

GRAPES

Grapes are one of the world's oldest cultivated plants. Grapes are grown for their fruit and juice, wine, shade, cover and fall color. Vigorous grapes such as the *Concord*, once established, can produce enough new growth to cover an arbor or shade a deck or terrace. Grape is one of the few ornamental vines with large, bold foliage that can also provide edible fruit. However, most people plant grapes for fruit and if you want fruit, you will need to become informed about caring and pruning your plants to get good fruit production. The following information may help get you started. More information may be available from our professional staff at the nursery or from specialized publications on grape cultivation from provincial and federal agriculture extension services and select university and agricultural colleges.

The European grape (*Vitis vinifera*) is the classic vine that produces most of the famous wines found in the marketplace but it is only hardy to -18 centigrade, which restricts it to warmer climates. In the northern parts of the United States and Canada, we grow descendants of the North American grape, (*Vitis labrusca*) known as the fox grape, which is much hardier. Hybrids of the fox grape exhibit a mixture of traits from their European, Asiatic, and North American parentage. When selecting grape varieties you need to consider winter hardiness, time of ripening, and intended use; jam, jelly, juice, or wine. In our region, we need to select varieties that possess winter hardiness and ripen early. Late-maturing varieties may not ripen fully in northern areas some years because of the shorter growing season. If you are in a good micro-climate or in the warmer zone areas of coastal southern New Brunswick or Nova Scotia you may have more choices available to you.

Planting:

The best location is one exposed to maximum sunshine and well sheltered from north and north-west winds but still capable of good air movement. This can be in a garden or alongside a building. A south or south-west facing wall is an ideal spot. The wall shelters the vine and retains plenty of daytime heat which can extend the growing season in spring and fall. Vines will benefit from some sort of windbreak in winter. If vines are few in number, it may be feasible to construct a windbreak with stakes and burlap if a natural windbreak is not present.

Grape vines grow well in soil of moderate or low fertility although they may produce fruit best in good humic soils. They will tolerate clay soil as long as it is well-drained, as grapes do not like wet feet. The vine grows best in soil with a pH level between 6.5 and 7.5. If your soil is too acidic you can sweeten it with a little garden lime. The soil should not be too rich at the time of planting. A few liters of well-rotted manure or mild compost dug into the soil will ensure the vine gets off to a good start. The roots will penetrate down, even into clay, and seek out nutrients the plant needs. Do not over-feed a grape vine if you desire fruit production as rich soils will typically produce a vine with lots of leaf and very little fruit. Top-dressing compost (first number 1.0 or greater) is the most effective fertilizer, as it will feed at a safe rate and also improve soil structure. Avoid fast acting liquid fertilizers.

Grapes are planted anywhere from about 1-2.5 meters apart depending on the variety or support and training method used for production. Recommendations and plans for spacing, trellis and support design, pruning, disease prevention and control, etc., are available from many sources including federal or provincial agricultural extension services publications.

Before planting grapevines, soak their roots in water for two or three hours. Make the planting holes about twice the size of the plant container. Do not plant in heavy clay soil. Set plants into the soil at about the level they grew at in the nursery container. Loosen the soil carefully and spread out the roots, then backfill, firming the soil around the roots as you backfill. Leave a slight soil depression the size of the hole diameter to enable easier watering of the plant. Water well at planting and water thoroughly every 6-10 days in the first year of growth as the plant needs time to establish a root system in your soil. Keep weeds down around the vines to reduce competition for the establishing vine. Mulches such as bark or straw will help to stabilize moisture levels although they should not come into contact with the stem of the plant. Companion planting, especially with some of the herbs, will also help maintain moisture and prevent weeds and has the added benefit of discouraging some predators. Some stakes or a trellis should be provided to allow the vine a protected upward growth pattern. Tie the shoots loosely to the stake to avoid stem damage. It is wise to provide some stem protection over the winter to prevent damage by gnawing animals. There are many conflicting opinions as to when pruning should be commenced on a plant. We believe it is prudent to give the new plant a year of growth before commencement of pruning. If the use of broadleaf herbicides is still permitted in your region, be advised that grapes are very susceptible to injury from these products.

Pruning:

There are many methods of pruning depending on the plant characteristics and preferred methodology. We provide some basic information as follows but it is recommended you consult the various provincial and federal agricultural extension services for more detailed information.

Grapes are produced on stems that develop from one year old wood which formed the previous season. These stems have smooth bark whereas older stems have rough shaggy bark. The purpose of pruning is to remove some of the fruiting wood so the plant does not produce an excessive amount of fruit and the fruit produced is of good quality. Grapevines are not self-supporting. Therefore, training of the vine during the first few years is a matter of framework development. Vines are supported on wires or frames of different heights. Canes may be trained upright, horizontal or drooping. There is probably no one method that is best for all varieties under all conditions. The following is a method typical for a wire framework.

First summer: Let the plant grow without pruning. Good leaf production promotes good root development.

First winter: Select the sturdiest shoot for a trunk and remove all other shoots at their base. Shorten the trunk to 3 or 4 of the lowest buds.

Second spring: Let buds grow into a few shoots about 20 cm (8in) in length and select an upright shoot to form the upper trunk. Cut off all other shoots.

Second summer: When trunk reaches the lower wire support, about 50cm (20in) cut its tip to promote branching. Allow the two strongest developing shoots to grow to form the vines along the wire and remove any others.

Second winter: Cut back all growth on trunk and arms and secure the arms to the support wire loosely.

Third summer: Allow the vine to grow while removing any growth from the trunk.

Third winter cane pruning: Cut back each arm to 10-12 buds to bear fruit the next summer. Select two strong lateral shoots near the trunk and cut each to 2 buds for renewal spurs. During the next winter and every winter thereafter, remove the fruiting canes at their base. The renewal spurs will have produced several new shoots so choose the longest and strongest and cut each to 12 buds and secure them.....and so on.

Third winter spur pruning: Remove weak side shoots from the arms and leave the strongest spurs spaced about 20cm (8in) apart. Each spur will produce two fruit bearing stems next season. Next winter and thereafter, remove the upper stem on each spur and cut the lower stem to two buds to develop into fruiting stems the following summer.

Disease and insect control:

We are fortunate that we don't seem to be prone to as many pests in this region as in other parts of Canada and the United States. This is due in part to less intense cultivation practices but we still have issues from time to time. At the nursery, we advocate prevention as the primary weapon in your fight against pests. Grapes for example, are susceptible to fungus problems such as downy and powdery mildew and all fungus problems are mitigated by good air circulation. Another essential practice is to clean up well around your plants in early spring and fall. Insect and fungus habitation and consequent problems are reduced when old plant material and debris is removed and destroyed. If you have encountered a disease or insect problem, we recommend that you replace the mulch as part of clean-up. Inspection of your plants on a regular basis is also beneficial as problems are often nipped in the bud with early detection. In addition, some varieties have more immunity to disease, so you may choose a variety carefully to reduce potential problems. Lastly and most important, is to use insecticides only when necessary and only on the problem area as insecticides are indiscriminate and kill the good bug population as well as the pest population. Around 90% of the bugs in your garden are good bugs and most help you to maintain a healthy garden.

The home gardener does not have the range of pest reduction products available to them as does the more intensely cultivated commercial operation. However, the few products available are considered safer to use than commercial products. Most would qualify as suitable for organic production when used according to recommendations. Regardless, it is important to ensure that you follow the application directions for any product carefully for the safety of yourself, others and the plants.

A dormant oil spray is safe to use, and when used before the buds start to swell is effective in prevention of insect emergence. Liquid lime sulfur sprayed at the same time helps prevent things like anthracnose, powdery mildew and cane and leaf spot. Garden sulfur can be applied every 7-10 days for fungus control until mid-season. Bordeaux spray, a mixture of copper sulfate and lime, is recommended periodically as a change-up from sulfur but cannot be used as often due to the danger of copper toxicity to the plant. It is often used only when a fungus problem surfaces. **N.B. Sulfur or sulfur products should not be used on Concord grapes.**

Some of the larger insects such as leaf rollers and cutters can be hand-picked. Mites can be controlled with insecticidal soap or sulfur. Aphids in low numbers can be reduced by hand picking or by spraying with a hose at pressure sufficient to remove them from the plant but not break branches or tear off leaves. Spraying should be done in the early morning so that the plant has an opportunity to dry and avoid conditions favorable for fungus growth. Some rose growers allege that fungus problems are

reduced by occasional hose spraying for aphids although the reasons are not well understood. It does reduce the numbers of other pests on the plant without destroying the beneficial insects.

Other infestations by beetles, chafers, mealybugs, whiteflies and such may require more aggressive alternatives. Some people prefer not to use insecticides, especially on foods but a type of insecticide known as pyrethrum has been proven safe. Pyrethrum was composed of an all-natural product that comes from ground chrysanthemum heads but the active compound is now synthesized. Pyrethrum kills insects on contact, and can be used up to a few days before harvesting. It is not necessarily highly effective and a repeat spray several days later may be necessary. Some plants are known to deter insects. Companion planting with plants such as marigolds, chives, etc. will help to discourage insects in their vicinity.

The varieties: The following varieties are most commonly stocked at the nursery but other choices may be available some years. Please check with the shrub-office staff at the nursery.

Beta is a zone 3 grape that ripens early October and is great for jams, jellies and table use. It is a medium to small, dark blue slip-skin with all the flavor and color of the Concord, *Vitis labrusca*, but ripens a little earlier. It is a cross between Concord and a selection of *Vitis riparia*, the wild riverbank grape, which is an extremely hardy, self-fertile grape.

Canadice is a zone 5 grape considered excellent for eating fresh. It is a totally seedless, medium-sized, grape with firm red fruit that keep on the vine for a long time. The skin is light and gives a unique, almost spicy yet sweet grape flavor. It ripens from mid-September to early October and is considered easy to grow. It will benefit from good air circulation and a sulfur spray as it is somewhat prone to mildew.

Concord is a zone 4 grape considered excellent for juice and jelly. It was developed by Boston-born Ephraim Wales in 1849 on his farm outside Concord, down the road from the Emerson and Thoreau homesteads. Its vigorous and productive nature has made it one of the most popular home grown grapes since that time. That same vigor makes it a good shade and cover vine. It was developed from *Vitis labrusca*, the fox grape, from which it gets its hardiness. It is a medium to large slip-skin grape with a special flavor that remains in the juice. It has been used for some select wines but is not noted for that purpose. Fortunately it is quite disease resistant but it will benefit from good air circulation.

N.B. Sulfur or sulfur products should not be used on Concord grapes.

Frontenac is a zone 3b grape that is excellent for making wine, juice or eating fresh and ripens in mid-September. It is a vinifera hybrid grapevine, released in 1996, which is the result of research and cross-breeding by the University of Minnesota. It is gaining a reputation as a wine grape and is used to make a variety of wine styles, including rosé, red, and port. It has been described as a “deep garnet color that complements its distinctive cherry aroma with an inviting palate of blackberry, black currant, and plum”. It is a consistently heavy producer, with small to medium, purple-blue berries in medium to large clusters. It is a vigorous vine and can also be used as a screen for arbors or trailing along fences. It is highly resistant to downy mildew, and resistant to powdery mildew and botrytis.

Frontenac Gris is a new release that has the same zone 3b rating as its namesake. Frontenac Gris, the white wine version of Frontenac, started as a single bud mutation (sport) yielding gray fruit (thus named gris) and amber-colored juice. The vine exhibits the same optimum growth characteristics as Frontenac, and requires the same cultural practices. The University of Minnesota describes Frontenac

Gris wines “as having pleasant aromas of peach and apricot with hints of enticing citrus and tropical fruit. A brilliant balance of fruit and acidity creates lively, refreshing wines. Unique and complex flavors make this an excellent grape for table, dessert, and ice wines”. It is also very disease resistant.

Kay Gray is a zone 3 grape developed for wine making that ripens in early September. It has medium to large white grapes with a mild and fruity flavor. Kay Gray was developed by the Wisconsin breeder, Elmer Swenson, around 1980. Kay Gray itself is female and requires a pollen source in order to set fruit. Its virtues include early ripening, low acid levels, disease resistance, and good winter hardiness. It has been called a white (green) table grape of the highest quality, good for fresh eating and white grape juice. It is known to produce good wines in some climatic conditions but is reputed to be improved by blending in most cases.

Lucy Kuhlmann is a zone 4 grape that ripens in late August. It is a medium dark blue grape that is being grown in Quebec and Nova Scotia. It is disease resistant, hardy and an early ripener, which given the colder climates of these provinces seems to be a good choice. It has been used for blending but is also noted for producing a nice standalone wine on occasion.

Minnesota 78 is a zone 3b grape considered excellent for wine making, juice and jelly. Minnesota 78 is an old selection of grapevine, developed at the University of Minnesota. It may be the best tasting of all grape hybrids when it comes to the quest for a hardy grape for jellies and juice. It produces clusters of delicious large deep purple grapes, slightly large, very sweet and good flavored. It needs another pollinator to perform well.

Montreal Blue is a zone 4 grape that ripens in late September. It is another cultivar of the series developed by Elmer Swenson. It is a medium sized, dark blue, seedless grape with a mild flavor that is used as a table grape or for wine production.

Niagara is a zone 4 grape that ripens in late September. It is a medium to large white (green) grape used for table, juice or wine. The fresh grape is large and juicy, round to oval-shaped, pale greenish-white in color and has a sweet, very pleasant aroma. It is the leading green grape grown in North America. It is a cross between Concord and white Cassidy grapes developed in Niagara County, New York in 1868. They are a poor shipping grape and are best grown locally to be enjoyed. They are also the source of most white grape juice.

Prairie Star is a 3b zone grape that ripens in mid-September. This is a grape by the noted breeder, Elmer Swenson, which he developed in 1980. It is a sweet white, mid-sized, round grape which forms loose clusters. It has good disease resistance and has made some good wines since its introduction.

Petit Joyaux is a zone 4 grape that ripens in late September. It is considered a very good table grape and is supposed to give a hint of strawberry when tasted.

Sabrevois is a zone 3 grape that ripens in early September. A hardy, medium blue grape by Elmer Swenson known as ES 2-1-9 in the U.S. and named after a village in Quebec in 2000. It is a small to medium grape with a small to medium, well-filled cluster. It has good disease resistance and is described as producing a wine having a light, pleasant fruitiness, similar to a cabernet.

St. Croix is a zone 3 grape that ripens in mid-September. This is another Elmer Swenson grape, a sister to Sabrevois, and the first red he released. It makes a good table grape and a wine that compares to a

light-medium burgundy with no foxy flavor. It has vigorous, productive vines and is also good for jams and jellies.

Somerset is a zone 4 grape that ripens in early September. It is another Elmer Swenson red grape of complex parentage. It is a medium size, seedless grape with a strawberry-like flavor that is sweet enough to be eaten from the pink stage. It is moderately vigorous and is considered an excellent table grape.

St. Pepin is a zone 3b grape that ripens in mid-September. This is another Elmer Swenson grape, developed in 1970. It produces a medium to large white, slip-skin grape with tender flesh and pink juice with good body and sugar/acid balance. It is a vigorous grape with moderate disease resistance. It makes a fruity white wine, similar to a Riesling, or makes a good base for blended wines. It is a female plant and requires a male pollinator.

Suffolk Red is a zone 5 grape that ripens the end of September. It was developed at Cornell University after 1920 from a Mediterranean parent, *Vitis labrusca* cross which makes it prone to damage in hard winters. In a desirable location it makes an excellent table grape and shade plant and has been used for wine. It is a red seedless grape with a mild spicy sweet taste that grows in loose clusters. A grape well worth growing if you can give it the conditions it needs to thrive.

Trolhaugen is a zone 3 grape that ripens in mid-September. An Elmer Swenson blue grape released in 2000, it is small to mid-sized with a sweet, spicy and more complex taste than Concord. It is a seedless slip-skin and has good disease resistance.

Valiant is a zone 2b grape that ripens in early September. A cross between Fredonia and a wild *Vitis riparia* vine resulted in this recent introduction from South Dakota State University. Valiant is a very hardy blue table grape that makes good quality juice and jelly, but is unsuitable for wine. From the various write-ups about this rather small grape, it has a sweet tangy flavor reminiscent of the “wild grape” and those that like it, like it a lot. *Vitis riparia* is known as the riverbank grape.

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