

THE EUROPEAN CHAFER

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Special Circular • May 1964

THE CONNECTICUT
AGRICULTURAL EXPERIMENT STATION
NEW HAVEN



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The European chafer, *Amphimallon majalis* Raz., is a scarabeid beetle native to Europe. It was found first in this country in 1947 in central New York, and in Connecticut in 1951. It has also been found more recently in New Jersey, Pennsylvania, and Ontario, Canada.

Description and Seasonal History

The adult beetles are about one-half inch long, with the long legs typical of scarabeid beetles. They are medium brown above, and the color below may vary from light brown to almost black.

These beetles emerge from infested soil late in June and during July. Emergence occurs at dusk on warm, calm nights. The individual beetles crawl quickly to the top of a blade of grass, and fly up to and around trees or shrubbery silhouetted against the horizon. This flight lasts for up to an hour. Mating occurs, and the beetles return to the soil by daybreak. Adults usually do not feed, and flight seems normally to be only to the nearest silhouette.

After mating, the female chafers burrow into the soil and deposit eggs singly in small cells. The average number of eggs per female is about 25. The larvae which are small white grubs hatch in two to three weeks.

The grubs feed on the roots of grass and possibly other plants. They moult three times, and continue to feed until cold weather. They usually burrow down below the frost line early in winter, and up to the root zone the following spring. They complete their feeding and form a pupa or resting stage about the first of June. A small proportion of the grubs may require two summers for development, according to Gambrell (1953). The adults emerge two or three weeks later.

Methods of Dispersal

The short flights of the adults during a restricted period make natural spread of the European chafer relatively slow. Transfer of infested soil is an obvious means of transportation. This has been the basis of attempts to restrict spread of the pest by quarantine.

Economic Importance

The damage the European chafer does to turf and pastures in Western Europe is apparently not great. Balachowsky (1962) says that it occurs frequently in Europe but is not as destructive as other species of similar habits. He also states that damage in the United States has been greater than in Europe.

There is no doubt that this insect has damaged turf in New York. Some damage has also been seen in permanent pastures, particularly on knolls and hillsides, where relatively small areas of grass have been killed. Recently Gambrell (1963) has reported that damage in heavily infested areas had decreased after a few years.

In Connecticut the chafer has not yet caused any measurable damage to turf. The potentialities of a pest of this sort for serious damage in Connecticut are difficult to determine. It is possible that the relatively small amount of damage in Europe is a result of "natural control" by parasites, predators, and diseases. If this is the case, this insect may be brought under "natural control" in this country by importation of parasites and predators, and by dissemination of diseases.

At the present time the European chafer does not appear to be as serious a pest of turf as are the Japanese and Asiatic beetles. Potentialities for economic damage to pastures seem about the same as with the Asiatic garden beetles.

Control Measures

The European chafer can be controlled by treating the turf in the same manner and with the same materials effective in controlling the Japanese beetle.

Lawns and other turfed areas not used in agriculture can be treated with DDT, chlordane, or other insecticide labelled for this purpose. The rates for 1,000 square feet are 12½ pounds of 5 per cent granular DDT or 5 pounds of 5 per cent granular chlordane. Other materials may be used at the rates given on the labels.

Hazard to birds has been least when the application was made in the fall.

Quarantine

The U.S. Department of Agriculture established a quarantine in 1955, and required that soil and plants moving interstate from the regulated area in Meriden be certified. A state quarantine of the same area was established to regulate intrastate movement of soil and plants. The regulated area was extended in 1962.

Discovery of single adult beetles in Berlin and in Southington in 1963 led to extension of the state quarantine to the three towns of Meriden, Berlin, and Southington.

Soil or plants may be moved from these towns after (1) inspection and certification for freedom from infestation by the European chafer or (2) treatment supervised by a state or federal inspector using a method approved as effective in killing European chafers.

Information on approved methods may be obtained from Richard B. Gaines, Plant Pest Control, U.S.D.A., P.O. Bldg., Middletown, or from the Office of the State Entomologist, P.O. Box 1106, New Haven, 06504.

Literature Cited

- Gambrell, F. L. 1953. Control of the European chafer in turf. *Journ. Econ. Ent.* 46:761-5.
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Balachowsky, A. S. 1962. *Entomologie appliquee a l'agriculture*. Tome I. Coleopteres. Masson et Cie. Paris.