

ROT IN GERANIUM CUTTINGS

Professor A. W. Dimock
Department of Plant Pathology

Cutting rot is undoubtedly the most common and serious disease of geraniums. In some plants the trouble seems to result from physiological breakdown, but in the majority of plants it is directly due to specific plant-invading bacteria or fungi. There is some evidence that the bacterium causing geranium leafspot will also cause cutting rot; more commonly, the fungi Pythium, Botrytis, and Rhizoctonia are involved.

Regardless of the particular organism, the disease probably develops in one or the other of two ways. 1. the bacteria or fungi may be carried on the surfaces of the cuttings and may easily enter the tissues through the cut end or through slight wounds. Once entry to the plant tissues occurs, the rot may develop rapidly under the environment of the propagating bench. 2. the sand or soil in which rooting occurs may be infected with the rot fungi and bacteria. Cuttings placed in this infected rooting medium may easily become infected even though the cuttings themselves are perfectly clean.

With the second type of infection it is evident that thorough sterilization of the rooting medium and of the pots or benches in which it is contained should eliminate any cutting rot due to disease organisms, provided the cuttings are clean. Sterilization must be thorough, however, since the value of sterilizing the sand or soil will be largely lost unless the pots, flats, or benches are also thoroughly sterilized. Sand or soil for geranium cuttings should always be sterilized, regardless of other measures taken. New sand or soil is most likely to carry cutting-rot organisms and hence is not exempt from the need for sterilization.

With infection of the first type, namely, where the disease organism is carried on the cuttings, there are several things to remember. First, most of the infective material gets onto the cuttings by splashed water and by this means alone. It is for this reason that cutting rot is usually much more prevalent on material from field-grown stock plants than on others. This type of cutting-rot infection can be almost wholly prevented if the stock plants are grown entirely under glass and are either subirrigated or watered in a way that avoids splashing.

Inside culture of geranium stock plants is advised wherever possible; if this is not feasible, a spray program is to be followed with the field-grown stock. Applications of 2-2-50 bordeaux or one of the insoluble copper compounds should be made throughout the season, repeating often enough to keep all new growth well protected. The value of Fermate for field spraying of geranium stock has not yet been tested.

In addition to spraying the stock, treatment of the cuttings just before sticking them into the sand is suggested, whether the stock is grown inside or out and regardless of sterilization of the rooting medium. In the past, many growers have had good results from sticking the bases of the cuttings in either copper carbonate or zinc oxide. More recently, growers have been advised to try Fermate, either applying it as a dust to the base of the cuttings or completely immersing the cuttings in Fermate suspension (2 level tablespoons per gallon of water plus 1/3 teaspoon of DuPont Spreader Sticker).

While the whole story on this treatment is as yet unsolved, the present indication is that it will give good control of cutting rot with no chemical injury from the treatment. In some instances the Fermate treatment seems to stimulate rooting while in others the additional application of a rooting hormone greatly increases root development. Probably the most satisfactory results will be obtained with materials such as Stimroot, which combines a fungicide and a growth substance, or with home-made mixtures of Fermate (or related materials) and a rooting substance.