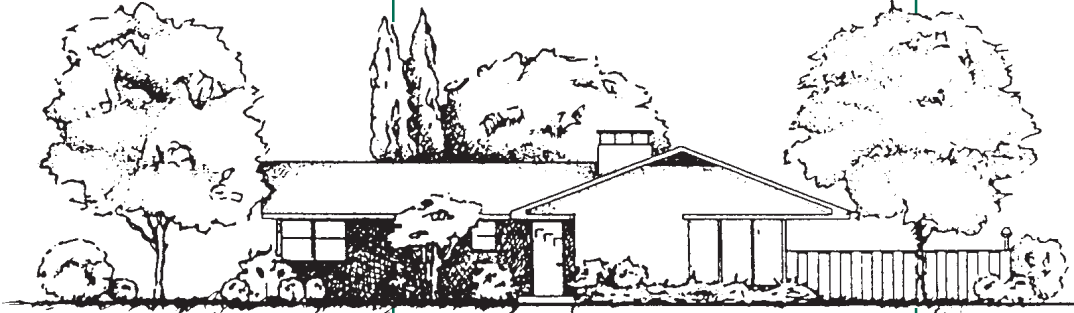


GROWING ROSES



Few flowers offer such an array of color, size, shape, fragrance and use as roses. Roses can be used for cut flowers, drying and preserving, and for landscaping. Although roses have many uses, they are grown primarily for their beautiful flowers.

Roses are deciduous woody perennials. They originated in central Asia millions of years ago and spread over the Northern Hemisphere. Strangely, no wild roses have been discovered south of the equator. A fossilized rose found in Colorado documented that wild roses grew in the Midwest more than 35 million years ago. Native wild roses are still common in Kansas today.

Most garden roses are hybrids grafted onto a hardy rootstock. Many hardy roses are as easy to grow as spirea and privet. Show roses, however, require considerable knowledge, skill and care. The first step in successful rose growing is to select a rose species and variety that is adapted to the growing location, use, personal preference of the grower, and the amount of time and care one is willing to spend.

Classes of Roses

There are two general classifications of roses based on landscape use and growth habit: bush roses and climbing roses. Bush roses are self-supporting and grow upright. They range from 6 inches (miniatures) to 6 feet in height (grandifloras). Climbing roses produce long, vigorous canes that must be provided with support to keep them off the ground. They may grow to 20 feet or more in length. Bush and climbing roses have many landscape uses.

Hybrid teas. Their large flowers make hybrid teas the most popular type of rose. The blooms are borne singly on strong stems and make excellent cut flowers. Colors include pure white and shades of red, lavender, orange, pink, yellow, apricot, crimson, maroon and mauve. Most, but not all, hybrid teas have some fragrance.

Mature hybrid tea roses are 2½ to 5 feet high, depending on the cultivar and growing conditions. Most cultivars are semihardy and require winter protection.

Floribundas. Floribunda roses are shorter, more compact and have smaller canes than hybrid teas. Large clusters of small flowers are produced at the tips of the canes. Their showy masses of color and compact growth make them most useful as a landscape rose for bed planting, grouping in shrub borders, or as a hedge.

Floribundas are generally quite vigorous and prolific bloomers. They are generally more hardy and require less care than hybrid teas. Mature plants range from 1½ to 3½ feet tall. A broad range of colors is available in single, semidouble or double flowers.

Grandifloras. Grandifloras have some of the characteristics of both hybrid teas and floribundas. Their flowers resemble hybrid teas but are smaller and are produced in groups of 5 to 7 resembling the cluster effect of floribundas. They bloom more abundantly than hybrid teas, and their long-stemmed flowers are also good for cutting. Grandifloras are the tallest of the bush roses, reaching a height of 5 to 6 feet. They require the same degree of winter protection as hybrid teas.

Miniatures. Miniature roses have become popular in recent years. Their small size makes them useful for growing in containers and small gardens. Flowers average about 1 inch in diameter in white and shades of pink, red or yellow. The flowers can be used for miniature arrangements, corsages and boutonnieres. Miniatures are not grafted and many varieties are quite hardy.

Polyanthas. Most rose classifications have absorbed polyanthas into the floribunda class even though the older cultivars are distinctly different. Polyanthas are mostly low

growing, continuous-blooming plants, producing large clusters of small flowers.

Heritage. The heritage class is a combination of all the “old” roses that were developed in the nineteenth century. Most are more important in a historical sense than in a horticultural sense. The principal “old rose” types are Gallica, Damask, Alba, Centifolia (cabbage rose), Moss, Noisette, Bourbon and Musk. The hybrid perpetuals, tea roses and China roses, are from the heritage group of old roses, but their separate classification is often retained because many are still common today.

Shrub roses. This is a miscellaneous group of several wild species, hybrids and cultivars that vary widely botanically and develop large, dense bushes more closely resembling shrubs used in landscape planting. Most of the shrub roses are vigorous, hardy and resistant to insects and diseases. Their attractive foliage, small flowers and fall seed pods (hips) make them useful for hedge and screen plantings.

Some of the more important and attractive roses in this class include: Rugosas, Father Hugo rose, Sweetbriars, Nevada, Chestnut, Austrian copper and Kordesii.

Tree roses. Tree, or standard, roses are distinctive because of the form of the plant rather than the type of flower. They are used in formal plantings or to accent a particular part of the garden. Many of the better-known cultivars of bush roses are available as tree roses. Tree roses are produced by grafting a bush rose on an upright trunk (standard). The upper graft is difficult to protect during the winter.

Climbing roses. Climbing roses are not botanically true climbing plants since they do not form tendrils for self support. They need to be tied and trained to a trellis, fence, building or other structure. These roses produce long, heavy canes that grow from 8 to 15 feet. Climbers may be ever-blooming or spring blooming. Flowers are produced in loose, open clusters of 5 to 25 blooms and may take 2 years to reach full bloom after planting.

Climbing roses may be classified as climbing hybrid teas, climbing teas, climbing grandifloras, climbing floribundas, climbing polyanthas, large-flowered climbers, pillars, ramblers, trailing and everblooming. There is much overlapping of the various classes, and one climber may fit several classes.

Rose Culture

Plant selection. Selecting good, healthy plants is important for successful rose growing. Roses are available through catalogs or garden centers for spring planting either as bareroot stock or container plants. Plants should be free of disease and insects; the canes and roots should be thick and healthy, and not cracked, broken or damaged. Bareroot plants should be dormant. If growth has begun, they should be planted immediately. This is not critical with container stock because there is an established root system for nutrient and water uptake.

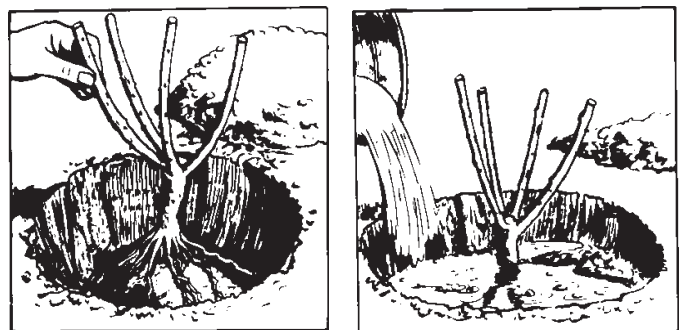
Locating the rose bed. The rose bed should receive full, direct sunlight for a minimum of 6 hours daily. If shade is unavoidable, afternoon shade is best. Morning sun is neces-

sary to dry dew from the foliage. If rose foliage remains damp into late morning or if it is wet at night due to evening watering, fungal diseases will develop. To reduce the incidence of disease, the bed should have good air movement. Avoid planting roses near shrubs, hedges and conifers that can block air movement as well as compete with the rose for sunlight, soil moisture and nutrients. If competition is unavoidable, the roses should be planted a minimum of 10 feet away from the other plant material. This will also reduce any possible shading problems. The last requirement for siting the rose bed is good drainage.

Planting roses. Roses should be planted in the spring as soon as weather and soil conditions are favorable. Never work the soil while it is wet. When preparing the soil, spade to a depth of 2 feet and add organic matter and fertilizer. Use 2 pounds of a 5-10-5 or similar analysis fertilizer per 100 square feet of bed. Before planting bareroot rose bushes, remove any broken or diseased roots and prune the remaining roots to 8 to 10 inches long. Canes should be pruned prior to planting. Remove any thin or weak growth; then thin the plant down to three or four strong canes, leaving five to seven healthy buds. Dig a hole about 18 inches in diameter by 14 inches deep. Mound the soil at the center and spread the roots over the mound (see illustration). The graft union should be at or slightly below the final soil line.

Add soil until the hole is two-thirds full. Water thoroughly to settle the soil around the roots and make good contact without compacting the soil. Allow the water to drain away, finish filling the hole, and water the plant a second time. Build a soil mound to cover two-thirds of the canes to prevent drying of the young lateral buds while the root system is being established. When new growth is approximately 1 to 2 inches long, remove the soil from around the plant, being careful not to damage any young growth within the soil mound.

When planting container rose bushes, it is not necessary to do any root pruning. However, the canes should be pruned to remove any weak or diseased growth and any broken canes. Once the plant is prepared, dig a hole at least 8 inches wider than the root ball and deep enough to plant the rose at the proper depth (graft union at or slightly below the soil line). Again fill the hole two-thirds full with soil, and water the plant thoroughly. Finish filling the hole and water again. With container roses, it is not necessary to mound the soil since a root system is already present. It is wise to mulch the soil to prevent rapid soil drying.



Fertilizing roses. Fertilization of roses is a must to encourage production of large, vigorous basal canes. A standard fertilization program calls for feeding three times per year using a 5-10-5 or similar analysis fertilizer. The first application should be made prior to bud break, at the same time as spring pruning. The second application should be during the first flowering period. The third application is a late-season fertilization after the first flush of blooms has faded and flowering has declined—no later than mid-August. Later fertilization will encourage succulent growth which will not be hardened-off by first frost.

Roses are susceptible to iron chlorosis, which results in a light-yellow color on the leaves while the vines remain a darker green. Iron chlorosis is a result of a lack of available iron to the plant. Iron chelate sprayed on the foliage will restore the green color to the foliage in a few days, but foliar sprays are not long lasting. Acidify the soil around rose bushes by adding powdered sulfur at the rate of 1 to 2 teaspoons incorporated into the soil.

Winter protection. Kansas gardens need winter protection since temperatures drop as low as 10 to 15°F for periods of at least 2 weeks at a time. Roses should be sprayed with a fungicide first and then covered with loose, well-drained soil or compost after most of the foliage has dropped. The mound should be about 8 to 10 inches high. Lay straw or hay over the soil mound and canes after the first hard freeze to protect the plant from fluctuating temperatures. Excessively tall canes should be pruned to a height of 36 inches to prevent being whipped by strong winter winds. Roses should be covered by Thanksgiving.

The insulating effect of the mounds often attracts small rodents that feed on the bark of the canes. Insects and diseases such as borers, cankers, leaf spots and other fungal diseases can result from this injury. The biggest problem from winter protection is mechanical damage to new and old growth when removing the protection. However, it is better to protect the plants than lose them from winterkill. Most insects and diseases can be treated in the spring.

Pruning Practices

Pruning is important for maintaining healthy plants. Proper pruning will aid in retaining excellent flower quality and size as well as overall vigor. Pruning removes diseased and insect-infested growth, weak growth, suckers from rootstocks, and old canes. The best time to prune roses is in the spring before

new growth appears and after any danger of killing frost. It is important to use sharp, clean pruning shears. Cleaning the shears between plants will help reduce transmission of viral diseases. All cuts should be made at a 45 to 50° angle, about ¼ inch above a healthy bud.

There are three pruning styles, each with a specific purpose. **Heavy** or severe pruning is done on well-established, vigorous plants to produce large, showy flowers. Prune back to leave three to four healthy canes with three to six eyes per cane. This normally results in canes that are 6 to 12 inches above the ground.

Moderate pruning is done on well-established plants. It will not result in large flowers, but increases production. Prune to leave five to six healthy canes with at least seven buds per cane. The stems are pruned back to 12 to 18 inches long.

Light pruning is done to rejuvenate plants after years of neglect or on newly established plants. Prune to retain about five to seven canes that are about 18 inches or more in length. This aids in maintaining maximum photosynthetic area and is extremely important when rejuvenating rose plants.

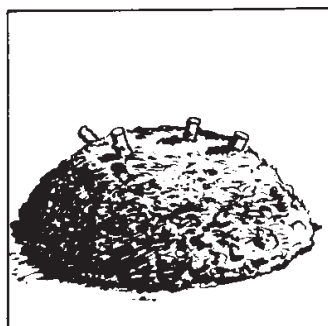
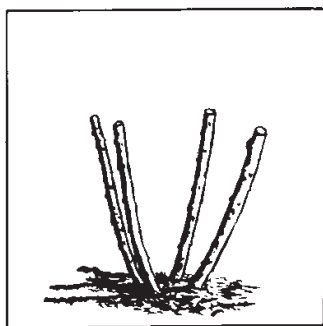
Pruning bush roses. The steps followed when pruning bush-type and shrubs roses are: (1) remove all dead wood down to the crown or 1 inch into healthy green canes; (2) prune out all signs of canker; (3) remove all weak, spindly or deformed growth (rule of thumb is to remove anything smaller than the thickness of a pencil); (4) remove all canes growing toward the center of the plant; (5) remove all suckers down to the crown even if it means moving soil aside; and (6) finally, thin out remaining healthy canes to the desired shape and height.

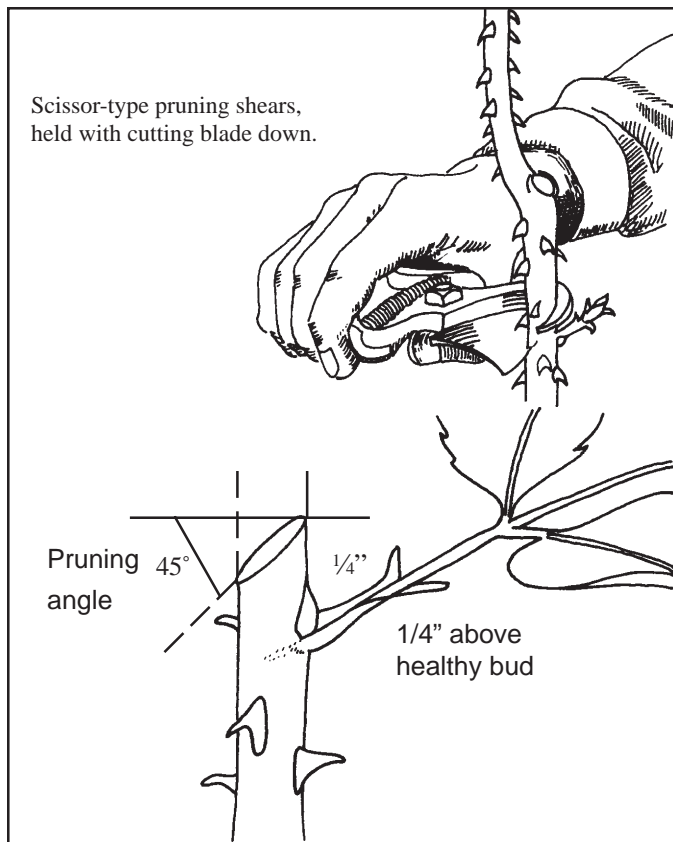
Pruning climbers. Everblooming climbers should be pruned in the spring after danger of frost. Spring-flowering climbers are pruned after they have flowered. Large-flowered climbers and climbing hybrid teas are treated in a similar manner to the bush-type roses. Ramblers and other vigorous growing climbers are best pruned after they have flowered for the first time in the spring and occasionally will need to be shaped once or twice through the summer. Regardless of the type of climbing rose, follow the first five steps listed for bush-type roses. Most climbing roses produce canes that remain healthy for about 3 to 4 years, making it necessary to remove older growth each season. The canes are cut to a height of 18 to 30 inches to help shape the plant. Remove old, faded flowers to encourage subsequent flushes of flowers on the everblooming types of climbing roses.

This is easily done by picking off the old flower clusters, leaving the leaves on the short flower-bearing lateral stems.

Insects and Diseases

Diseases. Sanitation is the best method of reducing problems that can arise once roses are established. Always remove prunings, leaf litter and faded flowers; use clean mulch; keep beds free of weeds; and, of utmost importance, use clean pruning equipment to reduce transmission of diseases. The main rose diseases are black spot, stem canker and powdery mildew.





Black spot symptoms are irregular black spots often surrounded by a yellow halo. As infection progresses, leaves eventually drop. The disease spreads quickly from one plant to the next so it is important to remove infected leaves as soon as they show. Leaf drop contributes to the spread of the disease by harboring spores and results in weakening the plant and increasing susceptibility to winter injury, drought, dieback and stem cankers. Flower production will be reduced if the disease is allowed to spread.

Prevention is the best control for black spot. Leaf litter should be removed from the area since the spores will overwinter on infected leaves. Protective fungicidal sprays are advised. The fungus grows beneath the protection of the leaf cuticle, making control difficult once the spores have germinated. Weekly sprays from the time the plant leafs out in the spring until autumn are advised. Spray both the upper and low leaf surfaces. Proper pruning will remove spores overwintered in small cane lesions.

Stem cankers appear as small lesions on the woody tissue of canes. Results are poor growth of the affected area and eventual death of the cane. Stem canker is caused by several different parasitic fungi entering the stem through wounds or dying tissue. Brand canker appears as black sooty patches that

develop during winter on climbing roses and those covered for winter protection. Cracking bark is common. The best control is pruning out the infected canes. Brown canker appears as light brown lesions with deep purple margins. This fungus will also attack foliage and buds on some cultivars. It is not common if a fungicide program is followed for control of other rose diseases. Stem canker appears as black spots, often at the point of mechanical damage. It is somewhat reddish and becomes brown, sunken and cracked with age. Cankers often appear on plants weakened due to black spot.

The most effective means of preventing the problem is to maintain a preventive fungicide spray program to control other fungal diseases. Should cankers appear, prune the cane well below the canker with clean pruning shears.

Powdery mildew, the third common rose disease, occurs during early summer and early autumn when warm, humid days (64 to 75°F) coupled with cool nights (50 to 55°F) enhance germination of powdery mildew spores. Prolonged rainy periods are not favorable for spore germination because it is inhibited by standing water. The disease first appears as a whitish-gray, powdery coating at the tips of canes. Young leaves often become curled, distorted and dwarfed. With severe infections, tip dieback can occur.

Controls include sanitation and fungicidal sprays. The fungus is wind-borne and sprays will provide better coverage than dusts. The spores will overwinter on fallen leaves and inside stems and bud scales.

Other diseases that can be a problem are Botrytis blight, crown gall (a bacterial disease), rust, spot anthracnose, and several viral diseases including witches' broom, mosaic, and spring stunt.

Insects. Among the insects that attack roses, aphids are the major problem. The typical aphid is small, soft-bodied, pear-shaped and comes in an assortment of colors—black, green, pink, red, yellow, lavender, brown or gray. The nymphs may differ in color from the wingless adults. Damage caused by aphids is the result of their sucking feeding. All aphids secrete "honeydew," a sugary deposit that attracts ants and becomes the medium for sooty mold growth. The result of the damage is loss of plant vigor and sometimes stunting and deforming buds and flowers, and curling or puckering of leaves. One of the more serious problems associated with the aphid is its role as a vector for mosaic and other virus diseases. Aphids are easily controlled with several contact and stomach poison insecticides.

Other possible insect pests include assorted caterpillars, rose chaffer, rose curculio, Fuller beetle, spotted cucumber beetle and bristly rose slug. These all can be controlled with pesticides. Scales may occur on roses and are best controlled by pruning out infested canes.

Table 1. All-America rose selections since 1980.

Year		Class	Color
1980	Love	Ht	rb
	Honor	Gr	w
	Cherish	Fl	mp
1981	Bing Crosby	Ht	ob
	Marina	Fl	ob
	White Lightnin’	Gr	w
1982	Brandy	Ht	ab
	French Lace	Fl	w
	Mon Cheri	Ht	rb
	Shreveport	Gr	ob
1983	Sun Flare	Fl	my
	Sweet Surrender	Ht	mp
1984	Impatient	Fl	or
	Intrigue	Fl	m
	Olympiad	Ht	mr
1985	Showbiz	Fl	mr
1986	Broadway	Ht	yb
	Touch of Class	Ht	pb
	Voo Doo	Ht	ob
1987	Bonica	Sh	mp
	New Year	Gr	ob
	Sheer Bliss	Ht	w
1988	Amber Queen	F	ab
	Mikado	Ht	rb
	Prima Donna	Gr	dp
1989	Class Act	Fl	w
	Debut	Min	rb
	New Beginning	Min	ob
	Tournament of Roses	Gr	mp
1990	Pleasure	Fl	p
1991	Sheer Elegance	Ht	P
	Perfect Moment	Ht	P
	Shining Hour	Gr	y
	Carefree Wonder—		
	Everblooming	Sh	p
1992	Brigadoon	Ht	cp
	All That Jazz—		
	Everblooming	Sh	c

Ht = Hybrid tea; Gr = Grandiflora; F1 = Floribunda;
Min = Miniature; Sh = Shrub

ab = apricot blend or = orange blend
c = coral or = orange red
cp = coral pink p = pink
dp = deep pink pb = pink blend
m = mauve rb = red blend
mp = medium pink w = white
mr = medium red y = yellow
my = medium yellow yb = yellow blend

Rose Cultivars

The American Rose Society, in conjunction with rose breeders, has established facilities for testing and evaluating rose cultivars prior to release to the public. Roses are tested for 2 years under differing soil and climatic conditions in the United States. The plant material is scored for vigor, hardiness, disease resistance, foliage, flower production, bud and flower form, opening and final color, fragrance, overall value and novelty. There are now 26 test gardens across the United States consolidated under the name of Official All-America Rose Selections Test Gardens (AARS). The Renisch Rose Garden in Topeka’s Gage Park is one of the sites. Selections are made annually to receive the AARS award in categories for hybrid tea, floribunda, grandiflora and miniature roses. In some years, no roses are selected for the award (see Table 1, listing past winners). Table 2 lists selected cultivars recommended by 55 consulting rosarians in the central district of the American Rose Society (the central district includes Kansas).

Table 2. Selected roses for Midwest gardens*

Cultivar	Flower Color	AARS	Rating**
Hybrid Teas			
Double Delight	Red blend	1977	9.0
Mr. Lincoln	Dark red	1965	9.1
Touch of Class	Pink blend	1986	8.1
Garden Party	White	1969	8.8
Tropicana	Orange red	1963	8.6
Pristine	White	—	8.9
Peace	Yellow blend	1946	8.9
Chrysler Imperial	Dark red	1953	8.2
Granada	Red blend	1964	8.8
Paradise	Mauve blend	1979	8.8
Grandifloras			
Queen Elizabeth	Medium pink	1954	9.1
Gold Medal	Deep yellow	—	7.8
Pink Parfait	Pink blend	1961	8.7
Sonia	Pink blend	—	8.1
Aquarius	Pink blend	1971	8.0
New Year	Orange blend	1987	—
Camelot	Medium pink	1965	7.7
Love	Red blend	1980	7.3
Prominent	Orange red	1977	7.2
Shreveport	Orange blend	—	7.4
Floribundas			
Europeana	Dark red	1968	9.1
Sunsprite	Deep yellow	—	8.9
First Edition	Orange blend	1977	8.4
Gene Boerner	Medium pink	1969	8.8
Little Darling	Yellow blend	—	8.8
Cherish	Medium pink	1980	8.0
Iceberg	White	—	8.9
Ivory Fashion	White	1959	8.4
Showbiz	Medium red	1985	8.1
Angel Face	Mauve blend	1969	8.3

Miniatures

Rise 'n Shine	Medium yellow		9.0
Starina	Orange red		9.6
Magic Carrousel	Red blend		9.3
Minnie Pearl	Pink blend		8.1
Rainbows End	Yellow blend		8.2
Little Jackie	Orange blend		7.9
Jean Kenneally	Apricot blend		8.1
Cupcake	Medium pink		8.6
Party Girl	Yellow blend		8.0
Peaches 'n Cream	Pink blend		8.6

Climbing roses

Altissimo	Medium red		8.9
America	Orange red	1976	8.8
Jeanne Lajoie	Medium pink		8.6
Sombreuil	White		8.6
Don Juan	Dark red		8.5
Double Delight	Red blend		8.3
Handel	Red blend		8.2
Blossomtime	Medium pink		8.1
First Prize	Pink blend		8.0
Lawrence Johnston	Medium yellow		8.0

* Listed in order of preference by Midwest AARA judges under each class

** American National Rating of garden value.

10.0 = Perfect; 9.9–9.0 = Outstanding;

8.9–8.0 = Excellent; 7.9–7.0 = Good;

6.9–6.0 = Fair; 5.9 and lower = of questionable value.

The Rose Grower's Calendar**February**

Plan for new roses.

Select varieties.

Order early.

March

Remove winter mulch.

Prune hybrid teas, floribundas, grandifloras.

Plant roses.

Apply fungicides.

April

Fertilize.

Continue disease control.

Plant roses.

Add iron sulfate or chelate according to need.

May

Potted roses can still be planted.

Roses begin blooming.

Check for insects.

Spray for disease.

June

Fertilize.

Prune spring-blooming roses.

Spray for insects and diseases.

Remove blooms when they fade.

July

Water during drought.

Spray for insects and diseases.

August

Do not fertilize after August 15.

Water during drought.

Spray for insects and diseases.

September

Water during drought.

Spray for insects and diseases.

October

Withhold water to induce dormancy.

Cut back tall roses to 36 inches.

November

Rake up fallen leaves.

Apply fungicide.

Add winter mulch.

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Larry D. Leuthold, Mary Lewnes Albrecht, Gustaaf A. van der Hoeven, Growing Roses, Kansas State University, April 1993.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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