

# GERANIUM STORAGE

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## Storage of Cuttings

Geranium cuttings can be stored for periods of one month as long as they are free of disease. The major factor limiting longer storage is Botrytis infection of the foliage.

Several plans have become adopted to correct the Botrytis infection. First, since the leaves appear to be the primary source of Botrytis, half of the cuttings are stored each time with their leaves removed. Second, since humid conditions favor Botrytis, calcium chloride, a drying salt, is placed in the storage container. Its purpose is to absorb the excess moisture present in the container. Third, all cuttings are dusted before and after storage with Parzate.

Four storage temperatures were tried to determine the best temperature at which to store geranium cuttings. They were 31° F, 36° F, 41° F, and 46° F. Each week 10 cuttings were removed from each storage temperature and placed under mist. The number of cuttings which rooted for each treatment at each interval is presented in Table 1.

Table 1

The number of cuttings rooted from each storage temperature at weekly intervals

Storage Temperature	Weeks					
	1	2	3	4	5	6
31° F	10	10	10	9	9	6
36° F	10	9	6	--	--	--
41° F	8	5	--	--	--	--
46° F	4	--	--	--	--	--

Botrytis was very severe at the higher storage temperatures, causing a poor percentage of rooting. Since a storage temperature of 31° F gave the best results, all subsequent treatments were at this temperature.

Presented in Figure 1 is a chart showing the effects of these four storage temperatures on the length of time the cuttings can be stored satisfactorily before Botrytis infection becomes severe.

Various containers have been used to determine their effectiveness for the storage of geranium cuttings. Polyethylene bags have been tried, but do not appear too favorable. This is due to the fact that the bags are permeable to air and moisture, which is beneficial to Botrytis. The following is a list of containers that have been used.

- 1) Large metal containers--cuttings are placed horizontally in the container and covered with dry Perlite.
- 2) Large glass jars--cuttings are placed in these containers and sealed.
- 3) Large flats--cuttings are rooted under mist, allowed to dry thoroughly, and then placed in storage.
- 4) Wax coated freezer boxes--cuttings, rooted and unrooted, are placed in these air tight boxes.

The large metal and glass containers appear to be much more satisfactory than the polyethylene bags. However, they have not been used long enough to obtain positive results. For this reason, large flats and freezer boxes are also being tried.

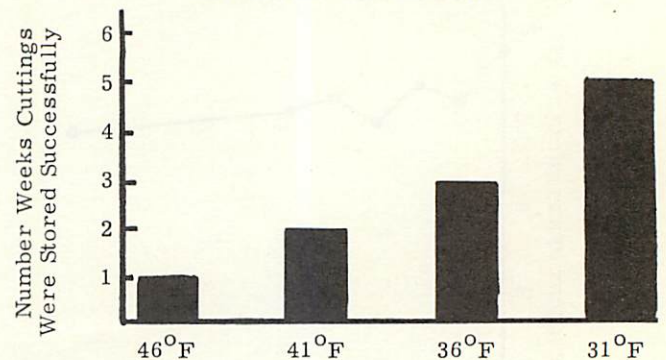
In addition to the plans outlined above, several other procedures will be tested during the summer. They are as follows:

- 1) Unrooted cuttings will be stored at 31° F for 1 1/2 months. After this time, they will be removed from storage and placed under mist for one week or until they callus. They will again be placed in storage.
- 2) Cuttings will be lighted while in storage. This procedure will make it possible for the cuttings to produce carbohydrate while in storage, instead of being depleted of carbohydrate by the time they are removed from storage as they now are stored.
- 3) Cuttings will be propagated after storage by methods other than mist (hand-watered, wicks, constant water propagation bench). It appears that the conditions existing under mist propagation may be favorable for Botrytis.

## Storage of Stock Plants

Stock plants of geranium can be stored for at least 4 months and probably longer. Plants, pot included, were placed in a clean, dry, unlighted storage area under high temperature conditions. High temperature is not a necessity, since lower temperatures work just as well. These plants were not dusted or sprayed, but were allowed to remain undisturbed. After 3 months, two pots were removed from storage. One was placed under mist, the other was hand-watered.

THE INFLUENCE OF STORAGE TEMPERATURES AND LENGTH OF STORAGE ON BOTRYTIS INFECTION



## Summary

- 1) Store only dry, disease free cuttings at 31° F.
- 2) Use air tight containers.
- 3) Place calcium chloride in each container to absorb the excess moisture.
- 4) Dust cuttings before and after storage with Parzate.
- 5) Provide a moist media for the cuttings to root in after storage. Do not allow the media to dry out.

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