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THE STRIPED CUCUMBER BEETLE.

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In spring and early summer cucumbers, cantaloups, squashes and other plants of the cucumber family are badly damaged, sometimes completely destroyed, by a small yellow and black striped beetle from about three-sixteenths to a quarter of an inch long. As the leaves unfold it begins to gnaw them and continues its attacks for several weeks, when its worst mischief has been done and thereafter, tho the adult beetle is frequently to be observed about the plants, its injuries are less noticeable because of the abundance of foliage and other growths upon which it subsists. The chief danger from the pest thus comes when the plants are young. But this is not the only harm done. After plants are well started and have begun to send out "runners," they frequently grow slowly and in dry weather when bearing fruit may die suddenly from some cause not very apparent to the grower. Examination of the underground parts of such plants sometimes shows the presence of small white worms, with three pairs of jointed legs next the head, which work into the stem and roots, cutting off the supply of moisture to the plant and killing it outright if the main stem is badly gnawed at some important place above the fibrous roots. These worms are the young of the striped beetle. While gnawing the leaves it creeps into crevices of the soil about the plants from time to time to place its eggs; hence it becomes doubly important to destroy the adult beetle at this season, even when it is not doing great mischief, to forestall the injury by larvae to the roots that may otherwise come later in the season.

The adult beetle is very active, running with some rapidity and taking wing quickly when disturbed. It roams about cultivated ground during the fall months, and as cold weather approaches conceals itself for the coming winter under boards, in

crevices of the soil and other safe retreats, coming out again with the approach of warm weather in the spring. Adult beetles may be seen then as early as April 12 out-of-doors, and continue about plantings until early July, by which time the adults have largely placed their eggs about the plants and disappeared. In July adults are not so common, but the brood of young in the soil produces some beetles in late July and more in early August. Until fall adults of this summer brood may be seen about various plants in gardens and fields. Eggs have been secured as late as July 26th, from which circumstance it appears that there may be a second brood maturing before fall. But observations made at the Kentucky Experiment Station in 1901 indicate that there are not more than two annual broods of the insect at this latitude and that under ordinary conditions there is probably but one.

The adult insect roams so widely and feeds on such a great variety of plants that after its first severe gnawing of young plants in spring it does no great harm. It has been observed eating the silk of corn ears; sometimes gnaws cultivated asters; has been reported as damaging the blossoms of pear and cherry. Bean plants are sometimes gnawed. A more serious mischief of which it has been accused, is the carrying the germs of bacterial wilt of cucumbers from one plant to another, and in this way has at times been responsible for a good deal of loss not ordinarily traced to it.

TREATMENT.

Gnawing insects such as this can be controlled by applying a poison to their food plants. Both arsenate of lead and Paris green have been found useful against the striped beetle. Poisons of this sort may be used safely when the plants are young, and an application every week or ten days at this time of year will be found not only to check the mischief done to the leaves but for reasons explained above reduce the injury to the underground parts at the same time. A pound and a half of arsenate of lead powder to a barrel of water, or three pounds of arsenate of lead paste in this quantity of water, is the right

proportion to use on the plants. The arsenate of lead will do no harm to the leaves and in this respect has some advantages over Paris green, which, as practical men know, burns leaves badly unless used with caution. A half pound of Paris green in a barrel of water may be used safely if about a pound of freshly slaked lime is added to reduce its caustic effect.

Cucumbers and melons are often dusted with arsenates, and this may be done safely with arsenate of lead powder, but Paris green as a dry powder is even more likely to scorch the leaves than if it is used in a liquid spray. By diluting it with some inert material, like air-slaked lime or ordinary road dust, it can be made to protect the plants without serious burning of the leaves.

Ordinary insect powder mixt one part to three of wood ashes can be made to protect young plants if the mixture is applied often enough. During the height of the adult insect's injuries an application is required about once in three or four days, depending on the weather.

One of the best of sprays for use against the beetles is a combined spray of Bordeaux mixture and arsenate of lead as follows:

Bluestone	4 pounds
Fresh lime	4 pounds
Arsenate of lead powder	1½ pounds
Water	40 gallons

The Bordeaux mixture is made in the usual way, by (1) dissolving the bluestone in half of the water, pouring a gallon or two of boiling water on it at first, and stirring to hurry the solution, then adding the rest of the water. (2) Slake the lime and add enough water to make twenty gallons. Then mix quickly the lime water and bluestone solution, after which the arsenate of lead is added. This mixture protects the plants from both insect and fungus enemies, as completely as they can be protected.

For small plantings of melons or cucumbers, wooden frames with tobacco muslin tacked over the top may be set over the plants while they are young, so as to keep the beetles away.

The spraying is better when a large planting is to be protected, but since the frames, if gathered up and stored in a dry place after the plants are well started, can be used more than one season, they are not as costly as might at first appear.

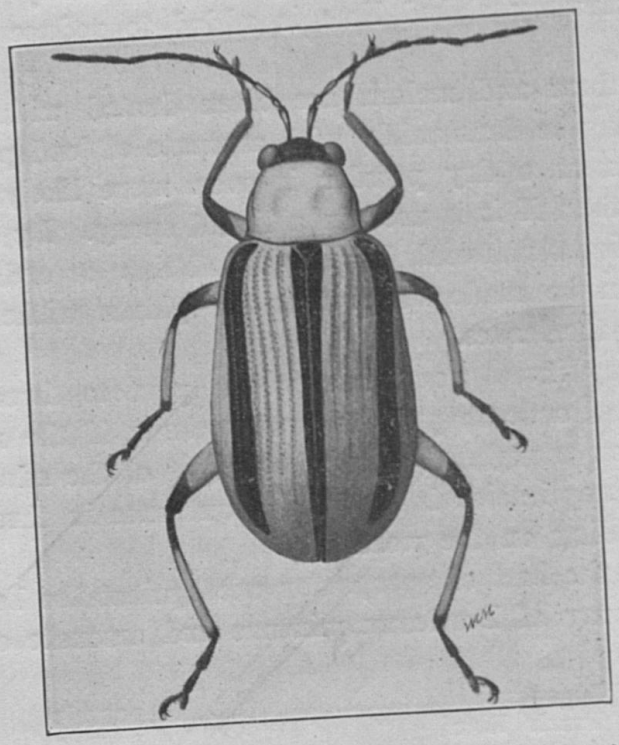

Fig. 1. The adult cucumber or melon beetle (**Diabrotica vittata**).

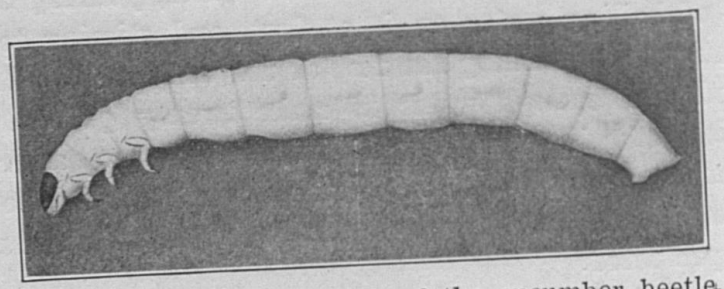

Fig. 2. The larva or worm of the cucumber beetle.