

Frozen Cuttings May Be Good

With the wide use of cold storage for holding carnation cuttings, occasional lots may be frozen by faulty equipment. We have had several experiences with frozen cuttings over the past several years.

Unrooted cuttings seem to tolerate lower temperatures without visible damage. Severe freezing (20 - 25°F) may cause blisters to form along the leaves, and some bleaching of the leaves and stems is usually detectable. We have purposely frozen unrooted cuttings to below 25°F, thawed them gradually and found no difference in their growth compared to normal cuttings.

Rooted cuttings are more easily affected by freezing, probably because they contain more water and have elongated and softened during the rooting period. However, rooted cuttings which were frozen to approximately 25°F were thawed gradually and planted in a nursery bed for observation.

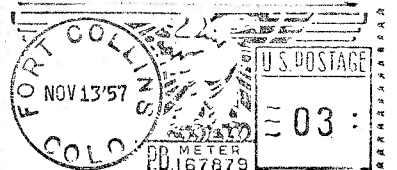
The pictures show comparisons with normal cuttings of the same age. When the stem of frozen cuttings is split open, necrotic areas are present just above the nodes. This dead tissue seems to be walled off with healthy tissue and does not affect future growth of the plant.

The other picture shows the branching habit of normal (left) and frozen cuttings. Note the short internodes on the original cutting which was frozen. These internodes failed to elongate after freezing. Since the internodes are so short, the laterals all come from almost the same level. Also the first several sets of leaves on the laterals are much smaller and the internodes are longer than on normal plants. In all other respects plants from frozen cuttings seem to grow just as well, if not faster, than normal plants.

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