Proc. Fla. State Hort. Soc. 96: 228-229. 1983.

ROOTING CHARACTERISTICS OF EIGHT RABBITEYE BLUEBERRIES RECOMMENDED FOR FLORIDA

R. H. BIGGS,[1] AND P. G. WEBB
University of Florida,
IFAS Fruit Crops Department,
Gainesville, FL 32611
AND
S. V. KOSSUTH
USDA Forest Service,
1119 HS/PP, University of Florida,
Gainesville, FL 32611

Additional index words. Vaccinium ashei.

Abstract. **Eight cultivars of rabbiteye blueberries** (Vaccinium ashei **Reade) recommended for various Florida locales were compared for rooting capacity using a recently revised rooting formulation of 0.1% indole-3-butyric acid, 0.1% 1-phenyl-3-methyl-5-pyrazolone, 20% sucrose, and 71.8% talc. and with addition of 5% CO_2 for the first 16 hr after taking the cuttings. The ranking of the highest to lowest percent rooting in the IBA plus CO_2 treatment was as follows: 'Beckyblue', 'Woodard', 'Aliceblue', 'Climax', 'Avonblue', 'Sharpblue', 'Delite' and 'Tifblue'. The highest percent rooting was 98% for 'Beckyblue' and the lowest was 61% for 'Tifblue' and 'Aliceblue'. Ranking of controls from highest to lowest percent rooting was as follows: 'Tifblue', 'Woodard', 'Sharpblue', 'Aliceblue', 'Delite', 'Beckyblue', 'Avonblue', and 'Climax'. Comparison of the 2 rankings indicate a difference in responsiveness to IBA and CO_2 among cultivars.**

Propagation of clonal material by asexual means is critical to establishment of commercial rabbiteye plantings. Two techniques are available, namely, clonal propagation by tissue culture (3) and the well established horticultural practice of rooting cuttings (1). Recently, Kossuth *et al.* (2) devised a rapid propagation technique for several plants, including blueberries. Using this rapid propagation technique on softwood cuttings, 8 cultivars of rabbiteye blueberries recommended for Florida were compared for rooting capacities and survival in the nursery.

Materials and Methods

In May 1983, softwood cuttings were taken from 8 rabbiteye blueberry (*Vaccinium ashei*) cvs. Aliceblue, Avonblue, Beckyblue, Climax, Delite, Sharpblue, Tifblue, and Woodard. Only succulent terminal shoots were used. This differs from the normal practice of taking more basal woodier cuttings further down the stem. Upon taking the cutting, each was immediately placed in a chamber with ambient air or with 5% CO_2 in ambient air. Both chambers were maintained at 100% relative humidity with a cold mist vaporizer. Cuttings were kept in the chambers for 16 hr before removal and further treatments. Each treatment was applied to 100 cuttings of each cultivar that were separated into 4 replications. Each cutting was momentarily dipped in 50% ethanol, and rooting powder and immediately placed in a rooting bed. The rooting powder was composed of 0.1% indole-3-butryic acid (IBA), 0.1% 1-phenyl-3-methyl-5-pyrazolone, 20% sucrose, and 71.8% talc. The controls were treated with the same formulation minus IBA.

[1]Florida Agricultural Experiment Stations Journal Series No. 5350.

Cuttings for the tests were taken from 7 to 8-yr-old plantings near Gainesville, FL. Healthy, vigorous bushes, fertilized with ammonium sulfate (454 g/bush) 4 wk prior to taking cutting, were used and only vigorously growing vegetative shoots on strong canes were selected. Care was taken to obtain the cuttings early in the morning while leaves still had dew on the surface.

The propagation bed contained a mixture of 1/3 well-decomposed sphagnum peat and 2/3 Perlite®, horticultural grade (course) that was 15 cm in depth and layered on a well drained gravel subsurface. Mist was applied using a Geiger evaporative vane mist controller. On a warm day in the misthouse, mist was applied about 5 sec every 10 min. Horticultural practices suggested by Hartmann and Kester (1) were used to maintain the propagating beds and misthouse. Evaluation of rooting was as described previously (2) and survival in the nursery was recorded after 8 wk. Data were subjected to an analysis of variance for treatment effects.

Results and Discussion

Rooting of the 8 rabbiteye blueberry softwood cuttings varied among cultivars and treatments (Table 1). Average % rooting across cultivars was 53 for the control; 68 for the basic formulation without CO_2 pretreatment; 75 for the basic formulation with CO_2 pretreatment; and 72 for the combined treatments with or without CO_2. Pretreatment with CO_2 and adding IBA to the rooting powder increased the percent of rooted cuttings which is consistent with prior tests (2). Statistical tests for interaction between CO_2 and IBA could not be made because the 5% CO_2 minus IBA was lost due to a malfunction in the misthouse. However, based on inspection of averages there seem to be cultivar differences in response to CO_2 and IBA. Further tests are needed to determine the nature of these differences.

As a whole, there was a stimulation of rooting by adding CO_2 and IBA. The cultivars ranked from the most responsive to CO_2 and IBA to the least responsive for rooting were 'Beckyblue', 'Woodard', 'Aliceblue', 'Climax',

Table 1. Effect of CO_2 and indole-3-butyric acid (IBA) on percnt rooting of softwood cuttings of 8 rabbiteye blueberry cultivars.

	Rooting (%)		
		Basic formula[y]	
Cultivar	Control[z]	$-CO_2$	$+CO_2$
Beckyblue	48	96*[w]	98*
Woodard	62*	84*	95*
Aliceblue	53	61	74
Climax	41*	45*	72
Avonblue	47	53*	69
Sharpblue	61*	63	68
Delite	51	62	66
Tifblue	63*	80*	61*
Avg.	53±6	68±5	75±6

[z]Control 0.1% 1-phenyl-3 methyl-5-pyrazolone (PPZ), 20% sucrose, 79.9% talc.
[y]Basic formula = 0.1% IBA, 0.1% PPZ, 20% sucrose, 79.8% talc.
[x]CO_2 was maintained at 5% during the first 16 hr.
[w]*Asterisks indicate significant difference between each treatment and the mean within columns at the 5% level.

'Avonblue', 'Sharpblue', 'Delite', and 'Tifblue' (Table 1). On the basis of these data, 'Beckyblue' and 'Woodard', were the better rooting cultivars in the CO_2 and IBA treatments, but 'Tifblue' and 'Sharpblue' rooted as well as 'Woodard' without IBA and CO_2. Thus, the physiological state and genetic make-up influence rooting of rabbiteye blueberry cultivars and data sets from several years and different locales are needed to distinguish further among cultivars.

There were no differences among treatments, nor among cultivars in survival of rooted cuttings in the nursery. Survival of cuttings in the nursery was 86%, across all treatments.

Literature Cited

1. Hartmann, H. T. and D. E. Kester. 1975. Plant propagation: principles and practices. Prentice Hall, Englewood Cliffs, N.J. 662 pp.
2. Kossuth, S. V., R. H. Biggs, P. G. Webb, and K. M. Portier. 1981. Rapid propagation techniques for fruit crops. Proc. Fla. State Hort. Soc. 94:323-328.
3. Lyrene, P. M. 1981. Juvenility and production of fast-rooting cuttings from blueberry shoot cultures. J. Amer. Soc. Hort. Sci. 106:396-398.

Proc. Fla. State Hort. Soc. 96: 229-231. 1983.

PRESERVATION OF TROPICAL FRUITS BY DRYING

B. A. CAMPBELL AND C. W. CAMPBELL
15301 S.W. 269 Terrace,
Homestead, Florida 33032

Additional index words. ambarella, apple banana, carambola, guava, horse banana, longan, loquat, lychee, mamey sapote, mango, papaya, purple mombin, tamarind.

Abstract. **Tropical fruits can be processed successfully by drying. A small electric dehydrator is practical and convenient for processing fruit grown in the home garden in South Florida. Pre-treatment of fruit has certain advantages but all the species tried can be dried successfully without it. The dried fruit should be stored in a refrigerator or freezer if kept for more than a few days when the temperature and relative humidity are high. Information is given on ambarella, apple banana, carambola, guava, horse banana, longan, loquat, lychee, mamey sapote, mango, papaya, purple mombin and tamarind. Dried tropical fruits make a delicious snack and drying is a good way to use and preserve small amounts of excess dooryard fruit.**

Home gardeners in South Florida have become increasingly interested in drying the tropical fruits they grow in their gardens. A solar drier can be used (5), but this type of dryer is somewhat large and difficult to store when not in use. Also, constant watch much be kept on the dryer during the drying time because of the possibility of heavy rains or other severe weather conditions (many of our fruits ripen during the rainy season) and there is usually no area in the home where the drying trays can be stored overnight where the humidity is low and insects cannot invade the trays. These problems make a solar dryer undesirable for many home gardeners.

A small electric food dehydrator is practical for home use. This paper describes our experience in drying of a variety of tropical fruits.

Procedure

All fruit was dried in a Waring Electric Food Dehydrator except for the fruit leathers which were processed in the oven of an electric stove. The dehydrator consisted of a round base unit, 5 round perforated trays with a center hole and a domed, plastic cover. When the dehydrator is plugged in, air is drawn into the intake of the base unit, heated and blown into the drying chamber by means of a fan. The air is circulated through the drying chamber and the moisture laden air rises to the top and is exhausted through the vents in the cover. The machine is designed to maintain a temperature of 140°F. The tropical fruit species used are listed in Table 1.

Fruit was harvested when fully mature and ripened at room temperature, if necessary. All bruised and decayed portions were removed at the time of preparation for drying. Each kind of fruit was prepared in one or more of the following ways. 1) Fruit was left whole (lychee, longan, tamarind, purple mombin). 2) Fruit was cleaned, pitted, and cut in half (loquat) or sliced (guava, carambola, purple mombin). 3) Fruit was peeled and sliced (apple banana, horse banana). 4) Fruit was peeled, pitted and sliced (mamey sapote, mango, ambarella). 5) Fruit was pitted and cubed and placed in a blender and chopped to form a puree (carambola). 6) Fruit was peeled, pitted and cubed, placed in a blender and chopped to form a puree (mango, mamey sapote, loquat, and ambarella). 7) Fruit was peeled, soaked in water and put through a colander to extract the pulp (tamarind).

After the fruit was prepared by methods 1, 2, 3, or 4, it was placed on the shelves of the pre-heated dehydrator and dried until leathery. In methods 5, 6, and 7 the pulp was poured onto a cookie sheet lined with plastic wrap and placed in the oven with the temperature set on "warm" (3) and left until the pulp could be peeled from the plastic wrap. The oven was used because it would process a large cookie sheet of pulp while the dehydrator would only make small sheets with a hold in the middle. The dehydrator shelves had to be covered with plastic wrap and a hole left in the middle for ventilation, if used for leather making.

Results

Evaluations were obtained from individuals and groups of various sizes who were invited to taste the dried fruits. In general, the dried tropical fruit that was processed was all of fair to excellent quality. Ratings differed somewhat according to the personal tastes of the evaluators.

Table 1 lists the methods used to prepare each fruit, the approximate drying times, evaluation of the product and method of drying. The drying times are only approximations because they vary according to ambient temperature and atmospheric humidity and the relative amount of moisture in the fruit. Drying time must be determined by the appearance and texture of the fruit.

Discussion

Many tropical fruits that are grown in home gardens in South Florida can be dried and preserved successfully at home. Solar drying is a satisfactory and economical method in a hot dry climate. In a hot rainy climate, such as ours in