Bulletin No. 1

LOUISIANA CAMELLIA SOCIETY

Graft your Own Camellias

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Reprinted from
HOME GARDENING FOR THE SOUTH
Vol. VI No. 1 Pages 246-249
Any one having normal use of his hands, the knowledge of how to make a simple graft, and a little confidence in himself can successfully graft camellias. The grafting technique is neither difficult to understand nor to execute. The only advantage the professional has over the amateur in this skill is that he is able to do more grafts in a given period of time. In reality many inexperienced amateurs have an exceptionally high percentage of "takes". This should not be attributed to luck but rather to the fact that the beginner probably takes better care of the plants that he grafts.

**Reasons for Grafting**

The advantages obtained in grafting more than compensate for the effort involved. A grafted plant will usually bloom the second year after grafting. When it does, it is of sufficient size to make a nice show. By contrast a rooted cutting will not make a similar show until it is several years older. Many plants do not do well on their own roots. By grafting on to a vigorous root stock, stronger plants are obtained. Grafting permits the growing of more than one variety on a single plant. Those who do their own grafting can usually save considerable money when new and rare varieties are involved. Finally, the additional enjoyment derived from camellias one has grafted himself makes it a most worthwhile undertaking.
Tools and Equipment

Although there are market special grafting tools, these are not necessary. An ordinary cross-cut saw is just as useful as a pruning saw. A butcher knife and screwdriver can replace a grafting chisel. Add to these a pair of pruning shears, a hammer, an oil stone and a sharp knife and you have all the tools necessary for grafting.

Besides the tools a bell jar, three stakes and some burlap will be needed. The bell jar is needed to cover the graft to keep it in a humid atmosphere during the early stages of its development. Either clear or colored glass is satisfactory. Glass battery jars or gallon bottles with bottoms broken out are as satisfactory as a bell jar. An easy way to break the bottom out of a gallon size glass bottle is to tie a kerosene-soaked, heavy cord around the bottle about one-half inch from the bottom. Hold the bottle horizontally by the neck: ignite the cord and turn the bottle so that the cord burns uniformly. After the cord has burned, dip the bottom of the bottle in a pan of cold water. The bottom will fall out of the bottle, giving you an excellent homemade bell jar.

Gloves should be worn when doing this, as occasionally bottles do not break properly and an ugly cut on the hand may result. Also be sure the bottle is not stoppered.

Selection of Stock and Scion

With the tools and equipment ready, the next step is to select the root stock. Camellia sasanqua seems to be thoroughly satisfactory for this purpose. It is relatively inexpensive, a vigorous grower and highly compatible with most varieties of Camellia japonica. In addition, it seems to be more tolerant of extremely wet or dry soil than is C. japonica. The tea plant, Camellia thea, is reported to make a satisfactory root stock. However, it is not as readily obtained. Some of the more vigorously-growing, common varieties of C. japonica are very satisfactory for grafting stock.

A nice size root stock for grafting is a plant that measures between ¾ inch and 1¼ inches in diameter a few inches above the ground. This size is large enough to hold two scions and small enough to work easily. Larger or smaller stock may be used with good success, however. The scions of the desired variety should be selected from vigorous shoots of the past season’s growth. They should be well matured as indicated by a grey color of the bark. Above all, they must be dormant. Once they have been cut, they should be kept moist until they are ready for use. It is probably best to use the scions soon after cutting them. Scions may be held under humid refrigeration several weeks before being used. This practice is not recommended for beginners.

The Cleft Graft

The graft union is brought about by the multiplication and knitting of the cells of the cambium or growth layer of both stock and scion. This layer is very thin and can best be located by referring to the tissue on both sides of it. The cambium may be considered for all practical purposes as an invisible cylinder of cells located between the bark and the hard white wood. The inside of the bark is green in color. The cambium is located at the line
of demarkation between the green and white rings. Upon sawing off the stock a few inches from the ground, one can readily locate the cambium layer.

After the stock has been sawed off, it is then split longitudinally through its center to a depth of about two inches. An attempt should be made to split the stock in a place where the grain of the wood is straight. The cambium is thus exposed the full length of the split. By using the wedge end of a grafting chisel or a screwdriver, the split is opened so that it is ready to receive the scion.

The scion is cut into a wedge shape at the bottom end. The cut sides of the wedge should be approximately one inch long. The cut surfaces of the scion expose the cambium in a long U shape. By placing the scion in the cleft of the stock, it is easy to match the exposed cambium on one side of the stock with the exposed cambium on the outside edge of the scion. An exact matching of the cambium is not always possible. An attempt to match exactly should be made.

Careful cutting of the scion will do much to facilitate a good fit between stock and scion. The scion cut with a straight tapering wedge which is slightly wider on one side than the other will be the easiest to place in position. The wider of the two sides of the wedge should go to the outside in order that the cambiums of stock and scion can touch. While a reasonably good fit between stock and scion is desirable, a perfect fit is by no means necessary.

The scion must have a minimum of one leaf and one bud. The minimum is recommended only when it is desirable to get the maximum number of grafts from any given amount of scion wood. Single bud grafts are difficult to cut and to put into place. When an adequate amount of scion wood is at hand, a scion having two leaves and four or five buds is recommended. Likewise two scions are recommended for each stock. However, a plant developed from only one single-bud scion will be as good a plant as one developed from two multiple-bud scions. There is evidence that one scion should be removed in cases where both scions on a stock develop. This should not be done until the year following the grafting.

When the scions have been set, the wounded surface should be protected from drying out until callusing and knitting are well advanced. Grafting waxes may be purchased for this purpose. Experimental work done at Southwestern Louisiana Institute clearly indicates that grafting wax seriously retards callus formation. This work also indicates that soil, either mounded over the wound of the graft or pressed in a ball around the wound, is superior to wax. Peat moss, sphagnum or sand if mounded over the wound are equally as good as soil if kept moist. They are, however, no better.

Upon completion of the graft, a stopped jar which has previously been wet inside should be inverted over the graft and sealed at the bottom with soil. Three stakes about a yard long are then placed like a tripod over the jar. These are covered with a single layer of burlap. Caution should be taken to have an air space between the burlap and the bell jar. The sole purpose of the burlap shading is the reduction of temperature. A dead air space between the jar and the burlap is especially desirable on the south and west sides of the graft.

Care of the Graft

Often grafts are lost after growth has actually started. Graft mortality can be reduced by making sure the roots are getting adequate moisture and by a gradual change from the humid atmosphere under the jars to the normal outside atmosphere. After the graft has grown nearly to the top of the jar, the jar may be raised an inch or so by placing two small sticks under it. In a week the jar can be raised again by placing bricks under it and finally it can be completely removed. If the graft shows signs of wilting, the jar should be replaced during the heat of the day. By doing this a few days, the graft will harden and soon the jar will no longer be necessary.

The method of removal for removal of the burlap jar is to open the jar and then hit it with a screwdriver, the jar can be raised again by placing bricks under it and finally it can be completely removed. An attempt to make the maximum number of grafts from any given amount of scion wood. Single bud grafts are difficult to cut and to put into place. When an adequate amount of scion wood is at hand, a scion having two leaves and four or five buds is recommended. Likewise two scions are recommended for each stock. However, a plant developed from only one single-bud scion will be as good a plant as one developed from two multiple-bud

Time to Graft

Most camellia grafting is done in the months of January, February, and March. At this time the scions are dormant and the total growing season is ahead of the graft. Grafting may be done successfully any month of the year. There is no particular advantage in grafting during the late fall and early winter since growth will not take place until the following spring anyway. Late summer and early fall grafts must have winter protection since they do not have time to harden before freezing weather. Such weather may kill the succulent growth of the graft made after August 1st, if it is not well protected.

An economical manner of handling root stock is to make a late winter graft about 6 inches above the ground. If this dies, graft again immediately two inches lower on the same stock. Should this attempt fail, a third attempt may be made immediately two inches lower yet on the stock. By so doing the chances of getting a "take" the first year are very good. Percentage of "take" will vary not only from year to year but also with the stock used and the variety and conditions of the scions. Commercial nurserymen who graft once a year will average about 50% "takes" year after year on all varieties. Amateurs grafting but a few plants often approach 100%. The difference is in the care given to the individual grafts.

These suggestions are offered as workable procedures that the novice may find useful. It is recognized that numerous variations may be equally successful.
Camellias from Cuttings

In the process of rooting camellia cuttings M. J. Pittman of New Orleans made an accidental discovery that is claiming the interest of all camellia growers who have heard about it. He found that camellia leaves can be rooted without any wood or bark attached to the leaf stem. One day, while planting woody cuttings, he failed to gather up the leaves that had been stripped from the lower ends of the cutting material. These had lain on the moist greenhouse bench for five weeks and one had taken root of its own accord. He potted it carefully and now has a healthy plant as illustrated above.

Though he continues to plant hardwood cuttings, he is also experimenting with leaf cuttings. Even though a number of camellia leaves set roots, only those whose roots emerge from a callus formation survive. Figure A shows a healthy leaf cutting with a knob or callus at the stem and the roots growing out of the callus. Soon a new shoot will break from the top of the callus indicating that the new plant is ready for potting.

In Figure B the roots grow directly out of the leaf stem and at the time the drawing was made the leaf already had a yellow, unhealthy appearance and was discarded after the sketch was completed.

Mr. Pittman has never tried to root leaves in the open and does not think it can be done. He maintains a high temperature in his greenhouse the year around and finds that this stimulates rapid root development. The house is sunwarmed most of the year and by keeping it closed except for roof ventilation it retains its heat all night. During the winter he heats it with an oil stove in order to keep the temperature between 100° and 105° F.

Most of Mr. Pittman's greenhouse space is devoted to rooting hard wood cuttings which he puts down in the winter before new growth starts or during July and August after it has hardened. By experimentation he found that the highest percentage of "takes" results from cuttings made in July and August; that about 75% of his winter cuttings root, whereas 93% of his July-August cuttings root. He uses a medium of 3 parts very fine gravel, 1 part builders' sand, and 1 part peat moss. There is no comparison between the root system of cuttings started in the above mixture and those in half peat, half sand. The gravel makes strong, dark roots; without gravel the roots are white and succulent. He uses gravel that has been used in sand blasting but says that if this is not accessible, small gravel may be crushed with a heavy hammer until it is almost as fine as coarse sand.

His records show that the cuttings callus in about five weeks and at the end of the seventh week roots develop. They are ready for potting in ninety days. As a potting mixture he adds leaf mold to his rooting medium (50-50) and places the pots in a lath house. When they have outgrown their 2 inch pots they are ready to be bedded in the open.

Mr. Pittman says that it is possible to have a blooming plant for Christmas from a cutting made in July. The trick is to select wood having a flower bud on it. This is smart salesmanship as everyone prefers to know exactly what kind of plant he is buying, but the practice is not recommended because a plant that is allowed to bloom the first year loses some of its sturdiness.