

very active and powerful cold fronts can still race southward from Canada. Air masses which, in Canada, had temperatures as low as minus 40F and dew points even lower can arrive in Florida within 3 or 4 days. Although their temperatures rise rapidly as they move south, their dew points rise less rapidly, since little water is available for evaporation between Canada and Florida in February and March, transpiration from dormant plants is minimal, and the coldness of the air reduces evaporation. Thus, Canadian air is normally very dry when it arrives in Florida. Exactly how dry is a matter of great importance to growers who are trying to protect blueberries with water on a windy night.

Origin of the Tables

Table 1 is based on standard tables that give relative humidity from wet bulb and dry bulb temperatures (for e.g. Lide, 1992).

The values in Table 2 were calculated as the product of the saturation vapor pressure for each temperature (from List, 1951) and the factor (100% minus relative humidity), which was converted to a decimal fraction before multiplying. The rationale for this calculation is that evaporation rate is directly proportional to vapor pressure deficit, and vapor pressure deficit is equal to the product of saturation vapor pressure at the stated temperature and the factor (100 minus relative humidity).

Tables 3 and 4 were produced by multiplying the saturation vapor pressure for each temperature (List, 1951) by the relative humidity expressed as a decimal fraction. Tables 3

and 4 can easily be extended to higher or lower values of relative humidity with a hand calculator. Exact vapor pressures for relative humidity values between those given can be found by interpolation, since the relation between vapor pressure and relative humidity is linear.

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Proc. Fla. State Hort. Soc. 109:220-221. 1996.

CHERRY OF RIO GRANDE

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Abstract. The cherry of Rio Grande, *Eugenia involucrata* DC, may be adapted to winters in Gainesville, as it is native to a similar climate in Brazil. The plant may tolerate 14F. The history of this fruit is traced from its introduction into Florida in 1938 and its distribution. Descriptions of the tree and fruit are presented and testing in North Central Florida as a door yard fruit is underway.

In its native home, in the most southern state of Brazil, its common name is "Cereja do Rio Grande". It is a species of *Eugenia*, of the family Myrtaceae but more cold hardy than other

Eugenas tested in Florida and California. In 1995-1996, it has been uninjured by temperatures of -8C (18F) at Gainesville, and Ducroquet (EPAGRI, Videira, S. C. Brazil pers. comm.) thinks it may be hardy to -10C (14F).

Nomenclature

Although the common names in the U.S. and Brazil are the same, the botanical names are not, which may cause confusion to horticulturists. Recent Brazilian literature lists it as *Eugenia involucrata* DC. 1828, (Legrand, 1969, Lorenzi, 1992, Mattos, 1990 and Silva, 1991). Several synonyms have been used in the past, such as *Phyllocalyx involucrata* and *Phyllocalyx laevigatus*. In an older publication, Texeira (1954) listed it as *Myrcianthus edulis* or *Eugenia edulis*.

Literature in English lists the species as *Eugenia aggregata*, Kiersk. The origin of use of this name appears to be explained in Mowry (1958) and Menninger (1959). Bulletin 156A by Mowry et al., *Miscellaneous Tropical and Subtropical Fruits*, which appeared in 1958 was the first mention of the species. Preceding bulletins of this series, no. 85 in 1936, no. 109 in

1941 and no. 156 in 1953 do not list the species. Bulletin 156A in 1958 states "Cherry of Rio Grande was introduced from Brazil as *Myrciara edulis* Skeels, and has recently been tentatively identified as *Eugenia aggregata*. It is adapted and deserving of wider cultivation."

Menninger (1959) states "nomenclature here is very confusing" and mentions use of *Eugenia aggregata* as a synonym for *E. condensata* Baker, a tree of Madagascar. Because of the complications, he consulted Dr. Bruce Ledin of the University of Florida Homestead Subtropical Experiment Station. The Station's record indicated William H. Ott of Whittier, California had obtained seeds of a plant known as Rio Grande Cherry but labeled as *Myrciara edulis*. He sent two seedlings to Dr. H. S. Wolfe in 1938. They fruited in 1941 and the station distributed a number of seedlings under this name but since 1955 as *Eugenia aggregata*. Dr. Ledin detailed how the name was suggested by Dr. Richard Howard of the Atkins Garde of Harvard University (in Cuba). Ledin's comments of the fruit, "edible and actually quite good, except it does not have an awful lot of flavor. I like *Eugenia luschnathiana* (Pitomba) better. The plant is quite cold hardy". Drysdale (1971) had found much the same information about *E. aggregata* but of course did not have the more recent Brazilian literature. He made some interesting comments of the plant, and its ornamental value, especially when in fruit. From his account, it appears that two trees were the source of seeds for plants grown in California and Florida. If so, we have a very narrow source of germ plasm of the species in the United States. Also he quotes Mr. Ott that the seeds came from an area 150 to 200 miles north of Sao Paulo. This could be a dispersion from its native home many years earlier. Current literature lists its principle locations in the three most southern states of Brazil to northern Argentina and Uruguay but dispersed widely to other areas because of its fruit quality.

Descriptions of Tree and Fruit

Illustrations and descriptions in English literature of Cherry of Rio Grande as *Eugenia aggregata* can be found in Graf (1992), Menninger (1954), Maxwell (1991), Mowry (1958) and Ortho Brooks (1985). Hortus third (1976) and Royal Horticultural Society of Gardening (1992) describe the plant without illustrations. The caption in Ortho Brooks, p. 6 interchanges *E. aggregata* and *E. brasilensis* (see Mowry, 1958).

Brazilian literature with illustrations and descriptions of the plant as *Eugenia involucrata* are in Legrand (1969), Loren-

zi (1992) and Silva (1991). Mattos (1990) describes it and several other fruits of southern Brazil.

Comparisons of these sources and examinations of plants in Florida appear to leave little doubt that cherry of Rio Grande has two well established botanical names. Which is most appropriate may be questionable, but since Menninger (1959) pointed out that *Eugenia aggregata* was used as a synonym of *condensata* Baker (a tree of Madagascar) it could be a misapplied name. At least it would suggest preferred use of its Brazilian name *Eugenia involucrata*, DC 1828 (synonym *Eugenia aggregata* Kiersk).

The plant is grown from seed, and somewhat slow to fruit. There appear to be no clonally propagated selections in the United States or Brazil. The fruits are soft, good for home use and liked by birds (G. Richards, NSW, Australia, pers. comm.). Earliest fruiting could probably be obtained by asexual reproduction of selections.

We are interested in testing it in North Central Florida because of its greater cold hardiness compared to other *Eugenias* and Cattle guava. We do not yet know how it compares with Feijoa, but doubt if it could be as hardy. The plant is not very common in Florida or California apparently, and it is certainly rare in Gainesville, Florida.

Sherman (1977) has been on the trail of *Prunus* spp. cherries of low winter chilling need for several years. Perhaps these botanically unrelated cherries will meet some day in Gainesville, Florida, USA.

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