

Figure 15.1

The earliest stages of grape flowers entering the bloom period. The calyptra (cap) covering the flower parts is beginning to open.



Figure 15.2

Three flowers, two with the calyptra almost off and one with the calyptra off, exposing the flower parts.

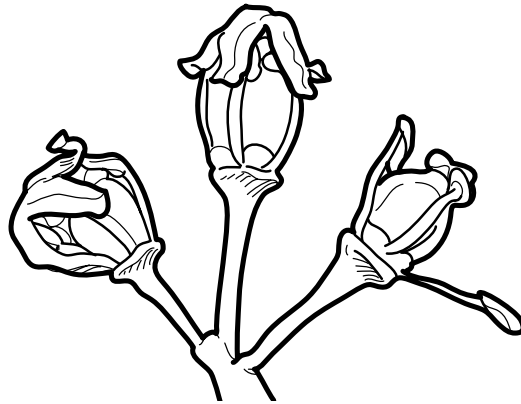


Figure 15.3

A grape flower in bloom after the calyptra has fallen off.

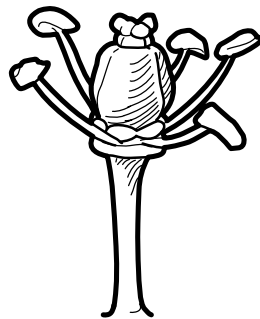


Figure 15.4

A flower cluster in about 85 percent bloom. Sprays of plant growth regulators (gibberellic acid) are applied commercially when about 50 to 70 percent of the calyptras have fallen off, producing big, lush grapes, but this is not common practice in the home garden.



gardeners. They are usually adapted to a range of local conditions and training systems. Numerous varieties are available, and suitable ones for various climate zones are listed in tables 15.1 and 15.2.

Wine grape varieties are suitable for many home gardens, but for optimal performance, the wine grape variety chosen should be suited to the climatic region and site. Table 15.3 provides variety information on wine grapes.

Growth Pattern and Growth Cycle

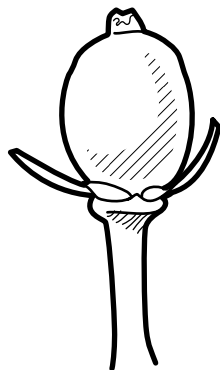
As with all fruits, the grape flowers must bloom first and be pollinated before the berries (fruit) begin to develop. Grape flower clusters begin their differentiation and development in dormant buds during the summer before the year that grapes are actually harvested. Flower differentiation is completed during the fall, by the time the vines lose their leaves. After dormancy and bud burst (see the next few sections on cultivation techniques), grape shoots begin to grow rapidly. When shoots reach 4 to 6 inches (10 to 15 cm) in length, grape flower clusters can be distinguished, and by 12 inches (30 cm), the flower clusters are well-separated on the growing shoot. The development of flower clusters on the emerging shoots usually starts in mid-March, and the flowers typically begin to bloom in May. Grape flowers have a protective cap, known as a *calyptra*, that covers the male and female sex organs until bloom, when it cracks open from the bottom and exposes the flower parts to pollination, which must occur before berries can develop. Because of their size and berrylike shape, flower clusters can be confused with developing berries before they bloom (see figs. 15.1–4).

After pollination, the male flower parts fall off (fig. 15.5), and the grape berries begin to grow and develop. Unpollinated flowers fall to the ground during the “shatter” stage. Pollinated flowers begin to form berries that continue to grow in size and increase in sugar content until harvest (fig. 15.6). The annual growth cycle of a typical grape vine is shown in figure 15.7. Note that the cycle has many facets, with several events, described above, occurring simultaneously.

Figure 15.7 represents the annual growth and fruiting cycle of a grapevine during the cal-

Figure 15.5

A developing young berry. Following bloom and pollination, the male flower parts fall off and the berry begins to develop.



endar year. For emphasis, the various events for the current and following year are shown separately. Actually, many of these events occur simultaneously in a mature grapevine.

Planting and Early Care

Planting

Set out plants in January or February. Trim off any broken or damaged roots just above the point of injury. Cut off all canes except the most vigorous one, and prune it back to two buds. Dig the planting hole large enough to accommodate the entire plant. Place the bare-root plant so the two buds left to grow are 4 inches (10 cm) above the soil surface. Irrigate the plants to settle the soil around the roots at planting. Additional irrigation should not be required until 6 to 12 inches (15 to 30 cm) of growth has developed in the spring. Protect the new shoots with a milk carton or plastic jug. Fertilize young vines in the early

Figure 15.6

A fruit cluster following the shatter stage when unpollinated flowers have fallen to the ground. Commercial producers begin using growth regulators at this stage, when berries are about 3/16 inch (0.48 cm) in diameter.



summer as shoots approach maturity.

Let all shoots grow the first season, since shoots and leaves produce a strong root system for future vine development. Protect the young vines from rodents, grasshoppers, and other pests. Insert a 6-foot (1.8-m) stake near the plant and train new growth to it by loosely tying it.

Weed Control

Practice clean cultivation the first year or use mulches. Herbicides should not be used until the vine trunk develops mature bark, which usually occurs at the end of the second or third growing season. For additional information on weed management options, see chapter 9.

Cluster Thinning

To ensure healthy vine development, pinch off all the clusters the first and second years as they appear. Also, pinch off all but one cluster per shoot in the third and fourth year. Allow full production after the fifth year.

Pruning at the End of the First Growing Season

Grapes can be pruned in the winter after the plants have dropped foliage and are dormant. However, it is usually best to wait until when growth just begins in the spring before pruning so that new growth will avoid damage from late-spring frosts. Remove all shoots except the most vigorous one. If first-season growth was relatively weak, prune the shoot back to two buds (a two-bud spur) and replace the vine protection (milk carton, etc.). Place a 6-foot (1.8-m) stake for training the vine if you did not do so at planting. Control weeds, gophers, snails, slugs, etc., as needed. If first-season growth was fairly vigorous, the single shoot can be tied to the stake or trellis without heading it back (see fig. 15.8A).

Training the Vine in Its Second Season

If plant growth was weak in the first season and was pruned back to a two-bud spur, select a single vigorous shoot to become the trunk and train it up the stake the second season. The shoot will need to be tied up every 1 to 2 weeks for adequate support as it grows. Use a vinyl tape that will stretch and not constrict or girdle the shoot. Allow lateral shoots to develop but remove suckers from the base and