Stark Bro's Nurseries & Orchards Company: quality fruit trees for more than 190 years

**How to Grow Grape Vines**

**Getting Started**

**Acclimate**

Plants grown in a greenhouse must be acclimated carefully before planting or placing them outdoors. This is especially true in hot or sunny locations. Many species should never be grown in full sun. Before purchasing a plant, learn about its sun requirements. Knowing the plants requirements can avoid any damage to the plant by incorrectly giving it the wrong conditions.

If your grape vine was grown in a greenhouse, here are a few steps we recommend you follow:

* After purchasing your plant, place it outside in a sheltered, shady spot or on your back porch.
* Leave it there for 3-4 hours and gradually increase the time spent outside by 1-2 hours per day.
* Bring the plants back indoors each night.
* Water it regularly to keep the plant moist.
* Occasionally spray the leaves with water.
* After 2-3 days, move the plants from their shady spot into morning sun, returning them to the shade in the afternoon.
* After 7 days, the plants should be able to handle the outdoor temperatures, if they stay around 50 degrees F.
* After 7-10 days, your plant is ready to be planted in its permanent location. Try to do this on a cloudy day and be sure to water the plant well.
* Observe foliage daily. If any type of leaf discoloration occurs, put the plant back into filtered light and attempt this step at a later date.
* Special care must be taken to avoid burning the leaves.

These are general guide recommendations. Some plants take longer than others to acclimate.

**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 grape vines? 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.

**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 in heavy, pure clay soils.

**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 grapes, 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 grapes need a soil pH between 5.5-6.5. Steer clear of soils that are extremely heavy or very poorly drained. Grape vines will grow in a wide range of soil but they must have good drainage.

**Planting Site**

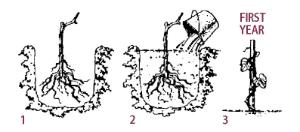
* Grapes need full sun, 6 to 8 hours a day.
* They grow in rows, to be trained to a trellis and are spaced according to the type of grape. The less vigorous table types and the more vigorous wine varieties should be planted 6-8’ apart. Muscadine grapes should be planted 12-15’ apart.
* All of the table and wine-type grapes are self-fruitful; but when you plant different grape varieties close together, they’re apt to cross-pollinate each other. Under certain environmental conditions, some seedless grapes may produce a few small, edible seeds or seed remnants. It’s believed closeness of seedy grape varieties influences the situation. When pollen from a seedy grapevine pollinates the seedless variety, a seed or seed remnant may develop. Keep this in mind as you choose your planting sites.
* Two Muscadine varieties should be planted to provide pollination. It’s also important to note that *non-Muscadine grapes will not pollinate Muscadine grapes.*

**Planting Tips**

* Dig a hole big enough to give roots plenty of “elbow room.”
* Plant slightly deeper than the soil line.
* Fill hole about three-quarters full, then soak well with a solution of Stark® Tre-Pep® Fertilizer. (If planting in the fall, wait to fertilize until spring for best results.)
* Finish filling the hole.
* Prune your new vine heavily, leaving only two to three buds on its strongest stem. (As it grows, you’ll keep only the most vigorous sprout to form the main stem.)
* Train to stake during first summer, pinching back all side shoots to two leaves each.

**Additional Notes**

* Shallow cultivation during the early growing months and summer mulching do wonders for your grapevines.
* Your grape vines should live about 20 years with proper maintenance.
* Suggested number of plants for a family of 5: 8-12 (3 vines 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
* lime
* 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.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 using Stark® Tre-Pep® fertilizer for your grapes, applied 2-3 inches deep and 10-12 inches away from the plant. A second and third application may be made at the same rate after six and twelve weeks of growth. Always apply fertilizer according to the package directions.

Organic fertilizers such as fish emulsion, compost, crab meal, or cottonseed meal may be used as alternatives.

**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.

**Downy Mildew**

Yellow spots appear on leaves with downy spots on underside of foliage. Older leaves in center of vine are infected first. Can infect fruits, become soft, grayish, wither, may or may not have downy symptom. Over-winters on fallen leaves, so fall clean up is vital.

Natural Control

* Serenade® Garden Disease Control
* Bonide® Copper Fungicide Spray or Dust

Chemical Control

* Bonide® Fruit Tree Spray (berries only)
* Bonide® Captan Fruit & Ornamental

**Armillaria Root Rot**

White knots between the bark and hardened at or below the soil line. Infected tissues have a mushroom-like odor when moist. Black fungus strands that look somewhat like roots, may be formed on the outside of the roots. During fall and early winter, fungus may produce mushroom-like fruiting bodies at the soil line around the trunk. Plant may die quickly or may show a slow decline with wilting leaves, and/or small dark green leaves. Disease progresses by root contact with infected plants. Soil fumigation may be necessary.

Control

* Consult County Extension Agent

**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 vine.

Natural Control

* Bonide® All Seasons® Horticultural & Dormant Spray Oil
* Bonide® Insecticidal Soap
* Bonied® Citrus, Fruit & Nut Orchard Spray

Chemical Control

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

**Black Rot**

Reddish-brown spots on leaves, spots soon appear on fruit, turn black. Then entire fruit becomes black, hard, shriveled mummy. Disease usually infects vine from bottom up. Over winters in fallen mummies (some mummies may cling on plant and can transmit disease also). Fall clean up is critical in control.

Natural Control

* Serenade® Garden Disease Control
* Bonide® Copper Fungicide Spray or Dust

Chemical Control

* Bonide® Fruit Tree Spray
* Bonide® Captan Fruit & Ornamental

**Botrytis Bunch Rot**

May cause early season shoot blight following spring rains. Flowers can become infected during bloom. Then becomes dormant until sugar content of the infected berries increases later in the season. Infected berries split then leak and the fungus continue to grow. Intact ripe berries can be infected as harvest nears. Berries damaged by insects or birds are more susceptible. Removal of some leaves around the clusters can help control the disease. Don’t remove too many, especially on side that receives afternoon sun, to prevent sunburn of fruit. Fungus over-winters in berry mummies on ground and hanging on vine. Fall clean up is critical.

Chemical Control

* Bonide® Fruit Tree Spray

**Eutypa Dieback**

Seldom seen in vines less than 8 years old. Most readily recognized symptoms are noticed during first 2 months of annual growth. They are malformed and discolored shoots, young leaves are small, cupped and often develop small necrotic spots and tattered margins. Grape clusters on affected shoots may have mixture of large and small berries. Symptoms become more extensive each year until part or the entire arm fails to produce shoots in the spring. Prune directly after a rain risk of infection is lowest at this time and prune late in dormant season to promote rapid healing. Spray or hand-paint large pruning wounds with fungicide soon after pruning and before rain.

Natural Control

* Remove and destroy all infected wood.

Other Control Options

* Consult County Extension Agent

**Anthracnose (Bird’s-Eye Rot)**

Black or brown lesions appear, especially on young leaves. Center of lesion becomes grayish-white and dries, may fall out giving a shot-hole appearance. May affect the shoots and the berries. Lesions on berries have dark brown or black margin, center is violet gradually becoming whitish-gray.

Natural Control

* Serenade® Garden Disease Control
* Bonide® Copper Fungicide Spray or Dust

**Powdery Mildew**

Appears as red blotchy areas on dormant canes. First appears on leaves as pale yellow or white spots on the upper surface. Soon a white webby substance appears and the white powdery masses. Fruit may be completely covered. Fungus may over-winter in dormant buds.

Natural Control

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

**Black Measles**

During summer or early autumn leaves on white varieties show yellow and red varieties show reddish patches, which enlarge and dry out. Severely infected leaves may drop and canes die back from the tip. On berries small round dark spots, bordered by a brown purple ring, may occur. Spots may appear any time between fruit set and ripening. In severely infected vines, berries may crack and dry on the vine. Believed to be caused by wood-rotting fungi that enter thru large pruning wounds. Occurs sporadically. Insect is more likely to occur in areas with consistently high summer temperatures such as California and Arizona.

Control

* Consult County Extension Agent

**Phomopsis Cane & Leaf Spot**

Infected leaves have small, light green irregular or circular spots with dark centers. May be puckered along veins or margins may be turned under. May also have dark brown to black spots along veins and on leaf stems. Spots may drop out giving a ‘shot hole’ effect. Infected portions of leaf may turn yellow, and then brown and leaf may drop. Young shoots, fruit stems and leaf stems may have spots that enlarge and form dark brown or black streaks and stretches, which eventually crack leaving open wounds. The fungus also causes fruit to rot. The grapes gradually turn brown and shrivel. Infections are worse when vines are kept wet by rainfall for several days after bud break.

Natural Control

* Serenade® Garden Disease Control
* Bonide® Citrus, Fruit & Nut Orchard Spray
* Remove as much diseased wood as practical by pruning.
* Clean up all debris in fall.

**Pierces’s Disease**

The range of bacterium in wild vegetation that causes this disease extends from northern California southward in western US southward from latitude of Tennessee in the eastern states. It is not a problem where the bacterium is not established in the wild. Is transferred mainly by sharpshooter, leafhoppers and spittlebugs.   
Chlorotic spots develop on leaves, discoloration intensifies and tissues begin to wither. In late summer drying spreads in concentric zones until entire leaf may be infected and drop, leaving the leaf stem attached to the vine. Late in the season, wood of infected canes show green ‘islands’ of tissues, surrounded by dark brown mature wood. Bud break in spring is delayed. First 4-6 leaves are small and tissues along major veins appear dark green against chlorotic background. Subsequent leaves are also small but normal in color. Affected vines may die the first year or may live for several years.

Natural Control

* Plant resistant cultivars.
* Some control achieved by controlling the sharpshooters, leafhoppers and spittlebugs.

Other Control Options

* Consult County Extension Agent

**Grape Leafhoppers**

Adult is pale yellow with dark brown and reddish markings. Over-winters as an adult and found in spring on grape leaves and weeds. Lays eggs in tissue of leaves in April and May, which appear as bean-shaped blister-like bumps. When nymphs emerge they are almost transparent, later becoming white. Feeding from adults and nymphs causes pale yellow stippling on leaf. When populations are very high can cause loss of leaf efficiency and leaf drop, which weakens the vine for the following season. They have some natural predators such as green lacewings, lady beetles and some mites. Grape vines can tolerate high densities of leafhoppers.

Natural Control

* Bonide® Insecticidal Soap
* Bonide® Citrus, Fruit & Nut Orchard Spray
* Remove weeds in vineyards and surrounding areas in spring.

Chemical Control

* Bonide® Fruit Tree Spray
* GardenTech® Sevin® Concentrate Bug Killer
* Bayer Advanced™ Complete Insect Killer

**Omnivorous Leafroller**

Adult is bell shaped, blackish gray snout-like mouthparts, forewings dark rusty brown with tan tips. Over winters in larval stage in mummified berries, in weeds and other trash. Moths emerge in spring and lay egg masses on leaves. Eggs hatch in 5 days and larvae tie two young leaves together to form nest in which they feed. Does not roll leaves. Later nests can be found in flower clusters and in bunches. Damage is not only from feeding on leaves, flowers and berries, but feeding sites allows rot organisms to enter fruit.

Natural Control

* Bonide® Captain Jack’s™ Deadbug Brew
* Bonide® Thuricide® Bacillus Thuringiensis (BT)
* Control weeds

Chemical Control

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

**Grape Leafroller**

Over winters as pupae, moths emerge in April. May lay eggs singly on upper or lower leaf surfaces. Larvae are transparent. After hatching they feed for about 2 weeks between two webbed leaves. Then each larva rolls a leaf edge and feeds from the inside on the leaf edge. Then the mature larvae construct a separate leaf envelope in which they pupate. Early generations cause little damage, but generations later in summer can cause severe damage by complete defoliation to sunburned berries, soft fruit and direct feeding.

Natural Control

* Bonide® Captain Jack’s™ Deadbug Brew
* Bonide® Thuricide® Bacillus Thuringiensis (BT)

Chemical Control

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

**Grape Mealybugs**

Adults are 1/4” long, flat, oval shaped with a white waxy covering. Yellow to orange eggs are laid within an egg sac. Crawlers are yellow to brown in color. Over winters as an egg or very immature young in or near a white, cottony egg sac, under loose bark or in branch crotches, mostly found on north side of vine. They are not known to damage vines. Damage is by contamination of fruit clusters with egg sacs, larvae, adults and honeydew, which promotes growth of black sooty mold.

Natural Control

* Bonide® All Seasons® Horticultural & Dormant Spray Oil
* Bonide® Insecticidal Soap
* Bonide® Citrus, Fruit & Nut Orchard Spray

Chemical Control

* Bonide® Fruit Tree Spray
* Bayer Advanced™ Complete Insect Killer

**Grape Cutworms**

Caterpillars are dull colored with inconspicuous marks differing in different species. Varies from 1/2” - 2” in length. Many varieties of grapes can tolerate significant damage. Feeds on grapevines from bud swell till shoots are several inches long. Injured buds may fail to develop vines or clusters. Can cause yield reduction on varieties with unfruitful secondary buds. Problems are usually spotty or localized. Other insects cause similar damage. Cutworm feeding after shoots are several inches long does not result in significant injury.

Chemical Control

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

**Western Grapeleaf Skeletonizer**

Adult metallic bluish or greenish-black moth emerges in early spring to June. Pale yellow capsule-shaped eggs laid in clusters on underside of leaf. Larvae feed side by side on underside of leaf. Five stages of larvae ranging from cream colored to brown to yellow with two purple and several black bands. Have conspicuous tufts of long black poisonous spine, which cause skin welts. When mature, larvae crawl under loose bark or in ground litter and spin a dirty white cocoon to pupate. Larvae feed on lower leaf surface leaving only veins and upper cuticle. This leaves a whitish paper like appearance. Later larvae stages skeletonize leaves, leaving only larger veins. Can defoliate vines by July and larvae may then feed on grape clusters causing bunch rot.

Chemical Control

* Bonide® Fruit Tree Spray
* GardenTech® Sevin® Concentrate Bug Killer
* Bayer Advanced™ Complete Insect Killer

**Orange Tortrix**

Adult is bell shaped about 1/2 “ long, orange colored, and has dark V-shaped marking mid wing. Caterpillars are straw-colored with a brown head, very active. When insect is disturbed they wiggle sideways or backward and either drop to ground or hang by silken thread. Overwintering larvae feed on vines, weeds and on any grape mummies remaining on vine. In spring feed on buds, canes and webbed leaves. Then enter bunches and make nests of webbing among the berries.

Natural Control

* Fall clean up of weeds, dried grape clusters, harvest the fruit as early as possible.

Chemical Control

* Bayer Advanced™ Complete Insect Killer

**Grape Phylloxera**

Adults are wingless females, generally oval shaped, less than 1/2” long, vary in color from yellow, olive green, brown or orange. Eggs are yellow and oval. Over winters as small nymphs on roots. In spring start feeding and growing. Damage occurs when insect feed on the roots, which swell and turn yellowish. Dead spots develop at feeding sites. If there are a lot of dead spots, vines become stunted and produce less fruit.

Natural Control

* Plant resistant rootstock

Other Control Options

* Consult County Extension Agent

**Branch & Twig Borer**

Adult females are dark brown beetles, cylindrical shaped, and males have white bodies, c-shaped with brown head. Males excavate tunnels where larvae spend up to 10 months. Adults burrow into canes thru base of bud or into crotch between shoot and spur. Infested canes can twist and break. Larvae bore into wood at dead and dying parts and feed. Not a significant problem in well-pruned vineyards.

Natural Control

* Good cultural practices and clean up.

Chemical Control

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

**Grape 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 fruit. In summer they feed on new vegetative growth and damage summer foliage, not usually considered a problem. Avoid mowing cover crops infested with thrips before bloom or they may move to vines.

Natural Control

* Bonide® Insecticidal Soap
* Bonide® Captain Jack’s™ Deadbug Brew
* Bonide® Citrus, Fruit & Nut Orchard Spray

**Grape Bud Beetle**

Adults are light gray, about 1/4” long. Larvae stages are spent in the soil, adults emerge in mid-January to mid-March. Adults cause crop loss by feeding on opening buds and eating the bud center. After new shoots are 1-1 1/2” long, damage is negligible.

Control

* Consult County Extension Agent

**Grape Leadcable Borer**

Adult is cylindrical black beetle, 1/4” long. Emerging from round holes in trunks of damaged vines and from dead wood in spring and early summer. Larvae are 1/3” long and cream color with dark head. Larvae are C-shaped and may be found in tunnels on the vine where they feed. Not a common pest.

Natural Control

* Good sanitation practice.
* Remove all pruning and dead wood.

Other Control Options

* Consult County Extension Agent

**Grape Vinegar Fly**

Adults are small, yellowish flies and are attracted to fermenting fruit of all kinds. The larva is 1/4” long maggot shaped and can be found in damaged fruit. Eggs are laid in the exposed fruit tissues and emerging larvae feed on the berries. Main damage from the pest is sour rot organisms it carries from bunch to bunch. Any practice that reduces bunch rot will also reduce population of the vinegar fly.

Control

* Consult County Extension Agent

**Webspinning Spider Mites**

There are several species of these mites. These pests range in color from amber to greenish to reddish to yellow, depending on the species and where on the vine it is located. As a result of feeding, dead spots appear on the leaves. High populations may cause leaf burning and prevent them from doing their work.

Natural Control

* Bonide® insecticidal Soap
* Bonide® Citrus, Fruit & Nut Orchard Spray

Chemical Control

* Bonide® Fruit Tree Spray

**Grape Flea Beetle**

Flea beetles are approximately 1/10 inch long, shiny blue purple to blue green, with enlarged hind legs for jumping. Adult beetles damage primary buds when they feed on them and larvae feed on the leaves. Remove debris and leaf litter in and around grapevines. This will help to eliminate overwintering sites.

Chemical Control

* Bonide® Fruit Tree Spray

**Grape Berry Moth**

Adult moth is small 6 mm long and brown in color. Eggs are laid singly on buds, stems and berries. Newly hatched larva is creamy white with a dark brown head then becomes greenish and eventually turns purple. Larvae feed on stems, buds and berries and often they feed inside protective webbings.

Natural Control

* Fall clean up is important.
* Bonide® Captain Jack’s™ Deadbug Brew

Chemical Control

* Bonide® Fruit Tree Spray
* GardenTech® Sevin® Concentrate Bug Killer
* Bayer Advanced™ Complete Insect Killer

**Japanese Beetle**

Adult is 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 this problem is east of the Mississippi River.

Chemical Control

* Bonide® Fruit Tree Spray
* GardenTech® Sevin® Concentrate Bug Killer
* Bayer Advanced™ Complete Insect Killer

**Pruning**

Pruning is very important in maintaining your plants good health. There are several reasons to prune: maintain the size and shape of the plant, stimulate for strong growth and overall fruit quality.

**Pruning**

In late winter, from the third year on, your grapevine should be pruned severely. On each of the four “arms,” select a good pencil-size stem as the fruiting cane, trimming it back to keep about 8 to 10 buds. Near the base of each of these fruiting canes, leave a stubby stem with two buds to form next year’s fruiting canes. All other canes are pruned away. Keep doing this each year to maintain your vine in the very best of bearing condition. This pruning system may sound drastic, but it really works!  
Muscadine: In late winter, the canes are cut back to leave only three to four buds above the horizontal main stem.

**First Pruning and Second Season Growth**   
To ensure good fruit production, pruning of the past season’s growth should be done each winter when the leaves have dried and fallen off the vines and the plants are dormant between January and February. After the lateral shoots have been established as cordons, canes extending from them should be pruned back to spurs.

**Second Pruning and Third Season Growth**   
In the winter after the second growing season, canes grown from the previous year’s buds should be pruned back to three buds per spur

**Training**

To start out the second year, begin training the vine on a permanent support. Make sure this trellis support is strong enough, because it will soon be holding up lots of heavy bunches of grapes. Select the best side canes to form the “double T” shape (see above diagram). This training is used in most vineyards because it’s the most productive. Your crop of grapes will be produced on new growth from 1-year-old stems, so it pays to keep old wood to a bare minimum. Muscadine grapes are more productive with a different type of training. A “single T” shape has a row of short, upward growing branches.

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.

**General Maintenance**

Spray every 14 days with **Bonide® Fruit Tree Spray** as a preventative measure. No more than 2 applications per year. Do not use more than 2 quarts of spray suspension per 100 square feet of grape vine. Cease spraying 7 days before harvest. (Not for use in California.)

**Natural Control**

* **Serenade® Garden Disease Control** for anthracnose, leaf spot, powdery mildew, downey mildew, black rot and more.

**When To Spray**

**Dormancy (late winter/early spring before leaves emerge)**

* **Bonide® All-Seasons® Horticultural and Dormant Spray Oil** for plume moth, scale insects and mealybugs.

**During New Growth**

* **Bonide® Copper Fungicide Spray or Dust** for black rot, downy mildew and anthracnose.

**Before Bloom**

* **Bonide® Captan Fruit & Ornamental** for black rot and downy mildew.

**At the First Sign of:**

* **Bonide® Insecticidal Soap** for mealybugs, leafhoppers, scale insects, thrips and mites.
* **Bonide® Captain Jack’s™ Deadbug Brew** for leafrollers, thrips and worms (berry moth).
* **Bonide® Fruit Tree Spray** for flea beetles, Japanese beetles, grape leaf skeletonizers, grape berry moth, spider mites, mealybugs, leafhoppers, black rot, downy mildew and botrytis rot.
* **Bonide® Thuricide® Bacillus Thuringiensis (BT)** for grape leaf roller and omnivorous leaf roller.
* **GardenTech® Sevin® Concentrate Bug Killer** for scale, Japanese beetles, mites, western grapeleaf skeletonizer, cutworms, leafrollers, grape berry moth, borers, leafhoppers and more.
* **Bonide® Citrus, Fruit & Nut Orchard Spray** for scale, powdery mildew, leafhoppers, mealybugs, thrips, mites and leaf spot.
* **Bayer Advanced™ Complete Insect Killer** for scale, leafrollers, leafhoppers, mealybugs, cutworms, western grapeleaf skeletonizer, orange tortrix, grape berry moth, borers and Japanese beetle.

**Watering**

Unless you’re in an area where irrigation is usually needed for normal plant growth, you probably won’t need to water after the first growing year. Until then, follow these guidelines to get your new grape vines off to a great start.

**General Guidelines**

* If summer brings about an inch of rainfall every 10 days or so, you won’t need to use the hose. But if it 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 grapes in the third season. Harvest when weather conditions are dry, wet grapes do not keep well.

Several factors will help you determine if it is time to harvest your grapes:

* Color change, seed changes from green to brown
* Slightly less firm to the touch
* Birds on the vines
* Taste is the most reliable factor for homeowners; if sweet and flavorful they’re ripe

Use a pair of sharp well-oiled easy to use shears. Gentle pull the clusters away from the vine and clip with the shears. Keep grapes out of direct sunlight.

Annual average yield per plant:

* Most Grapes, 10-15 pounds
* Muscadine, 8-16 quarts

**Storage**

The better the condition of the grape the longer they will keep. Do not wash them before storing. Remove any damaged, soft, moldy or bruised grapes before putting in a plastic bag and storing in the refrigerator. Storing in a zip lock plastic bag will help preserve their freshness and prevent the skin from drying out.