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growing roses

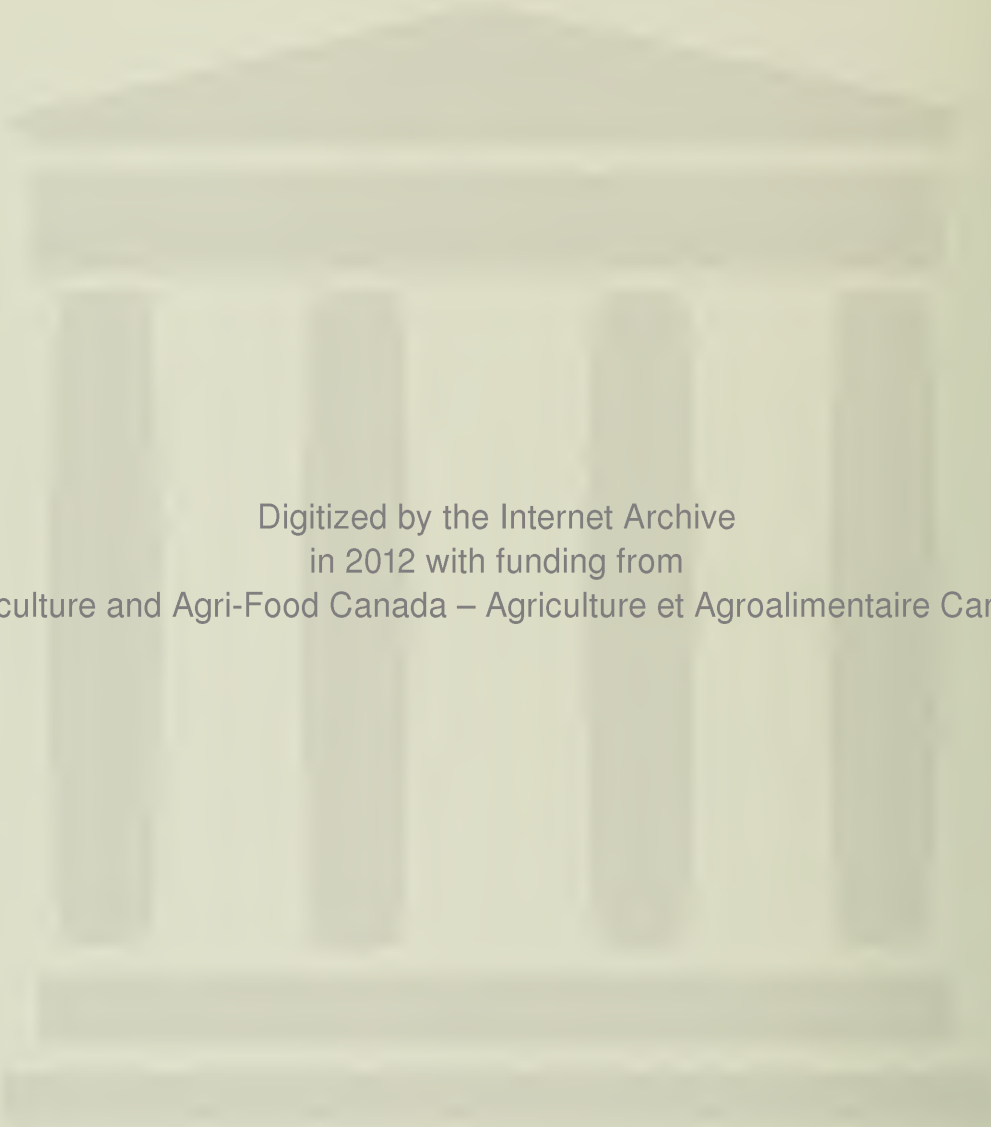


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growing roses

T.J. Cole
Research Station, Ottawa, Ont.

Cover: 'Pink Peace,' a Hybrid Tea.

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introduction

The rose is possibly the oldest flower in cultivation and is still universally popular. In Canada, the earliest settlers brought their favorite roses with them from France, Britain, and the American colonies, and succeeding generations of Canadians gave these roses a special place in their gardens. Gradually, new forms of roses were developed, usually from crosses made by insects rather than by man, but the resulting seeds were carefully germinated and the seedlings screened for improved forms. Roses of today, representing selections from a few natural species and a long series of crosses, continue to provide pleasure for Canadian gardeners.

Where space permits, a separate garden for roses is desirable, preferably close to the house or easily accessible. For a formal garden an ideal way to display roses is to arrange the beds symmetrically on either side of an imaginary line called the axis. This arrangement should be laid out to show the garden to its best advantage from a window or door of the house.

Where space does not permit a separate garden for roses, individual beds are advisable. When these beds border a path or are arranged as a special feature, they show the roses off well.

For the formal rose garden a screen of dwarf shrubs improves the rose setting and increases the feeling of intimacy and quietness. It also protects the roses in winter by holding the snow and reducing the force of the wind. If, however, the screen is so dense it prevents circulation of air, then mildew and other foliage diseases will abound. If the rose garden is not screened, it should have some form of windbreak during the winter months.

A level site is desirable for a formal rose garden, although a gentle slope to the east or south protected from prevailing winds is also a good location. Where the only available site is on a steep slope, it is advisable to construct retaining walls in order to provide a terraced area where the roses may be grown. Roses should not be planted within 1 m of a retaining wall because of the added risk of winter injury. For best results roses require full or almost full sunshine, but the blooms will last longer if they have a little shade at midday. Roses will not succeed where they have to compete with trees for food, moisture, or sunlight.

types of roses

Garden roses such as Hybrid Teas, Grandifloras, Floribundas, or Polyanthas are best displayed massed in beds where colorful blooms will make an attractive showing. Most of them will not grow vigorously

in competition with other plants. However, low annuals such as portulaca may be planted among them, and will shade the roots and act as a foil if of contrasting color.

Climbing roses grown on a trellis can be used to outline a formal rose garden. Similarly, they can be grown over a shelter incorporated in the rose garden design, or on pergolas or fences; they can also be used as accent points when trained on pillars or arches. True Climbers can be used to cover walls, where the climate is mild enough, but they must always be provided with free air circulation. Even when supported on a trellis, climbing roses should not be placed close to a wall from which much heat is reflected or they will suffer from foliage diseases and insects. The Rambler type of climber, which will grow in colder climates (down to zone 4), can be used to make a solid mass on banks or to cover small trellises and arches; the Pillar type (in milder climates - zone 7) may be grown on posts.

Shrub roses deserve much more prominence in Canadian gardens than they have been given. They are useful mainly for massing in shrub borders where many of them give a longer period of bloom than most other flowering shrubs. In autumn they have various shades of foliage and highly colored fruits. A background of evergreens sets them off well. They may also be grown in the screen surrounding a formal rose garden or for massing on gentle slopes, where they help prevent erosion. Like all roses, shrub roses require plenty of sun and free circulation of air, but as a type they are much hardier and need no protection. In general, they grow well on light soils and should not be fed with manures rich in nitrogen. Several new hybrids developed by Canadian hybridizers are becoming popular.

In recent years the demand for miniature roses has increased. Generally sold in the spring as potted plants they are used in rock gardens or in front of regular bush roses. They can be planted as close as 25 cm, may be lifted in the fall, and will continue to bloom indoors during the winter, especially if kept under fluorescent lights. Because miniature roses are fairly new on the Canadian market, little is known about their hardiness. In Ottawa they survive without protection other than natural snowfall. Miniature roses are available in bush or climbing form.

preparation of beds, and planting

All types of roses prefer a good clay loam soil. They also grow well on lighter soils, providing there is adequate organic matter. The soil should be neutral or slightly acid.

drainage

Roses need ample moisture, but do not grow well in poorly drained soil. The first consideration, therefore, is proper drainage. Where the subsoil is heavy clay, or hardpan, open it up by deep digging and, where feasible, drain with land tiles. Where gravel or sandy subsoil permits water to run away too rapidly, dig out the beds and add clay to the subsoil, or incorporate plenty of peat moss or other organic matter on a regular basis.

organic matter and fertilizers

Rose beds need large quantities of organic matter to give the soil the ability to hold moisture. Well-rotted manure is best for this purpose. If manure is not available, use pulverized peat moss or compost. If peat moss is used it is advisable to mix with it a general fertilizer with a 1-2-2 or 1-2-3 ratio, for example 5-10-10 or 5-10-15, in the proportion of 1 kg of fertilizer to a cubic metre of peat. One cubic metre of well-rotted manure, peat moss, or compost is sufficient for about 10 m² of bed area.

preparing the beds

If there is good drainage remove the soil to a depth of 50 cm; most rose roots will not penetrate any deeper. Place the top half of the soil on one side of the bed and the bottom half on the other side. If the soil in the bottom half is poor, remove it and replace it with good soil.

Loosen the bottom of the excavation with a fork to ensure good drainage, then refill with successive layers of 5 cm of organic matter and 15 cm of soil from the top of the bed. Mix these together well with a fork. If manure is being used, add bone meal to each layer in the proportion of 100 g of bone meal to a square metre of bed area. When all the topsoil is used, tread in firmly and repeat the process with the soil from the bottom half.

Put back enough soil from the bottom half so that when the bed settles it is a little below the level of the surrounding lawn. This allows thorough watering without causing runoff.

alkalinity

In average soils when the proper balance of moisture and organic matter exists the acidity or alkalinity is so close to neutral that no change is necessary to grow roses successfully. However, if the soil is acid add lime in the proportion of 2 kg of lime to a square metre of bed for every unit of pH (acidity value) below 6.5. To find the degree of acidity, a soil analysis is necessary. Home soil test kits available from most garden centers are adequate for this purpose.

If the analysis shows that the soil is alkaline, add ferrous sulfate to correct the effect of excessive lime. An application of 4 kg/10 m² of surface area will reduce the pH by 1 point. Because ferrous sulfate is highly soluble, it readily leaches out of the soil. Tests should be made every 6 months and the pH adjusted to obtain a value within the range of 6.5–7. Sulfur is much longer lasting but needs to be added when the bed is prepared. Use 1 kg/10 m² of surface area to reduce the pH by 1 point.

size of beds

The size of beds depends on the class and number of roses to be grown, and the size of the garden. In an average-size garden the bed should be narrow enough so that each plant can be reached from the edge without stepping on the bed. A 1.5 m wide bed will hold four rows 40 cm apart (outside rows 15 cm from edge of bed), and a 1.25 m wide bed will hold three rows 45 cm apart. Plan the length to fit the design and scale of the garden, but remember that people are tempted to cut across a long bed rather than walk around it.

distance between each plant

Because most rose cultivars make untidy bushes, it is advisable to plant them fairly close together so that they form a solid bed of color. Hybrid Tea, Grandiflora, and Floribunda types are best planted 45–60 cm apart. In cold areas (zone 4 or colder) where the bushes are lifted each fall, this distance can be reduced to 35 cm. Shrub roses should be at least 1 m apart, and 2 m is preferable for the larger types. Climbers are usually placed to coincide with the supports on an arch or trellis. They should be at least 1.5 m apart and up to 2.5 m, where possible.

time to plant

In general, the best time to plant is in the spring while the roses are still dormant. Fall planting is acceptable in more temperate regions such as the Niagara Peninsula and coastal British Columbia. In most parts of Canada, however, roses planted in the fall do not become sufficiently well established to withstand the severe winters even when carefully protected.

Where roses are to be planted in the spring, the beds should be prepared the previous fall so that planting can be done early. In addition, the action of freezing and thawing through the winter will improve the texture of the soil.

what and where to buy

For best results secure Grade 1 field-grown plants that have three or more stems. Many roses are sold in special colorful packages ready for planting. For success with packaged roses purchase the plants as soon as they appear on the market. If they are left at room temperature too long, the buds start to grow and the plants are difficult to establish. Select plants with buds that are just breaking. Potted roses are available at many nurseries and are especially useful for delayed spring planting. A nursery specializing in roses usually carries a wide range of cultivars and is a good place to buy them. Nurseries are experienced in maintaining unsold stock in a healthy condition. A list of recommended cultivars is given later in this publication.

treatment after purchase

When the plants arrive from the nursery, or are purchased as packaged plants, unpack them immediately. If they cannot be planted within the next few days, place the roots in a trench, cover with soil, and pack firmly. If the roots appear to be dried out, immerse them in a tub of water for a few hours before planting. If the tops also appear withered, cover the whole plants with soil for a day or two before planting. Do not leave the plants exposed to wind and sun before or during planting; cover the roots with wet burlap, and keep in a cool place. The material used to keep the roots moist during transit should never be worked into the planting soil.

Potted roses should be thoroughly soaked before planting. Cut the bottom off fiber pots, and remove the rim if it is heavy, disturbing the soil as little as possible. Set the plants in the ground so that the bud union is just covered. Potted roses do not need pruning or mounding.

pruning before planting

Just before planting, examine each bush carefully for broken roots and cut them off cleanly above the break. Trim off dried roots and all weak top growth and broken canes to leave about three strong canes.

planting

The roots of roses are often curled up for convenience in packing. Separate them and spread them out naturally when planting the bush. The hole must be large enough to take the roots without crowding and deep enough to accept the plant with the bud union 2.5 cm or a little more below the surface.

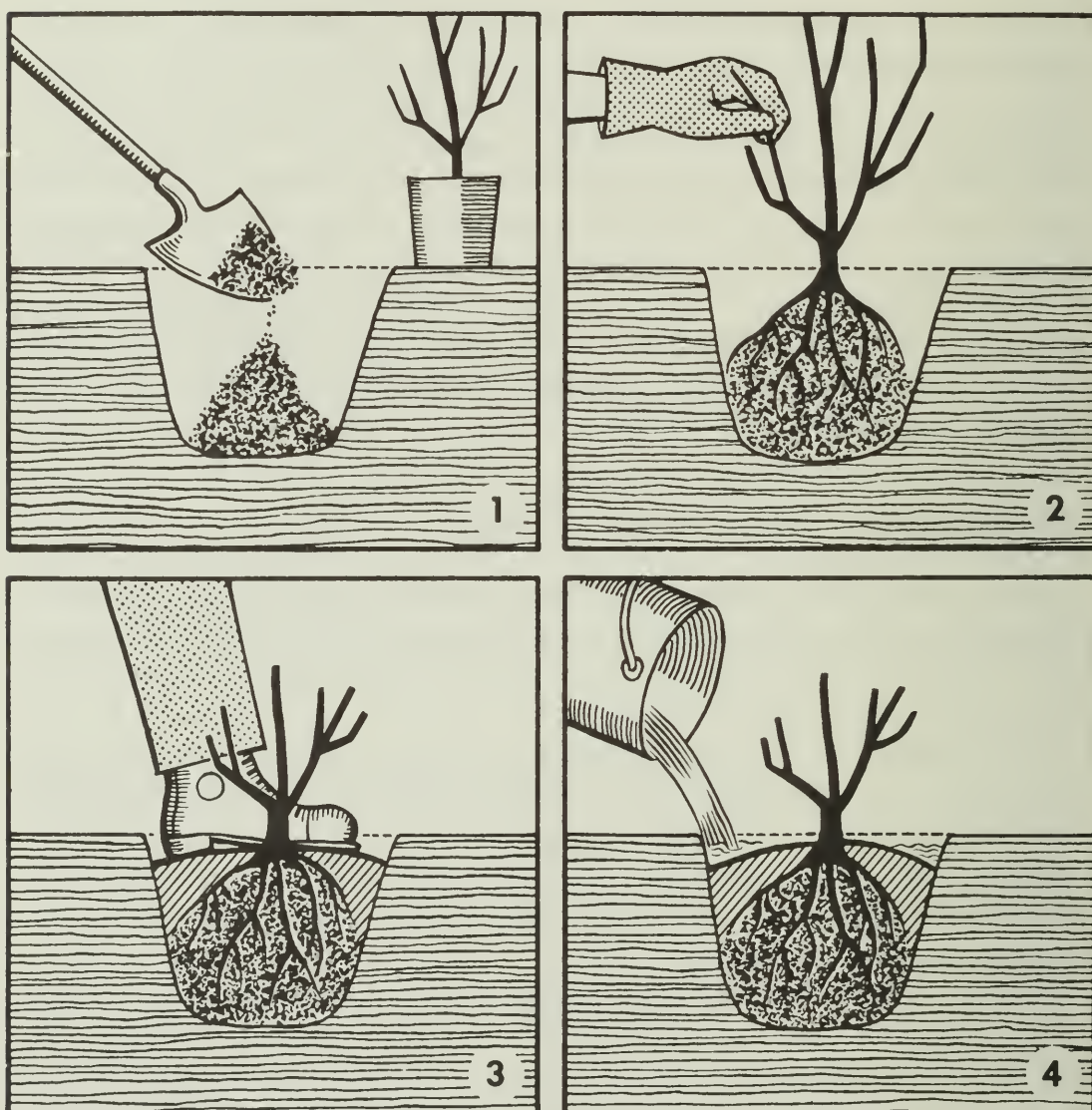


Fig. 1. The correct method of planting roses.

Bring each rose to the planting site in a bucket of water. Using the soil mix prepared for the bed, make a cone-shaped mound in the center of the hole. Place the bush on this mound, making sure the bud union is below ground level, and spread the roots down the sides of the mound. Fill the hole with soil mix and tread in firmly. Pour the water from the bucket into the resulting depression and allow the water to drain away. When the excess water has gone, finish filling the hole and mound up round the base of the plant to about 20 cm. This protects the important basal buds from drying out.

pruning after planting

About 2 weeks after planting remove the soil mounded up round the base of the plant. Cut back the strong shoots left at the initial pruning to about the fourth bud counting from the base. Select an outward-facing bud and make the cut just above it.

maintenance

Successful production of rose flowers depends upon healthy growth brought about by a proper supply of moisture and plant food. Less winter damage is likely to occur when the plants bear healthy foliage and ripen their wood early. These two aims determine the cultivation practices, which vary with type of soil, amount of rainfall, and length of growing season.

mulching

Moisture can be held in the soil by means of a mulch (loose surface covering), which prevents rapid evaporation from the surface. The most common method is to maintain a dust mulch by shallow cultivation of the surface with a Dutch hoe, and raking after each rainfall. This also keeps down the weeds.

Materials such as grass clippings and strawy manure have been used for mulching, but they are not recommended. The use of pulverized peat moss for this purpose is popular. Experience at Ottawa indicates that peat can be valuable for mulching, but only if properly handled. Although it does prevent evaporation of moisture from the soil, it also absorbs a large amount of rainfall, preventing it from reaching the soil, unless the peat is properly soaked in the bag before application. Even when wet there is a tendency for the peat's surface to dry out and blow away in the lightest wind. Because it packs down when wet, peat also

slows soil aeration. However, its ability to absorb heat rather than reflect it helps the roses hold their foliage better during hot dry weather. This does not apply where roses are planted thickly enough to provide their own shade. If using peat for mulch, apply after the spring rains and dig into the beds in early fall. Other materials suitable for use as a mulch are cocoa husks, spent hops, wood chips, and sawdust—in fact, almost any vegetable matter that is available in quantity, spreadable, and not expensive. With fine material such as peat moss or sawdust a 1–2 cm application is sufficient or nitrogen deficiency may occur as it breaks down.

watering

Sub-irrigation is superior to surface watering because it encourages the roots to go down where the soil is cool and damp instead of staying near the surface. To sub-irrigate, insert agricultural tiles in the beds at the planning stage and pour water into them.

If sub-irrigation is not practical, surface watering should be done as required. Allow the hose to run on the beds until they are thoroughly soaked. Hoe the surface as soon as it has dried enough to be workable. Avoid sprinkling the foliage in the evenings; sprinkling at this time of day encourages the spread of diseases.

feeding

When available, dig well-rotted manure into the beds in the early spring. This material retains moisture, improves soil structure, and also has some food value. The fertilizers incorporated in the beds as they are prepared should be sufficient for the first year. Thereafter, it will be necessary to feed during the growing season. Most garden chemical companies market a fertilizer specially formulated for roses. Use the product as directed on the packet.

ripening the wood

To ensure that roses winter successfully, the wood must be well ripened before winter sets in. It is therefore essential to avoid measures that induce active growth in late summer. Feeding should cease by mid-July or even early July in areas with a short growing season. Summer pruning should be reduced by cutting flowers with short stems; cutting long-stemmed flowers stimulates growth of new wood that will be killed in winter if not ripe. The amount of water should also be cut down, either by reducing the artificial supply or by increasing the loss through evaporation by packing the surface soil.

disease and insect control

Roses are subject to attack by several fungus diseases and insect pests. The two common diseases are mildew and black spot. Mildew forms a grayish cobwebby covering on the leaves. It is most prevalent in cool, moist weather and where there is poor circulation of air.

Black spot can be distinguished from other leaf spots by the dark color and fringed borders of the spot. It often causes the plant to lose its leaves early. Because black spot is carried over winter on the fallen foliage, it is essential to practice good plant sanitation by collecting all the leaves in the fall. They should be disposed of as garbage and not be put in a compost heap or leaf pile.

Several different insects attack roses. In general there are two classes: (1) insects, such as green aphids, that have mouthparts with which they penetrate the surface tissue of leaves and stems, and suck juices from them; and (2) insects, such as beetles and caterpillars, that actually eat the leaves.

For most home gardeners it is sufficient to wait until a disease or pest is seen and then apply the appropriate chemical. However, if exhibition quality blooms are required, it will be necessary to spray with a mixture of compatible fungicides and insecticides on a regular schedule.

Because provincial regulations for using chemicals to control insects and diseases differ and are subject to change, no recommendations for their use are given in this publication. For up-to-date recommendations for a specific area consult the appropriate provincial agricultural representative.

pruning

After the initial pruning, which is done at the time of planting, prune each year to obtain good results. In many parts of Canada, winter does so much pruning that it is only necessary to remove the dead wood in the spring. But for those who live in more favored districts, it is wise to know why and how to prune the various types.

The object of pruning is to promote healthy, vigorous growth that will bear the greatest number of high-quality blooms. The wood of most roses is short-lived. When more than 2 years old, it becomes hard and bears small foliage and small flowers, with short stems. Severe pruning forces new, long, succulent growth, and larger although fewer flowers. Severity of pruning, then, depends upon the natural vigor of the cultivar. The more vigorous a cultivar, the less pruning it requires. Plants bearing flowers from wood of the previous season's growth should be pruned just after blooming. Plants bearing flowers from wood of the current season's growth should be pruned early the next spring.

HYBRID TEAS, GRANDIFLORAS, AND FLORIBUNDAS. After removing the dead wood, take out all weak growth and thin canes, and leave about four strong branches. Cut these back to within about six buds from the base, making the cut immediately above an outward-pointing bud. If some canes are pruned more severely than others, for example down to three or four buds, the first flush of blooms is spread over a longer period.

SHRUB ROSES. The wood of most shrub roses lives longer than that of other types. These roses are generally hardy enough to withstand Canadian winters. The new growth starts from terminal and lateral buds on the previous year's wood, as it does with most flowering shrubs, and flowers are borne on wood that grew the previous season.

For these reasons, shrub roses are pruned like other flowering shrubs by removing only the oldest branches after the dead wood has been cut out. These branches should be cut out as close to the ground as possible just after the blooming period. Pruning of species that have attractive fruits can be delayed until after the fruits are shed. This may be the wisest procedure in very cold districts where summer pruning could give rise to new growth subject to winter injury.

CLIMBERS. Because climbers vary in habit of growth they must be subdivided. The true Climbers, such as Blaze and New Dawn, bloom from wood of the current season's growth. Remove the dead wood and thin out enough of the old branches to prevent the plant from getting too thick. Cut back laterals.

Ramblers bloom from wood of the previous season's growth. Because this wood only produces the one crop of flowers, remove it close to the ground as soon as possible after flowering. Thin the young shoots, which by this time will be 1-1.5 m long, to four or five stems and tie them to the supports. When proper summer pruning is done, the only spring pruning necessary is to remove dead wood and to shorten stems that are too long.

HYBRID PERPETUALS, MOSS ROSES, AND OTHER 'JUNE' ROSES. In early spring remove all dead or damaged canes and weak growth, then cut out any canes more than 2 years old close to the ground. This will usually leave four to six healthy canes well spaced. Cut these back to within 30-45 cm of the ground, making the cut just above a bud that points outward. For a large, many-flowered bush, leave longer stems; for exhibition blooms, cut the bush back more severely.

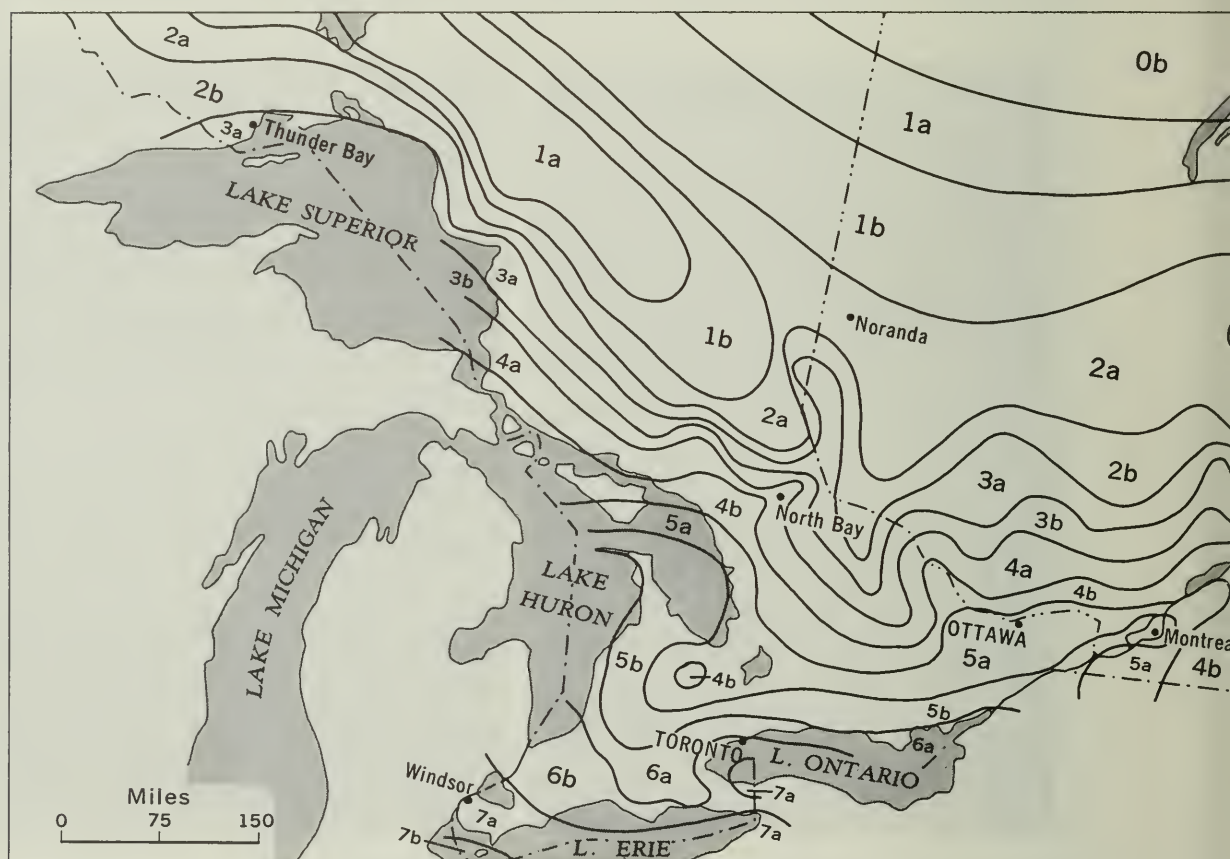
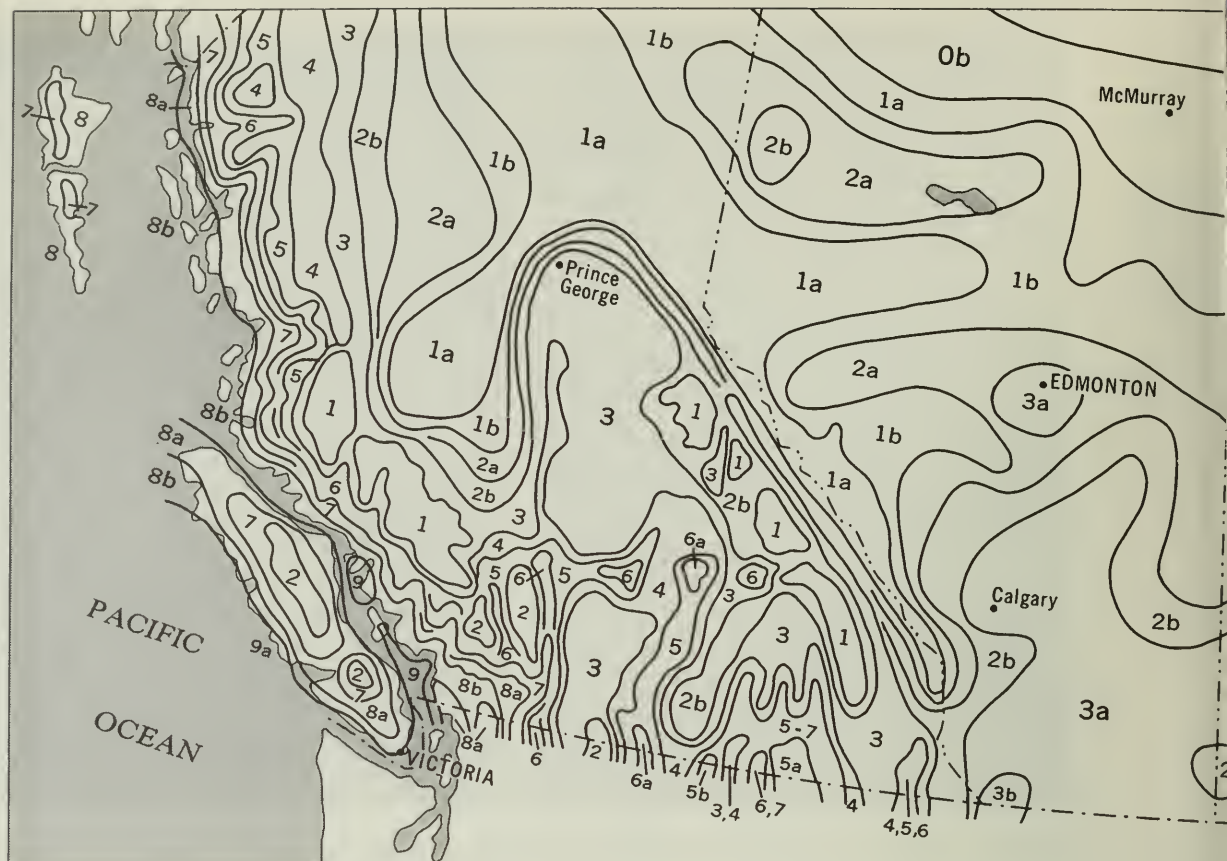
TEAS. Where Teas can be grown in Canada they require little pruning except the removal of dead wood and old branches.

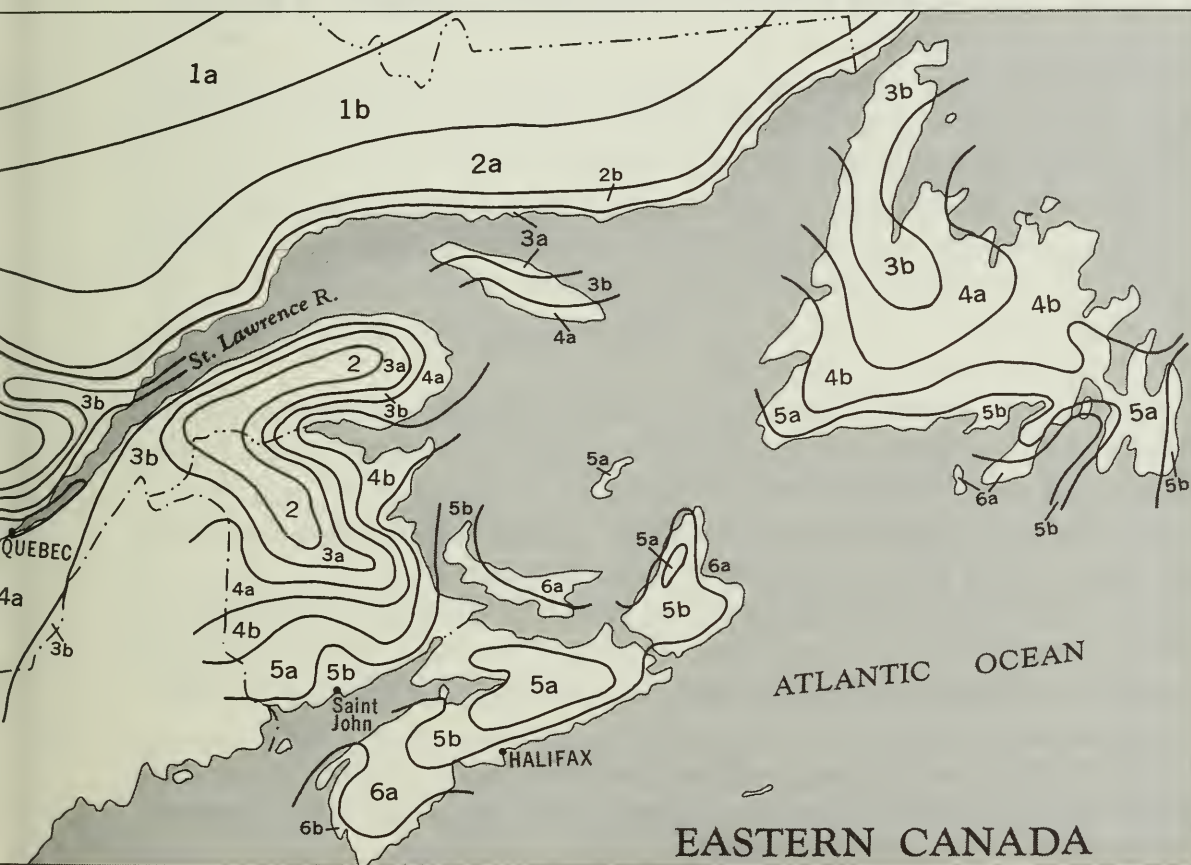
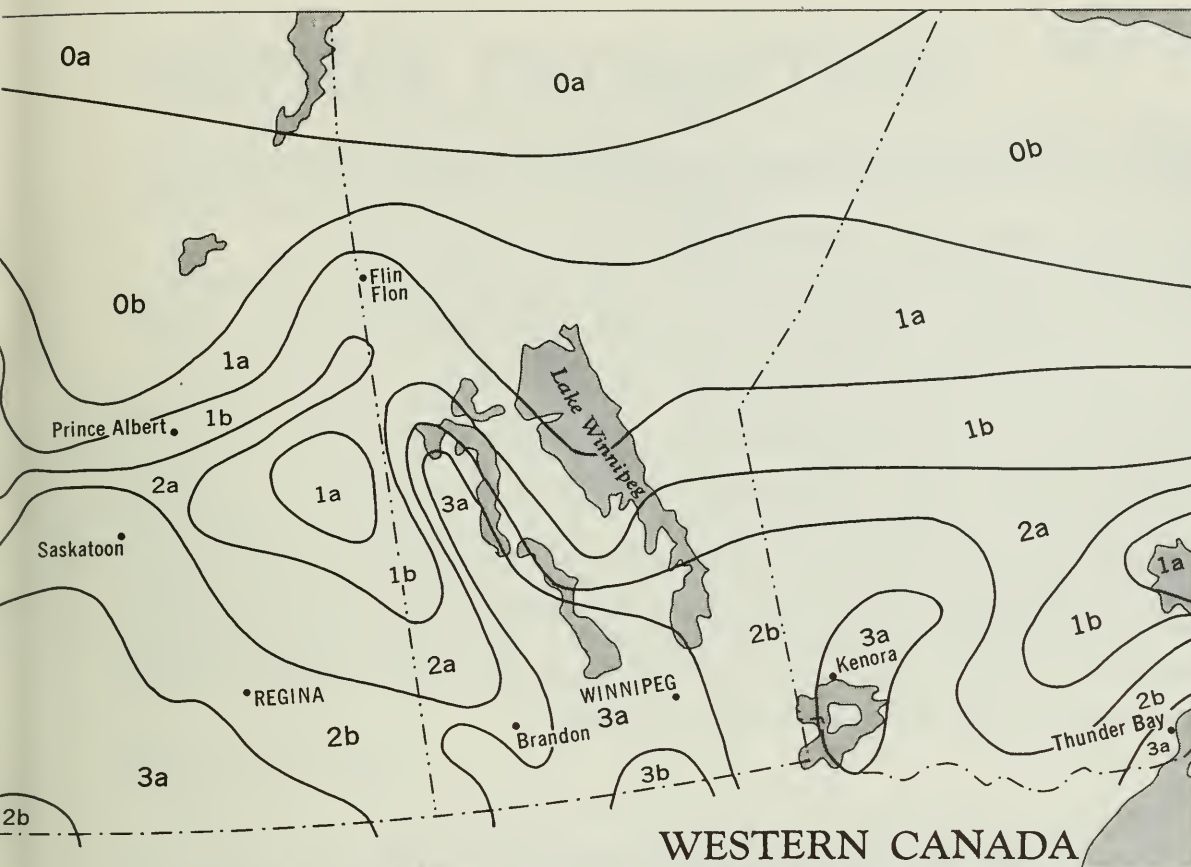


Fig. 2. Hybrid Tea before and after pruning.



Fig. 3. Hybrid Perpetuals before and after pruning.





Cartography by the Soil Research Institute, Research Branch, Canada Department of Agriculture, Ottawa, 1973

suckers

Widely grown roses such as Hybrid Teas, Grandifloras, and Floribundas are generally grown on the rootstocks of certain rose species, and there is a tendency for these rootstocks to send up shoots of their own. These shoots are called suckers.

Because various wild roses are used as rootstocks it is sometimes difficult to identify a sucker. However, the following points should help in this identification: (1) Most cultivated forms have five leaflets. If a shoot has seven leaflets, it is probably a sucker. (2) On cultivated forms the leaflets are usually shiny green and each leaflet has only a few teeth; suckers are generally a duller green with many teeth on each leaflet. (3) Hybrids usually have only a few stout thorns; a wild shoot usually has many thin straight thorns. If any two of these symptoms are identified on a shoot growing from below ground, it is probably a sucker, and unless it is removed the plant will gradually revert to the wild species. Suckers should be carefully traced back to their point of origin on the root system and removed flush with the root.

plant hardiness zones

On the *Map of Plant Hardiness Zones in Canada* the more populated area is divided into winterhardiness zones. These zones are marked from 0 (the coldest) to 9 (the mildest).

Zones 0-4a. The climate is generally too severe to grow Hybrid Teas, Grandifloras, Floribundas, and climbing roses. These types can only be grown if they are lifted every fall and the plants overwintered in a root cellar or buried in a trench in the garden. Most shrub roses can be grown in nearly all parts of this area.

Zones 4b-5a. Hybrid Teas can be overwintered with care. Shrub roses and many Hybrid Perpetuals can be grown without protection. Climbers and Ramblers survive if protected.

Zones 5b-6b. All but the most tender climbers can be grown without coverage provided care is taken to protect the roots.

Zones 7-9. With the exception of Tea roses, seldom seen in catalogs, protection is normally not required. The tree forms of Hybrid Tea and Floribunda can also be grown in this area, without bending them over and burying the tops.

There are areas within each zone which have their own microclimate. In these areas the plants require more or less protection than normal for the zone.

winter protection

The type of winter protection required depends on the minimum winter temperatures and amount of snow cover.

Half the battle against winter injury is won if the plants enter the winter in a well-ripened condition. This depends on good cultivation practices and on the amount of rainfall in the late summer and fall.

Winter injury results from the wood drying out, and freezing and thawing, rather than actual cold. Unripened wood is more susceptible to both types of damage than ripened wood. Insulation is needed against winds and fluctuations of temperatures. The amount of insulation needed depends not only on local winter climate, but on the condition of the plants at the time winter sets in. Snow is, of course, the best insulation and every effort should be made to keep a good covering of snow over the beds.

mounding

Because roots and stems of many types of roses are susceptible to injury from low temperature, the base of the plant must be protected during the cold weather. This is best done by mounding up soil round the plants to a height of 20-25 cm. The soil used for this should be brought in because if the soil from between the plants is used, the feeding roots, which are close to the surface, will be destroyed. If the only available soil is in the rose bed, take care not to expose the roots, and fill the depressions with material such as rotted manure. Carefully dig in this material in the spring.

additional protection

After mounding, leave the roses until the ground has frozen, and then cover with evergreen boughs to hold the snow. In zones 4 and 5a Hybrid Teas may be wintered outside if mounded over except for the tips of the branches, before covering them with boughs. To accomplish this, dig away soil from one side of the plants and bend them over before mounding, or mound up the plants and cover with inverted troughs.

Styrofoam cones, which can be placed over the exposed part of the bushes after mounding, are also useful; commercial rose collars or collars made from chicken wire can be placed round the plants and filled with leaves. These aids are additional protection in all but the mildest areas. Do not forget that snow is the best insulation.

protecting climbers

Take down climbers from their supports, tie the branches together, and lay them on the ground. In zone 6 brush is sufficient covering, but in zones 4 and 5 place boxes with rubberized roofing tops over them and fill with dry leaves.

Whatever covering is used, be sure that it will not sink into a soggy wet mass round the stems to cause mold. Provide a certain amount of air by making holes in the ends of boxes or troughs.

pits and trenches

Where the climate is too severe to successfully winter roses in the beds, dig them up in the fall and bury them in a trench or pit. If a trench is used, place the roses in a trench 60–90 cm deep and cover all but the tips with soil. If a pit is used, pack the roses into the bottom of a pit about 1 m deep with moist moss or soil round the roots. Place a board cover over the top and bank soil over it, or pack the plants in a box and bury it. Roses may also be heeled in in the dirt floor of a storage cellar. Drain pits and trenches well to prevent water from standing on the plants and freezing.

mice

Mice can cause a great deal of damage during winter, particularly where leaves are used for insulation. Whenever roses are buried or protected with leaves or branches, use poisoned mouse bait. Place it in such a way that it is not accessible to birds, for example inside a piece of pipe, and protected from late rains that could wash off the coating of poison.

propagation

Cultivars of Hybrid Tea, Grandiflora, and Floribunda roses are normally propagated by budding. This is a form of grafting in which a small piece of stem of the cultivar is joined to a hardy rootstock of a wild species of rose. Other types of roses can easily be grown from cuttings. Details of the methods and equipment required for budding and for rooting cuttings are given in the many books available on rose growing.

selecting cultivars of garden roses

Thousands of rose cultivars have been developed and many are available commercially. Nearly every rose catalog lists an array of cultivars and species. When selecting roses consider the suitability of the plant type for the specific plant hardiness zone. Also consider the vigor, disease resistance, color, and fragrance of the roses. Information on cultivars that grow well under the climatic conditions of a specific area may be obtained from the Executive Secretary, Canadian Rose Society, 20 Portico Drive, Scarborough, Ont. M1G 3R3.

The following list of recommended cultivars is a guide for the beginner. It is based on the performance of many cultivars in the rose gardens at the Experimental Farm, Ottawa, as well as on rating lists of the American Rose Society. Many highly advertised new cultivars of Hybrid Teas and Floribundas are not included because they have not been tested sufficiently to warrant recommendation.

recommended cultivars of garden roses

HYBRID TEAS

Red	Mr. Lincoln	White	Pascali
	Red Lion		Matterhorn
	John Waterer		White Masterpiece
	Chrysler Imperial	Light Pink	Memoriam
	Crimson Glory		Royal Highness
Yellow	Pharaoh		Michele Meilland
	Adolph Horstmann	Pink	Command
	King's Ransom		Performance
	Grandpa Dickson		First Prize
	Oregold		Miss All-American
Lavender	Lady X		Beauty
	Blue Moon		Electron
	Silver Star		Peter Frankenfeld
			Pink Peace

HYBRID TEAS

Blends	Chicago Peace Peace Garden Party Fragrant Hour Double Delight Typhoon Seashell	Orange & Apricot	Lolita Fragrant Cloud Tropicana
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FLORIBUNDAS

Red	City of Belfast Cordula Frensham Fire King Europeana Satchmo	Pink	Dolly Bon Bon Fashion Irish Mist
Yellow & blends	Friesia Red Gold	Orange & blends	Cathedral Prominent Annabel Esther Ofarim
Lavender	Angel Face	White	Ivory Fashion Iceberg

GRANDIFLORAS

Red	Carrousel John S. Armstrong Scarlet Knight	Pink	Queen Elizabeth
		Pink blends	Nitouche Pink Parfait
Yellow	Golden Girl Buccaneer	Orange	Arizona Montezuma
White	Mount Shasta		

HYBRID PERPETUALS

Red	Captain Hayward George Dickson Hugh Dickson	Pink	Countess of Oxford Mrs. John Laing
		White	Frau Karl Druschki

CLIMBERS

Red	Dublin Bay Grand Hotel Altissimo Improved Blaze	Pink	Galway Bay Malaga New Dawn
		Blends	Handel
Yellow	Golden Showers Royal Gold	White	Swan Lake

MINIATURES

Red & blend	Beauty Secret Starina Toy Clown My Valentine Over the Rainbow	White	Starglo White Angel Cinderella
		Yellow	Yellow Doll Golden Angel Gold Coin
Orange & blends	Mary Marshall Baby Darling Anytime Hula Girl Mary Adair	Lavender	Lavender Lace
		Pink & blends	Chipper Janna Judy Fischer Kara Pixie Rose

MINIATURE CLIMBERS

Carmine	Hi Ho
Pink	Pink Cameo

shrub roses

Shrub roses can be divided into two groups: (1) natural species, which grow in Europe, Asia, and North America, and the garden forms of these species, and (2) hybrids, developed from the crossing of two or more species. These hybrids may have single or double flowers and are sometimes sterile.

natural species

The following notes deal with the natural species most commonly grown in Canadian gardens.

R. acicularis Lindl. A native of northern Canada, one of the hardiest and earliest to bloom. It forms a low compact shrub to 1 m high, and has dark pink blooms followed by waxy pear-shaped red fruits 2-3 cm long.

R. blanda Ait. A hardy rose native from Newfoundland to Manitoba. It suckers freely and forms a mass of canes to a height of about 2 m. The red brown wood is almost free from spines and thorns. The large, pink flowers are usually solitary and are followed by almost globe-shaped fruits about 1 cm in diameter. The cultivar Betty Bland is closely allied to this species. It has fragrant, double, deep pink flowers that fade with age.

R. centifolia L. The Cabbage rose is hardy and vigorous enough to be classed as a shrub rose. It is similar to *R. gallica*, though taller. The double, pink flowers are borne on nodding stems and the petals are turned in over each other like the leaves of a cabbage. The variety *muscosa* Ser., the Moss rose, has a fragrant, mossy calyx. Some cultivated forms are available.

R. cinnamomea L. The Cinnamon rose has long been cultivated in Europe. Its double form, which is the only one grown in gardens, was brought to Canada by early French settlers and is found throughout the province of Quebec. It forms a gracefully arching shrub to 2 m high, and has pink flowers. Rarely offered for sale in nurseries.

R. damascena Mill. The Damask rose has been cultivated for centuries for its palest pink to red flowers borne in nodding clusters. The cultivar Versicolor, the York-and-Lancaster rose, has semidouble flowers with white and pink ones borne on the same bush.

R. eglanteria L. (*R. rubiginosa* L.). The Sweetbrier was brought to Canada by early British and United Empire Loyalist settlers. It forms a bushy shrub to 2 m high, and has bright pink flowers followed by orange red, oval fruits. It is chiefly grown for the fragrance of its foliage.

R. foetida J. Herrm. The Austrian Brier, cultivated for many years in Europe, is responsible for the yellow color in Hybrid Tea and Pernetiana roses of today. The slender brown stems are often almost like those of a Rambler. The large, deep yellow flowers, which do not have a pleasant fragrance, are followed by red, globular fruits. The flowers of the cultivar Bicolor, the Austrian copper rose, offer a color variation. They are brilliant copper red inside and yellow outside.

R. gallica L. The French rose has been cultivated for centuries and was brought to Canada by the early settlers. It spreads rapidly by underground rootstocks and forms a mass of canes to a height of about 1 m. The flowers are double, pink to red, and are followed by brick red fruits.

R. hugonis Hemsl. This central China species is not hardy at Ottawa, but in milder districts forms a large, arching shrub of graceful habit and is one of the most attractive species. It blooms early and bears large, single, pale yellow flowers in profusion. The fruits are flattened-globe-shaped and deep scarlet.

R. laxa Retz. A native of Siberia. It is covered with white flowers, followed by orange fruits that turn dark red as they ripen. It forms an ornamental shrub to 1.5 m high.

R. moschata J. Herrm. The Musk rose. A shrub with arching branches that form a graceful mound. This was an old favorite and a parent of the original climbers. There are a few named cultivars of this rose.

R. multiflora Thunb. This is a vigorous shrub with long, reclining branches and large clusters of small, white flowers. It has no ornamental value. It is the ancestor of some climbers and the most popular rootstock for grafting and budding garden roses. It was given great publicity in the United States as an inexpensive, effective hedging plant for farms. Unfortunately, its proponents had overlooked the shrub's suckering habit, and in some areas it has gone wild.

R. nitida Willd. Native from Newfoundland to Connecticut, this dwarf rose grows to 0.5 m high and has dense prickly branches. The pink flowers are followed by small, red fruits and the foliage also turns brilliant red in autumn.

R. pendulina L. (*R. alpina* L.). This shrub has almost smooth stems. The purplish pink flowers are in small clusters and are followed by blood-red bottlenecked fruits about 2.5 cm long. The variety *pyrenaica* has smooth stems and conspicuous fruits.

R. rubrifolia Vill. This hardy rose is chiefly cultivated for its red- or purplish-tinted foliage and stems, which are ornamental. The flowers are small, bright red with a white center, and are followed by smooth, globular, red fruits.

R. rugosa Thunb. The Japanese fruiting rose forms an erect shrub to 2 m high with dense, thickly bristled stems. The foliage is leathery,

crinkled, and shiny. It has large, white to purplish red flowers, followed by bright red flattened-globe-shaped fruits almost 2.5 cm in diameter. Many fine cultivars of this rose have been developed through crossing with garden roses and other species.

R. spinosissima L. The Scotch rose has been cultivated for centuries and many cultivars have been developed from this species. It forms a spreading shrub with densely prickled branches bearing an abundance of flowers from white to deep pink. The roundish-shaped fruits are purplish black.

R. virginiana Mill (*R. lucida*). Native to the Atlantic Provinces. Similar to *R. blanda* and often described as a variety of it. It has attractive shiny foliage, and bright pink flowers that open later than most other wild species.

hybrids

Hybrids of different rose species are among the most valuable of shrub roses. They are particularly useful in colder districts where garden roses are not hardy enough to survive without excessive care. There are, of course, degrees of hardiness in shrub roses, but those described in the following notes are hardy at Ottawa without winter protection. Many are hardy in much colder districts.

AGNES, introduced by Agriculture Canada's Research Station at Ottawa, Ont. *R. rugosa* × Persian Yellow. A hardy, early blooming rose with double, pale amber-yellow flowers borne in profusion. The habit and foliage is much like *R. rugosa*.

ADELAIDE HOODLESS, introduced by Agriculture Canada's Research Station at Morden, Man. This hardy floribunda-type rose has a complex parentage. It forms an open shrub to 1.2 m high, with few spines. The red flowers are semidouble, slightly fragrant, and in clusters of up to 25.

ALTAICA. This cultivar of the Scotch rose (*R. spinosissima*) is one of the hardiest of roses. It is more vigorous than the species and forms an erect shrub to 2 m high. The large, white flowers are followed by brownish, globe-shaped fruits.

BLANC DOUBLE DE COUBERT. *R. rugosa* × 'Sombreuil'. A vigorous, hardy bush growing to 2 m high. The flowers are semidouble, white, and fragrant.

CUTHBERT GRANT, introduced by Agriculture Canada's Research Station at Morden, Man. This rose, which has a complex parentage, grows to about 1 m high. The dark red blooms are in clusters of 3-6. It flowers on the new growth in July and is root-hardy at Brandon, Man.

DR. MERKELEY. This hybrid is related to the Scotch rose (*R. spinosissima*). It grows to about 60 cm high, has deep pink, fragrant, double flowers, and blooms in July.

F.J. GROOTENDORST. *R. rugosa rubra* × unknown Polyantha. One of the most widely grown shrub roses. It grows to 2 m high. Flowers are borne in clusters of up to 20 and are bright red, double, and slightly fragrant. Its foliage is bright glossy green.

GEORGE WILL. (*R. rugosa* × *R. acicularis*) × garden rose. Double, clove-scented, deep pink flowers on a 1 m shrub. Repeat bloomer.

GROOTENDORST SUPREME. A crimson red sport of 'F.J. Grootendorst'.

HANSA. An *R. rugosa* hybrid. Flowers large, double, fragrant, produced freely throughout the season; a strong-growing thorny plant that has large, red fruits. It is said to be the hardiest on the prairies.

HARISON'S YELLOW. *R. × harisonii*, a cross between *R. foetida* and *R. spinosissima*. It has been cultivated for many years and is so widespread in Canada that its pale yellow, semidouble blooms are well known.

ISABELLA SKINNER. A hybrid, with *R. laxa* as one parent. It is a repeat bloomer with double, pink flowers on a bushy plant.

JENS MUNK, introduced by Agriculture Canada's Research Station at Ottawa, Ont. This hybrid, a cross between two *R. rugosa* cultivars, is a vigorous shrub growing to 2 m high. Flowers are semidouble, pink, and show their golden centers when open. They are borne in clusters of 6-12. The bright red fruits are showy in fall. Repeat bloomer.

METIS, introduced by Agriculture Canada's Research Station at Morden, Man. *R. nitida* × 'Thérèse Bugnet'. A small plant growing to 1 m high. The upper parts of the branches are almost thornless. The double flowers are amaranth rose and are followed by bright red fruits.

MICMAC, introduced by Agriculture Canada's Research Station at Ottawa, Ont. Seedling of *R. rubrifolia* × *R. rugosa*. The foliage of this plant is deep purplish red. The flowers are white and borne in clusters. It forms an open shrub about 1.2 m high.

PERSIANA (Persian Yellow). A hybrid of unknown date of origin, but from *R. foetida*. It has double orange yellow flowers in June on a bush that reaches 1.5 m in height. Makes a good informal hedge.

PINK GROOTENDORST. A recurrent-blooming, pink sport of 'F.J. Grootendorst'.

PRAIRIE DAWN, introduced by Agriculture Canada's Research Station at Morden, Man. The most popular of a group of "Prairie" cultivars introduced in the last few years that has the Scotch rose (*R. spinosissima*) as one parent. It has glowing pink flowers on an upright bush that grows to 2 m high. It is a repeat bloomer.

SIR THOMAS LIPTON. A vigorous *R. rugosa* hybrid growing to 2.5 m high. The recurrent flowers are white, double, and fragrant, and the foliage is dark and glossy.

STANWELL PERPETUAL. A low-growing, thorny hybrid, popular on the prairies. It has medium-size, fragrant, blush flowers in July, and bears a good second bloom in late summer.

THERESE BUGNET. A hardy shrub rose with a complex parentage. New shoots reach 1.5–2 m in 3 months. The flowers are borne on the old wood from mid-June to frost. They open red and fade to pale pink, and are fragrant.

CONVERSION FACTORS

Metric units	Approximate conversion factors	Results in:
LINEAR		
millimetre (mm)	x 0.04	inch
centimetre (cm)	x 0.39	inch
metre (m)	x 3.28	feet
kilometre (km)	x 0.62	mile
AREA		
square centimetre (cm ²)	x 0.15	square inch
square metre (m ²)	x 1.2	square yard
square kilometre (km ²)	x 0.39	square mile
hectare (ha)	x 2.5	acres
VOLUME		
cubic centimetre (cm ³)	x 0.06	cubic inch
cubic metre (m ³)	x 35.31	cubic feet
	x 1.31	cubic yard
CAPACITY		
litre (L)	x 0.035	cubic feet
hectolitre (hL)	x 22	gallons
	x 2.5	bushels
WEIGHT		
gram (g)	x 0.04	oz avdp
kilogram (kg)	x 2.2	lb avdp
tonne (t)	x 1.1	short ton
AGRICULTURAL		
litres per hectare (L/ha)	x 0.089	gallons per acre
	x 0.357	quarts per acre
	x 0.71	pints per acre
millilitres per hectare (mL/ha)	x 0.014	fl. oz per acre
tonnes per hectare (t/ha)	x 0.45	tons per acre
kilograms per hectare (kg/ha)	x 0.89	lb per acre
grams per hectare (g/ha)	x 0.014	oz avdp per acre
plants per hectare (plants/ha)	x 0.405	plants per acre



