Grassy Mutants In Carnations

Vigorous grassy plants with few or no flowers have been found in plantings of Red Sim, White Sim and Peterson Pink. Such plants can occur in any carnation variety. Unless they are removed before cuttings are taken, the proportion of grassy plants in the next crop will be greater and will continue to increase from year to year. At the same time flower production will drop.

Five cuttings were taken from each of 30 grassy plants of Red Sim found in commercial ranges. All of these cuttings produced grassy plants while cuttings taken from normal plants in the same ranges produced only normals.

The grassy mutant should not be confused with other conditions in carnations described as grassy. Plants infected with yellows, a virus disease, have been so described. Such plants, however, are less vigorous than normals while the grassy mutant is usually more vigorous than normals in vegetative growth and does not show other symptoms of yellows.

To show whether grassiness was infectious, grassy branches were grafted onto normal rooted cuttings. In six successful grafts the presence of a grassy branch showed no effect on the normal portion of the plant.

However, when permitted to grow without pinching back, the grassy branch outgrew the normal part of the plant from which flowers were regularly harvested. This further indicates that grassiness is due to a mutation rather than a virus or other infection.

Another condition that may be confused with grassiness might occur when a planting is flowered

without pinching. In that case cuttings taken near the base of the stem tend to develop into larger plants and bloom later than cuttings taken near the bud. However, the difference in blooming time is short, and plants from basal cuttings will produce a normal crop of flowers. Among the 30 grassy cultures from commercial ranges 14 did not flower at all over a period of 11 months after planting. During that time the average number of flowers produced was 3.1 per grassy plant and 9.0 per normal plant.

Under flower production conditions grassy mutants produce several times as many cuttings as do normals. This is the reason why the proportion of grassy plants is expected to increase when cuttings are taken from plantings containing grassy mutants. In order to illustrate the difference in cutting production, all of the cuttings were harvested from a typical 9-month old plant of each type. The normal plant yielded 9 cuttings and the grassy plant 45. On this basis a new planting from these cuttings would contain 5 times as many grassy plants as did the older planting.

Grassy mutants in a new planting can be identified during the first period of bloom. At that time they will be large and healthy but will have no flowers or flower buds. They should be removed at once. Later when the plants have inter-twined it will be difficult to see whether grassy plants are present.

The grassy mutant is not easily distinguished from normals in mother blocks used for cutting production. The reason for this is that mother plants usually are not permitted to flower. One plant from each of the 30 grassy cultures and 6 normal cultures was treated as a mother plant. Cuttings were harvested every 2 weeks. Over a period of 32 weeks the average cutting production was 55.0 per normal plant and 62.8 per grassy plant. In this case, the grassy plants produced only 12% more cuttings than normals. For this reason it is necessary to take special precautions to identify grassy mutants in mother blocks. Holley flowers one row from each mother plant each year in order to identify and discard mother plants that may be giving rise to degenerate mutants. Another technique suggested is that of bringing the mother block into bloom before taking cuttings to establish the next mother block. In order to avoid grassy mutants some routine method of flowering the cutting stock is necessary.

It should be kept in mind that testing the plant for grassiness is no guaranty against a grassy sport appearing later. Repeated testing is necessary.