Home Fruit Production: Grape Culture

Grapes are sturdy plants. They stubbornly withstand drought and can succeed even in rocky, infertile soils. Given reasonable care, grape vines remain productive for 20 to 30 years.

Landscaping with grapes

For the best use, train grapes along an existing border fence or on a special trellis. Using an arbor for support may have greater ornamental value, but it makes the necessary cultural operations of weeding, pruning, tying and spraying more difficult. Several grape cultivars are sensitive to herbicides containing 2,4-D or dicamba. Spray drift from these compounds can cause leaf distortion and vine damage.

Give grapes full sun. Grapes tolerate a wide range of soils, but a site with good water drainage and exposure to full sun is essential (Figure 1).

When deciding how many grape plants to plant, consider the type of landscape use, how much time can be devoted to caring for the plants, and how much fruit you desire. Each mature plant should produce about 10 to 12 pounds of fruit.

Choice of cultivars

Nurseries offer a variety of grape cultivars, so you have a choice of fruit colors, flavors, ripening times and culinary uses. Choose disease-resistant cultivars when possible. Table 1 lists a number of cultivars worth considering.

Planting time

Plant in late winter or early spring as soon as soil can be worked. Early-set plants are more able to withstand summer weather extremes. Preferred planting times range from March in southern Missouri to mid-April in northern Missouri.

Special soil preparation may not be necessary. Deep spading or tilling may be required if the area is heavily sodded or compacted or if it needs corrective fertilizer treatments. Make these preparations in fall for earlier spring planting. A soil test will indicate whether a nutrient deficiency exists. Soil samples may be submitted to your county MU Extension center, which can recommend corrective treatments.

Figure 1. Grapes grow best in full sun and well-drained soil.

Selecting plants

Vigorous year-old plants are best. Nurseries list these as One Year - number 1s.

Two-year-old plants are more expensive and generally don't grow any better than one-year-old plants.

Purchase plants from a reputable nursery that guarantees high-quality plants that are true to name and disease-free.

Planting tips

With most cultivars trained to a cordon system, 8 feet between plants is desirable.

Inspect the roots and cut off broken or damaged portions. Also, shorten excessively long roots.

Dig the planting holes large enough to accommodate the roots placed in their natural position. Set the plants at about the same depth as they grew at the nursery. Cover the roots with topsoil and pack to eliminate pockets of air and to ensure good root-soil contact. Some additional tamping should be done as the hole is filled. Leave a shallow basin around the plant and fill it with water to settle the soil around the roots and supply needed moisture. Later, fill the hole with topsoil until it is level with the surrounding soil.

No fertilizer is necessary at planting. Fertilizer placed in the hole may be harmful to the plant.

Revised by
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Table 1. Characteristics of grape cultivars.

Cultivars	Season	Remarks
Table grapes[1]		
Canadice	Very early	Seedless, red fruit; excellent dessert-quality, medium-size berries. Highly susceptible to black rot.
Concord	Late-mid	Blue fruit, widely adapted except Bootheel areas; good for juice and jelly. Ripens unevenly during very hot weather. Highly susceptible to black rot and phomopsis.
Glenora	Early-mid	Seedless, non-slipskin, blue fruit; medium-size berries, good cold tolerance.
Mars	Early-mid	Seedless, slipskin, blue fruit; fairly hardy, low disease susceptibility.
Neptune	Early-mid	Seedless, non-slipskin, white fruit; fairly hardy, moderately disease resistant.
Reliance	Early-mid	Seedless, slipskin, red fruit; good flavor, hardy, good-size clusters, medium-size fruit. Susceptible to common diseases.
Saturn	Early-mid	Seedless, non-slipskin, red fruit; fairly hardy, moderately disease resistant.
Venus	Early	Seedless, slipskin, blue fruit; good flavor, medium-size to large fruit, fairly hardy.
White wine grapes[1]		
Catawba	Late	Makes a dry or sweet wine; vines vigorous, large berries. Susceptible to common diseases.
Delaware	Midseason	High sugar content; good-quality white wine; vines lack vigor. Susceptible to black rot and phomopsis.
Niagra	Midseason	Good fresh or used for wine, juice or jelly; large fruit, foxy flavor. Susceptible to common diseases.
Seyval	Midseason	Excellent wine; usually hardy. Highly susceptible to powdery mildew and gray mold.
Vidal blanc	Mid-late	Excellent wine; usually hardy; vigorous, long clusters, medium berries; makes beautiful trellis or arbor.
Vignoles	Midseason	Excellent wine; usually hardy; very susceptible to powdery mildew, gray mold and anthracnose.
Red or blue wine grapes[1]		
Chambourcin	Midseason	Good wine; very susceptible to black rot, and susceptible to mildews and gray mold.
Cynthiana, Norton	Late	Excellent wine; usually hardy; disease tolerant.

[1]Table (fresh, jelly, juice) or wine refers to their primary use. Some cultivars have multiple uses.

Cultivation

Grapes respond well to shallow cultivation. The best production is likely to be attained when a weed-free area at least 4 feet wide is maintained under the trellis.

Fertilizer

Moderate amounts of fertilizer promote growth of young plants and maintain vigor of bearing plants. No single fertilizer program is ideally suited to all situations because of wide variations among soils and other factors. A soil test should be done to plan a program best suited for the particular soil.

A complete fertilizer such as 10-10-10 or 12-12-12 can be used in a grape fertilization program (Table 2). Spread the fertilizer in a circular band 12 to 18 inches away from the base of the plants. This distance should be increased to about 2 or 3 feet as plants reach mature size. Mix the fertilizer about 2 inches deep into the soil to enable roots to obtain nutrients more readily and to reduce loss by runoff during heavy rains.

Table 2. Fertilization program for grapes.

Year	Amount per plant	Remarks
1	¼ cup	Apply as new growth appears; repeat 1 month later
2	1 cup	Apply when buds swell
3	1 to 1½ cups	Apply when buds swell
4 and beyond	1 to 2 cups	Apply when buds swell

Observation and judgment should also guide the amount of fertilizer used for grapes. Maintain moderately vigorous and productive plants. Avoid excessive or weak growth.

Fruiting canes should be ¼ to ⅜ inch in diameter (slightly larger than a pencil) and 4 to 6 feet long. Vary the fertilizer rate to maintain desirable vine growth.

Training and pruning

At planting, cut the vine back to one shoot with two buds. Tie a string from the base of the plant (near the soil surface) to the top of wire of a 6-foot-tall trellis. About a month after planting, train the strongest growing shoot up the string and let the other shoot grow along the ground. To promote vigorous vine growth, remove any flowers that set the first growing season.

When the vine gets to the top of the string (year one or two), pinch off about an inch of the terminal growth to force the vine to branch. Train two lateral branches by tying to the wire in opposite directions, each forming a cordon. Remove all flower clusters in year two.

Generally, during the third growing season, the "curtain" (cane growth from lateral-growing cordons) is produced. Position the growth downward and only allow one cluster to set during this year.

In the dormant season (early March), prune the lateral growth on the cordons, leaving a cane or "spur" every 8 to 12 inches. Then cut back each spur leaving only about 4 buds at the base of each cane. Remove all other prunings to suppress the spread of disease. In subsequent years, choose new spurs to renew the curtain.

Irrigation and weed control

Irrigation is generally needed during dry periods in July and August. To remove competition for water, maintain a weed-free area at least 4 feet wide under the trellis.

Harvesting and fruit maturity

Time of harvest varies with the intended use of the fruit. As grapes mature, berry coloration and sugar content increase and acidity decreases. Tasting table grapes will aid in determining the time of harvest. Generally, the berries at the tip of the cluster are the last to ripen. Harvest clusters from vines several times. After the ripe clusters are removed from the vine, immature clusters left on the vine will continue to mature. Berries will not ripen (increase in sugars) on clusters that have been picked. Some cultivars rarely reach the peak of ripeness or sweetness because they shatter from the bunch before fully ripe. Excessive rains during harvest may cause skins to split.

Birds, insects and diseases

Several pests commonly damage grapes. Some form of pest management is necessary to consistently grow good-quality fruit.

Birds often start feeding on berries as the berries accumulate sugars. Netting is the most effective way to exclude birds. Noisemakers and devices that scare birds are not reliable for long-term use.

The grape berry moth is a common pest whose small greenish larvae feed in the berries. Small, wedge-shaped jumping insects called leafhoppers feed on grape foliage. Severe damage restricts growth and interferes with fruit ripening. Mealybugs and flea beetles also can cause injury.

A fungus disease called black rot is prevalent and often damaging. The disease first attacks the foliage and later spreads to the fruit. Infected berries soon become blackened, shriveled and worthless. Other fungal diseases are downy and powdery mildews, Eutypa dieback and anthracnose.

Fungal diseases usually thrive in dense foliage that does not dry quickly, necessitating chemical control of the diseases. Appropriate pruning and training that encourages light penetration and air movement will help eliminate or decrease the severity of these diseases.

Crown gall, a bacterial disease, often occurs following an extremely cold winter. Galls or fleshy tumors appear on the lower trunk of injured vines. Infected canes should be pruned at the soil surface. New shoots originating from the base of the plant can be selected and trained to replace infected canes.

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