

CHRYSANTHEMUM TIMING, STOCK SELECTION  
AND ENVIRONMENTAL EFFECTS ON STUNT

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"Over propagation" without the normal rest period is one of the theories of the growers as to why stunt has developed in chrysanthemums. This necessitates keeping the stock plants under lights, thus preventing them from flowering and taking cuttings continuously from these plants throughout the winter. Remedies for this practice have been suggested: first, to allow the plants to flower "normally" in the fall and, second, to give the plants a rest period in the winter (preferably in a low temperature house). Lights could then be eliminated, if such a treatment were used.

An experiment at Cornell was set up to see if stunt could be induced in those plants that were continuously used for propagation in the winter. Such plants would not be given a rest period.

Varieties, Sea Gull and Detroit News, which are known to be troubled seriously with stunt, are being used. Stunt-free plants of those varieties were obtained from Harry L. Allyn, Big Flats, New York, and Al Campbell, Philadelphia, Pennsylvania. The stock plants were divided into three lots; one lot was kept under lights at 60°F. in a stunt infested area, the second lot was kept under lights at 60°F. in a stunt-free area, and the third lot was kept in a 40° house (no lights) in a stunt-free area. The latter lot was the check treatment. Cuttings were taken every week from lots 1 and 2, whereas no cuttings were taken from lot 3.

To date, only one group of cuttings from lots 1 and 2 were allowed to flower. These plants flowered May 9, 1949, and were checked for healthy and stunted plants. None of the plants which were carried in the stunt-free area showed any signs of stunt; however, with those plants which were exposed to stunt (lot 1) six out of 94 plants were classed as

"doubtful." The signs were not distinct enough in these plants to be classified as either healthy or stunted.

From this first trial it is too early to say whether the treatment of continuous propagation under lights was the cause of these few plants showing signs of stunt. It is very likely that these few plants contracted stunt from the other diseased plants in the same house.

More cuttings will be grown to the flowering stage this summer and fall. We are quite sure that the data from these later flowerings will answer the question of whether stunt can be induced into healthy plants by means of continuous propagation.

Some growers feel that the chrysanthemum plants should be held at a low temperature after they have flowered. It is the belief of these growers that the plants will be in a more healthy condition in the spring when the cuttings are most desired.

An experiment is now in progress to test the merit of these claims. Stunted and healthy stock of the varieties Mrs. Kidder, Sea Gull, Marie De Petris, Long Island Beauty, Golden Herald, Barcarole, Arcadia, and Pixie were kept in a 40°F. cold frame during the winter of 1948-49. Cuttings were taken in spring 1949, and grown to the flowering stage. The number of stunted and healthy plants which come from both types of stock plants will be recorded. It will then be possible to determine the percentage of stunted plants which come from healthy stock plants and vice versa.

The records to date show that in most of the cases stunted stock plants gave rise to almost 100 percent stunted plants. However, the normal stock plants gave rise to about one-half stunted and one-half healthy plants. From these data it is evident that the cold treatment over winter does not assure our getting healthy cuttings from what we think are healthy stock plants.

Plants will also be flowered in August and September to determine what effect the summer's heat has upon the number of stunted plants which come from the healthy stock plants.

A midwest grower suggests that a large number of healthy stock plants can be produced from leaf bud cuttings taken from healthy flowering plants. These cuttings would be taken in the fall at the time the flowers are cut.

Healthy and stunted stock plants of the variety Long Island Beauty were taken from a planting which had 90 percent stunt. Leaf bud cuttings were taken from these plants and after these plants became large enough, terminal cuttings were taken from them and were grown to flowering. The first group of plants are in flower now and the records to date show that in over 90 percent of the cases, the plants which came from healthy stock are stunt-free plants now. The plants which came from stunted stock are all stunted in every case. It was found that the leaf bud cuttings

which were taken from stunted plants were much more difficult to root than those taken from healthy stock. This seems to be a reasonable method for segregating healthy stock plants from stunted stock plants.

Another group of cuttings have been planted and will flower this September. These data should substantiate the results from the earlier flowering.

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