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CUCUMBER MOSAIC

By H. L. HARVEY, B.Sc. (Agric.), Senior Plant Pathologist.

MOSAIC is a common disease of early cucumbers in Western Australia, and has been observed in most vegetable-growing districts for a number of years. The disease is caused by a virus which is spread from plant to plant, mainly through the agency of aphides, and it follows as a rule that in seasons of heavy aphid infestations the incidence of mosaic is high and, conversely, when the aphides are scarce the disease is not so serious.

The disease does not appear to be soil-borne, and transmission with cucumber seed is considered to occur only rarely, if at all.

FIELD SURVEYS

In early cucumber plantings in the spring of 1951 mosaic was observed to cause considerable losses in two or three
commercial gardens in the metropolitan area and in the spring of 1952 and 1953, surveys showed it to be widespread, though seldom affecting more than five per cent. of the plants. However, the potential danger of the disease is indicated by the fact that in one garden, 35 per cent. of the plants were infected. In the summer (January) of 1953 and 1954, when maximum temperatures ranged between 80° F. and 100° F., no symptoms of mosaic could be detected in the later cucumber plantings. This may have been due to the virtual disappearance of aphid vectors, or to masking of symptoms by high temperatures, or to both.

**SYMPTOMS**

Mosaic-infected cucumber vines are very conspicuous in the field by comparison with healthy vines. They are stunted due to rosetting or shortening of the stems. The leaves are small and their pale colour contrasts with the darker green foliage of the normal plants.

On closer inspection, affected leaves show an obvious yellow and green mottle or mosaic pattern from which the disease derives its name (Fig. 1). If diseased plants produce fruits, they may be undersized and malformed with a mottling of the skin and the formation of warts or blisters (Fig. 2). Quite apart from the low yields, the quality is poor and it is unusual to market first-grade cucumbers from infected plants. When the disease is severe, plants may die prematurely.

**HOSTS**

Cucumber mosaic may infect many different plants, but in Western Australia it is only of serious commercial conse-
sequence on cucumbers. Other hosts include the melon family of which rock-melons have been observed to suffer some slight damage. Tomatoes in some seasons of heavy aphid infestation have become infected, and the effect in this case is one of malformation of leaves which assume a "shoe-string" or "fernleaf" shape.

Hosts other than cucumber are important mainly as reservoirs or infection centres for the spread of the disease.

Hosts Recorded in W.A. (naturally or artificially infected):—Cucumber, vegetable marrow, rockmelon, tomato, New Zealand lupin, petunia, common thornapple (Datura stramonium), and tobacco. The passion vine is a suspected host in this State.

Some Additional Hosts Recorded Elsewhere:—Pumpkin, squash nasturtium, cowpea, vinca, aster, calendula, zinnea, lobelia, capsicum, nightshade, lilies, maize, gladiolus, passion vine.

CONTROL

1. Rogueing. Remove and destroy each infected cucumber plant as soon as symptoms appear, especially during early stages of growth. Avoid handling healthy plants during this operation.

2. Insect Control. Aphides are the main agents responsible for the spread of mosaic from diseased to healthy plants and they should be kept under control by regular applications of suitable insecticides. Control of aphides is discussed fully in Leaflet No. 2015, which is obtainable free of charge on application to the Department of Agriculture, Perth.

3. Weed Control. Weeds should be kept under control in the vicinity of cucumber plantings because (a) they may harbour aphides and (b) they may be hosts of mosaic.

4. Location of Beds. New plantings should be made as far as possible away from old cucumber beds, other vegetable hosts and flower gardens in order to reduce the risk of spread of mosaic.

5. Sanitation. Destruction of old plantings is recommended as soon as picking is finished.
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