STARK Bro's

How to Grow Blueberry Plants

Getting Started

Acclimate

Acclimate (ac·cli·mate): "To become accustomed to a new climate or to new conditions. Also to *harden off* a plant."

Acclimating blueberry plants helps to avoid stress to new plants and transplants. It is our strong recommendation for plants that are leafed out and not dormant. Most of our blueberry plants arrive to you potted with tender new growth, since they were grown in the controlled environment of our greenhouses. This tender new growth can be sensitive to things like direct sunlight and sudden changes in temperature, so acclimating blueberry plants to their new environment will help provide them with a great start.

Things that may cause injury to tender new growth in transplants:

- temperatures (below 50ºF or above 90ºF)
- frost snaps
- strong/direct sunlight
- wind

These conditions are more likely to occur during early spring, but can be expected during different times of year in different areas. Here are a few steps we recommend you follow to acclimate (or harden off) your blueberry plants before planting outdoors:

1. Upon arrival, keep blueberry plants in the pots they arrived in and place them in a sheltered, shady spot outdoors — like on a back porch. Leave them there for 3-4 hours and gradually increase the time spent outside by 1-2 hours per day. Bring them back indoors each night.

2. After 2-3 days of this acclimation process, begin transitioning the blueberry plants from their shaded spot to one that provides some morning sun. Return them to the shade in the afternoon. If this conflicts with your schedule, try moving the plants to an area that receives filtered sunlight instead, which is less intense than direct sun. Be sure still to bring them indoors again overnight.

- Water regularly as needed to keep the roots from drying out. If the soil in the pots is dry to the touch, then you know it's time water. You may occasionally mist the leaves with water, since the environment indoors is drier than outdoors.
- Observe foliage daily. If signs of leaf injury appear prior to planting, move those plants back into filtered sunlight and start from the first step again. Proceed to the second step when conditions improve.
- After 7 days, your blueberry plants should be able to handle the outdoor conditions, as long as temperatures are expected to stay between 50ºF and 90ºF. If daytime temperatures are expected to drop within the next day or so, continue to repeat the second step. Monitor your plants, and the weather, until conditions are more suitable for planting outdoors.

3. After 7-10 days, and if the weather conditions are right, your blueberry plants are ready for planting (/growing-guide/how-to-grow/berry-plants/blueberry-plants/planting) in a permanent location. *For best results, try to plant tender plants on a cloudy day.*

Please note: these are general recommendations. Your particular growing environment might require a slight variation on these guidelines, since some plants can take more time (or less time) than others to harden off. Factors like the current year's weather, individual plants, and your location can affect the acclimation process.

Location

The best way to succeed is to **plan before you plant**. Let's discuss location: Do you know where you want to plant your new berry plant? Avoid many future problems by considering all aspects of the planting spot, such as:

- Cross-pollination
- Sun and good soil
- Leave space for future planting

Cross-Pollination

Is a pollinator variety present? Cross-pollination by a different variety, of the same type of plant, is key to the success of many plants. In most cases, its absence is why the plant doesn't bear fruit or produces poorly. Most berry plants are self-pollinating, but for a larger fruit and crop plant more than one variety.

Sun and Good Soil

Your plant would love a sunny place with well-drained, fertile soil. But it will be quite satisfied with six to eight hours of sunlight. Good drainage is required to keep your plant "happy." If your soil has high clay content, use our Coco-Fiber Potting Medium or add one-third peat to the soil at planting time. We do not recommend planting berries in heavy, pure clay soils.

Even if your yard isn't the most ideal location, take heart. Most berries are very adaptable and respond well to fertilizers, so they can get along well even where the soil is nutritionally poor. Just steer clear of sites with extremely heavy soils or very poor drainage.

Space for Future Plantings

Once you've found out about fruit growing goodness firsthand, you'll want to expand your home orchard. It's important to plan so that the future growth areas will be ready when you are.

Planting

Few things are as delicious as homegrown blueberries, and the success of your harvest begins right with the planting site and method. For maximum growth and yields later on, give your plants the best foundation possible.

Before Planting

Before you plant, check your soil pH. This can be done by contacting your local County Extension Office for information about soil testing in your area, or purchase one of our digital meters for quick and accurate results. Ideally, your blueberries need a soil pH between 4.5-5.5, but below 6.5 will work. To amend your soil, use a soil acidifier. Steer clear of soils that are extremely heavy or very poorly drained.

Spacing

- Depending on the variety what spacing you will need, high bush 4-6' and low bush 2-4' apart with 6-8' between rows.

Planting Tips

- Don't plant too deep. The crown should be right at the soil level, with the roots just under the surface.
- Blueberries should not be fertilized until the plants leaf out. Then use a solution of our Stark® Blueberry Special Fertilizer, formulated just for blueberries.
- If your berries are potted, plant them at the same depth as they were in the pot.
- Blueberries put down a shallow root system, so it is important to water thoroughly during summer, mulch heavily and keep soil acidic.

Container-Growing

Growing blueberries in a container is ideal for patios, decks or porches.

Planting Steps

- Fill the container with potting soil loosely (do not tamp) to 3" below the rim.
- Remove plants from growing/shipping containers.
- Gently loosen root system from the soil ball, so roots do not encircle the soil ball.
- Place plant so the root ball is even with the soil surface.
- Fill the container with the remaining soil.
- Water lightly until plant is well rooted. (After the initial watering, water the container as needed. The best way to determine if your container needs water is to check the soil by inserting your finger into it. If it feels dry, water your container. Because of soil porosity and drainage holes in your container, it would virtually be impossible to overwater your container.)

Container Placement

- Until the threat of frost has passed, keep your planter indoors in bright sunlight. When temperatures rise to 50 degrees or above, you can move your container plant outdoors to a sunny location. Plants should not be placed immediately in the full sun. An acclimation period of 2-3 days may be needed so as not to burn plants that were under-exposed to light during shipping. Acclimate to cooler air temperatures.
- The container may be brought back indoor to a sunny location before the temperatures fall below 50 degrees.

Additional Information

- Blueberries begin to produce fruit in the third season, so pruning is not required until then.
- Blueberries ripen over several weeks, so plan to pick more than once.
- Protect your crop from birds with a Garden Net.
- The average life of blueberry plants is 20 years with proper maintenance.
- Suggested number of plants for a family of 5: 8-10 (2 plants per person).

Soil Preparation

Preparing your soil before you plant will greatly improve your plant's performance and promote healthy, vigorous growth. It is a good idea to have your soil tested to determine if it is lacking in any essential minerals and nutrients. This can be done through your County Extension Office or with one of our digital meters.

The goal of soil preparation is to replenish vital minerals and nutrients, as well as break up and loosen any compacted soil.

When To Prepare Your Soil

Soil preparation can be done at any time that the ground is not too wet or frozen. Your trees may be planted even when temperatures are quite cool. If a hard frost is expected, it is advisable to delay planting for a while until temperatures become more moderate. Generally, as long as your soil is workable, it is fine to plant.

How To Prepare Your Soil

- Roots grow faster when they're spread out. Dig the hole deep and wide enough so the root system has plenty of room to easily expand. Keep the topsoil in a separate pile so you can put it in the bottom of the hole, where it'll do the most good.
- To loosen the soil, mix dehydrated cow manure, garden compost or peat moss (up to 1/3 concentration) into your pile of topsoil. Make sure the peat moss you get is either baled sphagnum or granular peat. You can also add our Coco-Fiber Potting Medium or 2 or more inches of organic material and work in evenly with the existing soil.

Your lawn can provide you with ideal organic materials such as grass clippings and shredded leaves. Not only will the grass and leaves break down to provide soil nutrients, but they will help loosen the soil as well. You can gather these in the fall with spring planting in mind.

Common soil amendments:

- compost
- sand
- manure
- soil acidifier (http://www.starkbros.com/products/tools-and-supplies/soil-additives/soil-acidifier)
- peat moss

Adding organic materials, such as our Coco-Fiber Potting Medium and compost will improve most every soil type. Organic materials bind sandy soil particles so they retain moisture and nutrients better. They also break apart clay and silt particles, so that water can infiltrate and roots can spread.

Soil Types

- Clay and silt soils are made of very small particles. They feel slick and sticky when wet. Clay and silt hold moisture well, but resist water infiltration, especially when they are dry. Often puddles form on clay or silt soils, and they easily become compacted.
- Loam soil is a mix of sand, silt or clay, and organic matter. Loam soils are loose and look rich. When squeezed in your fist, moist loam will form a ball, which crumbles when poked with a finger. Loam soils normally absorb water and store moisture well. Loam soils can be sandy or clay based, and will vary in moisture absorption and retention accordingly.
- Sandy soils contain large particles that are visible to the unaided eye, and are usually light in color. Sand feels coarse when wet or dry, and will not form a ball when squeezed in your fist. Sandy soils stay loose and allow moisture to penetrate easily, but do not retain it for long-term use.

Care & Maintenance

Fertilizing

Fertilizing is an excellent way to replenish the natural nutrients in your plant's soil. We recommend a solution of Stark® Blueberry Special Fertilizer, which is specifically formulated for blueberries.

Fertilizing Tips

- Excess fertilizer easily damages blueberries; allow for rain between applications.
- For new plants: wait until the first leaves have reached full size before fertilizing.

- Fertilize every 6 weeks (depending on rainfall) until mid-summer.
- For older plants: apply fertilizer when new growth begins in the spring.

Pest & Disease Control

Every plant has the future potential for disease and insect damage. Factors such as location and weather will play a part in which issues your plants encounters. If available, disease-resistant varieties are the best option for easy care; and for all types of plants, proper maintenance (such as watering, pruning, spraying, weeding, and cleanup) can help keep most insects and diseases at bay.

Scale

Usually on bark of young twigs and branches, encrusted with small (1/16") hard, circular, scaly raised bumps with yellow centers, may also be on fruit. Sap feeding weakens the tree.

Natural Control

- Bonide® All Seasons® Horticultural & Dormant Spray Oil
- Bonide® Citrus Fruit & Nut Orchard Spray

Chemical Control

- GardenTech® Sevin® Concentrate Bug Killer
- Bayer Advanced™ Complete Insect Killer

Stem Borer

Wilted tip on plants indicates a possibility of a little borer. If it breaks off readily, and is hollow, prune back branch until no longer hollow. Burn all pruning.

Control

- Consult County Extension Agent

Leafroller

Pale yellow or 'dirty' green worms. Leaves are rolled and webbed together where insects feed. Eventually becomes skeletonized.

Natural Control

- Bonide® Captain Jack's™ Deadbug Brew
- Bonide® Thuricide® Bacillus Thuringiensis (BT)

Chemical Control

- Bonide® Borer-Miner Killer
- GardenTech® Sevin® Concentrate Bug Killer
- Bayer Advanced™ Complete Insect Killer

Botrytis Blight

Gray, hairy mold decays blossoms, green and ripening fruit as well as harvested fruit.

Natural Control

- Bonide® Citrus, Fruit & Nut Orchard Spray
- Serenade® Garden Disease Control

Red Leaf Gall

Bladder type enlargements of all or part of a leaf, white or pink and soft, turning brown and hard with age. Seldom serious, but in wet seasons in the south, the number of galls can be quite high, hand pick and destroy. This is more of a problem in the south.

Control

- Consult County Extension Agent

Powdery Mildew

Whitish-gray powdery mold or felt like patches on buds, young leaves and twigs. Leaves may be crinkle and curl upward. Over winters in fallen leaves.

Natural Control

- Fall clean up is essential.
- Serenade® Garden Disease Control
- Bonide® Citrus, Fruit & Nut Orchard Spray

Brown Rot

Young growing tips wilt and dry just before blossoming. Fruits are yellowish, firm, leathery, turn dark and mummify.

Natural Control

- Clean up thoroughly in fall, hand pick all mummies.

Other Control Options

- Consult County Extension Agent

Mites

Pinpoint size, many different colors. Found on undersides of leaves. Severe infestations have some silken webbing. Sap feeding causes bronzing of leaves.

Natural Control

- Bonide® All Seasons® Horticultural & Dormant Spray Oil
- Bonide® Citrus, Fruit & Nut Orchard Spray

Chemical Control

- Bonide® Borer-Miner Killer
- GardenTech® Sevin® Concentrate Bug Killer
- Bayer Advanced™ Complete Insect Killer

Aphids

They are the size of a pinhead and vary in color depending on the species. Cluster on stems and under leaves, sucking plant juices. Leaves then curl, thicken, yellow and die. Produce large amounts of a liquid waste called “honeydew”. Aphid sticky residue becomes growth media for sooty mold.

Natural Control

- Bonide® Citrus, Fruit & Nut Orchard Spray

Chemical Control

- Bonide® Borer-Miner Killer
- GardenTech® Sevin® Concentrate Bug Killer
- Bayer Advanced™ Complete Insect Killer

Lybus Bugs

Small oval insects, color range from pale green to reddish brown or black. Feed by sucking sap, signs of infection discoloration, deformed shoot and stems, curling of leaves and lesions.

Chemical Control

- Bonide® Borer-Miner Killer

Spittlebugs

Immature bugs are small green, soft-bodied and adults are small (1/4") winged insect that feed on the plant sap. They are surround by a white mass that looks like spit. They suck on the sap, weakening the plants.

Natural Control

- Bonide® Citrus, Fruit & Nut Orchard Spray
- If infestation is small can be washed off with a hose.

Chemical Control

- Bonide® Borer-Miner Killer
- Bayer Advanced™ Complete Insect Killer

Blueberry Maggot or Fruit Fly

Adults are similar to a Cherry Fruit Fly and Apple Maggot. The larvae will tunnel and lay their eggs in fruit, usually in ripe fruit. Prompt harvest is very necessary.

Natural Control

- Bonide® Citrus, Fruit & Nut Orchard Spray
- Bonide® Captain Jack's™ Deadbug Brew

Chemical Control

- GardenTech® Sevin® Concentrate Bug Killer
- Bayer Advanced™ Complete Insect Killer

Japanese Beetle

Adult is a metallic green beetle, which skeletonizes leaves. Larvae are a grub, which feeds on turf roots. Check turf product labels for timing of control of grubs. This is more of a problem east of the Mississippi River.

Natural Control

- Traps

Chemical Control

- Bonide® Borer-Miner Killer
- GardenTech® Sevin® Concentrate Bug Killer
- Bayer Advanced™ Complete Insect Killer

Sawfly

Immature flies are soft-body with tiny legs. Adults are wasp like in general body shape and some have yellow and black markings or are entirely black. Larvae feed on leaves and spin a cocoon when fully grown.

Natural Control

- Bonide® All Seasons® Horticultural & Dormant Spray Oil (eggs)

Chemical Control

- GardenTech® Sevin® Concentrate Bug Killer
- Bayer Advanced™ Complete Insect Killer

Thrips

Small insects, less than 1/2" long, with feathery wings, yellow to brown in color. Cause damage if they lay eggs in fruit soon after bloom, scarring the fruit. In summer they feed on new vegetative growth, and damage summer fruit (not usually considered a problem).

Natural Control

- Bonide® All Seasons® Horticultural & Dormant Spray Oil

- Bonide® Citrus, Fruit & Nut Orchard Spray
- Bonide® Captain Jack's™ Deadbug Brew

Weevils

Adults are hard-bodied, long snouts, usually dark colored. Feed on leaves, flowers and developing buds. Larvae are white grubs that live inside plant tissue; some live underground and feed on the roots.

Chemical Control

- Bonide® Borer-Miner Killer
- GardenTech® Sevin® Concentrate Bug Killer

Mummy Berry

Flowers turn brown, new shoots are blackened in center and wither and die. As berries ripen they become cream to pale pink, then tan or whitish gray, then shrivel and harden.

Chemical Control

- Bonide® Captan Fruit & Ornamental
- Bonide® Fung-onil™ Fungicide

Leafhopper

Various colors and similar to aphids this small, active, slender-winged insects are usually found on the underside of leaves. Retard growth, leaves become whitened, stippled or mottled. Tips may wither and die. This insect carries virus of certain very harmful plant diseases.

Natural Control

- Bonide® Citrus, Fruit & Nut Orchard Spray

Chemical Control

- GardenTech® Sevin® Concentrate Bug Killer
- Bayer Advanced™ Complete Insect Killer

Gray Mold

The fungus thrives in cool, moist conditions. Usually begins on plant debris, weak or inactive plant tissue, than invades healthy plant tissue. Causes spotting and decay of flowers and foliage, tissue becomes soft and watery. Affected parts of plant could wilt and collapse. If humidity remains high a grayish-brown coating and spores develops over the surface of the collapsed tissue.
Good sanitation will help avoid the problem.
Remove and destroy dead leaves, flowers and dead plants.
Water the plants at soil level and not on foliage.

Chemical Control

- Bonide® Captan Fruit & Ornamental

Anthracnose

New cankers appear on bark as small circular spots that are red or purple when wet. When they enlarge they become sunken orange to brown areas in the bark. As the cankers age, bark sloughs off exposing wood beneath, or disintegrates exposing fibers that give the area a 'fiddle string' appearance. Cankers usually do not grow larger after first year's growth. Brown spots appear on leaves and fruit. At harvest the fungus can infect the fruit. Fruit lesions are circular, brown and sunken with gray or cream centers (Bull's Eye rot). Disease rarely kills tree, usually confined to small branches and twigs.

Natural Control

- Serenade® Garden Disease Control

Chemical Control

- Bonide® Fung-onil™ Fungicide

Pruning

Pruning is an important part of proper edible plant care, but many people find the task overwhelming. It doesn't have to be! Keep these things in mind:

- You can have confidence in knowing that not everyone will prune the exact same way (even the experts).
- It is best for your plant to do *some* pruning versus *no* pruning.
- There are several reasons to prune: maintain the size and shape of the plant, stimulate for strong growth and overall fruit quality.

Blueberries should be pruned during the winter while the bushes are dormant. In winter, flower buds are easily visible on one-year-old wood and their numbers can be adjusted by pruning to regulate the crop load for the coming year. Blueberries do not need to be pruned in the first year. Pruning should be moderately heavy in the second year.

Training Young Plants (1 to 3 years of age)

If vigorous, well-rooted two-year-old plants are set, they do not need cutting back the first year except to remove fruit buds shortly after planting. Pruning should be moderately heavy in the second year to stimulate strong new growth on selected canes. Do not permit plants younger than three years of age to bear more than a cluster or two of fruit, or the onset of the commercially productive period will be delayed. A large bearing area should be established in the shortest possible time.

Pruning Bearing Plants (over 3-4 years of age)

Make large "shaping cuts" — remove all low-spreading branches and the oldest canes if they are weak, particularly if in the center of the plant. "Head back" the upright "bull shoots" to the desired height to keep the bush from growing too tall. Essentially, you have then automatically selected the remaining, more upright canes to bear your crop next season and the following season.

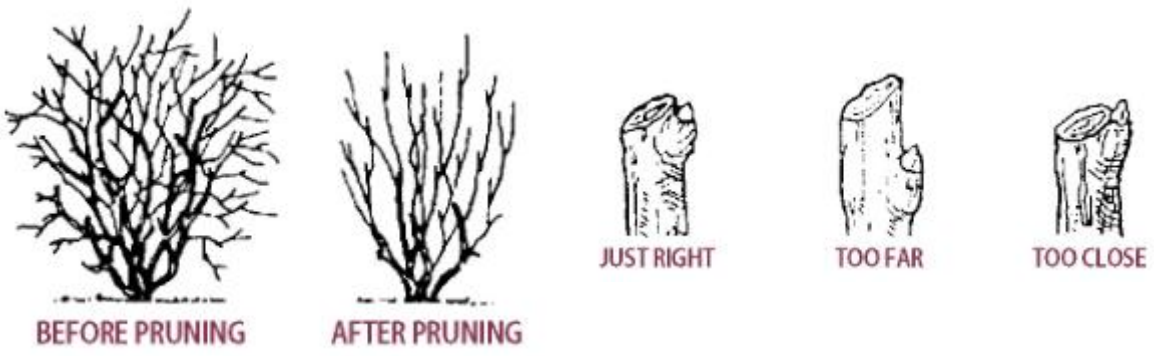
On the remaining canes, systematically "thin out" the shorter, thinner shoots, leaving enough of the thick shoots to bear the crop and make new growth. Only experience can tell you how many shoots a particular variety of a particular age can carry and still perform well. It is probably better in most instances to prune too lightly than too heavily. Lighter pruning is usually practiced, as the plant grows older because it can carry more "wood" successfully due to a larger root system.

Renewal Pruning

When blueberries are about 8 to 10 years old, they are at their productive peak— but renewal growth has reached a minimum, and production will begin to decline from year to year. To prolong your plant's productivity, renewal pruning is needed. Some provision must be made to revitalize the plant to prolong its productive period.

- Weak or badly diseased canes should be removed entirely. These canes can be identified by generally poor vigor and low fruit bud production. However, in eastern NC, many varieties do not sprout new canes readily from the crown. It may be necessary to either cut the cane back to a strong lateral which is properly located, or to cut the cane severely ("dehorn") back to within 2 to 3 ft of the ground. By the latter method, it is hoped that new lateral branches can be forced from below the cut.
- Either method may result in a 1- to 3-year crop reduction, but the plants should then bear several more good crops. However, when rejuvenation becomes necessary, it is time to start considering newer and better varieties to which your acreage may be systematically replanted in the near future.

A good reference book, such as Pruning Made Easy, can answer questions and guide you through the pruning process.



Spraying

Spraying is important to the survival of your plants. To handle potential diseases and pests, reference the guidelines below to know what you should spray, and when you should use it.

Before you begin, read and follow all instructions on labels.

Natural Control

- **Serenade® Garden Disease Control** for botrytis blight, powdery mildew, anthracnose and more.

When To Spray

Dormancy (late winter/early spring before leaves emerge)

- **Bonide® All-Seasons® Dormant Horticultural Spray Oil** for thrips, mites, sawfly (eggs) and scales.

On Foliage

- **Bonide® All-Seasons® Dormant Horticultural Spray Oil** for thrips, mites, sawfly (eggs) and scales.

At the First Sign of:

- **Bonide® Captain Jack's™ Deadbug Brew** for fruitfly (drosophila), leafrollers, thrips and more.
- **Bonide® Citrus, Fruit & Nut Orchard Spray** for aphids, mites, leafhoppers, spittlebugs, scale, thrips, fruit flies, powdery mildew, blight and more.
- **Bonide® Borer-Miner Killer** for aphids, mites, lygus bugs, spittlebugs, Japanese beetles, weevils, leafrollers and more.
- **Bonide® Thuricide® Bacillus Thuringiensis (BT)** for omnivorus leafrollers.

(DO NOT use on large trees)

- **GardenTech® Sevin® Concentrate Bug Killer** for aphids, blueberry maggot, scales, sawfly, leafrollers, leafhoppers, Japanese beetles, mites, weevil and more.
- **Bayer Advanced™ Complete Insect Killer** for aphids, blueberry maggot, leafrollers, scales, sawfly, Japanese beetles, leafhoppers, spittlebugs, mites and more.

Bud Swell (or when buds have loose scales)

- **Bonide® Captan Fruit & Ornamental** for botrytis gray mold or berry rot and mummy berry.

Bud break (green tip--DO NOT apply after early bloom)

- **Bonide® Fung-onil™ Fungicide** for mummy berry and anthracnose.

Watering

General Guidelines

- During first two years of growth, blueberry plants need 1 to 2 inches of water per week. After that if summer brings about an inch of rainfall every 10 days or so, you won't need to water them yourself.
- If the plant gets really dry, you can give your new plant a good, thorough soaking. The best way to do this is to let your garden hose trickle slowly. This gives the water a chance to soak in instead of running off. You can also use a soaker hose to water several plants at once.
- It's important to note that even if you're in the midst of a brown-lawn drought, you don't want to water too much. Once every 10 days or two weeks is plenty. Worse than dry, thirsty roots is waterlogged, drowning roots.

Other Topics

Harvesting

Are you ready to enjoy delicious homegrown fruit? Harvest is the time to enjoy the results of your hard work. Keep a few things in consideration as you reap the fruits of your labor: the best time to pick the fruit, and how to store your harvest.

When to Harvest

You can start harvesting your berries in the second season. The berry color should be blue or pink depending on the variety. Just because they are blue or pink does not mean they are ripe, they need about 7-10 days to develop fully. Put your picking container underneath a bunch of blueberries and gentle run your hand over the cluster and the ripe berries will fall off. During the ripening season check every day for ripe berries.

Storage

Blueberries will keep up to a week in your refrigerator. If not able to use right away put berries on a cookie sheet in a single layer and freeze until firm and then put them in freezer bags to enjoy all year long.

Annual average yield per plant:

- Self-pollinating, 1½ quart
- With another variety for additional pollination, 3-4 quarts