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Virginia Polytechnic Institute, Blacksburg. Agricultural Extension Service.

MR-126.

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DISEASES AND INSECTS OF CUCUMBERS, MELONS, SQUASH, AND RELATED CROPS

Insects and diseases are the most important limiting factors in the growing of cucurbit crops in Virginia. The most destructive insect pests of these crops are the cucumber beetles and the pickle and melon worms. Bacterial wilt, downy mildew, anthracnose, and mosaic are the most destructive diseases.

Cucumber Beetles and Bacterial Wilt

The most serious injury by cucumber beetles is done soon after the insects come out of hibernation. At that time, the young plants, if not protected might be completely destroyed within a few hours. The beetles deposit their eggs around the base of plants. In a few days these eggs hatch into small, white worms, which bore into the stems and roots. In addition to the injury caused by the adult and worm stages, this beetle also carries a destructive bacterial wilt disease, often seen later in the season. To control bacterial wilt, it is necessary first to control the cucumber beetles.

Control: First, try to prevent the beetles from entering the garden or field when the plants are coming up. This means you should dispose of the vines and green fruit at the end of the bearing season, to deprive the beetles of food. Eliminating crop residue, and fence rows, will do much to reduce winter survival of the beetles.

After careful attention has been given sanitation, follow with a thorough dusting with a rotenone and copper, or a calcium arsenate and copper dust mixture. Make the first application of this material as soon as the ground cracks above the germinating seeds. Blow the poison dust into the crevices to cover as much of the stems as possible, so that it will be present when beetles attack the young, tender shoots. Make additional applications of dust at 4 to 5-day intervals, until the beetles are under control, then apply a copper dust (without poison) at 7- to 10-day intervals until the harvest season is finished.

Results of recent investigations of the Virginia Truck Experiment Station has revealed that the "purified" or "safened" form of DDT can be used safely on cucumbers, squash, and melons. Old type DDT produces stunting to some varieties of cucurbits.

copper

Purified DDT can be used in combination with (3% DDT, 5% metallic copper) for dusting cucurbit crops. Apply at 7- to 10-day intervals until the insects are under control. Cover the vines well with the dust at each application. The dust is best applied late in the evening or early in the morning when the air is quiet.

DDT leaves a poisonous residue on the fruit, and thus cucumbers and squash should be peeled before they are eaten. The danger of poisonous residue is much less on melons and cantaloupes.

Downy Mildew

Downy mildew is a fungus disease which causes yellow spots on the leaves. When the spots become numerous, the leaves wither and die and the plant may be partially or entirely defoliated. The fungus does not overwinter in Virginia, but does survive on plants in the South. During rainy periods in the spring of the year, the disease moves up the coast by means of wind borne spores.

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Control: Downy mildew can be effectively controlled by frequent applications of copper dust. Fungicidal dusts containing 5 to 6% metallic copper, derived from one of the fixed coppers have proved effective. New materials such as Parzate and Dithane Z-78 are also effective. Make the first application when the vines are about 20 inches long, or earlier if the disease is present in the neighborhood. Repeat the treatment at 7- to 10-day intervals throughout the season. If rain washes the dust off, repeat the application. Ready mixed copper dusts can be bought from most larger seed stores and farm supply companies.

Pickle and Melon Worms

Frequently cucumbers, melons and squash are attacked by fruit worms. The young caterpillars feed at first on the blossoms and tips of the vines, later boring into the fruits. Rot usually sets in after the worm enters the fruit. Infested fruits are not marketable.

Control: Regular garden poisons are not very effective in controlling the pickle worm and melon worm. The moths are strong fliers; therefore, rotation is of little benefit. The destruction of the vines and immature fruits after the crop has been made, will reduce the moths during the next season. Varieties planted for early harvest will escape most of the injury. Fruit damage usually occurs late in the summer.

The Virginia Truck Experiment Station has shown that DDT is effective in the control of pickle worms and melon worms. Late-planted cucumbers, squash, and melons should be dusted with a mixture of 5% metallic copper and DDT. The 1% impregnated dust or 3% purified DDT dust might be used. Start applications of the DDT-copper dust when the first fruits set. Repeat at 7- to 10-day intervals until the crop is harvested. Since DDT is poisonous, squash and cucumbers treated with it should be peeled before being eaten.

Other Diseases

Anthracnose frequently causes considerable injury to cucurbits. It can be partially controlled by dusting with fungicides as outlined under downy mildew. Mosaic causes stunting of the vines and a wrinkling and mottling of the leaves. The yield of fruit is frequently very much reduced. Cucumber beetles and other insects that spread the disease must be controlled, and all milkweed, pokeweed, wild cucumber, ground cherry and other host plants of mosaic, in or near cucumbers, squash, etc., should be destroyed.

Equipment

For small areas of an acre or less, a hand-operated rotary duster will be satisfactory. However, for larger commercial areas, a tractor or truck-mounted power duster will be much more satisfactory. If power dusting is anticipated, space the rows to give room for the operation of such equipment.

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