

# GROWING Blueberries

The blueberry plant is native to North America. Wild blueberries were growing in Maryland when the first settlers came. Although some wild plants still exist in the state, they're confined generally to organic matter soil at the edge of hardwood forests. The need for acid soil with high organic matter limits where blueberries can grow successfully. Plants take several years to bear fruit, but once established can live for 30+ years if maintained properly.

Nearly all blueberries grown commercially, known as highbush cultivars, are related to the wild species. The primary commercial species grown in the midwestern and mid-Atlantic states is known simply as highbush. The rabbiteye species, also known as southern highbush, is grown commercially in Georgia, Florida, and South Carolina. In Maine and eastern Canada, the lowbush blueberry is grown commercially.

## Considerations

Blueberries are not an easy crop to grow. Besides having specific soil needs, blueberries attract feeding birds and don't bear fruit during the first years after planting. In addition, blueberries are a soft fruit, which must be marketed soon after harvest. Before you decide to grow blueberries, consider: is



your soil suitable, is labor available during harvest, and are markets close by. In addition, blueberries are sensitive to drought. Because rainfall during the summer in Maryland can be sporadic, don't grow this crop without irrigation.

## Site Selection and Preparation

Blueberries do best in soil where crops have never or seldom been grown. Land newly cleared of woods is best because the soil is generally rich in decomposed leaves. Blueberry plants usually don't perform well in heavy, clay soil. Always have your soil tested for pH, nutrient levels, and organic matter content. Your county Extension educator can assist you with these tests and recommend how to improve your soil before planting.

To grow blueberries, make sure your soil is at least 4-percent organic matter. Closer to 8 percent is ideal. You can raise the organic matter content by growing cover crops and turning them under. Organic matter can also be added in the form of composted sawdust, wood chips, and leaves or a similar material. Peat moss works well, but might become too expensive when added to a large area. Note that the addition of organic matter can lower pH.

An ideal pH range for blueberries is 4.5 to 5.0. When soil pH is too high for blueberries, add sulfur to lower it. Table 1 gives the amount of sulfur needed to lower soil pH to 4.5. It will take 2 to 3 months or more for sulfur to do the job. Replacing sulfur with iron sulfate or mixing the two together can speed up the process. Do not use aluminum sulfate because aluminum can cause plant toxicity.

**Table 1. Pounds of sulfur needed per 100 square feet to lower soil pH to 4.5**

| pH  | lb needed for loam | lb needed for clay/loam |
|-----|--------------------|-------------------------|
| 7.0 | 7.5                | 8.0                     |
| 6.5 | 6.0                | 6.5                     |
| 6.0 | 4.5                | 5.0                     |
| 5.5 | 3.0                | 3.5                     |
| 5.0 | 1.5                | 2.0                     |

## Culture

There are a large number of blueberry varieties to choose from. The list below identifies the recommended cultivars for western Maryland. Because blueberries produce much better if they have cross-pollination, plant more than one variety.

### Recommended Cultivars For Maryland

**Bluetta:** Earliest variety. Produces moderate yields of medium-sized fruit. Flavor is sometimes tart. Fruit is dark blue, doesn't color completely, and is unattractive in the fresh pack. The bush is small, low growing, and shrublike.

**Duke:** Strong, upright plant. Loose, clustered fruits are easy to pick and do not shatter; that is, the berries don't fall easily from the cluster. Fruit is early, firm, and mild-flavored. It has a concentrated, or short, ripening period.

**Earliblue:** An early variety that produces large, firm fruit with only fair flavor. The bush is vigorous, upright, and hardy. Fruit does not drop easily when ripe and ships well. Plants have some resistance to powdery mildew.

**Spartan:** Fruit is firm, very large, and highly flavored. Plant has high, early yields on ideal growing sites. Has difficulty in highly amended soils. Has upright, open growth that harvests well mechanically. Some resistance to mummy berry.

**Patriot:** Fruit is large and firm with a small scar. Fruit must be completely ripe for good flavor and sweetness. Prune plants heavily to stimulate growth. Bush is slow growing and small to medium in height. Winter hardy, but tends to bloom early and may be susceptible to frost. Some tolerance to heavy soil and some resistance to root rot.

**Blueray:** Fruit is large, dark blue, firm with good flavor. Productive plant that requires attention to pruning to prevent over-production. Hardy with an upright, spreading habit. Heaviest bearing canes tend to flop because much of the crop is produced at one end of the shoots. Highly susceptible to mummy berry, which may make this variety less desirable for home gardens.

**Bluecrop:** Fruit has a small scar and good flavor. Most widely grown highbush blueberry variety in the world. Most adaptable and constant producer for those considering commercial production. Moderate resistance to mummy berry and powdery mildew.

**Jersey:** Excellent flavor. Plant is heavy producer of small- to medium-sized berries. However, if not pruned heavily, bushes will stunt from overcropping, which is bearing too much fruit in one season.

**Elliott:** Fruit, which stores well, is small with a mild flavor and good firmness. Productive, late-ripening plant. Lateness of ripening may prevent growers from using this plant in the coldest areas. Upright bushy habit.

**Lateblue:** Fruit has good flavor and only a moderate scar. Erect, vigorous, and productive bush. May ripen too late for some northernmost areas.

The Bluecrop variety—the most widely planted—adapts well to a variety of soils. Always order plants that are 2 to 3 years old. Plants younger than this often lack the root system to survive the shock of transplanting. When plants arrive keep them cool and moist until planting time. Just before planting in the field, butterfly the root ball of each plant to generate root growth out and away from the original shape of the container. To butterfly the root ball, remove the pot, lay the plant on its side, and cut through the roots lengthwise with a knife. You may then set plants in the ground at their original depth, with the top of the root ball level with the ground. More blueberry plantings fail from being buried too deeply when they're transplanted than from most other causes (except perhaps lack of water). Blueberry is a shallow-rooted plant, and putting the roots too deeply in the soil will cause problems. Tamp soil lightly around the roots on all sides and water. For the first 2 years, remove flowers when they appear. This allows the plant to establish a good root system before it has to support any fruit. Don't fertilize young blueberry plants during the first year. Once plants have had a second flush of growth, you may add 100 pounds of 10-10-10 fertilizer per acre. During the plant's second year, apply ammonium nitrate just after bloom. Following are

application rates of ammonium sulfate (given in ounces per plant per year):

Year 2 = 4 ounces

Year 3 = 5 ounces

Year 4 = 6 ounces

Year 5 = 7 ounces

Year 6 = 8 ounces

Year 7 and up = 8 ounces

Because blueberry plants are sensitive to pH, have soil tested every year.

## Pruning

Little or no pruning is needed in the first couple of years. After that time, remove some of the older canes each year. The goal is to have new, vigorous canes grow from the base every year. These canes should grow 5-½ feet in one season; don't remove the tips. An individual cane will remain productive for about 6 to 7 years. It may become difficult to determine which canes to remove. Look for older canes, which will appear light in color and often have loose or peeling bark. Prune the canes at the base. This type of pruning opens the plant to light, which stimulates fruit bud growth, invigorates the plant, and encourages growth from the crown. Remove short canes that are small in diameter and don't grow more than 18 inches in their first growing season; they're not very productive. When pruning healthy mature plants, take out one of every six canes. Plants should produce two to three new canes per year. Realize that different varieties have different growth habits. Some plants will grow tall, and others short and squatty. To keep plants from falling over, you may need to stake the taller varieties once the berries are set.

## Harvest and Storage

Early-bearing varieties ripen in late June; late-bearing varieties continue to ripen through August. Berries will turn blue several days before they're ripe. When a reddish color remains on the side of the berry near the stem, the berry is not quite ripe. During the harvest season, plants will need to be picked once a week. Each plant will yield about 6 to 10 pounds of fruit. Store harvested berries at 32° F and 95-percent humidity. Cover berries in containers with cellophane to prevent shriveling caused by moisture loss.

## Pests

The greatest pest problem for blueberries is feeding birds. Just as the berries begin to color, birds will roost in nearby trees and fly into the bushes, devouring large quantities of fruit. A number of devices have been used to deter birds. Balloons, Mylar tape, and noisemakers have all proved somewhat effective. A new chemical containing grape extract has also been used with limited success. However, after berries are treated, they may taste like grapes. It may be necessary to put nets over the plants; keeping birds from getting to the fruit seems to be the most effective way to prevent birds from feeding.

Although other pests, such as blueberry maggot, have been reported in large blueberry plantings, this has never been a serious

problem in Maryland. To prevent mummy berry disease, use fungicide sprays near harvest and maintain good sanitation practices (prompt removal of diseased fruit and wood). Follow a spray schedule each season for the best pest control. Extension Bulletin 242, a commercial small fruit production guide, contains a complete spray schedule and listing of chemicals for commercial production.

## References

*Highbush Blueberry Production Guide*, NRAES-55. 1992. Northeast Regional Agricultural Engineering Service, 152 Riley-Robb Hall, Cooperative Extension, Ithaca, NY 14853.

*2002 Commercial Small Fruit Production Guide*, Bulletin 242. 2002. University of Maryland Cooperative Extension, College Park, MD.

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