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EC1531 The European Corn Borer

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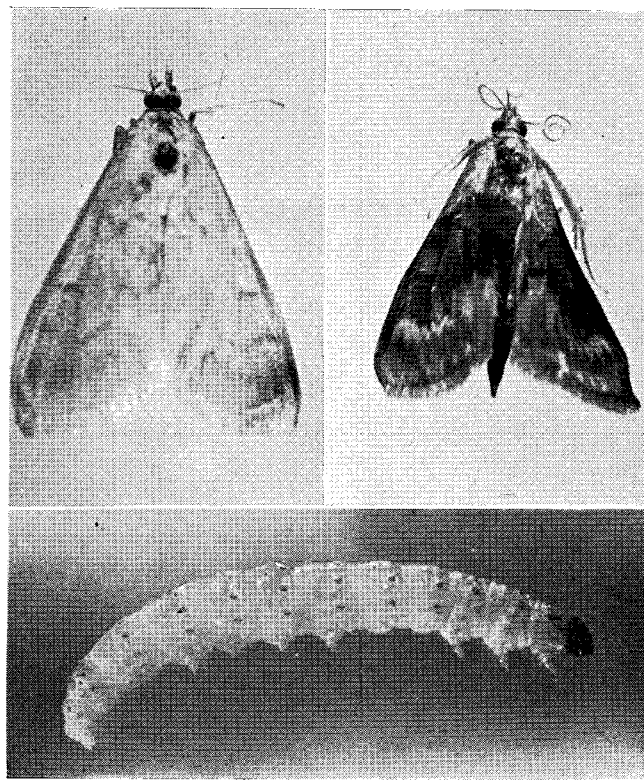
The European Corn Borer



Extension Service, Agricultural College
University of Nebraska, Lincoln

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May, 1945

The European Corn Borer[1]

H. Douglas Tate * and O. S. Bare **

EUROPEAN corn borers were found in Lancaster County, Nebraska, in 1944 and are known to be present in several Iowa and Missouri counties along the Missouri River and in eastern Kansas.

Losses in infested areas elsewhere range from very heavy to little or no damage. Its future status in Nebraska is unpredictable, but it is, to say the least, a threat of some importance. Surveys are made annually to discover the presence and extent of new as well as established insect pests. Developments with respect to the European corn borer infestation in Nebraska will be carefully checked by station workers.

Origin and Distribution of the European Borer

As the name indicates, the European corn borer is of foreign origin, presumably introduced in a shipment of broomcorn from Europe. First discovered in this country in 1917 on the east coast, by 1930 it had moved westward into Illinois. The drouth of the 1930's temporarily checked the spread of this pest, but with the return of more favorable corn growing weather since about 1940, its westward movement was resumed. The first infestation of the European corn borer in Iowa was reported along the Mississippi River in 1942 and two years later, it was found in Nebraska.

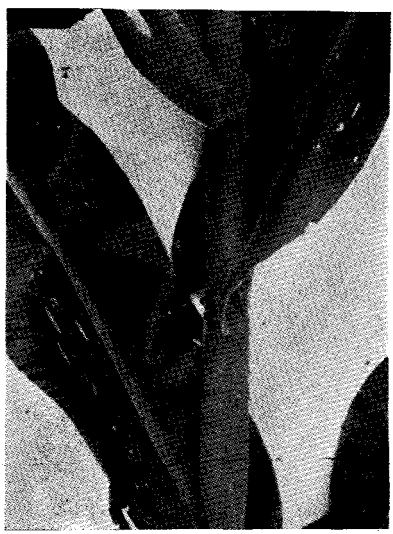

Fig. 1—Feeding scars of young larvae on corn leaves (after Drake & Harris).

Weather conditions most favorable for corn growth are also most favorable for the development and spread of the borer. Hot dry weather is regarded as unfavorable. How far west the European corn borer may spread and how serious a problem it may become under the hot dry conditions that often exist in Nebraska are open questions.

[1] *Pyrausta nubilalis* Hubner, different from Southwestern corn borer.
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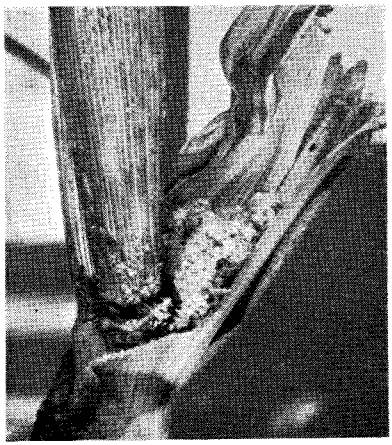

FIG. 2—Frass or borings cast out by borer.

Appearance of the Insect

The adult moths are small, having a wing expanse of about one inch. The female is a pale yellowish brown moth with irregular wavy lines across the wings. The male is darker and the wings are heavily marked with olive brown (see front cover: left, female; right, male).

The mature borer (larva) is slightly less than an inch in length, pale flesh in color, relatively hairless, and marked with dark spots (see front cover, below). The untrained observer may confuse these borers with the corn earworm or the common stalk borer, but they can be readily identified by experienced workers.

Plants Attacked

The corn plant, including field corn, sweet corn and popcorn, is the preferred host of the European corn borer. Light infestations may occur in fields or gardens devoted to certain other cultivated plants, such as soybean, potato, sorghum, broomcorn, gladiolus, and dahlia. Also, many common weeds may be attacked.

Signs of Damage

Early evidence of injury to young corn plants can be recognized by the small holes and scars in the leaves (Fig. 1). Feeding of the borers (larvae) on the unfolding leaf whorls results in severe ragging of the leaves. Later their presence is characterized by whitish frass or excrement at tunnel openings (Fig. 2), by broken leaves resulting from tunneling of small borers in midribs and by broken tassels (Fig. 3); and as the season progresses, by lodged stalks and fallen ears.

FIG. 3—Tassel broken over because of borer.

A single borer in a plant may not cause serious damage, but when several are within the same plant, complete loss may result.

Seasonal History

Borers overwinter as fully grown larvae in the stems of plants on which they have been feeding. Moths developing from overwintered larvae begin to emerge in early June and continue into July. Each female produces an average of about 400 eggs, which are laid in groups or clusters usually on the underside of corn leaves. Larvae hatching from these eggs, which are known as the first generation or brood, mature in about a month, and adult moths begin to appear in late July. Larvae developing from eggs deposited by these moths (second generation) mature by late summer or early fall. It is this second brood of larvae that overwinters. In some areas, there is only one brood, and under such conditions the first brood larvae live over the winter.

Control

No single measure or practice will satisfactorily control the European corn borer. However, there are several procedures each of which contributes toward reducing losses. Experience in infested areas seems to have fully demonstrated that by giving due consideration to these practices corn can be grown profitably in spite of the borer.

Some of the control measures that have been developed are readily adaptable to Nebraska conditions whereas others are contrary to present farm practices. Control measures now being used in other states are:

1. *Clean-up or destruction of crop residues.* Since the larvae overwinter above ground in stalks or other plant parts, severe epidemics may be prevented by destroying or removing such residue through deep plowing in the fall or in early spring, by burning stalks, or by using the crop as silage or shredded fodder. A recently developed attachment for mechanical corn pickers which grinds or shreds the stalks seems to have considerable promise.
2. *Delayed planting.* Moderately late to late-planted corn tends to be damaged least.
3. *Introduction of parasites.* Natural parasites have been introduced into all newly infested areas.
4. *Use of best-adapted, tolerant hybrids.* Hybrids and open-pollinated varieties vary in their susceptibility to damage by this pest.

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