



Field Key to Larvae in Corn

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This key is designed to serve as a guide to identification of the more typical larvae of the common insect species found in Oklahoma corn fields during the mid- and late-season. A 10 to 15 power hand lens will be most helpful in using this key. The identifying characters used are based upon those found on full-grown or nearly full-grown larvae and may not necessarily occur on newly hatched larvae. If the larva in question does not fit the proper description furnished, recheck the specimen with the key. If it continues to key out improperly or is not one of the species listed, and proper identification is desired, place the larva in a small bottle containing 70% alcohol and mail to: Department of Entomology and Plant Pathology, Oklahoma State University, Stillwater, Oklahoma 74078. Please do not send specimens for identification unless they are causing or suspected of causing damage to the crop. Please include information as to the type and amount of damage noted as well as the date and community where the larva was collected. This information will assist in getting a more accurate and rapid reply to your questions.

Some insects found in corn fields cannot be identified with this key. This would include adult insects, arthropods other than insects, and such insects as corn leaf aphids and chinch bugs, which do not have a larval stage. Be sure you have insect larvae before attempting to use this key.

Occasional early season pests, such as cutworms, have not been included in the key as they are not normally serious in Oklahoma. If found, they should run to the last couplet in the chart, "species not included in the key." If they are causing serious damage, please send in specimens for identification.

This key should not be used for larvae occurring in crops other than corn. Other keys are available for other crops and can be obtained from the local county Extension office.

Survey Methods

Insect counts in corn are taken on a per plant part basis depending on the feeding habits of the insect involved. Counts should be taken from a representative cross section of the field, the number depending on the size. At least 25-50 plants should be checked and the number of insects reported as the number per 100 heads, ears, leaves, whorls, or plants.

Southwestern corn borer surveys are made in the fall or winter. Dead corn stalks are pulled from the ground and the base and root are split. The number of larvae per stalk and the number living and dead are recorded.

If there is obvious damage to the corn plant (wilting or dying) and no insects can be found on the plants, check for such insects as wireworms, rootworms, and white grubs, which feed on the roots. Dig up a plant and sift through the soil around the roots. Note the species and number present per plant.

Descriptions of Larvae

Corn Earworm (*Heliothis zea*)

The main distinguishing characteristic of this species is the distinct, short, sharp microspines, resembling whiskers, which are present between the longer hairs on the back. This gives the larvae an "unshaven" appearance when viewed with a 10X-15X hand lens. (Do not confuse the pebbled or granular skin of other larvae with the microspines.) The body color varies greatly from light to dark green, pink, or brownish-yellow. When fully grown, the larvae measures up to 1 1/2 inches in length. This destructive pest causes damage by feeding on the foliage and ears.

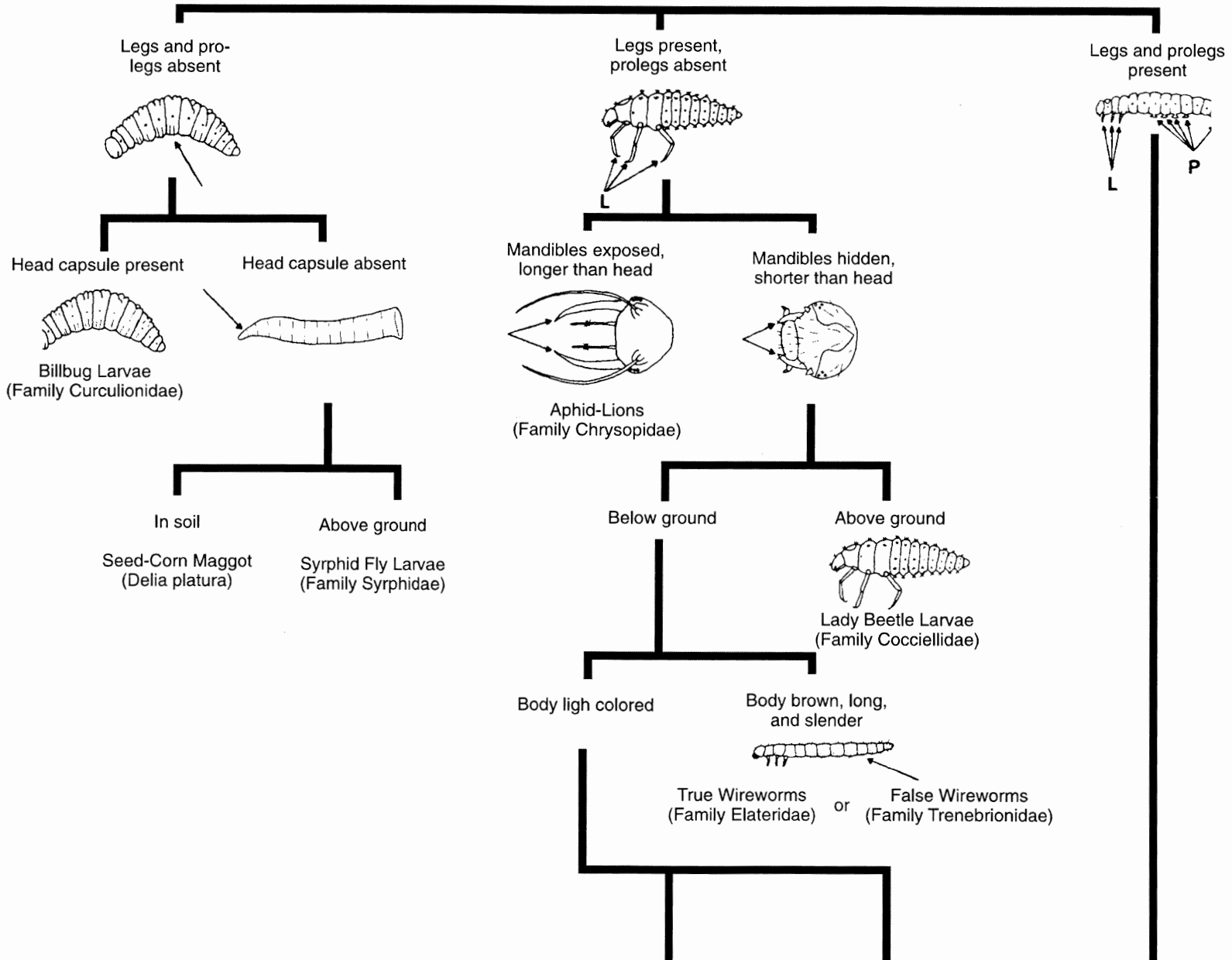
Southwestern Corn Borer (*Diatraea grandiosella*)

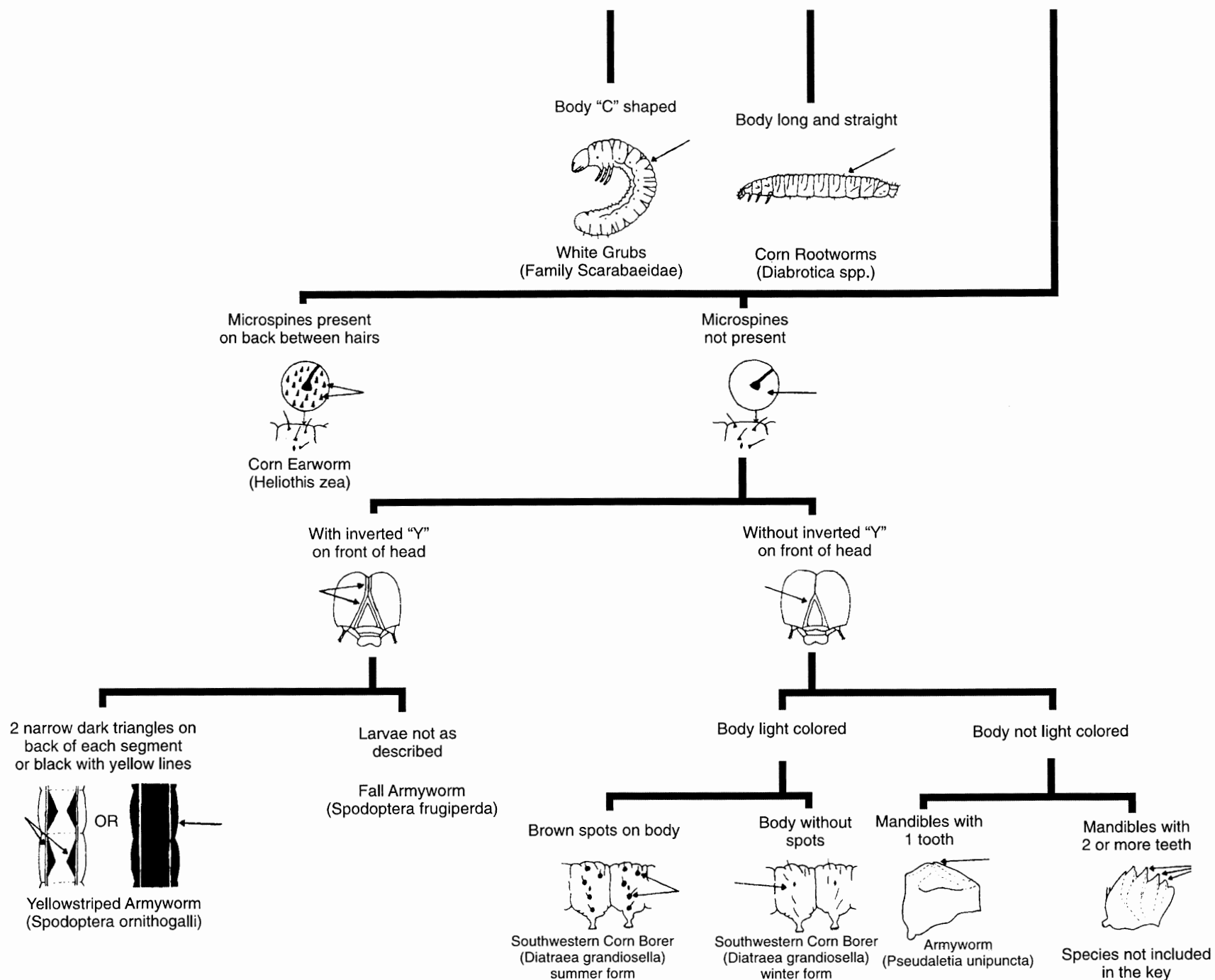
These larvae are mostly white in color. The summer form has twelve to fourteen brown spots on each segment, while the winter (or hibernating) form is without these spots. The summer form may be found attacking any part of the corn plant, while the winter form is found inside the lower portion of the stalk or the root. These larvae measure up to 1 inch in length when fully grown.

Fall Armyworm (*Spodoptera frugiperda*)

These larvae usually have a distinct, broad, white inverted "Y" present on the front of the head (not to be confused with a narrow inverted "V" found on a few other species). The body varies from light tan to green to dark brown or nearly black in color with three widely separated narrow yellowish-white stripes down the back. On each side are three more broad longitudinal lines side by side; the top, brown; the middle, reddish; and the bottom, yellow with reddish mottlings. These larvae measure up to 1 1/3 inches in length when fully grown. They are primarily foliage feeders.

A Field Key to Some Common Larvae Found in Corn in Oklahoma





Prepared by Donald L. Bailey, revised by Don C. Arnold, Department of Entomology and Plant Pathology, Oklahoma State University

Armyworm (*Pseudaletia unipuncia*)

These larvae have only one tooth on each mandible and these teeth are rather broad and flat. The body varies from greenish-brown to black with a narrow light stripe down the middle of the back and four longitudinal stripes on each side. The first three stripes are side by side. The first stripe is mottled brown darker at the edges. The second stripe is an orange or brown band edged with white. The third stripe is dark and edged with white. The fourth stripe is lower on the side and pale orange edged with white. The skin is noticeable granulated. They measure up to 1 1/3 inches. They usually travel in armies and are primarily foliage feeders.

Yellow-striped Armyworm (*Spodoptera ornithogalli*)

These larvae vary in color from pale gray to jet black, but all will have two yellow stripes down the back. The gray individuals have two narrow dark triangles on the back of each segment, but these cannot be distinguished in the darker forms. The head is mostly brown. These larvae measure up to 1 1/3 inches in length when fully grown. They are primarily foliage feeders.

Aphid-Lions (Family Chrysopidae)

These small, active, light brown larvae measure up to 1/2 inch in length when fully grown. Both the larvae (aphid-lions) and adults (lacewing flies) are beneficial, since they feed upon aphids, insect eggs, and small larvae. (Be sure that the specimen suspected of being in this group has biting mouthparts. There are several other groups, such as true bugs, Order Hemiptera, which are similar in body shape, but different from them by having piercing-sucking mouthparts.)

White Grubs (Family Scarabaeidae)

These larvae are white with brown heads and six prominent legs. They are usually found with the body curled into a "C" shape. The hind part of the body is smooth and shiny, with dark body contents, showing through the skin. There are two rows of minute hairs on the underside of the last segment of the body, which will distinguish the true white grubs from similar-looking larvae. They are found underground where they eat the roots of the corn plants.

True Wireworms (Family Elateridae)

These larvae are hard, yellow to dark brown, smooth, wire-like worms, varying from 1/2 to 1 1/2 inches in length when fully grown. Their legs and antennae are short and inconspicuous.

False Wireworms (Family Tenebrionidae)

These larvae strongly resemble true wireworms, both in appearance and feeding habits. The main differences are the longer, more noticeable, legs and antennae and the more prominent body joints of the false wireworms.

Corn Rootworms (*Diabrotica* spp.)

These larvae are elongated and nearly round. The color is near white to yellow and a small brown head, a light brown pronotum, and a darker brown anal plate. They are found underground where they feed on the roots of the corn plant. They are up to 5.8 inch in length when fully grown. Three species occur in the state.

Bill Bug Larvae (Family Curculionidae)

These larvae are whitish or yellowish, C-shaped, more or less cylindrical, and legless.

Lady Beetle Larvae (Family Coccinellidae)

The body color is generally dark with bright yellow, orange, or red markings. The body is covered with numerous spines. In a few species, the body is covered with a waxy secretion and resembles mealybugs, but a check of the mouthparts will clear up the confusion. (Mealybugs have piercing-sucking or tube-like mouthparts, while lady beetle larvae have biting mouthparts.) The group is highly beneficial, with both the larvae and adults feeding on aphids, spider mites, eggs, and young of many pests.

Syrphid Fly Larvae (Family Syrphidae)

This may be one of several members of this family. They are cylindrical and somewhat peg-shaped with protruberances on most segments. They usually are light green in color and the entire body is covered with short, colorless microspines. They are found crawling about on the plants, feeding on aphids.

Seedcorn Maggot (*Delia platura*)

These larvae are of a yellowish-white color, sharply pointed at the head end, legless, and very tough skinned. They are about 1/4 inch long when fully grown. They are found burrowing in the newly planted seeds and will often destroy the germ.

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