Blueberry Cultivars for Georgia

* =Most promising for South Georgia at this time
T=Suggested for small scale trial in South Georgia at this time

Gerard Krewer, Extension and Research Horticulturist
UGA Tifton Campus
POB 1209, Tifton, Ga. 31793
gkrewer@uga.edu
D. Scott NeSmith, Research Horticulturist
UGA Griffin Campus
Griffin,Ga. 30224

Revised Oct. 2006

Types or Species of Blueberries Grown in Georgia

Three types of blueberries are grown in Georgia: rabbiteye, southern highbush, and northern highbush. Rabbiteyes are adapted statewide, but low chilling (early blooming) rabbiteyes should not be planted in the mountains because they bloom too early. Southern highbush are best adapted to south Georgia, except for a few higher-chilling (late blooming) cultivars such as 'Ozark Blue' and 'Reveille'. Northern highbush are best adapted to the mountain highlands.

The rabbiteye blueberry is native to south Georgia, north Florida, and southeast Alabama. A breeding program initiated in Tifton in the 1940's by Dr. Tom Brightwell, in cooperation with the USDA, has produced many high quality rabbiteye blueberry cultivars. Cultivars from the Georgia-USDA breeding program form the backbone of the Georgia blueberry industry. Some cultivars from the North Carolina-USDA breeding program have also performed well in Georgia and are recommended for planting. Rabbiteye cultivars ripen from late May through late July in south Georgia. Ripening in middle and north Georgia is about two weeks and one month later, respectively. In general, the rabbiteye blueberry is the most productive and easiest to grow in Georgia. They grow well on many types of acidic, fairly low organic matter (1-2%) soils from sands to loams to sandy clay loams. Southern highbush and northern highbush need a soil that is higher in organic matter (3% plus) and are much less forgiving plants in general than rabbiteyes. A a general rule, production of southern and northern highbush is limited to sites naturally high in organic matter (such as the black sands of the Okeefenokee basin) and soils amended with pine bark.

Some disadvantages of rabbiteye blueberries are: 1) some cultivars bloom relatively early in the spring, so spring freeze damage can be a problem; 2) many cultivars are self-unfruitful, so they are more susceptible to pollination problems than the partial self-fertile southern or northern highbush; 3) most cultivars ripen later than southern highbush in south Georgia or northern highbush in north Georgia.

Rabbiteye blueberry plantings are relatively expensive to establish, but once established, plantings generally remain productive for a long period of time. Some commercial plantings established in Georgia in 1958 are still producing. Well-managed, mature fields typically yield five to seven thousand pounds of harvested berries per acre and can be higher in some years. Rabbiteye blueberry orchards which are poorly managed may yield only two to three thousand pounds of fruit per acre.

Southern highbush blueberries are crosses between the highbush blueberry (northern type) and native southern blueberries such as Darrow's evergreen blueberry. Some southern highbush blueberries are very early ripening and have commercial potential for the April and May market window in south Georgia. Southern highbush cultivars with a low winter chilling requirement (400 hours or less) bloom early, so they are best adapted to south Georgia. They are generally more difficult to grow than rabbiteyes, but their fruit ripens very early and brings a good price. They have specific site requirements covered later in the bulletin. Since they have only been grown commercially for about 15 years in Georgia, it is not known how long each cultivar will remain profitable before they decline from pest problems and depletion of soil organic matter. An orchard life of 10-20 years may be a realistic goal. In North Carolina, old highbush sites are often replanted with rabbiteye blueberries.

The northern highbush blueberry is native to the eastern coast of the United States and is the type grown commercially in New Jersey and Michigan. The highbush blueberry has potential as a source of later blooming, but early ripening fruit for the Georgia mountains. However, since they have not been extensively planted in Georgia information is limited at this time. Plantings of highbush blueberries should only be considered on a trial basis. They have specific site requirements covered later in the bulletin. They are poorly adapted to the hotter parts of the state due to insufficient winter chilling and heat stress.

Getting Started in the Blueberry Business

The two most important rules in starting blueberry production are: 1) Site selection, and 2) Cultivar selection. Good cultivar selection will determine to a large extent the potential profitability of your blueberry operation. If you are a new grower in the the Coastal Plain or Piedmont, start with rabbiteyes and experiment with southern highbush if you have suitable soil or are willing to extensively amend the soil. Pay close attention to the chilling requirement of cultivars, and do not plant low chilling ones in the Piedmont, since they will bloom too early. If you are a new grower in the Mountains, start with the higher chilling rabbiteyes and experiment with northern highbush and the higher chilling southern highbush cultivars.

Chilling Requirement Plus Heat Units After Chilling Determines the Bloom Date

In Georgia, average bloom dates of various blueberry cultivars is largely due to the chilling requirement of the flower buds. Chilling requirement is defined (in peaches) as the number of hours (chill hours) of winter temperatures 45 degrees F and below that plants must be

exposed to for 90% of the buds or blooms to open and develop "normally" following a two week period of exposure to "warm" weather. For blueberries, the heat unit requirement (period of exposure to warm temperatures) after chilling is much higher than in peach, and may vary depending on cultivar. Therefore, slight variations in bloom dates occur from year to year more often in blueberries than in peaches.

If a blueberry cultivar fails to receive adequate chilling, bloom and leaf development can be very late and erratic. This results in a reduced crop of later-than-normal ripening fruit. For instance, 'Reveille' performed very poorly in south Georgia following the winter of 1998-99. 'Reveille' is thought to require 700-800 chill hours and only about 450 chill hours were received, and as a result, the crop was light and missed the market window. However, many 650 hours rabbiteyes have performed satisfactorily following a recent 500 chill hour winter in South Georgia. A few exceptional blueberry cultivars can set fruit with far less winter chilling than their reported chilling requirement. An example is 'Powderblue', which has a supposed chilling requirement of 650 hours, but sets good crops of fruit as far south as Gainesville, Fla. (a 400 chill hour zone).

Chilling requirement information can be used to project relative bloom dates. As a general rule in south Georgia, 200-300 hour cultivars will bloom heavily in mid to late February, 400-500 hour cultivars in early to mid March, and 600-800 hour cultivars in mid to late March. Cultivars with a chilling requirement of 400 hours or less may need overhead irrigation for frost protection for reliable cropping in south Georgia. It is recommended that cultivars with a chilling requirement of 400 hours or less not be planted in middle or north Georgia.

The relative risk of growing various blueberry cultivars can be evaluated by looking at the chilling requirement of a cultivar and finding your county on the maps in Figures 2 and 3.

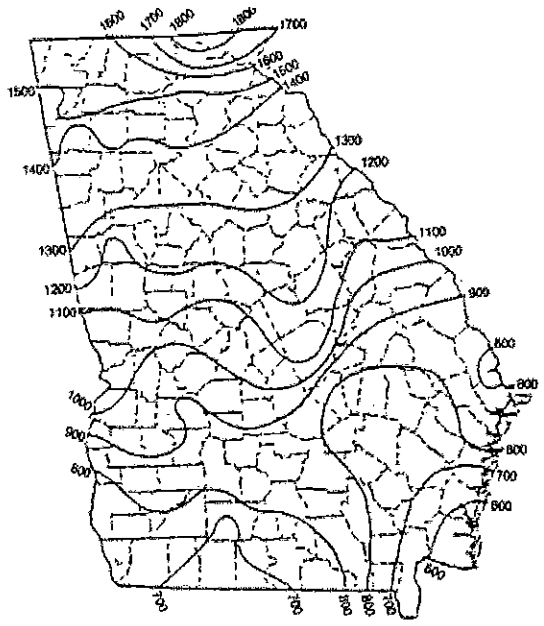

Figure 1: Mean or average winter chilling in Georgia based on weather records from 1948-1972. 45 degrees F and below from October to 15 February. In many recent years, winter chilling has averaged about 50 to 100 hours less, probably due to global warming (Sanders, 1972).

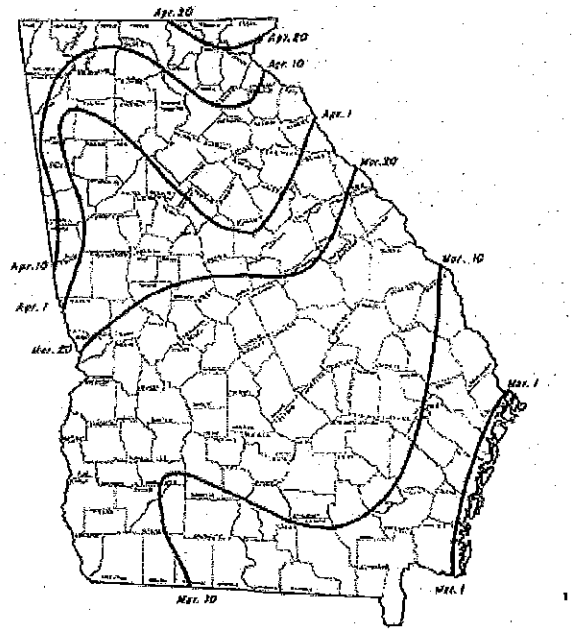

Figure 2: Dates in the spring with a 10 percent chance of a moderate freeze (28 degrees F or below) remaining (Carter, 1957).

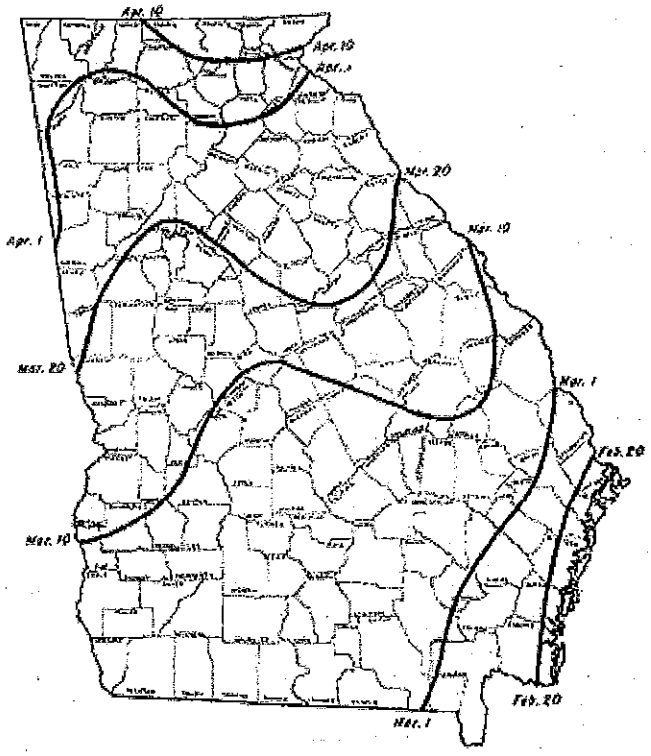

Figure 3: Dates in the spring with a 20 percent chance of a moderate freeze (28 degrees F or below) remaining (Carter, 1957).

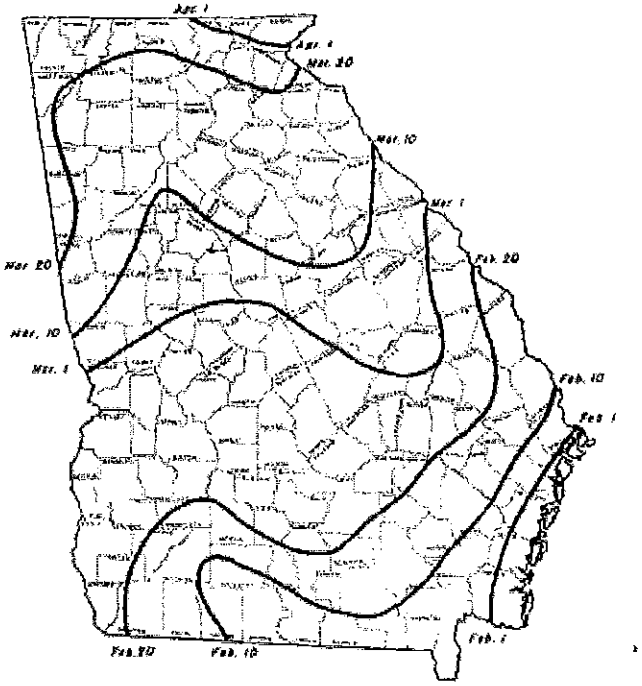

Figure 4: Dates in the spring with a 50 percent chance of a moderate freeze (28 degrees F or below) remaining (Carter, 1957).