

CHYRSANTHEMUM STUNT, ITS  
NATURE AND SPREAD

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During the past year some good progress has been made towards understanding the nature and behavior of the chrysanthemum stunt disease. Many of you are undoubtedly familiar with Dr. Brierley's results at U.S.D.A. pointing to the virus nature of this disease. My work at Cornell has also borne out this fact. I have been able to transmit this virus to healthy chrysanthemums by three different methods; cleft grafting, leaf rubbing, and by the dodder bridge technique.

It has been fortunate that I have had the variety Vibrant to work with. If any of you have been growing this variety and have had stunt in it, you know that once the plant is stunted, it virtually does not grow thereafter. Because of this factor, I have been able to diagnose the presence of the disease without having to carry the plants through to flowering. With both Vibrant and Sea Gull a light flecking is produced consistently on the young leaves, when in the stunted condition. However, the greenhouse has to be free of insects to prevent confusion from insect injury.

By using these two varieties, I have found the period between infection and the detection of stunt to be much shorter than previously supposed. Using the cleft grafting technique symptoms have appeared in one month, with leaf rubbing from 2-3 months, and from 2-3 months with the dodder bridge technique. But even this length of time between inoculation and symptom expression makes our progress slow.

There is evidence from the transmission work that this virus is very highly infective; that is, it is very easily transmitted and establishes itself readily. I have had quite a few cases of accidental inoculation of healthy plants merely by handling healthy plants after handling stunted plants. I caution you against doing the same thing; if you've handled stunted plants, wash your hands thoroughly before handling healthy ones. However, even if you accidentally contaminated some of your healthy plants, most likely you would not notice any stunt in those plants in the same growing season. Your trouble would arise when you took some cuttings from those plants, then you would probably get some stunt.

My present aim is to work with the broad host range of the virus. To do this I must get the virus into some suitable test plant in

which it will produce a distinct symptom in a short time, preferably within three weeks. For instance, in a few preliminary trials I have inoculated some other plants, such as tomato, dahlia, nasturtium, and tobacco with chrysanthemum stunt. In some of these cases the reaction is not very definite and as such I need to know if the virus is present. By making a mechanical transfer back to chrysanthemums a definite symptom expression may not result until three months afterward. By that time the plant in question is not in good condition. However, if I make the transfer to a reliable test plant and a positive test results quickly, I know the virus is present and I can still work with the plant in question.

The problem poses many difficulties, but it is a very interesting one and one which we shall know much more about as time goes on.

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