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Department of Agriculture, Western Australia

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FLOWER "GREENING" AND WITCHES' BROOM

By Plant Pathology Branch

THE flower "greening" and witches' broom diseases may be found in a variety of plants. Susceptible garden species include phlox, gerberas, vincas, dahlias, geraniums, asters and many others.

**Symptoms**

As the name "greening" suggests, flower petals are green instead of their normal colour. The petals may all be green or some may be green and the remainder normal. In some cases petals may be just tinged with green.

The *greening* disease generally does more than cause the petals to turn green. It reduces the size of petals and in the worst cases petals may be so small that the flower looks as if the petals have been plucked out.

In some plants such as phlox and vincas the disease causes not only flower greening but a stunted and bunched habit of growth of the whole plant, with small leaves all bunched up together to give what is known as a "witches' broom" effect. This condition is sometimes known as "virescence." Such plants appear to have no flowers, but on close inspection the flowers are completely green in colour and so intermingled with the leaves as to be hardly discernible. Either greening or witches' broom or both may occur on the plant affected.

In the garden beds it is generally found that only a small percentage of plants show the disease and more often than not, only one plant is affected. Moreover, the symptoms do not always develop on all parts of the plant but only on part of it with the other part remaining quite normal in appearance.

**Cause**

Flower greening and witches' broom are caused by the same virus, which occurs in the sap of infected plants. It is spread from plant to plant by insects known as jassids (leafhoppers or canary flies) which feed by sucking sap from plants. The virus causing "greening" is similar to that which causes such economically important diseases as tomato big bud and lucerne witches' broom.

**Control**

1. Once greening or witches' broom appears in a plant it should be pulled up and burnt because there is no known treatment that will cure it.
2. Prevent the spread of the disease by regular sprayings of the garden with an insecticide containing DDT to kill jassids.
3. Destroy weeds in the gardens as these may harbour jassids.
4. Tubers, roots, and so on from infected plants should not be used for propagation as the new plants may also be infected.
QUESTIONNAIRE AIMS TO AID FARM DAM PROBLEMS

THE Water Research Foundation of Australia Ltd. is sponsoring research into earth dam problems at the University of W.A.

To help in this research, certain information is needed from farmers and to meet this a questionnaire has been prepared.

The aim is to find out in which areas what particular problems are most significant.

The chairman of the W.A. Committee of the Foundation (Mr. J. H. Lord) said that it was hoped to receive many replies to the questionnaire.

"If only a few replies are received from any particular district it will be difficult for us to disabuse our minds of the thought that few or no problems with dams exist in that area.

"To get as complete a picture as possible it seems essential for every farmer who has problems with earth dams (or who wishes to install them but cannot) to fill in the questionnaire which appears below.

"Anybody wishing to give more information may write to the accompanying address.

"The term dam has been used to refer to any artificial pond on the farm whether held by an earth bank or in an excavation or partly by both," Mr. Lord said.

Completed questionnaire should be returned to Mr. K. H. McKenry, Department of Civil Engineering, University of W.A., Nedlands, W.A.

1. Name
2. Postal Address
3. Location of Property miles (direction) from (town)
4. Number of dams on the property
5. List against each item, the number of dams on the property which have shown this particular problem:
   (a) Dam will not fill because of insufficient run-off
   (b) Earth bank has breached because of flood
   (c) Earth bank has settled or slipped dangerously (with or without breach of wall)
   (d) Piping or tunnelling in bank
   (e) Leakage from sides or bottom of dam
   (f) Dam has silted up
   (g) Water is too salt
   (h) Other causes
6. It is desired to sink dams on the property, but cannot for the following reasons:
   (a) Lack of good holding ground
   (b) Presence of salt water table
   (c) Lack of run-off
   (d) Run-off is salt
   (e) Other reasons
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