P.R. 1-67, a New Pineapple Selection

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The pineapple (*Ananas comosus* L.) (Merr.) (4) industry in Puerto Rico is mainly based on two varieties, Red Spanish and Smooth Cayenne. Although both varieties possess good characters, neither fulfills all the requirements of the industry's immediate needs.

The importance of the pineapple industry (5) to the economy of the island, and the need to strengthen it, led the Agricultural Experiment Station of the University of Puerto Rico to initiate a pineapple breeding program with the purpose of producing better varieties highly resistant to mealy bug wilt (6, 9, 10, 11), gummosis (7, 8), nematodes (1, 2, 3), and capable of yielding higher profits both to the farmer and canning industry.

Materials and Methods

The two leading pineapple varieties in Puerto Rico, Red Spanish and Smooth Cayenne, were used as parents in the breeding program. Crosses were made between the two varieties and open-pollinated seed of the same varieties was obtained. After drying, the seeds were planted in flats containing a mixture of peat moss and perlite. When the seedlings reached a height of approximately 6 inches they were transplanted to the field for evaluation. Some of the fruit characters considered were the size and shape of the fruit, acidity and sweetness of the juice, amount of fiber in the pulp, width of core, and depth of ovaries. Among the plant characters considered were vigor, resistance to mealy bug wilt and gummosis, and seed production (vegetative material).

The selected plants were propagated asexually by using the tops, slips and suckers to increase the number of plants available for further observation and evaluation.

One of the selections made from a progeny obtained from open-pollinated seed of Red Spanish grown in a field adjacent to Smooth Cayenne and possessing most of the desirable characters was labelled 7D1S. Propagation material of this selection has been supplied to some of the leading growers in Puerto Rico, for multiplication and evaluation purposes.

Description of New Selection

As a result of this breeding program, a new variety of pineapple was developed, P.R. 1-67 (Fig. 1). The outstanding characteristics of this new variety are the excellent flavor of its

Fig. 1. Plant and fruit of pineapple variety, P.R. 1-67.

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fresh fruit, its resistance to gummosis and mealy bug wilt, and its good size. Its cylindrical shape and slender core make this fruit well suited for canning.

The plant of P.R. 1-67 is vigorous, and has produced fruit of approximately 6 pounds at commercial planting distance (12 inches apart in two row beds, 22 inches between rows, and 9.5 feet between centers of the beds). The fruit is sweet, juicy and of excellent flavor. Brix ranges from 17 to 18 with an average of 17.75, and the pH ranges from 3.0 to 3.10. Yields of 32 tons per acre have been obtained.

Description of a well developed plant of P.R. 1-67 is as follows:

Stem: The stem is rather slender, about 69 cm. long, 6.5 cm. wide at the soil level, and 6.7 cm. near the peduncle.

Peduncle: The peduncle is about 20 cm. long by 4 cm. wide, and has 13 bracts. The longest is about 68.5 cm. in length by 5.5 cm. in width; and the shortest is 2.0 cm. by 1.18 cm at the midlength section. The five basal bracts are bright red in color.

Leaves: The plant develops about 67 leaves the longest of which averages 84 cm. in length by 7.5 cm. in width at the midlength section, with straight margins covered with spines (single and double) and curved upward. The leaves are hard, strongly cupped and dark blue-green with a conspicuous silvery gray undersurface.

Inflorescence: The flower cluster averages 9.5 cm. in length, and 10 cm. in width. It consists of about 112 florets, each covered by a small triangular bract. Below the inflorescence, there are 13 additional bracts, usually of a reddish color. The bracts vary in size, the smallest ones being closer to the inflorescence, and the largest closest to the peduncle.

The floret has three bluish-purple petals, six stamens, one style and a tricarpellary ovary.

Fruit: The fruit is borne at the apex of the peduncle. It tends to be cylindrical and flattened at the ends (Fig. 2). It varies in size, and has an average weight of about 5.8 pounds, which is larger than the Red Spanish. A typical fruit weighed 5.3 pounds, measures 15.3 cm. in length by 14 cm. in diameter, and has a core 2.7 cm. wide at the broadest portion. The area of attachment to the peduncle is smaller than that of P.R. 1-56. The fruit can be handpicked.

The eyes or fruitlets have an irregular shape, and are so oriented as to permit their count in three directions. When the fruitlets are counted from the base upward, following the spiral towards the right, there are 8 rows; when counted toward the left spiral, there are 13 rows; and when counted along the fruit axis there are 21 rows.

The pulp is pale yellow in color, and seems to be less fibrous than that of Red Spanish. Its quality is good both in winter and summer. It tends to have a higher Brix and acidity than Red Spanish. Fruits of P.R. 1-67 weigh more than Red Spanish fruits of the same size.

Crown: The crown is normally single, though occasionally compound, and is attached to the fruit without a narrow neck.

Slips: The slips are borne on the peduncle below the fruit. The plant bears from three to five slips at the base of the fruit, but not attached to it (Fig. 1).

Table 1. Yield of P.R. 1-67 pineapple, and average fruit weight.

Planting distance (inches)	Yield per acre in tons	
	Red Spanish	P.R. 1-67
24" x 12"	21.39(3.66)*	31.42(4.69)*
24" x 18"	17.47(3.99)	21.79(4.87)
24" x 24"	13.36(3.84)	17.69(5.28)

*Data in parenthesis represent average weight of fruit in lbs.

The capacity of P.R. 1-67 to outyield Red Spanish was confirmed by the data obtained (Table 1) in a field experiment in which three planting distances were tested.

Since the experimental results available confirm the superiority of P.R. 1-67 over Red Spanish, it is expected to eventually replace Red Spanish, because it provides the industry with a more profitable basis for expansion.

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Apple Varieties in Vermont — 1971

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It has been ten years since I reported in "The Fruit Varieties and Horticulture Digest" (Vol. 16, No. 1) on how some of the newer apple varieties are doing in Vermont. First let me say that the Green Mountain Orchards are located in the foothills of the Green Mountains in South Eastern Vermont. They are located on five different farms ranging in elevation from 600 to 1,000 feet above sea level. There are at present about 275 acres in apples varying from one to 57 years of age. The older trees on standard stocks are gradually being eliminated, and are being replaced by trees propagated on size-controlling stocks—mostly EM VII, EM26 and MM106. Within 10 years or so, we expect most of the standard trees will be replaced by these smaller growing semi-dwarf trees.

Our market is chiefly wholesale. Trailer truck loads of 700 to 900 cartons are sold to chain store outlets. From 5 to 10% of the crop is sold retail at the packing house or to roadside stands and store outlets within a radius of 50 to 60 miles. These factors control to a great degree the varieties we decide to grow.

We are eliminating some good varieties because of this market situation or because of our inability to grow the variety as well as some other areas. Northern Spy and Golden Delicious would be good illustrations; Northern Spy, because of the lessening demand;

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