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Nebraska Cooperative Extension EC 79-1206C

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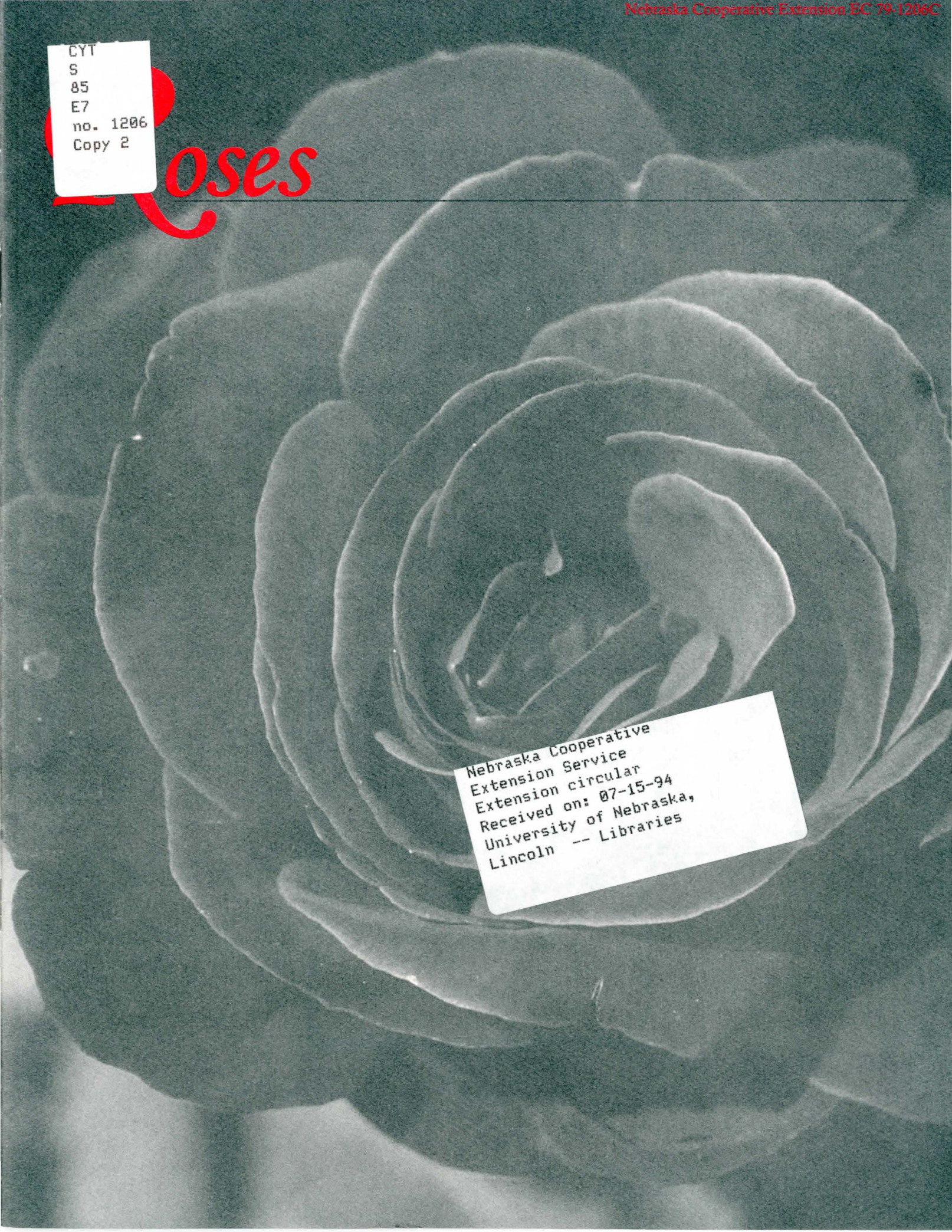
Roses



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Roses are one of the most versatile and exciting plant groups to use in landscape compositions. There are rose cultivars (varieties) adapted for almost any garden site or landscape purpose, including formal beds and perennial borders, arbors, trellises, hedges, ground covers, steep banks, edging, accent, specimen plants, and as patio or tub plants.

While not all roses require high maintenance and an ideal site, they do have minimum maintenance and site requirements. All roses need well-drained soils high in organic matter. While roses will tolerate some light shade during the hottest part of the day, growth is most vigorous under sunny locations. Mulching and weed control will reduce water requirements. Supplemental irrigation will be necessary for maximum flowering.

The most common rose types are hybrid teas, floribundas, grandifloras, and climbers. More people are becoming familiar with the so-called "old-fashioned" or shrub roses. Many of these are well-adapted to Nebraska and to water-conserving landscapes. Although hybrid teas are the most popular class of roses grown in Nebraska, more consideration should be given to shrub roses.

Cutting

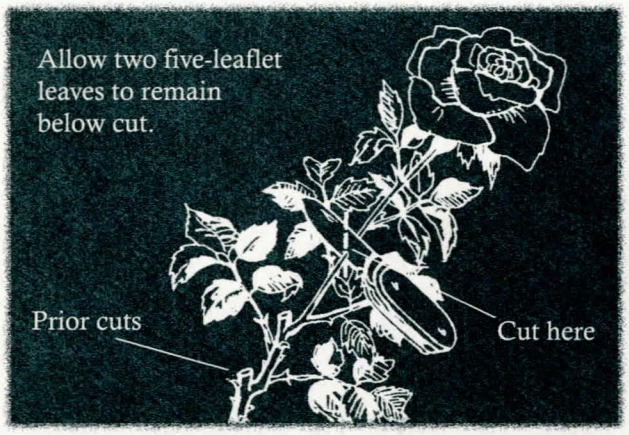

Figure 1

Hybrid Teas

Hybrid tea flowers are borne singularly on long stems or in small clusters. Some are fragrant. Plants are grafted onto vigorous shrub rootstocks. They are nearly continuous in their blooms, although in hot weather fewer blooms are produced. This form is usually grown to supply cut flowers. Like most floribundas and grandifloras, hybrid teas require winter protection.

Floribunda

The floribunda is a cross between the low-growing polyantha and the hybrid tea rose. Floribundas have inherited many of the best characteristics of each parent. Semi-hardy and vigorous, they are almost lavish in their bloom. They are lovely in form and color and adaptable to many uses. Floribundas are generous with their blooms over a long season and are usually less demanding of care and attention than hybrid teas.

Grandiflora

Grandiflora flowers resemble hybrid teas but are borne in clusters like floribundas. Their flowering habit resembles floribundas, i.e. grandifloras are well suited for cutting. Individual sprays will exhibit flowers in various stages of development.

Climbing Roses and Ramblers

Members of this class of roses grow 6-20 feet in height. They are not true climbers, having no tendrils for supporting themselves, and must be tied up. They may be everblooming or bloom once each year. They come in a wide range of flower color, size, and form.

Old Garden Roses

These are plants introduced before 1967. Some popular groups within this category are Damask, Moss, and Hybrid perpetuals. Many are highly fragrant. Not all cultivars are disease resistant and hardy.

Polyantha

Polyanthas, cluster roses which are used extensively for mass plantings in border or edges, are very hardy and require comparatively little maintenance. They bloom generously throughout the season. The plants are 2 feet or less in height with an equal spread.

Ramblers

Rambler roses, a distinct type of climber, are particularly suited for covering rough banks. As a group, the ramblers are subject to mildew, and the foliage is apt to become unsightly.

Shrub Roses

Roses of many diverse types are included under the heading "shrub roses." Many of these are species roses or hybrids. Most are hardy and vigorous and require comparatively little care. There are one to two blooming periods per year. Many produce decorative hips.

Rugosa and Rugosa Hybrids

This group is named rugosa because of the very wrinkled appearance of the foliage. Rugosa is noted for hardiness and ability to withstand adverse conditions. Rugosa is of particular value for planting in exposed sites. It produces numerous erect and spiny stems and grows as high as 5-7 feet. These hybrids are generally resistant to foliar diseases.

Miniature Roses

These small-flowered cultivars of roses differ only slightly from large roses in care. These plants are on their own root systems, i.e., they are not grafted. To keep outdoor miniature roses small you will need to prune them back severely. Pruning is easy. In spring, just clip the plant back into the desired shape. You can prune miniatures to half their size. Most, but not all, miniature roses are more cold resistant than hybrid teas.

Purchasing Plants

Rose plants are available bare root (wrapped and packaged or in plantable boxes) or planted in nursery containers. Roses are graded by a rating system. They

Planting Bareroot Roses

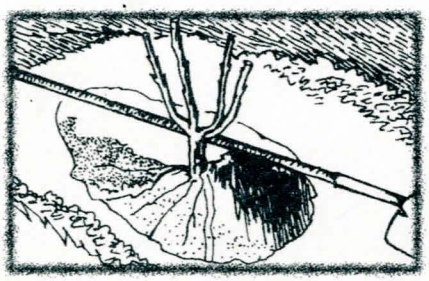

Figure 2

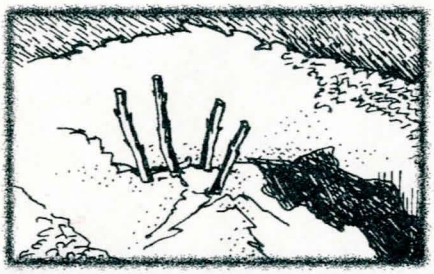

Figure 3

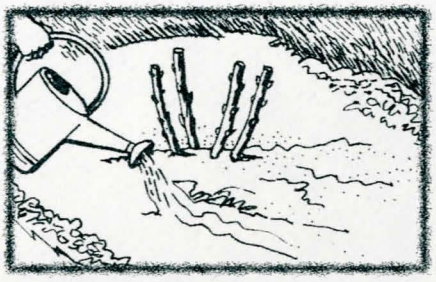

Figure 4

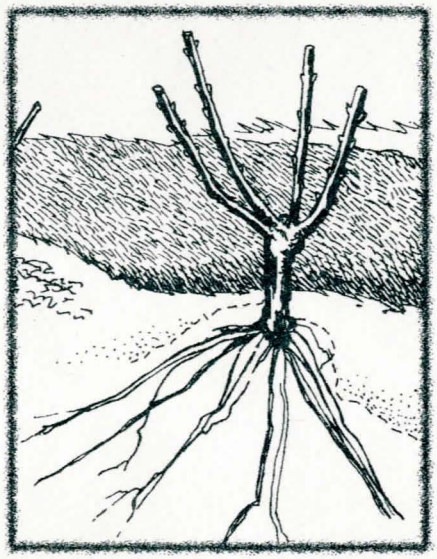

Figure 5

are given the number 1, 1 1/2, or 2, based on size and number of canes. If you are willing to pay the price for the best possible blooms, buy grade 1 plants with three or four heavy canes, each at least 3/8 inch in diameter. After a few seasons of growth, grade 1 1/2 plants may catch up, but you miss the first years of good quality blooms. Inferior grades - lower than 1 1/2 - will not give you specimen flowers and are not recommended for purchase.

Selecting a Site

Roses perform best when they receive full sunshine all day. If this is not possible, plant where they will get a minimum of 6 hours of direct sunlight daily. Morning sun is essential; partial afternoon shade is acceptable. There should be air movement to keep foliage dry and discourage diseases. If soil drainage is poor, consider raised beds. Build the bed to at least 12-15 inches above the normal soil level. Raised beds provide excellent drainage and make gardening chores easier.

Roses do well in a wide range of well-drained soils. They prefer a slightly acid soil with a pH of 6-6.5. Have the soil tested to determine the initial acidity. For alkaline soils, add agricultural sulfur at the rate of 2 lb/100 sq. ft. and work into the soil.

Planting Roses

Place the root system in a container of water for a few hours. Don't let the root and stems dry out before planting. If you can't plant immediately, wrap the entire soaked plant in wet burlap or newspaper and store in a dark, cool spot between 33-66°F.

Plant dormant rooted stock in early spring as soon as soil can be prepared. Container grown roses may be planted anytime during the growing season, but early season planting is recommended.

Steps in Planting a Dormant, Bare Root Rose

1. With sharp shears, cut off broken or severely injured roots and canes.
2. Dig a hole large enough to accommodate the spread of the roots in a normal position. The hole should be 18-24 inches deep.
3. Don't just improve the soil within the planting hole. If you are going to modify the soil, modify the soil of the entire planting bed with a well-drained, high-organic soil.
4. Build a cone of modified soil in the center of

the hole and allow the roots to spread out over the cone. This will support the root system (figure 2).

5. Find the bud union. This is the enlarged area just above the root system. Set the rose bush so the bud union will be 1 1/2 inches (3.8 cm) below the surface (figure 3 and 5).

6. After the rose has been planted, add water to the planting hole, then mound the soil to at least 2/3 the height of the plant (figure 4). You may have to obtain additional soil for this. Moisten the soil. This mound gives protection from drying winds and provides enough moisture for the developing plant. Leave the mound until new growth is 1 inch long. Then carefully remove the mounded soil back to ground level and mulch the planting bed with wood chips.

7. Prune the rose immediately following planting to remove dead wood or canes growing toward the center of the plant.

8. Planting distances between bushes will vary with the type of rose. Hybrid teas, floribundas, and grandifloras may be placed 2-3 feet apart. Climbing roses should be 4-5 feet apart (figure 5).

Steps for Planting Container Roses

1. Modification of the soil within the planting bed would be the same as for the bare rooted stock.
2. Dig a hole a minimum of 1 foot wider than the container (figure 6).
3. Before planting fill the hole with soil so that the graft union is 1 1/2 inches below the soil
4. Remove the bottom of the container (figure 7).
5. Place the container in the hole and slit the sides of the container (figure 8).
6. Remove the container without disturbing the ball of soil and fill the hole with soil. Tap gently but firmly to help remove air spaces from the soil. NOTE: Soils in much of Nebraska are high in silts and clay. Be cautious when following instructions which call for firming soil by using your foot. Do this only when the soil is thoroughly dry, and then only if necessary. Use water, rather than your foot, to settle the soil and to eliminate large air spaces (figure 9).

Fertilization

Hybrid tea, grandiflora, and floribundas are heavy users of nitrogen. They require regular applications of fertilizer for optimum growth. The rate, frequency, and kind of fertilizer depend on the type of soil, as well as the likes and dislikes of the individual gardener. During the growing season, three applications should

Planting Container Roses

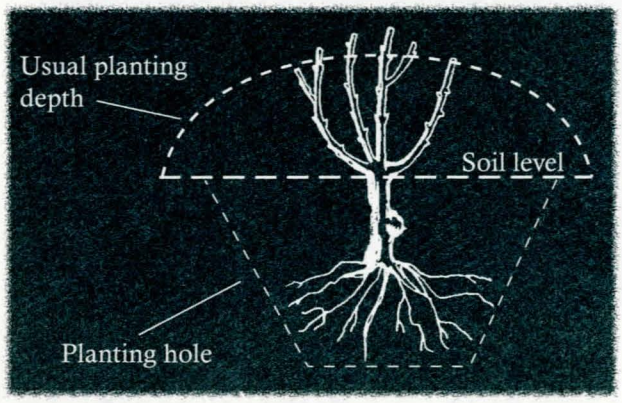

Figure 6

Planting Container Roses

Figure 7

Figure 8

Figure 9

be made to vigorous growing roses. Make the first application in early spring just as the bush is beginning to leaf out. Make the second in early June or when the roses are beginning their initial flowering. Make the third application in early August in eastern Nebraska and two weeks earlier in western Nebraska. Avoid fertilization late in the growing season to allow the plant to harden off before cold weather.

Use a nitrogen fertilizer, or a complete one if the soil test indicates a need for phosphorous or potassium for the first fertilization. For later fertilizations, only nitrogen need be applied. You can use a fertilizer such as ammonium sulfate (2 tbsp. per plant) for the nitrogen source.

If using a granular fertilizer, apply it about 3 inches away from the main stem. Distribute the prescribed amount uniformly out beyond the branch spread and water thoroughly after application. Avoid burning by keeping granular fertilizer off leaf surfaces (figure 10).

Chlorosis is an interveinal yellowing of the rose foliage (veins are initially a dark green). Lack of available iron in a useable form causes these foliar symptoms. Inadequately drained soils, alkaline soils, or root injury also lead to chlorosis. Roses with some yellow or orange shading in the petals are more susceptible to chlorosis. Spraying the foliage with liquid iron will temporarily correct the problem. For severe cases, try the following:

Improve soil conditions by mixing organic matter and sulfur in the top 6 inches of soil. Use a ratio of two lbs sulfur to a cubic foot of organic matter. Apply one of the chelated irons to the soil or put about one ounce of ferrous sulfate into each hole. Make 3-6 inches deep holes in the moist soil in the root area and apply 1/2-1 lb/bush.

Watering

Many roses don't reach their peak bloom or performance because of insufficient water. Water your roses at the rate of 1 inch of water per week. During hot, windy weather, water loss is greater than 1 inch per week. Increase water accordingly (1-1 1/2 inches per week). The ideal way to water is to soak the soil and keep the foliage dry, since diseases are encouraged when foliage is moist (figure 11). Frequent, light sprinkling does more harm than good. Use a canvas soaker hose or a plastic soaker hose turned upside down using low pressure system for watering roses. Laid on the rose bed, these systems will allow moisture to soak to a depth of 12-18 inches.

A common garden hose will also do a good job of watering. Allow the water to spread over a shingle or board to reduce its force before reaching the soil around the plant. A watering wand or other hand

Fertilization

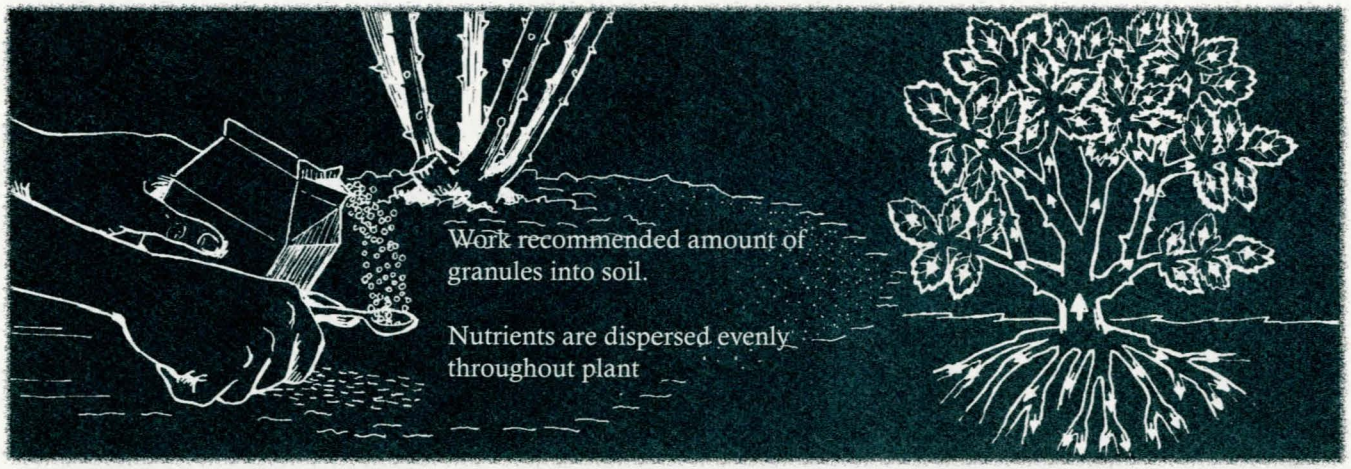

Figure 10

watering device can also be used to reduce water impact on the soil. If these are used, water the roses early in the day so foliage will dry before nightfall.

In dry weather, dust and spray residue can collect on the leaves. It may be desirable to spray the foliage with water (syringe). Syringe the plants early in the day.

Cultivation and Mulching

After early cultivation, a mulch of wood chips or compost will eliminate the need for further cultivation. A 2-4 inch mulch is adequate organic material over the soil. This will keep the soil cool and retain moisture. A mulch will also aid in keeping the rose bed free of weeds and help maintain a neat, attractive appearance.

Pruning Goals

Pruning gives the rose plant an attractive shape, improved flower quality, and helps maintain a size that fits into the landscape design. Do major pruning in the spring, after winter protection has been removed and when new growth begins. The amount of wood removed will generally depend upon the amount of winter kill to canes. Pruning delays flowering time, as well as the number of flowers a bush can produce. For a landscape planting, it is usually better to sacrifice bloom size for number of blooms produced. Like any shrub, roses require leaves to produce flowers. It takes 25-35 leaves to create and bring into bloom one rosebud.

Watering

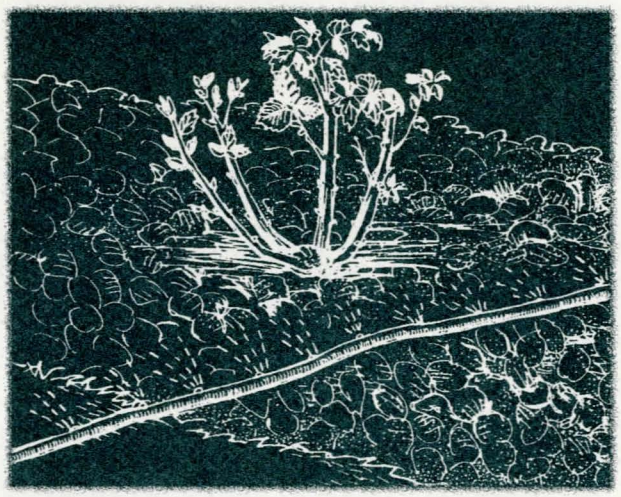

Figure 11

Basic Pruning Procedures

Remove deadwood down to the nearest healthy dormant bud. Make the cut at least 1 inch (2.5 cm)

Pruning Bush Roses

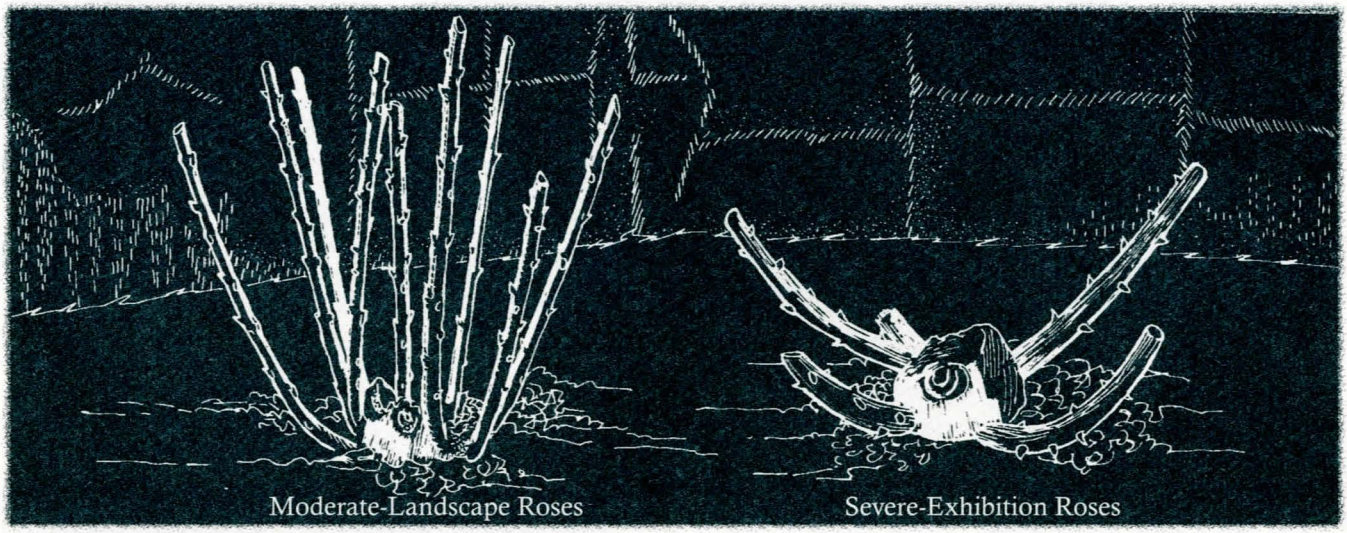

Figure 12

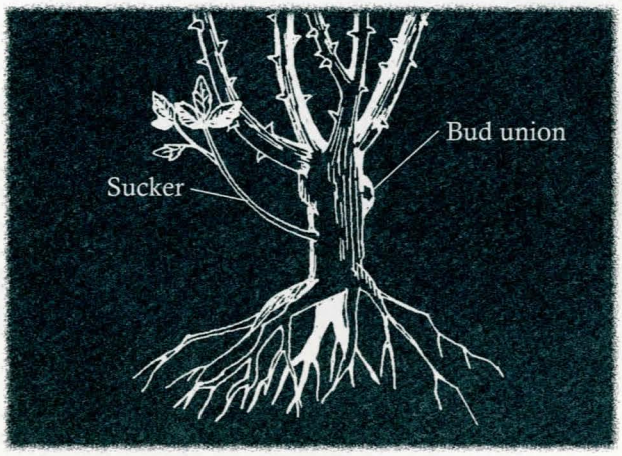

Figure 13

below the dead area (figure 12). If there are no live buds, remove the entire branch or cane to the bud union. Examine carefully for canker (darkened, sunburn area) or other diseased areas. If disease is found, cut down to a good bud at least an inch (2.5 cm) below any evidence of disease. Pith (located in center of stem) should be creamy white, not brown or gray. Prune down to where pith is healthy, or to the bud union. Cut out weak, spindly, or deformed growth. This includes canes that grow straight out and then curve upward. Remove canes growing towards the center of the bush. If two branches cross, remove the thinner one. Remove all suckers (branches) originating from below the bud union (figure 13). Sucker foliage is different in color and form from the rest of the plant. After severe winters, all the canes may have to be cut back to within several inches of the bud union. In such cases, don't worry about the shape, just save as much live wood as you can.

When pruning a branch or cane, make cuts about 1/2 inch (1.2 cm) above the bud. Select a bud that grows to the outside. Keeping the center of the shrub open allows for good air movement, which reduces foliar disease problems.

Pruning and Training Climbing Roses

Prune ramblers and vigorous climbing roses soon after flowering. Cut out diseased or dead canes. Most climber canes are good for only 2-3 seasons, so remove

older, gray canes as well as thin-diameter new ones. Save the young healthy canes. Cut laterals - branches off of canes - back to 8-10 buds and shape the plant as desired (figure 14). Be sure to remove any suckers arising from below the graft union. For less vigorous climbers, you need only remove winter-killed wood. Remove the faded flowers after blooming has stopped.

Prune hybrid climbers and everblooming large flower climbers while dormant. Do not take as much wood from everbloomers as from the hybrids. Follow basic pruning procedures. Keep the flowers picked off everblooming roses. Do not remove foliage when picking blooms from everbloomers, since reblooming occurs from the top leaves immediately under the old flower cluster. When removing hybrid blooms, leave two leaf buds on each flowering shoot.

Pruning Tree Roses

Tree roses are pruned just like bush roses. Keep the shape as symmetrical as possible so the foliage will fill out into a full, round shape.

Pruning Old-fashioned or Species Roses

Do not prune these roses until after they have bloomed. After bloom, reduce the length of the long canes by 1/3 and the lateral canes by only a few inches. Prune repeat bloomers when dormant. Remove faded flowers to encourage growth of new flowering stems.

Pruning Climbers

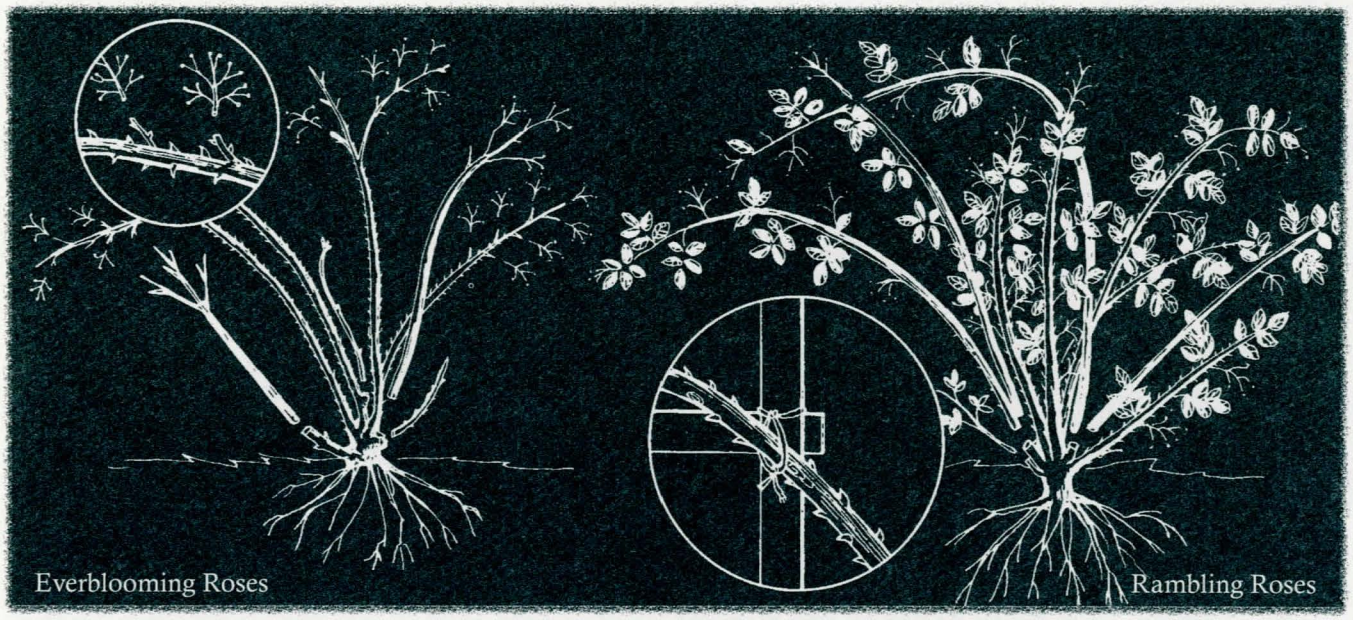

Figure 14

Insects

Roses are occasionally injured by a wide range of insects and mites. Successful management of these pests depends on early detection and appropriately timed control measures. Frequent plant inspections, accurate pest identification and a sound understanding of the insect's biology, feeding behavior, and damage symptoms are essential to this endeavor.

Based on feeding behavior, rose pests can be grouped into four categories: the sap feeders; chewing insects; stem borers; and gall makers.

Sap-feeders - After piercing the surface of leaves, stems, and flowers, sap-feeding pests then withdraw sap from the plant. Pests in this group include aphids, leafhoppers, scale insects, thrips, and spider mites.

Effective control of these pests can often be obtained by washing the roses with a spray of water from the garden hose. Cutting out heavily infested canes and removing spent roses also should help reduce the problem. For pests such as spider mites and scale insects that overwinter on the plant, dormant oil sprays applied in February or March should further reduce the infestation.

Insecticide sprays are often the most practical solution for controlling sap-feeding pests on roses. Products labeled for control of these pests include insecticidal soaps and horticultural oils, as well as insecticides such as acephate (Orthene), diazinon, dimethoate (Cygon), malathion, and dicofol (Kelthane) for spider mites. Before applying any pesticide, always be sure the target pest is listed on the product label. These materials should be applied while infestations are still light and before significant damage is apparent. Adding a few drops of liquid detergent to the spray will increase coverage and provide better control. For difficult to control pests, such as spider mites, or when infestations are extraordinarily heavy, two or more applications applied 7-10 days apart may be needed to bring the infestation under control. Rose scales should be treated in the spring when crawlers first appear.

Some chemicals can injure roses. When possible, test-treat a few plants and look for signs of plant damage after 48-72 hours. If you see no phytotoxicity, it is probably safe to treat the remaining plants. In many cases, the pesticide label will provide a list of plants known to be sensitive to the product, as well as those plants for which it is recommended. CAUTION: DO NOT APPLY DURSBAN TO ROSES BECAUSE OF POSSIBLE DAMAGE.

Chewing insects - Among the more important foliage-feeding insect pests of roses are the beetles (rose chafer, spotted cucumber beetle, rose curculio, Japanese beetle), caterpillars (green fruitworm, unicorn caterpillar), rose slugs, and leaf-cutter bees.

Since many of these pests are relatively large, they can often be eliminated by hand picking and dropping them into a container of soapy water. In addition, covering show flowers with row cover, mosquito netting, or cheesecloth covered frames will help minimize damage. Rose slugs can be eliminated by washing infested leaves with a spray of water from the garden hose. For leaf-cutter bees, cut-out canes below the infested area during spring pruning. To discourage continued nesting behavior, seal exposed ends of cut stems with pruning paint or push thumb tacks into ends of cut stems.

Insecticides labeled for control of chewing insects on roses vary depending on the pest in question. In general, however, acephate (Orthene), diazinon, dimethoate (Cygon) malathion, pyrethrins RTU, and rotenone can be used to reduce the number of these pests. In addition, insecticidal soaps or horticultural oils will effectively eliminate rose slugs; and strains of *Bacillus thuringiensis*, B.t., can be used to control caterpillars (Dipel, MVP, Thuricide) and beetles (M-One).

Stem borers - This group of insects mature within rose stems, causing infested stems to die back. Canes infested with the rose stem girdler develop a distinctive swelling at the point of injury. The only effective control measure for stem boring insects is to cut and destroy infested stems.

Gall-forming insects - Several species of wasp-like insects lay their eggs in stems of roses. Upon hatching, their larvae develop within the cane, causing large swellings or galls. One common species produces a gall on the stem resembling a fibrous moss, while another species causes a large wart-like gall near the ground surface. These latter galls are easily confused with crown galls, which are caused by bacteria. If the insect-produced gall is cut open, however, numerous larvae and/or the cells in which they developed should be apparent.

Insecticides will not effectively control rose galls. The best available strategy involves pruning out and promptly disposing of gall-infested stems to prevent the developing larvae from transforming into adults which will reinfest the plant.

Rose Diseases

Control rose diseases with fungicides. Black spot, mildew, and rust are the most harmful rose diseases.

Black spot - This disease makes irregular black spots with feathery margins on the leaves. when a

number of spots occur on the leaf, it may yellow and drop. Defoliation may result from severe infestation. A number of fungicides, including Phaltan, Maneb, Captan, Zineb, Benlate, or Daconil 2787 will provide protection from this disease.

Mildew - Mildew appears as white-to-gray powder on the leaf. This can be harmful, but is usually less serious than black spot. Sulfur, Phaltan, Karathane, Actidione PM, Daconil 2787, or Benlate provide control.

Rust - This disease shows symptoms of orange or yellow pustules on leaves and stems of roses. Spray with Actidione PM or Zineb.

Winter Protection

While there is not complete agreement on the type of winter protection for roses, rosarians agree that in Nebraska you need to protect the hybrid teas, grandifloras and floribundas, and some cultivars of miniature roses. Winter injury to roses may result from a number of causes: direct low temperature injury, desiccation (drying out of plant tissue), or heaving of young plants.

One of the best defenses against cold weather injury is proper summer care. Vigorous bushes are able to withstand cold far better than diseased ones. Avoid late-season fertilization which causes succulent growth late into the fall. Wood on such plants is high in water and will be killed by temperatures below 32°F (0°C).

A properly hardened off rose with adequate winter protection will survive Nebraska winters. There are a number of ways to do this. Most of them involve covering the rose with some material. One of the most widely used materials is soil. After freezing temperatures have cooled the soil, place a mound of soil about 10" high over the crown of the rosebush (figure 15). Use a soil that drains well rather than one which is high in clay. Take this soil from an area other than the

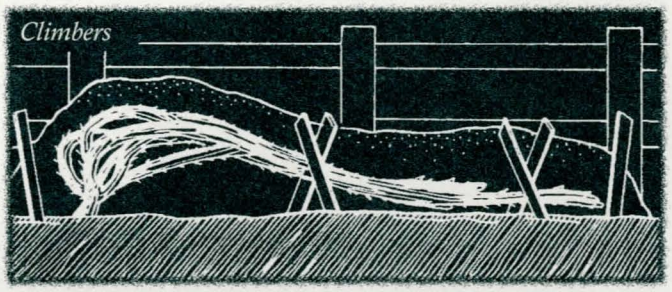

Figure 17

Winter Protection

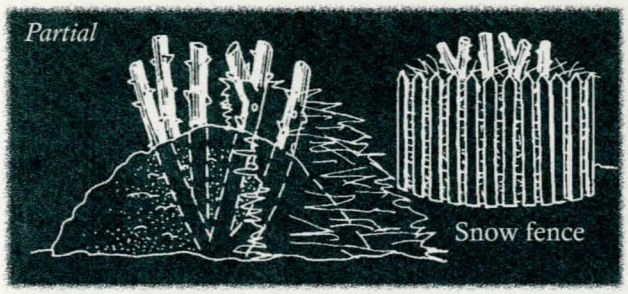

Figure 15

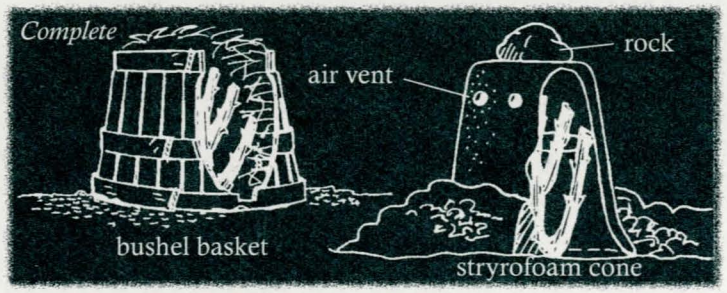

Figure 16

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