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ROSE PROPAGATION

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Roses may be propagated several ways. The fact that commercial rose growers in different parts of the country propagate rose plants by different methods testifies that this is true. Eastern nurseries usually propagate roses by budding into the roots of seedling Rosa multiflora plants. In the west, a similar budding technique is followed, however, the understocks used are obtained from hardwood cuttings.

Roses to be used for outdoor purposes usually do best when budded on Rosa multiflora or Dr. Huey understocks because they are vigorous and quite resistant to winter injury. The roots produced by many varieties of hybrid tea and floribunda roses are not nearly as resistant to winter injury as are those of Rosa multiflora or some other understocks. For this reason budded plants are preferred; however, quite good results may be had with own root plants.

BUDDING

When roses are budded, the common "T" or shield method of budding is used. By inserting buds in July or August, the bud union is allowed time to heal before growth starts the following spring. July and August are also a desirable time to bud, because the bark of the understock plants slips readily at this time and the buds can be easily inserted.

Whether seedling understocks or understocks which have been started from cuttings are used, is not necessarily important. It is important, however, to insert the buds low on the understocks so that sucker shoots from the understocks do not grow. Soil on one side of the understocks should be removed to a depth of two to four inches and the bud inserted below the former soil line preferably, but not necessarily, on the north side so that the new bud remains in the shade.

The first step is to make a "T" shaped cut in the bark of the understock. The edge of the knife may be used to gently loosen the bark at the corners of the "T" shaped cut. The buds of the desired variety to be inserted should be cut from the middle four or five nodes of a shoot which has recently flowered. The buds can be removed from the shoot by starting a cut one-half inch below the base of the leaf and extending to one-half inch above the leaf base. Using the leaf base as a handle, the shield containing the bud may be separated from the wood of the stem. After removing the bud shield, it should be immediately placed in the "T" shaped area on the understock and inserted by pressing gently downward. Care should be taken not to allow either the cut surface of the bud or the "T" shaped cut to become contaminated with soil or debris. After the bud is inserted in the understock, the cut should be securely wrapped with strips of rubber or plastic. After the union is assured, the tie can be removed. It is not necessary with the new plastic strips.

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With a little experience, 70 to 80 percent of all buds inserted should "take". If the bud is alive after a months time, success is virtually assured. No special care is needed during the winter other than ordinarily given. Before the buds start to grow the following spring, the understocks should be removed immediately above the bud. It may be necessary to stake the new shoots the first year to avoid wind breakage or twisting.

The methods for producing understocks will be discussed under "hardwood cuttings" and "seed propagation".

### CUTTINGS

Two types of cuttings are often used to produce new rose plants.

Hardwood or Dormant Cuttings: Hardwood cuttings may be used to propagate roses in most sections of Ohio. Vigorous disease free shoots should be selected in late fall or early winter before a heavy freeze and cut into lengths six to eight inches long. The cuttings may be bundled in sizes convenient to handle taking care to place the basal ends together to facilitate planting the following spring. After tying, the cuttings should be treated so as to receive temperatures near 60 degrees F until callus forms at the cut ends. Temperatures near 40 degrees F should then be given until the following spring. Usually, if refrigeration facilities are not available, it is best to select a well drained location in as light a soil as possible and bury the cuttings. They should be buried at least one foot below the soil surface in moist sand or peat moss. The area above the cuttings should be well mulched to prevent deep freezing during the winter. Storage in boxes in a garage or out-building is also good.

The cuttings should be planted as soon in the spring as possible to prepare the soil so that only one or two buds remain above the soil surface. Spacing will depend upon how long the plants will remain in the row before transplanting, but six to eight inches apart in the row is usually sufficient.

If Rosa multiflora is grown for understock purposes, it is especially important that all buds, except the upper one or two, be cut out with a sharp knife. This will prevent the formation of many sucker shoots after a desirable variety has been budded and the Rosa multiflora shoot removed. Bud removal is not necessary when named varieties are grown from hardwood cuttings on their "own" roots.

It is often necessary to irrigate the cuttings regularly after sticking, especially if the season is dry. With adequate irrigation, good results can usually be expected. Especially good results can be had using this method of propagation for climbers, hybrid perpetuals, and species roses.

Softwood Cuttings: All types of rose plants may be started from softwood cuttings. Softwood cuttings are taken during the summer growing season from the current years growth. Cuttings containing three to six leaves should be removed from the base or middle portions of shoots which have just flowered and stuck in any well drained medium. Sand, peat moss, perlite, or any combination of these materials make an excellent rooting medium. Leaves should be removed from the portion of the cutting stuck in the medium. The cuttings should be stuck one to two inches deep and shaded heavily to prevent wilting. Frequent overhead syringing is necessary to maintain a high humidity and reduce leaf temperatures. One

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or two layers of heavy muslin stretched on a frame and suspended over the plants will usually do much to prevent wilting. If only small numbers of cuttings are desired, it is possible to invert a fruit jar over each cutting and maintain a moist atmosphere to prevent wilting. A polyethylene tent may also be used.

Rooting should occur in three to four weeks if leaf drop is not excessive. A somewhat longer time will be needed if leaf drop occurs. In this connection, it is especially important to select cuttings which are free of black-spot or any other foliage disease.

#### SEED PROPAGATION

Named rose varieties do not "come true" from seeds. Only the species roses such as Rosa multiflora, Rosa hugonis, Rosa rugosa, etc. produce plants from seed which closely resemble the parents. For this reason, seed propagation of named varieties is not possible. It is of interest only to the rose hybridizer who wishes to obtain new seedlings which might prove to be valuable new varieties.

Rosa multiflora, however, is often propagated by seed for rootstock purposes.

The hips (seed pods) of Rosa multiflora should be collected when mature in the fall. The seeds must be extracted from the fruits before further treatment. If small quantities of seed are needed, hand extraction is adequate. If larger numbers are needed, however, the hips may be rubbed through a one-eighth inch mesh screen and moistened to allow slight fermentation to take place before further separating the seed from the macerated fruit.

After recovering and drying the seeds, they must be stratified at temperatures near 40 degrees F for at least eight weeks before germination will take place. The seeds should be mixed with enough moist sand or preferably peat moss to prevent drying and then placed under cool conditions. If only a few seeds are stratified, they may be mixed with peat moss, placed in a polyethylene bag and stored in the family refrigerator for two months. Larger quantities of seed may be stratified in sand or peat moss and buried in the ground as described for hardwood cuttings.

Somewhat longer stratification periods are necessary for other rose species, and when in doubt, the seeds should be kept in cold storage for three to five months.

After stratification, the seeds should be planted in a well prepared seed bed or flats of soil and kept moist until germination has occurred. If seed is properly stored over winter and planted early in the spring, enough growth should result the first summer so that the plants can be used for understocks next year. Considerable variation often results; however, and it may be that only a few seedlings reach large enough size to bud the first year.

#### STANDARD ROSES

Propagation of standard or tree roses involves several procedures. In most cases intermediate stem pieces are budded into rootstocks and then the desired variety is budded into the intermediate stem piece at the desired height. If, for example, a Rosa multiflora understock is used, a bud of the intermediate stem

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piece (Rosa rugosa is often used) is inserted as previously described. One year later, or after the intermediate stem piece has grown to the needed size, several buds of the desired variety are inserted at the height wanted. Depending on methods used and growing conditions, it takes two to three years to produce a standard rose.

Questions concerning rose propagation not covered in this mimeo may be directed to the Department of Horticulture, the Ohio Agricultural Experiment Station, Wooster, Ohio.

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