Elvenia J. Slosson Endowment

Evaluation of Southern Highbush and Rabbiteye Blueberries for Southern California
Progress Report for 2002-2003

Donald J. Merhaut
Department of Botany and Plant Sciences
University of California
Riverside, CA 92521
Phone: 909-289-5373
Fax: 909-787-5717
E-mail: donald.merhaut@ucr.edu

Summary: Blueberry (*Vaccinium spp.*) plants have the potential of becoming the new garden crop for Western Gardeners since these plants not only produce delicious fruit, but also have very desirable foliar and flower characteristics that would make them wonderful choices for home landscapes. Wild blueberry species are found from Maine to Florida. Over the past 50 years, breeders have been very successful in incorporating the southern wild species into breeding programs resulting in the release of many new low-chill cultivars. Some of the more desirable cultivars include 'Climax', a rabbiteye with glaucous blue foliage and 'Misty', a highbush cultivar that turns a vibrant red in autumn. We evaluated the performance of both highbush (*V. corymbosum*) and rabbiteye (*V. ashei*) blueberries in the plots established at Irvine and Riverside. Plants were evaluated for foliage color, fall color, flower quality, and fruit yield and quality in two locations, Riverside and Irvine, California.

We are also cooperating with the University of Florida, Fall Creek Farm and Nursery Co. (Oregon) and the USDA-ARS (Oregon) to evaluate new blueberry cultivars, which are still in the testing stages. Currently, the varieties being tested include two cultivars 'Maru' and 'Rahi', which have been introduced from a breeding program in New Zealand and cultivar '95-12', a variety introduced by Dr. Paul Lyrene at the University of Florida. We will continue this collaboration with these organizations, since additional new cultivars will be released to us next year.

Project Update. Three one-gallon plants of each of fourteen blueberry (*Vaccinium*) cultivars were planted in Riverside (Agricultural Operations) in March 2003. An identical planting was installed in Irvine (South Coast Field Station). Most of the plants were donated by Fall Creek Farm and Nursery, Inc. We have also had donations of some other *Vaccinium* species from the USDA-ARS germplasm center located in Oregon.

First Year Accomplishments

Field preparation. Since this study was designed to evaluate plants for homeowners, minimal site preparation was done, so that conditions mimicked those presented by the average homeowner. Fields were prepared by amending the native soil with sulfur at a rate of 5 tons per acre which was disked in 1 month prior to planting. This was done to acidify the soil. However, since the acidification of soil with sulfur is a biological reaction, the actual acidification will take

several months to occur. Therefore, planting holes were also amended with acid-based peat moss at a rate of 1 part peat to 2 parts native soil along with 1 lb of sulfur per yard of backfill. Plants were then planted from 1-gallon sized containers into the ground in March 2003. Rows are spaced 5 feet apart and there is 5 feet between plants within the row. Two-inches of mixed wood mulch was placed in the rows to control weeds, keep roots cool, and retain moisture (Figures 1 and 2).

Irrigation. Drip irrigation was installed. Two spray emitters were installed for each plant. Irrigation was set for once a week to thoroughly wet the soil. Plants were also fertilized through the irrigation. Fertilization was only applied once during the first week of July. No other fertilizer was applied to the plots.

Plant Performance

Plant performance was evaluated on October 29, 2003 (Table 1). This evaluation was to measure first year adaptability to heat. Subsequent evaluations will be to monitor possible fall foliage color and flowering and fruit set for the next year.

Additional trials

We are also trialing several *Arbutus* cultivars side by side with the *Vaccinium* (both genera are Eriocaceous). We want to see how all of these adapt to southern California conditions. We have also acquired (thanks to Kim Hummel of the USDA in Oregon), two other species of *Vaccinium* - *V. acrobracteatum* and *V. reticulatum* (syn. *V. pahalae*) (Figures 3, 4 and 5). This last one is having an identity crisis, as it has been given several other latin names. These species are very ornamental- fire engine red new foliage, evergreen, and leaves morphologically like an *Arctostaphylos*. We are still propagating them so they can be placed out in the field. We are not sure how hardy they are.

Table 1. Evaluation of blueberry (*Vaccinium*) cultivars after eight months of growth in Riverside, CA. Plants were planted from one-gallon containers into the field in March 2003. The field was amended with sulfur and planting holes were amended with peat moss at a rate of 1 part peat moss to 2 parts native soil.

Plant Cultivars	[1]Health Rating of Plant	[2]Foliage Quality
Northern Cultivars		
Chandler	4	4
Legacy	4	4
Ozarkblue	5	5
Rabbiteye Cultivars		
Maru	3	3
Powderblue	3	3
Rahi	3	3
Southern Highbush Cultivars		
Emerald	4	4
Jewel	3	3
Misty	4	4
Santa Fe	3	4
Sapphire	4	4
Sharpblue	4	3
Sunshine Blue	4	4
95-12		

[1]Rating is scaled 0-5, 0 = dead, 5 = very healthy. The health rating of whole plants was based on: a) health of old growth and b) amount and health of new growth.
[2]Foliage quality is scaled 0-5, 0 = dead, 5 = healthy. The health rating of foliage was based on: b) number of leaves in the canopy and b) the health of the individual leaves.

Figure 1. Prepared blueberry plots at Riverside (Agricultural Operations).

Figure 2. Blueberry plants planted in level beds at Riverside.

Figure 3. ***Vaccinium reticulatum***

Figure 4. ***Vaccinium acrobracteatum***

Figure 5. ***Vaccinium pahalae*** **(*V. reticulatum*) on a volcanic cone in Hawaii.**