



# Colorado Nurserymen Association

IN COOPERATION WITH COLORADO A & M COLLEGE

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## Care of Carnation Mother Blocks

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The mother block system of propagation for carnations is rapidly becoming standard procedure among carnation growers. Advantages of this practice are many but the greatest of these is that mother stock can be scrutinized carefully before any cuttings are taken.

From our experience the past several years in reselecting standard carnation varieties, we find that mutations or sports occur frequently. Even in the most carefully selected stock, grassy or vegetative individuals are continually arising. We have found individual plants that split all their flowers over an entire season. From single clone records we have found some clones that produce all good flowers, others with a tendency to produce faded, hollow-centered or small flowers. Just which characters are inherited and which are caused by environment remains to be shown by future experiment. It has been our policy to date to discard all parent stock showing serious faults. Even with this careful roguing, some faults show up in later propagations.

The mother stock should be absolutely free of Fusarium and bacterial wilts for they are carried in the conductive system of the plant and are carried to cuttings taken from infected plants. The virus disease known as carnation streak should also be eliminated completely from carnation mother stock. Mosaic, another virus, is more difficult to eliminate for it is very easily spread by handling, root contact and other ways. We can tolerate some mosaic, if we have to, without spectacular losses. Neither streak nor mosaic kill plants, but they reduce the quality of flowers produced. Streak seriously reduces production on some varieties.

Techniques are being developed that make it practical for cooperative groups to do some culturing of cuttings in order to obtain disease free stock. Much thought should be given by the grower to keeping the mother stock healthy once it is cultured and indexed.

### Location of Mother blocks

First of all the mother block should be isolated, if at all possible. A small separate house with no through traffic is ideal. If this is not practical, the next best is location of mother blocks on outside benches where light is best. Low light during winter seriously limits the production of cuttings and causes them to be thin.

### Time of planting and spacing

The best time to plant a mother block for the following season is during the summer period - June to September. If planted at this time, a spacing of 8 x 8 inches is optimum. If planted later than September, the mother block will yield more cuttings from a 6 x 8 spacing.

### Handling the young plants

It is extremely important to avoid checking the growth of the young plants. They should be planted directly where they are to grow in sterilized soil. Ample water the first two weeks is a must. In late spring and summer we water our soil

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lightly after steaming, plant the cuttings and water as many as three times to insure thorough wetting of the soil. If fertility is high in the soil, we actually leach at this time. Each morning for five days we water the cuttings lightly by a gentle spray. We do not sprinkle more than once a day regardless of how much the cuttings wilt, for it is important that plants dry off. If kept wet continuously, disease organisms have an easy time getting a foothold.

As the cuttings stop wilting, you may be sure new root growth is becoming established in the soil. From that time on, water according to the soil moisture content.

Plants should be pinched when well established, usually in three to four weeks. The two top breaks should be flowered to check the performance of each plant. If either of the two flowers has a serious fault, the plant should be discarded. As lower breaks develop they should be pinched to develop a heavy plant. As soon as the majority of flowers are taken off, cuttings may be taken from mother blocks with confidence. Any plants that tend to be unusually late in flowering should be rogued out. Grassy individuals, if present, are late flowering and easily recognized by their free branching habit and taller stems.

#### Supports

Only one set of wire and string supports is needed for a mother block. The flowers which are allowed to bloom will extend much higher but will not fall over. As soon as they are removed, the plants will be low and well supported.

#### Taking of the cuttings

For maximum yield of uniform cuttings, no heels should be taken until about two months before the mother block is to be discarded. Each cutting should be broken off above the second pair of small basal leaves. This leaves two growing points and will insure a continuous and increasing supply of cuttings.

#### Quality of the cuttings

The first crop of cuttings from a mother block may be soft, due to the extreme vigor of the plants. This first growth may be made firmer by allowing the soil to dry between waterings. Cuttings tend to become harder with an increase of sun during the spring and early summer. As they become harder it is best to break cuttings at the node to avoid tearing the

stem. Immature cuttings are more difficult to root. When taking a crop of cuttings, all that are doubtfully mature should be left on another week. They grow best on the mother plant.

#### Timing of a mother block

Cuttings benched in mid-June will have flowered the two top breaks by late October.

Cuttings benched July 1 will make a block for propagation by mid-November.

Cuttings benched July 15 will be ready for propagation by Christmas.

Mid-August cuttings will have flowered the two top breaks by February 1.

#### A few precautions

Since your next crop depends upon the quality of your mother block and its freedom from disease, it may well become your most important operation.

To avoid infecting it with disease it would be well to think of possible means of contamination. The end of the watering hose should not be allowed to touch the ground. Punching in the bench to see if soil needs water should be avoided. Signs should be hung above mother blocks to prevent unnecessary handling and to remind employees of the importance of these plants. Anyone taking cuttings or breaking flowers from mother blocks should wash his hands thoroughly with soap and water before handling the mother plants.

#### Nutrition of mother blocks

The drain on a mother block is even greater than on producing plants. Since most of the nutrients in a plant are concentrated in the new growth, much of this is removed in the cuttings. It is especially important that mother stock be grown with ample nitrates available in the soil.

#### Production of cuttings

We have consistently produced 125 cuttings per square foot of bench area from mother blocks of the Sim varieties. This figure includes the cuttings produced up to June 1.

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