

Fertilization

The primary goal in fertilizing blueberries is to promote rapid vegetative growth in young plants (usually the first 3 growing seasons) and heavy fruiting thereafter. A key to obtaining rapid early growth is frequent application of fertilizers that contain nitrogen in the ammonium form. Ammonium sulfate is most often used. Ammonium nitrate and other nitrate-containing fertilizers should be avoided because nitrate ions are very damaging to blueberries on certain soil types. Fertilizers of any kind can damage or kill blueberries when applied in excess. Blueberries have a low tolerance for fertilizers, and fertilization rates that are ideal for other crops may kill blueberries. Because of variable interactions between fertilizers and soil types, soil moisture status, mulching practices, plant age and plant growth status, it is hard to give simple rules for fertilizing blueberries. Each grower needs to adjust his fertilization rate based on the plant response he observes on his farm. A generalized rule is that plants during the first 4 or 5 growing seasons should be given as much ammonium sulfate as possible without causing fertilizer injury. Mild fertilizer injury is indicated by brown-colored leaf spots, particularly around leaf margins and on younger leaves. These appear 1 to 5 days after the fertilizer has been dissolved by rain or irrigation. More severe fertilizer burn causes leaf drop and possibly plant death. Blueberries should not be fertilized when the leaves are wet, because even small amounts of granular fertilizer that sticks to the leaves and dissolves in water can burn the leaves.

A new blueberry plantation should be fertilized according to the schedule described below for the first year. The schedule starts with a plantation set out in December at 6 ft X 12 ft spacing. Do not fertilize at the time of planting. On February 1, an azalea-camellia fertilizer mix (approximately 5-10-10 with the nitrogen mainly in the ammonium form or in the form of water insoluble N) should be broadcast evenly over a circle of 2 ft diameter centered on the plant, with 1 ounce used per plant (37 pounds per 600 plants on an acre). Six weeks after this fertilizer has been dissolved by 0.5 inch of rain or more, plants should be fertilized with ammonium sulfate, using 3/4 ounce per plant (28 pounds/acre) in a circle of 2 ft diameter. Ammonium sulfate should be added at 3/4 ounce per plant three more times during the growing season, on approximately the following dates: May 15, July 1, and September 1. If rainfall over 0.5 inch does not occur within 2 weeks after a fertilizer application, the subsequent fertilization should be delayed until at least 6 weeks

after rain has dissolved the previously applied fertilizer.

Fertilization the second year follows the same pattern as for the first with two exceptions: (1) because the plants are larger, the fertilizer should now be broadcast evenly within a circle of 3 ft diameter surrounding each plant; (2) the amount of ammonium sulfate applied per plant per application should be increased to 1 ounce. After the second growing season, the best fertilization procedure will depend on the growth of the plants. On relatively fertile soils where plant growth is rapid and plants are approaching the optimum size for production, fertilization could be reduced by reducing the frequency of ammonium sulfate applications.

Two other possible fertilization concerns with blueberries are pH maintenance and micronutrient provision. Soil pH should be maintained in the range 4.0 to 5.2. Fertilizer practices, irrigation with high pH-water, and other processes may cause gradual changes in soil pH. If soil pH rises above 5.5, powdered sulfur should be broadcast at the rate of 1 pound per 100 square feet (450 pounds per acre) over the entire field. This should not be disced in as was recommended for pre-planting sulfur application, because discing would damage the blueberry roots which lie just below the soil surface. Ammonium sulfate applied as fertilizer will also help to keep the soil pH low.

Iron deficiency is a common problem with blueberries. The most visible symptom is interveinal leaf chlorosis, most conspicuous on new growth flushes. Iron deficiency in Florida is almost always caused by high soil pH or by excessive calcium or phosphorous levels in the soil rather than by lack of soil iron. High pH immobilizes iron within the soil, making it unavailable to the plant. The best cure for iron deficiency is to lower the soil pH. In the short term the problem can be alleviated by application of iron chelates (sequestered iron) either to the soil or directly to the chlorotic leaves as a water spray.

Pruning

Blueberries should be pruned by removing 50% of the top at the time they are transplanted to the field, and all flower buds should be removed at the same time. One year later, plants should be pruned to remove all flowers before they begin to develop into fruit. Fruit production during the first 2 years in the field can slow the growth of the plant, and should be prevented by pruning. Most blueberry flowers are clustered at the tips of the branches,