HOME GROUNDS FACT SHEET

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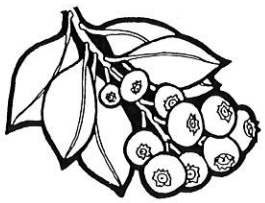
Blueberry Growing in the Home Garden



Blueberries are native to North America and were growing here before white settlers arrived. Since there was an abundance of wild berries, no effort was made to develop improved berries until 1906, when Dr. F. V. Coville of the U.S. Dept. of Agriculture began the systematic improvement of the high-bush blueberry. Since that time, the cultivation of the blueberry has come under intensive commercial production.

Blueberries make excellent landscape plants in the home garden. In May, they are covered with white-to-light-pink flowers just before the dark blue-green leaves completely unfold. From late July to August, there are fresh berries for cereal, pancakes, pies and fresh eating. In autumn, the leaves have a color range from orange to burgundy.

Use high-bush blueberry, *Vaccinium corymbosum*, as an informal hedge or specimen plant. Low-bush blueberry, *Vaccinium angustifolium*, makes a good ground cover or edging plant.

Description

The high-bush blueberry is a slow-growing, upright, multi-stemmed shrub with spreading branches that form a rounded, dense, compact outline. It is hardy from zones 3 to 7 (Long Island is zone 6) and at maturity can be from 6 to 12 feet high with a spread of 8 to 12 feet. Dwarf varieties grow to 4 feet.

The low-bush blueberry is a low, open-growing shrub reaching 6" to 12" in height and spreading to 2'. It is hardy in zones 2 to 6. The flowers appearing in April/ May are small, white, and tinged with red. The fruit is a bluish black, very sweet berry, 1/4" to 1/2" across, ready for harvest in late June through August, depending on the cultivar.

Pollination is an important factor in the production of the high-bush blueberry. While most plants are self-pollinating, the use of two or more varieties will furnish larger, more numerous berries.

Varieties for Long Island

Since cultivars differ in berry size, color, flavor and period of ripening, choice is based on those best suited to particular needs. Fruit size varies greatly with variety and severity of pruning. The northern high-bush and the northern half-high varieties are recommended for the home garden. They average 4' to 6' at maturity.

Cultivar Selection

Early Season

Earliblue - Plants are very productive and disease-resistant. Tart, light-blue fruit is excellent in muffins and pies.

Duke - Fruit: medium size, firm; mild flavor.
Bush: vigorous, upright, high yields.

Patriot - upright, highly productive cultivar.
Fruit: large size, medium blue and excellent flavor.
Bush: upright, hardy.

Toro - outstanding quality and brilliant fall color. Excellent as an ornamental. Begins ripening with Bluecrop, but has concentrated ripening and finishes much earlier than Bluecrop. Has consistent high yields and upright growth habit. Berry size is medium to large with an attractive sky blue blush.

Mid-Season

Bluecrop - Fruit: attractive, firm, high quality.
Bush: may overbear unless properly pruned.

Blueray - Fruit: large, firm, light blue, highly flavored.
Bush: exceptionally vigorous, productive.

Northcountry - (half-high) Fruit: medium-sized, sky blue, sweet and mild. Bush: growing to 1 1/2' to 2' tall. Yields 2-5 pounds at maturity.

Northblue - (half-high) Fruit: large-sized, light blue, with a "wild" blueberry flavor. Bush: grows 2'-3' tall. Compact, dense habit when mature; produces heavily. Large, dark green leaves turn bright red in the fall.

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Late Season

Bluegold - Fruit: medium-sized, good color, flavor, firmness. Bush: productive, low growing (3' - 4'.)

Darrow - Vigorous and upright growth habit. Berry size is the largest of any variety. Firm, light blue color and excellent tart flavor.

Elliott - Fruit: light blue, firm, mild, good; medium-sized. Bush: vigorous, productive, hardy, upright.

Nelson - Fruit: similar to Spartan in size, firmness, color; good flavor. Bush: vigorous, high yield.

Culture

Site

Blueberries need a sunny area with good air circulation. Landscape plants must be grouped according to cultural requirements. Blueberries need moist, well-drained, acid organic soil. Do not plant them among junipers or other plants that prefer neutral soil. Keep blueberries away from house foundations or walls, because the lime from the foundations might leach into the soil.

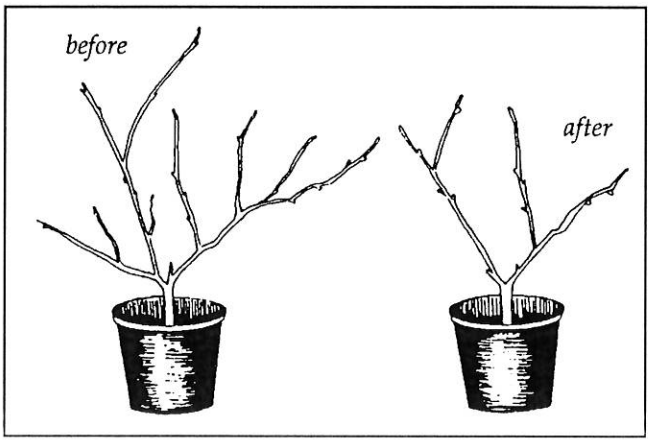
Soil

The most important step in growing blueberries is maintaining an acid soil. A soil pH of 4.0 to 5.2 is best for prevention of iron chlorosis (yellowing of leaves) and maintenance of nitrogen in ammonium form. Few soils are immediately suitable for blueberry cultivation because the pH is above 5. Make sure you check the soil pH before you begin. Request Home Grounds Fact Sheet A-1-0, *Taking a Soil Sample for a pH Test*. If the pH of your soil is greater than 5 but less than 7, you may modify the soil acidity. The acidity of light sandy soils is most easily affected by applications of sulfur, iron sulfate or magnesium sulfate, and acid peat or oak leaf compost. Moderately light loam soils can be acidified if they are not too far from the desired acidity. Heavy soils, especially if they have a pH above 6.5, are difficult to permanently acidify without a great deal of expense and effort. The acidity of your soil will increase very slowly after application, so soil modification should begin at least one year prior to planting.

It is necessary to incorporate compost to improve the soil structure. Provide nutrients for the plants. Bone meal or super phosphate should be tilled in for the phosphorus needs of the plant, with muriate of potash to provide potassium. Follow the directions on the labels.

Cultivation

Purchase two- or three-year-old plants from a reliable nursery. Potted blueberries must be root pruned prior to planting. One-year-old rooted cuttings have a high mortality rate, so they are less desirable. Plants should be placed in the soil as soon as they arrive in early spring. Soak the roots for several hours prior to planting. Plants should be separated by a minimum of 4' (2 1/2' to 3' for dwarf varieties.) Set plants one inch deeper than the depth in the nursery. Dig the hole large enough to receive roots without bending or cramping them. Spread all roots out naturally. Place good moist surface soil next to the roots and work it in with your hands. When the hole is half-filled, tamp the soil firmly. Fill the hole and tamp the soil harder. Leave a saucerlike depression at the top to catch water. Careful planting is important and should never be hastily done. In all cases, pack moist soil firmly around the roots.



At planting time, you should remove all weak, diseased, and broken wood and all flower buds. After one year, again prune any diseased or broken wood. Vigorous plants may be allowed to bear up to a pint of fruit (20 to 30 flower buds). Remove any additional buds so that nutrients and energy can be diverted to vegetative growth.

Keep plants well watered. Blueberry plants are extremely sensitive to lack of water during their first two years. Since blueberry roots are very near the soil surface, during dry weather it is recommended that they receive 1" to 1 1/2" of water every 7-14 days.

Mulching

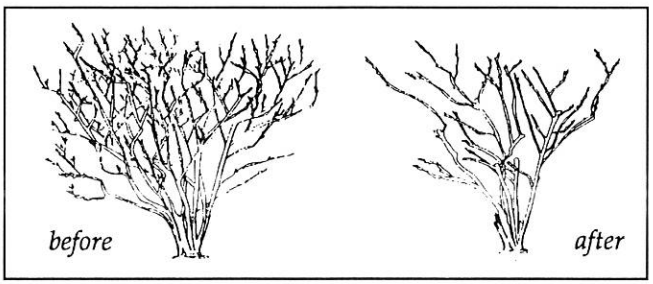
For small plantings, mulchings with wood chips, leaves, sawdust, hay or straw to a depth of 3" or 4" help retain moisture, keep weeds down, control erosion, and keep the soil temperature even. For less acid soils, decaying oak leaves or acid peat mixed in the soil around the plants helps make conditions suitable, but plants on such soils always require extra care.

Fertilization

Do **not** use nitrogen fertilizer the year plants are set because the roots are extremely sensitive at this time. Four ounces of ammonium sulfate should be applied to each plant the second year in early spring. Fertilizing after flowering will increase susceptibility to winter damage. Increase the amount of fertilizer by 1 ounce each year until the sixth year. After this time, fertilizer should remain at 8 ounces per application. As a supplement to the ammonium sulfate, magnesium or iron sulfate and a complete fertilizer such as 5-10-10 may be used.

Pruning

Blueberries require pruning after they reach maturity in 5 or 6 years. Strong, vigorous shoots produce the best berries, which are produced on the previous year's wood. Pruning is done for two reasons: (1) to adjust the fruit crop to the capacity of the bush and root system, and (2) to stimulate strong vigorous shoots for next year's crop. Weak and diseased canes should be removed. Eliminate canes rubbing together and remove canes with diameters greater than one inch. Older canes are inefficient at producing fruit, so remove them to allow younger canes to grow. Regular pruning maximizes yield by increasing light penetration, lessening diseases and stimulating new growth. Some growers remove 1/4 of all flower buds. This usually results in larger fruit with no reduction in yield. The objective of pruning is to have a mature bush with approximately 10 canes of several different sizes. The best time to prune is late March.



Harvesting

Most varieties ripen over a two- or three-week period, necessitating several pickings. The berries should be fully colored and easily removed from the cluster before harvesting. They usually turn blue two or three days before they develop maximum sweetness and flavor. The best guide as to when to harvest is to wait until about one-third of the berries are blue. The fruit will be sweeter and more tasty if allowed to be blue for 7 to 10 days prior to harvest. Birds love blueberries and may be a very serious problem. Consider covering the blueberries with a coarse netting with 3/4" to 1" mesh during the harvest season. The cover must shield the entire bush because birds will find and enter a 2-3-inch hole.

Propagation

Blueberries are propagated from hardwood cuttings. Use firm, well-rounded, sturdy shoots of the previous summer's growth that bear leaf buds. Avoid using sections with a fruit bud because they do not root as easily.

Cuttings are made from shoots called "whips." They should be 12" to 30" long, approximately the thickness of a pencil. Avoid wood from diseased or insect-infested plants, and shoots that are too small or poorly hardened. Cut the whips from the parent plant between April 1 and 15. Cut the whips into 3" to 4 1/2" pieces, using sharp pruning shears or a good knife to make a clean cut without mashing or tearing the bark. Make the top cut just above a leaf bud. Discard the upper portion of the whip if it is not firm, or if it contains fruit buds. At no time should the wood be allowed to dry out.

Push the cuttings into a flat of moist sand and peat moss in a vertical position, making sure that you keep the same stem/root orientation as the parent plant. Leave only the top bud of the cutting above the surface or even with the surface of the soil. Place the flat in a clear plastic bag with a few air holes in it. Keep it in a well-lit location.

Cuttings develop leafy stems 1 to 3 inches long during May, but have no roots until late June. The tops start a second terminal growth about July 1. The first greening of the tips is the sign that rooting has been accomplished.

Set plants out in September to afford vigorous root growth during mild autumn weather. Cover the bed with a light mulch of straw over winter.

Problems

Integrated Pest Management (IPM) Considerations

IPM is a common sense approach to pest control and plant care. It employs a number of measures to prevent, control or reduce plant problems. These include using resistant plant varieties, proper plant selection and placement, good aftercare and biological and/or mechanical controls. As a last resort, after all other remedies have been explored, a pesticide* that is least toxic to people and natural predators, can be considered. Prior to using any pesticides, plants should always be monitored for the degree of infestation and a sensible control measure considered.

** A pesticide is a substance that kills, or attempts to kill, a particular pest, e.g.* ***insect****icide,* ***fung****icide,* ***herb****icide, etc.*

Insects:

Leafrollers - Leaves are webbed together. There is external feeding on green berries in June and July. Fruit tree leafroller has only one generation a year and its cycle is over by early June. Summer leafrollers have 3 or more generations a year. Remove by hand and destroy larvae. Natural enemies often help keep populations at a low level. Chemical control is the same as for cranberry fruitworm.

Blueberry Maggot *(Rhagoletis pomonella)* The larvae develop in the ripe berries, never more than one to a berry, but the infestation may be so great that there are over 100 maggots in a pint of fruit. The larva is a white legless maggot about 1/4" long when fully grown. The fly, smaller than the house fly but similar in shape, is black with conspicuous white markings on the back and abdominal segments; it has characteristic dark confluent bands on the wings. It is important to clean dropped berries from the ground under blueberry bushes because they might contain maggots that will keep the cycle going by over wintering in the soil. Use visual (yellow board) traps for monitoring, starting in late June. (see note A.)

Putnam Scale *(Aspidiotus ancylus)* may become injurious on older bushes, although extremely heavy infestations may go unnoticed because of their small size and their habit of settling under rough, loose bark on older stems. When they are noticed on the fruit, it is a good indication that the stem infestation is heavy enough to cause bush weakening and loss of crop. Retaining older canes makes conditions more favorable for Putnam scale. Good pruning practices reduce the likelihood of scale problems. If needed, apply oil spray just before budbreak in the spring, 2-2 1/2 percent solution.

Blueberry Stem Borer *(Oberea myops)* sometimes damages bushes, particularly young, vigorously growing ones. The presence of this insect is indicated by the sudden wilting of the terminal leaves of new growth in mid-summer. Examination shows two rows of punctures around the stem, about an inch or less apart, girdling the shoot. For three years, the larva bores downward from the girdled area in the center of the shoot; then the infected stem usually dies. If the borer gets into the crown, the whole plant is likely to be weakened or killed. Removing wilted tips below the lower girdle during the summer is about the only control needed. Canes should be cut off below any evidence of tunneling.

Cranberry fruitworm *(Acrobasis vaccinii)* and the **Cherry Fruitworm** *(Grapholitha packardi)* infest the green fruit of cultivated blueberries. The full-grown cranberry fruitworm larva is about 1/2" long, green underneath and on the sides, and brownish-red on the back. The mature cherry fruitworm larva is about 5/16" to 3/8" long and is a uniform bright orange-red color. Remove by hand when seen. If needed, apply Bt when 75% of blossoms have dropped and again ten days later. (see note A.)

Diseases

Blossom and Twig Blight *(Botrytis)* - This disease is caused by the common gray mold fungus. It may cause serious losses by killing blossoms so that they do not form fruit or by killing twigs so no blossoms are formed. The disease is serious only in wet seasons and it has been found that blossoms are infected in 3 to 5 days if there is rain and the temperature is 55° to 65°F. When blossoms are infected and rain continues, the fungus grows down the flower stem and into the twig. This blight also causes berries to shrivel and turn purplish, and causes shoot tips to die. To control, improve air circulation and practice plant sanitation. Avoid fertilizers high in nitrogen. (see note A.)

Mummy Berry - Initial symptoms of the disease appear 2-3 weeks before full bloom when affected leaves wilt and dry to a medium brown. On some leaves, only the center of the leaf may show reddish-brown symptoms. Infections can spread from leaves to twigs. In the second stage of the disease, cream-colored spores (conidia) produced at the base of diseased leaves are blown or carried by insects to blossoms and immature fruit. Infection spreads around the developing berry, which becomes a hard, shriveled, pumpkin-shaped, pinkish-gray sclerotium. Sclerotia survive the winter in the layer of fallen leaves and, if the soil remains wet long enough in the spring, they germinate to produce goblet-shaped apothecia (mummy-cups). While most germination occurs after a single winter, some sclerotia remain dormant for another year or two. During periods of wet weather, apothecia release ascospores for approximately one month, starting at budbreak. Ascospores infect swelling buds or new leaves. The two major factors required for disease are the presence of sclerotia from a previous crop and periods of cool, wet weather. Cultural controls include cleaning up all fallen berries so the fungus cannot overwinter in the soil. Before bud break in the spring, cultivate to bury remaining mummies or add 2" of sawdust mulch. Resistant varieties include Burlington, Collins, Jersey, Darrow, Rubel, Bluetta, and Dix. If mummy berry was severe last year and the spring is wet, you may choose to use a chemical pesticide. Contact your local Cooperative Extension office for specific recommendations.

Cane cankers - Phomopsis canker is an injury/stress-related disease caused by the fungus *Phomopsis vaccinii*. Symptoms include wilting and dying canes, a reddish-brown canker advancing from the tip towards the crown on younger canes, an elongated flattening of the wood on older canes (frequently accompanied by tiny black pimple-like fruiting bodies of the Phomopsis fungus), and a brown pith in the center of wilting canes. (The pith should be green in healthy canes.)

The Phomopsis fungus overwinters in previously-infected blueberry wood. Infective spores are released during wet periods and spread short distances by splashing and wind-blown rain. Spore release begins about the time of blossom bud swell, becomes intense through the bloom period, and may continue into August whenever rain falls. Optimum temperature for infection and disease development is about 70° to 80°F. Temperatures below 60° or above 90° are much less favorable. Healthy wood is generally very resistant to infection, but that which is injured by winter freezes or spring frost is relatively susceptible. In fact, cold-injured wood is probably the major avenue of infection for this fungus.

Because the Phomopsis fungus is capable of growing through the cane and into the crown (resulting in death of the entire plant), prune out infected canes as soon as possible after they have been identified. Make the cut at or near the point of attachment to the crown, just outside the branch collar. At the very least, be sure to prune out infected wood before next year and remove it to reduce the major source for future disease spread.

Canker *(Fusicoccum)* - Prune out dead or dying canes in early spring or as they appear. Promote vigor by weeding and fertilizing properly in the spring. To promote winter hardiness, do not fertilize after mid-spring.

note A. Chemical pesticides are available. If you choose to use chemical pesticides, contact your local Cooperative Extension office for specific recommendations.

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