

University of Kentucky—College of Agriculture

EXTENSION DIVISION

THOMAS P. COOPER, Dean and Director

Circular No. 257, Revised.

February, 1935

Published in connection with the agricultural extension work carried on by cooperation of the College of Agriculture, University of Kentucky, with the U. S. Department of Agriculture, and distributed in furtherance of the work provided for in the Act of Congress of May 8, 1914.

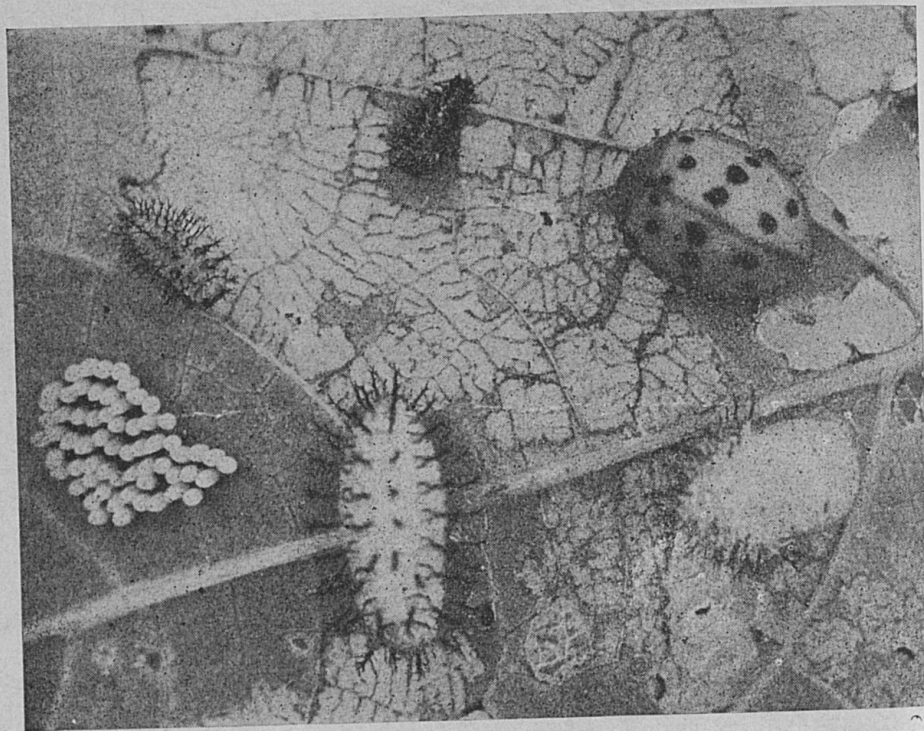
THE MEXICAN BEAN BEETLE

By W. A. PRICE

The Mexican bean beetle is a pest recently added to our growing list of injurious insects. It is not a newly discovered insect as its presence in the South and West, including Arizona, Colorado and New Mexico, has been known for fifty years. Because of the prevailing climatic conditions of those regions and the cropping system the bean beetle was not a serious pest. However, when it was introduced into Alabama about 1919 on baled hay, it found more congenial conditions for development and an abundance of its favorite food. Thence it spread rapidly, especially to the north, and reached Kentucky in 1921. Since that time it has spread over the entire state. Also it has extended its range north and east to the Great Lakes and the Atlantic seaboard.

The insect is conspicuous in appearance in all stages and can be distinguished easily from all other bean pests. As with all beetles, there are four stages of development. The adult, or parent beetle, is about 1/5-inch long and nearly hemispherical in form. The color varies from light yellow to copper, with sixteen black spots arranged in three rows across the back. The females lay eggs in groups of about 50. These are yellowish in color and are placed on end on the under side of the leaf. One female may produce 1,500 eggs. These hatch in 5 to 7 days and

the grubs begin the process of devouring the under surface of the leaves. They feed ravenously and reach full size in about two weeks. During the first week the effect of their feeding is scarcely noticeable but during the second week the crop may be



All stages of the Mexican bean beetle—egg, larva, pupa and adult—on the under side of an injured bean leaf. Magnified about 4 diameters (Howard.)

completely destroyed. When fully grown the grubs are about 1/4-inch long, of a bright yellow color and are covered by a heavy armor of branched, black-tipped spines. When ready to transform to the pupal or resting stage the insect attaches itself firmly to a leaf and casts its larval skin. After 4 or 5 days the adult beetle emerges. About 30 days are required for development from egg to adult. Reproduction continues in this climate from the blooming time of the early bean crop until the plants have been killed by frost. Usually there are three broods a year in Kentucky.

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The beetle passes the winter in the adult stage only. Most of the beetles continue feeding until frosts kill the foliage. As many as 15 adults have been found on a single leaf of lima beans at that season. With the coming of cold weather the beetles crawl into or under some convenient shelter near where they have been feeding. Usually they are found hiding under fallen dead leaves and other trash, under the loose bark of trees or around fences and outbuildings. With the advent of warm weather in spring they leave the winter shelter to attack the new crop of beans.

Since the beetle is semi-gregarious in habit and hibernates among fallen leaves, grown-over fence rows and waste places, the practice of burning thickets, weed patches and edges of woodlands is a means of exterminating them. Also the insect population can be reduced materially by cleaning up fence rows and destroying remnants of old crops during winter.

The control of the beetle is not difficult if the recommended treatments are thoro and timely. Spraying or dusting should be started as soon as beetles or signs of their injury appear in the field. Either a poison dust or spray may be used effectively. The poison should be placed on the under sides of the leaves where the beetles feed. This requires the use of dusters or sprayers with upturned nozzles.

If it is possible to spray, magnesium arsenate should be used at the rate of two pounds to fifty gallons of water. In smaller quantities two ounces or ten level tablespoonfuls is used to three gallons of water. One gallon of the spray covers 125 feet of row; 100 gallons covers an acre.

If dust is used, either of the following will be found effective: Calcium arsenate, one pound, and hydrated lime, 7 pounds; or calcium arsenate, one pound, sulfur, one pound, and hydrated lime, 4 pounds. The dust must be mixed well before using. It should be applied at the rate of 20 to 25 pounds to the acre or one pound to 500 feet of row. To avoid injury to the plants, dust should be applied only when the plants are dry.

The number of applications of dust or spray necessary to

assure protection depends upon the amount of rainfall, thoroughness of application and the growth of plants. As beans grow, the new foliage must be covered with the poison; therefore treatment should be repeated at weekly or ten-day intervals. Very often 3 or 4 sprayings are necessary but usually two thorough applications are sufficient.

The insecticides mentioned are poisonous to man and for this reason care should be taken in using them. If string beans are fully protected until the first beans are three or four inches long, or until the time of full bloom, usually, the crop will mature without further spraying or dusting. If spray or dust applications are made after the beans have formed, the beans should be washed thoroughly in at least three changes of clear water before they are sold, canned or prepared for the table.

If cowpeas, soybeans or other legumes grown for hay are attacked by this pest, they should not be sprayed or dusted with poisonous materials. In these instances cut the legumes for hay as soon as infestation becomes serious and before the crop is greatly damaged.

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