCED BETTER GRAPE VARIETIES FOR FLORIDA

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This paper is presented with the knowledge that in past years lack of a proven cause of grape failure has necessitated long trips around instead of the short cuts for a breeding program that such information would have possibly indicated. Decisions based upon observations extending over a considerable period of years, plus fortuitous circumstances, have been the principal resources in the attempts to develop table grapes with desirable longevity for Florida.

A record of recurring success and failure runs through the history of viticulture in this state. There have been many bright predictions and high hopes, which have all been followed by failing vineyards and ultimate loss. One may well ask; if such definite, complete failures have been experienced from the days of Spanish and French importations of many grapes varieties into the Southeastern United States, why don’t we in Florida give the crop up, since it is marginal or less, and turn to something else?

The answer lies in the fact that two types of interest and enthusiasm have figured in Florida’s grape industry. The first has been non-analytical, but keenly dollar anxious, and ready for a boom at the slightest pretext. Many flash developments of this nature took place from 1920 to 1930. At that time the object was more often to sell land and nursery stock than to produce grapes. Such attitudes have done great harm to the establishment of this potentially valuable crop in Florida and must be recognized as a continuing problem. The second type of interest, and the one which has kept the question of successful humid climate viticulture alive, is the one centered in a group of persons who turned to breeding as the solution to vine durability in the South. Dr. Charles Demko, Mr. Joseph Fennell, Mr. K. W. Loucks, and personnel of the Florida Agricultural Experiment Station are a few of those who have made important contributions toward the solution of grape problems in Florida. Dr. Demko and Mr. Fennell both have been breeding grapes for Florida for many years, and their constant belief in the possibility that grapes can ultimately become an established part of our agriculture has to a large extent encouraged the investigations conducted at the Leesburg Laboratory.

It would take more time than has been allotted to enumerate the several steps that have occurred in the course of bringing viticulture in Florida to the present point. I would, however, like to go back and tell you something of the work of the many sincere and thoughtful men who began valuable investigations of grapes in Florida. This group predated the grape breeding era and their efforts were directed mainly toward testing known varieties for adaptation to Florida conditions. John Diero, Col. H. T. Fisher, W. J. Stover, Dr. Charles Demko, Mr. Paul Hawkins, Baron Van Luttichau and others tried at least 400 varieties of well-known grapes. Most of the tested varieties were viniferas, labruscas and the Texas “postoak” hybrids. These men proved that imported grapes brought into Florida from other localities did not have sufficient longevity under Florida conditions to warrant commercial planting.

In 1942 a full acre of T. V. Munson’s variety Extra (Florida Beacon) was planted on the University farm at Leesburg. We believed this variety could be grown commercially if grafted onto the proper rootstock. The planting was given the best of culture, major and minor fertilization, and nutritional and pesticide sprays. After 30 months’ growth this young vineyard began to produce and for three years yielded up to 8,000 pounds of grapes per acre. This was encouraging, but in spite of extremely good care, spot dying occurred early and increased throughout the planting until at the age of eight years the vineyard was completely ruined as a commercial enterprise.

Every effort made to prolong the life of

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grapes, including all types of grafting, had failed to save our best known and useful introduced varieties such as Carman, R. W. Munson, Extra and Muench. The New York labrusca types and all vinifera kinds that had been tried failed in Florida. It was evident by 1945 that the future of the Florida Beacon test at the University farm was doubtful, and that something more than a search for adaptable existing varieties was necessary if grapes were to be a part of Florida's agriculture.

The development of good varieties by breeding was the obvious course. Past experience here and in other localities had proven that many problems were involved in such a plan, and the results were often disheartening. However, we did have some native material that was different and had good possibility for hybridization. The Magruder brothers had found a wild, white, sweet, vigorous and prolific vine of V. simpsoni (L.) in the woods near Leesburg. They called this to the attention of Mr. K. W. Loucks. Our stocks of it were lost when he left the Leesburg laboratory, but it was collected again in 1943 and added to the collection at Whitney in the form of a nurse graft on Beacon roots. Today this vine has developed its own roots and is in excellent condition. The trunk is three inches in diameter, and the cane growth spans sixty feet. For convenience we have called this vine Pixiola. This original vine was observed to be very vigorous and was relatively free of grape diseases; consequently it has been used extensively in the controlled breeding program.

Whether Pixiola is a natural mutant can only be surmised. The fact that it was found was a matter of chance. We had it, then lost it, and re-collected it before we had decided on a breeding program. These are the fortuitous circumstances that were referred to earlier.

In 1945, partly through the encouragement of Mr. G. H. Blackmon, I made the first crosses to Pixiola. The male parent in these crosses was Golden Muscat. Twenty vigorous seedlings were grown from seeds of this cross and set from the seedbed into a vineyard in a locality where grapes had repeatedly failed from degeneration. These vines were labeled alphabetically. Young Florida Beacon vines were planted a year later and have served as checks. Observations for the next three years showed the Pixiola hybrids to be very vigorous and the foliage of some was superior to that of any of the fruiting grapes tried before. The fruit of all these hybrids proved to be white and of fair quality.

The vines had made sufficient growth by 1950 that individuals began to stand out. The
vine labeled "J" had a high rating by our grading chart. It is a prolific, mid-season producer with vigorous canes and foliage system ... See Figure 1 ... This vine produces a perfect-flowered, large cluster. The bunches are often compound. They are uniform and the individual berry size is constant ... See Figure 2 ... The fruit is sweet and agreeable in flavor and has a characteristic aroma. To the present time we have found nothing wrong with this grape other than the fact that the berries should be a little larger for a fancy table fruit. We have been sufficiently impressed with its showing that in the spring of 1951 it was tentatively named Lake Emerald. We are now increasing this vine and its vegetative progeny for a larger experimental planting.

I wish to make it clear that we realize we may yet meet with disappointment. It has happened repeatedly in earlier investigations. However, after observing the performance of the new hybrid vines, as compared with such grapes as Florida Beacon (Extra), Carman, and R. W. Munson in several test plots, we are convinced that we are at the point where viticulture is now for the first time on the threshold of becoming a truly Floridian enterprise. The original Lake Emerald vine has not yet produced a sickly or failing cutting, or own rooted replant, from the propagation material taken from it. All of the hybrids have been subjected to extreme field tests. When a vine of any other variety dies in our test plantings, it is replaced with one of the new hybrids. At this time, with very few exceptions, these hybrid resets are living, have great vigor and are beginning to fruit. This year an 18 months-old reset hybrid yielded $1.00 worth of fruit. This would seem a small sum, but to my knowledge it is the first time any reset grapevine has yielded a profitable quantity of fruit in Florida.

Our program now has branched out and other vigorous female grapevines of native or first generation hybrid stock, such as selections "43-47" and Eustis 13-5, are being used. Both of these grapes are purple fruited females and both possess numerous horticultural characters which should contribute to the progress of the program. The present list of hybrid offspring in our plantings at Whitney is long and the combinations are widely diversified. Next summer several hundred of these hybrids will fruit and can be evaluated. We have many more hybrid vines in the seedbed, and a quantity of stored seed of controlled crosses for further plantings as time and funds allow.

Recently field observations and laboratory investigations have indicated that grape failure in Florida in the past may have been due to Pierce's disease virus infection. This virus is known to cause great loss in California vineyards. Dr. Warren Stoner at the Everglades Experiment Station has begun greenhouse investigations this year to determine if grape degeneration in Florida is due to this virus. So far the field trials of checks and replants in areas where degeneration occurs show the new hybrid grapes derived from Pixiola to be growing well. This indicates at least a tolerance to degeneration. However, controlled greenhouse graft tests, as well as the field trials, are being made to check the horticulturally acceptable hybrids on this point. Until such tests prove otherwise, we strongly believe from field observations that we have an excellent chance of producing better commercial grape varieties for Florida by breeding, and that the Lake Emerald is the first vindication of this belief.

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Please Note:

During the testing period, the Experiment Station has very limited numbers of Lake Emerald. No plants are available to the general public until release, probably within two years.

MARKETING LIMES AND LIME BY-PRODUCTS

DONALD M. LINS
Goulds

The Florida Lime Industry has rapidly grown out of its infancy. Acreage as well as production is increasing at a very rapid rate. Largest development has been in the ten to twenty acre unit or family size acreage. Largest influx of new acreage has come from retired or semi-retired individuals who plan to