



# FLOWERS

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## Rose Culture

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### Quick Facts...

Water deeply and fertilize moderately as needed.

Avoid the temptation to prune and fertilize too early.

Treat for diseases and insects.

Prune spent blossoms to a five-leaflet leaf for better repeat flowering.

Don't fertilize with nitrogen late in the season.

Use 6 to 8 inches of loose soil or sawdust as winter protection around the bud union.

Water plants during dry winters.

The health of your roses will, to a large degree, depend on the care you give them from planting or pruning on through the summer and fall.

The amount of supplemental water needed depends on the weather and type of soil in the rosebed. The soil should be physically checked for moisture. Generally, in most areas of Colorado, the soil around roses needs a thorough soaking at least once a week. Newly planted roses may need more water than established plants because of the loose condition of the soil.

Do not allow the soil around roses to dry out during dry, snow-free winters. Supplemental watering is needed during dry winter periods and monthly applications may be necessary. Mulches help reduce moisture loss from the soil.

### Pests

The major rose pests in Colorado are aphids, spider mites, thrips and powdery mildew. The rose midge and rose stem sawfly also are problems in some areas. Verticillium wilt is also known to be a problem on roses in Colorado. In addition to the above pests, Eastern Colorado has problems with blackspot, anthracnose and rust.

### Insects

An application of a recommended insecticide starting when aphids first appear gives excellent control. A systemic insecticide also helps control thrips and the rose stem sawfly.

Spider mites usually can be kept under control by a forceful spray of water from a garden hose directed to the undersides of the leaves. A thorough washdown once a week often will give control. However, during hot and dry weather, you may have to spray more often. During severe infestations or because of time constraints, a miticide may be in order. Alternate the type of miticide to prevent a buildup of resistance in the mites.

Flower thrips are tiny, winged insects about 1/20 inch long. They affect the buds and blossoms of roses and some other flowers. On bright warm days, these flying insects usually are found inside the bloom near the base of the petals. Thrips are said to prefer light-colored blossoms, such as yellow and white. Their damage can readily be seen as discoloration of the petals. During severe infestations, some blooms will not open normally due to the insect's damage. Sometimes, a concentrated effort of misting the buds and blossoms with an insecticide such as Orthene is necessary.

The rose midge causes the tips and tiny buds of the rose stem to wither, blacken and die. A bad infestation may leave an entire rose garden without blossoms. Spray the foliage, and particularly the terminals or tips of the rose stems, with a recommended insecticide on a regular basis for the rest

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*Verticillium wilt usually is a problem when roses are planted in soil previously planted to tomatoes or other plants that were infected with the disease.*

of the growing season. If a severe infestation occurs, one or two additional applications may be necessary to bring the midge under control.

The adult rose stem sawfly is a slender, winged insect about 1/2 inch long and 1/16 inch in diameter. The color is usually black with narrow, white rings circling the rear body. Sawflies are likely to be a problem on roses in areas where wild roses are present. Damage to roses is caused by the larva girdling the tender growth or new rose stems, causing the tips to droop. The resulting damage to the rose stem is distortion of the stem and foliage dying at the tips. Eggs are deposited inside the tender growth of the rose stem by the adult's ovipositor, so some control can be had with a systemic insecticide when the telltale drooping of the canes is first noticed. The egg-laying period is usually about two weeks before the last killing spring frost and can last through midsummer. Elimination of the host plants (wild roses), where possible, can also help eliminate the problem.

## Diseases

Powdery mildew, blackspot, anthracnose, rust and verticillium wilt are all caused by fungi. Powdery mildew is probably the most serious disease affecting roses in Colorado. It is at its worst during periods of warm, dry days and cool, humid nights, such as mid-August until frost. Symptoms include a whitish coating on leaves and young shoots, curled leaves and distorted buds. This disease is best controlled by planting resistant varieties and a preventive spray program with a fungicide.

Anthracnose is similar in appearance to blackspot but has clear-cut margins around the spots instead of the ragged or feathery margins typical of blackspot.

Verticillium wilt usually is a problem when roses are planted in soil previously planted to tomatoes or other plants that were infected with the disease. Symptoms usually begin with yellowing of the lower leaves on a portion of the plant. The yellowing includes the veins of the leaflet, but generally there are green spots or blotches mostly near the edges of the leaflet. Wilting of the plant is indicated by the drooping blossoms or buds. In most cases, die back of the canes begins at the tips, turning yellow, then brown and causing death of the cane. New growth may continue with some growth appearing completely normal. However, some new canes usually appear with very pale foliage. Remove and destroy the diseased plant. Remove all soil that was in contact with the root system, if possible, and thoroughly spray the newly exposed soil with a fungicide. Fill the excavation with soil known to be free from disease.

Botrytis flower and cane blight prevents the buds from opening and causes blossoms to rot. A grayish-brown growth may appear on the infected buds and blossoms. Dead tissue may be evident below the base of the bud. This fungal pathogen can infest fresh cut stems during high moisture conditions and spread 2 to 3 feet down a succulent shoot causing rapid death. All infected tissue should be removed and destroyed as soon as noted to help stop the spread of this disease. Sprinkler irrigation should be avoided.

## Pruning Established Roses

During the flowering period, remove spent blossoms to promote new flower shoots. Remove faded flowers by cutting the stem to a five-leaflet leaf. Some shaping can also be done by this pruning. (See Figure 1.)

Pruning established roses varies with different rose types. In general, the object is to remove all dead or diseased wood; to remove old, weak or undesirable wood; and to shape the plant.

In most areas of Colorado, a substantial portion of the canes of hybrid

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Figure 1: Where to prune a spent rose blossom.

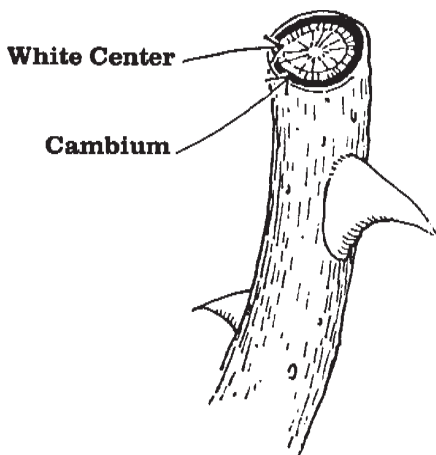


Figure 2: Live wood has a white center and green inner bark.

*Take the sample for the soil tests in the fall so the results are known before the first spring application of fertilizer.*

teas, grandifloras and, to a lesser extent, floribundas and polyanthas are damaged by the winter climate. The main job of pruning is easier by removing only the dead portion of these canes in early spring. Close or low pruning of the canes usually stimulates new growth. If pruned too early, this new growth may be severely damaged or killed by late frost. Delay close or low pruning at least until two weeks before the last killing spring frost.

For healthy growth, cut the canes back to live wood. (See Figure 2.) A live cane has a white center and green inner bark. Prune to produce an open center and to shape the plant. After a severe winter, only a few inches of healthy cane may be left on hybrid teas and grandifloras.

Miniatures are very hardy. Pruning usually consists of removing dead and damaged wood and thinning and shaping the plant. Pruning floribundas and polyanthas is similar to miniatures but there usually is more dead wood to remove.

Prune climbers to remove dead wood and old, unproductive canes. Prune shrub roses to remove dead wood, damaged canes and weak, twiggy growth. Wait until immediately after the June bloom to remove old canes to thin and rejuvenate shrub roses, climbing hybrid teas and climbing grandifloras.

Prune all canes to a 30- to 45-degree angle above a live leaf, leaving no more than 1/4 inch of stub above the leaf. Remove any dying or dead stubs throughout the year to discourage the carpenter bee, a small pith borer that nests in tunnels bored into rose canes. If this insect is a serious problem, seal the ends of the pruned canes with a substance, such as common white glue, that discourages the bee from boring a hole down the center of the canes.

## Fertilizing Established Roses

A soil test to aid in setting up a fertilizing program is very helpful and usually saves money. Take the sample in the fall so results are known before the first spring application of fertilizer. As with pruning, do not fertilize too early in the spring. Make the first application about two weeks after the close or low pruning or about the date of the last killing spring frost. Fertilize the second time during or after the second bloom, around the middle of July in most areas.

Do not fertilize late in the season. An early freeze can damage the lush growth encouraged by nitrogen fertilizer. Apply the last nitrogen fertilizer no later than two months before the first killing fall frost in your area.

Selection and application of fertilizers are an important part of rose culture. The so-called complete plant foods, sold as all-purpose garden fertilizers in formulas of 5-10-5, 6-10-4 or 15-15-15, are a good choice for mixing with the soil when making new beds well in advance of planting. Phosphorus and potassium are not readily water soluble and move slowly in the soil. For this reason, it is difficult to get these two elements into the root zone when they are applied to the soil surface.

Time-release fertilizers, although probably more expensive, can be a time saver since only one application per year is necessary. These fertilizers are available in more than one type, some designed to release their nutrients over shorter periods than others.

Be careful with fertilizers. Misuse or higher than recommended rates of application can damage your roses.

## Winter Protection

The best protection against winter kill is to maintain healthy plants throughout the growing season and to make sure they do not suffer from lack of moisture during dry winters.

Additional winter protection is often recommended, particularly for the hybrid teas and grandifloras. Cover the bud union and lower portion of the canes with 6 to 8 inches of loose soil, sawdust or similar material after the soil has frozen to a depth of 3 to 4 inches in early winter. This protection is particularly important in late winter and early spring to protect the vital parts of the plants from extreme changes in temperatures.

## Resources

For additional information, see the following fact sheets available from Colorado State University Cooperative Extension:

2.902, *Powdery Mildew*

2.946, *Diseases of Roses in Colorado*

5.507, *Spider Mites*

5.511, *Aphids on Shade Trees and Ornamentals*

5.536, *Grasshopper Control*

5.576, *Leafcutter Bees*

7.404, *Selecting and Planting Roses*

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