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W P. Cass Smith

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COMMON BEAN MOSAIC

By W. P. CASS SMITH, B.Sc. (Agric.), Superintendent, Division of Biological Services

COMMON bean mosaic is a widespread disease which attacks both dwarf and pole bean varieties. The disease is caused by an infective principle or virus which spreads throughout the sap of affected plants, and causes both delayed maturity and drastic reduction in yield.

Unlike most plant viruses, common bean mosaic virus is seedborne, and if plants are grown from infected seed they serve as reservoirs from which the disease is spread throughout the crop by aphids during their feeding activities.

The prevention of losses therefore depends largely on the use of good quality seed which has been carefully selected from mosaic-free plants. Where this procedure is not carried out and seed is continually saved in bulk from the "tail-end" of crops marketed as green beans, a progressive disease-increase and decline in yield may be anticipated.

SYMPTOMS AND EFFECTS

The characteristic symptoms of common bean mosaic include mottling and malformation of the foliage, stunting of plants and delayed maturity. However, symptoms may vary somewhat according

Fig. 1.—Leaves of the "Vincent" dwarf bean variety (top) and "Golden Harvest" pole bean variety (at bottom) showing symptoms of common bean mosaic. Note particularly the mottling, and downward-cupping of the leaves, and the raised, dark blister-like areas, which show prominently on the leaves on the right.
to the variety, the environmental conditions under which it is grown, and the time of infection.

Plants grown from infected seed often show symptoms on the first trifoliate leaf, consisting of light green or yellowish, and dark green, irregularly shaped areas. The margins of the leaflets are generally cupped downwards or otherwise distorted. Later-formed leaves may, in addition, develop considerable puckering, or blistering in the form of raised dark green areas, and show reduction in size. Very occasionally, raised dark green areas may appear on the pods also.

Common bean mosaic seldom kills the plants outright, but those grown from infected seed give little yield.

Plants becoming diseased at a later stage produce more seed, but much of this is infected with mosaic. The market quality is reduced, for the pods are generally late-maturing and undersized.

**CONTROL**

1. As bean plants grown from infected seed are the main source of mosaic in the crop, only high quality seed, which has been saved from selected healthy plants, should be used. Certified seed of the pole bean varieties Westralia and Golden Harvest, which meets this specification, is now produced locally in limited quantities.

2. Growers who raise their own seed stocks should plant special seed plots for this purpose. Each plot should be planted with certified seed, or, if this is unprocurable, with seed of the best quality obtainable. It should be well isolated to reduce the risk of infection by migratory aphids from adjacent bean crops.

As aphids are usually most prevalent in the cooler spring and autumn months, delaying the planting of this plot until the advent of warmer weather in early summer is advisable.

The plot should be inspected each week throughout the growing season, and any diseased plants should be rogued out and destroyed. Rogueing is facilitated by thin sowing, wide spacing, and in the case of pole bean varieties, by training each plant up a single trellis stake.

3. The rust resistant Westralia variety is also resistant to common bean mosaic, whereas Golden Harvest is very susceptible.

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**SIMPLE STANDARD NAMES FOR FUNGICIDES**

Many of the newer fungicides are so complex in composition that simple standard names have been adopted, by international agreement, to represent their chemical constituents. For example ziram is the name given to zinc dimethyl dithiocarbamate and all proprietary preparations containing this compound are referred to as ziram-type fungicides. Standard names of some other fungicides include thiram, zineb, captan, chloranil, dichlone and dodine.

These simple standard names are usually displayed on trade labels in conjunction with the chemical formula. By reference to the label growers can ensure that a proprietary brand of fungicide is of the required type.

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