

# The Geranium Disease Story\*

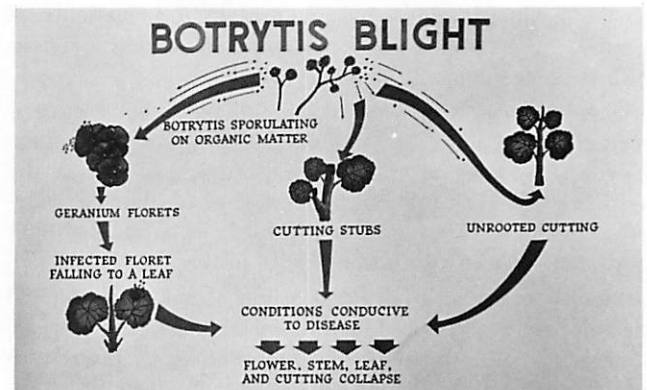
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## There Are Four Main Diseases of Geraniums

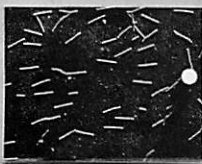
Botrytis Blight  
Virus Disease  
Bacterial Blight  
Pythium Root and Stem Rot

### Botrytis Blight

The fungus Botrytis is always present in greenhouses to some degree. Control of the pathogen may be achieved by altering the conditions conducive to development of this disease (i.e., lowering humidity and prevention of free moisture on susceptible plant parts). Steps taken in this direction certainly are two of the best methods for control of the Botrytis problem.



### VIRUS DISEASES OF GERANIUM



#### General Remarks:

- Geranium viruses are transported via infected plant material.
- Geranium viruses may be spread within planting by further vegetative propagation and possibly by insects.
- Viruses usually multiply within the living host plant.
- Typical symptoms of virus infection result from the fact that infected plant cells are directed by the virus particle to produce more virus particles instead of normal plant substance.

### Virus Disease

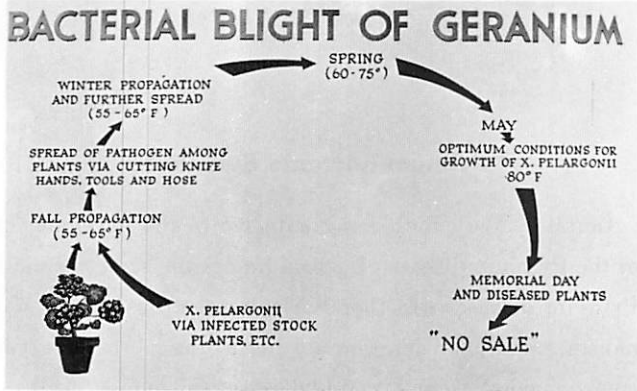
Viruses are present in most, if not all, asexually propagated geraniums. How they affect the geranium is still somewhat of a question. Nevertheless, symptoms typical of virus development suggests strongly their involvement in many disease situations. Temperature, nutrition and possibly light intensity effect virus development; and symptom expression seems less in well-fertilized, properly-grown plants.

\*This story was presented at the 1965 Cornell Short Course. Many Growers asked if photographs of the display would be available.

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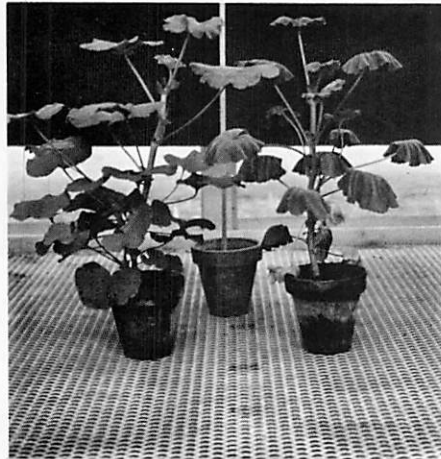
# The Geranium Story

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## Bacterial Blight

Most growers have at one time or another come face to face with this devastating disease. Control in asexually propagated geraniums can only be achieved through the use of culture-indexed cuttings and subsequent sanitation. Geraniums propagated from seed would also be expected to be "disease-free" if the bacterium is not carried on or in the seed.



Pathogen Survival in Soil

When planted in soil containing infected plant parts (right plant) culture-indexed cuttings soon show the characteristic wilt symptoms. Comparable cuttings planted in soil containing healthy plant parts (left plant) showed no symptoms.

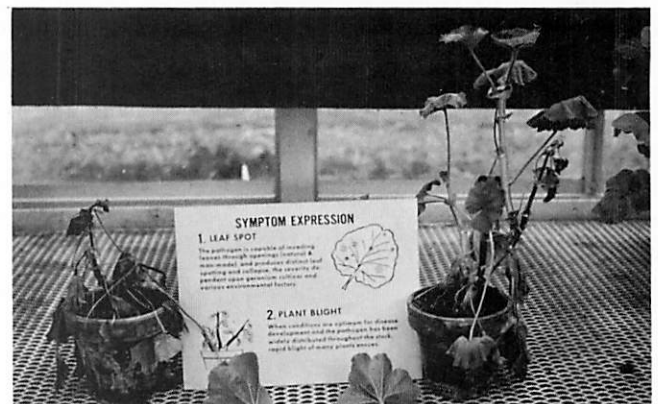
## Symptom Expression

Geranium infected with *X. pelargonii* may show two main symptom types; i.e., plant blight and leafspot. In the photograph on the right the leafspot phase is not evident.



Temperature Effects on Disease Development

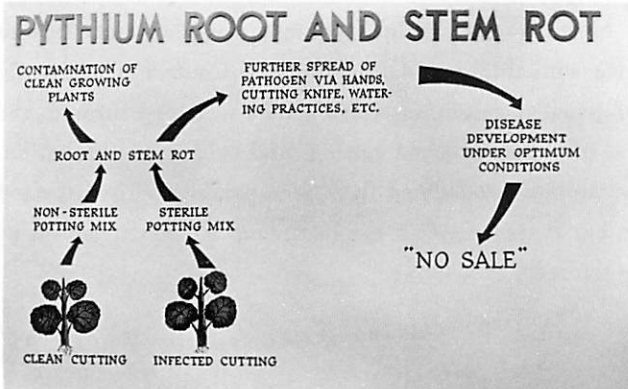
Although a plant may be infected, symptom expression is practically non-existent at normal growing temperatures. The plant on the right was inoculated and held for 3 weeks at 60°F., the plant on left was handled the same way except it was placed at 80°F for 3 weeks.



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## Pythium Root and Stem Rot

Certainly the conditions conducive to the development of the Pythium disease of geranium are the same for most Pythium diseases of other floricultural crops. High soil moisture and poor aeration are by far the most important environmental factors in this disease problem.

### Effect of Soil Aeration on Disease Development

How then does one control this menace of the greenhouse? Clean stock, sterilized potting media, sanitation, etc. are instrumental in prevention of the disease problem. Once the pathogen has gained a foothold, however, none of the above will help to any great extent. One must then rely on changing the environment to inhibit the pathogen and to benefit the geranium. One can do just this by using a light, well-drained, well-aerated potting medium. To demonstrate this we used three soil mixes; light (1:1:1 soil, peat, perlite), standard (2:1:1 soil, peat, perlite), heavy (straight soil). The root systems were decidedly better in the lighter mixes. Also severity of Pythium Root Rot decreased sharply in the lighter mixes. Let us not forget, what the top will do is strongly dependent upon the condition of what is below the soil surface. As suggested by Dr. K. F. Baker during the short course, it might benefit all growers to knock a few plants out of their pots and see what the roots really look like. Sounds like a pretty good suggestion.

