NebGuide

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Corn Insects - Quick Reference

John F. Witkowski, Extension Entomologist
Fred P. Baxendale, Extension Entomologist

This NebGuide provides abbreviated information on all the economically important corn insect pests found in Nebraska. It provides a brief description, damage symptoms, incidence, sampling scheme, economic thresholds and available references for these insects.

For more detailed biological and management information on these pests, refer to the appropriate NebGuides and to the latest edition of *Extension Circular 1509, Insect Management Guide.*

Insect & Reference	Brief Description	Damage Symptoms	Incidence	Sampling Scheme	Economic Threshold
		EARLY SEASON			
Seed corn maggot RP98[2] WGP[1]	The maggots are yellowish-white, about 1/4" long, sharply pointed at the head end, legless, and very tough-skinned.	Maggots feed inside the kernel; either the seed fails to germinate or the plant is weak.	April and May (statewide)	Check for seeds in soil after planting. Dig two linear feet of row in five locations where skips in seedling stand occur. Examine seed for maggots and feeding damage.	Not available
Seed corn beetle	The beetles are dark brown with a lighter brown border stripe on the wing covers, or a uniform chestnut brown; about 1/4" to 1/3" long.	Larvae feed inside the corn seed below the soil surface. Seeds fail to germinate.	April and May (statewide)	Check for seeds in soil after planting. Dig two linear feet of row in live locations where skips in seedling stand occur. Examine seed for larvae and feeding damage.	Not available
White grubs RP98 WGP	General appearance is white with a brown head, a C-shaped body, three pairs of short legs immediately behind the head. True white grubs (Phyllophaga) have two parallel-rows of spines; annual white grubs have no detectable pattern of spines on the underside of the last abdominal segment.	Phyllophaga larvae seriously can damage corn by feeding on roots and root hairs. Damaged plants may be stunted or die. Many species of "white grubs" feed on organic matter. Don't confuse them with Phyllophaga.	May and June (statewide)	Dig up several damaged plants and exatnine roots and surrounding soil for white grubs.	Not available. Post plant insecticide treatment not effective.
Black cutworm RP98	Larvae are greasy. dark grey to brown above with faint lighter stripes. Skin has strongly convex, rounded granules of varying sizes (like sand paper).	Foliage feeder in early stages, cuts plants off below ground in later stages.	May through June (primarily eastern 1/3 of state, along Missouri River)	Counting wilting or cut plants in 20 feet of row in several spots in the field.	Treat when 5% of plants are damaged or cut, and larvae are less than 1/2" long.

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Dingy cutworm RP98	Larvae are dull dingy brown with a broad buff gray dorsal stripe subdivided into triangular areas on each segment and margined by a narrow dark stripe on each side. Skin granules are round, coarse and isolated. sided cutworm, glassy cut worm, etc.	Mostly feeds above the ground on foliage. May cut plants off at or below soil surface; damage not usually serious because damage normally is above plant's growing point. Similar damage caused by several other cutworm species, i.e. dark	April through June (statewide)	Rarely necessary	Often not economic because the insect corn pletes feeding and development before the plant's growing point is close to soil surface. Identification critical.
Wireworms RP98 1988 ill. Recomm.	Larvae are hard-bodied, light tan to reddish tan, long, flat or nearly rounded. Up to an inch in length.	Either feeds inside the seed prior to germination or in stalk below the soil line in germinated corn. Seed may be weakened or killed or plant may be weakened or killed.	April, May and June (statewide)	Baited traps (about N cup each) untreated wheat and corn placed about 4'' deep in a strip about 9' wide in the soil; cover with small sheet black plastic and cover the black plastic with about a 1 sq. yd. piece of clear plastic. Trap left in soil undisturbed for approximately 2-3 weeks prior to planting can be helpful in predicting wireworm damage potential.	Average one or more wireworms per baited trap.
Flea beetles RP98	Small, shiny black, stout-bodied with black legs adapted for jumping. Length about 1/16". bacterial wilt disease.	Feeds on foliage leaving strips caused by scraping the chlorophyll layer off leaves between the veins. May transmit Nebraska)	May and into June (Primarily eastern and southern damage.	Count flea beetles on 25 corn plants in each of several locations in the field. Rate leaf according to scraping removed and corn less than 3-leaf stage.	Four to five flea beetles per plant and corn less than six inches tall. Or if leaves of seedlings have 30% of the chlorophyll
Chinch bugs G86-806 RP98	Fully-grown chinch bugs are about 3/16" long, with black body and white forewings. Newly-hatched bugs are very small, bright red, and sometimes confused with some soil-inhabiting mites. There are five nymphal instars.	Chinch bugs injure plants by sucking plant juices, causing stress on the plant. Feeding can occur at crowns and below soil surface on roots and stems of small plants; later, bugs may feed on stems behind leaf sheaths.	Throughout the growing season, primarily southeastern and south-central Nebraska	Inspect border rows of cornfields planted near ripening small grains forevidence of chinch bug migration. Examine 25 plants in at least 4 locations in field for red dish nymphs or black a white adults feeding on leaves or stems below soil surface. In June, examine plants near ripening small grains. In August, may be anywhere in field.	10 or more 3" plants. 50 or more 12" plants. Economic threshold lower if plants under stress.
Sod webworm	Larvae are short, rather thick bodied, usually spotted and coarsely-haired, active worms, from about 1/4" to 3/4" long. Will be found in webbed or silked lined tunnels usually adjacent to corn plant.	Usually in first year corn out of pasture or sod-small corn plants cut off near surface of ground much as when attacked by cutworms. Often feeding occurs before growing point is near soil surface, and damaged plants recover.	May and June, generally, north central and western Nebraska where corn grows in sandier soils; may occur else where where similar soil conditions exist.	Count wilting or cut plants in 20 ft of row in each of several locations in the field.	Not available. Usually same threshold as for black cutworms.
		MID-SEASON			
Corn rootworm larvae G87-839 G86-774 RP98	Small whitish worms up to h" long with black to dark brown head and anal plate.	Feeds on and tunnels into roots of corn plants near crown.	Late May, June and Mid-July (statewide)	Dig up 2 plants at each of 5 locations with the accompanying soil from -8 inches around the plant. Sift dirt over a sheet of black plastic looking for 1/32" to 1/2" long larvae. Flotation method can be used. (1 lb salt/1 gal H_20)	None available. Two to three larvae per plant has been used by some fieldmen to determine need for emergency controls.

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First generation European corn borer (ECB) G82-613 RP98	Small, whitish-grey worm with small black spots on body and shiny black head.	Feeds in whorl of corn. Survivorship reduced in corn under 6 leaf stage.	Late June into early July; wherever corn is grown in Nebraska	Examine at least 25 corn plants in each of 4 locations in each field. Note the percent of total plant whorls infested; unroll several whorls, record number of live worms/plant. Note size of worms.	Depends on price of corn, yield potential, and cost of application vs. larvae number. Consider 3-5% loss per borer that reaches matur ity per plant.
Corn leaf aphids	Small, blue/green, usually wingless insects positioned in the whorl and tassel.	Feeds in groups on corn tassel. Mouthparts adapted for sucking, NOT chewing.	Throughout season (statewide)	Rarely necessary. Five sets of 20 plants during late whorl stage and tassel emergence.	Usually not economical.
Grasshoppers		Grasshopper injury to plants consists primarily of defoliation. Heavy losses occur from feeding on plant stems or ripening kernels of grains, etc.	Throughout the latter half of the growing season, particularly following several dry years (statewide)	Observe numbers of grasshoppers per square yard as you move through the field or field margin.	For cropland in the field, 3-7 8-14. 15 or more hoppers per square yard would indicate light, moderate, or heavy population of hoppers respectively. In field margins, the numbers would be 11-20, 21-40 and more than 40, respectively.
Stalk borer G80-521	Young larvae are purple to black, with prominent longitudinai white stripes at front and rear ends of body. Stripes are interrupted at midbody by a solid dark purple to black area on the third thoracic segment and first three abdominal segments. Fully grown larvae are uniformly dirty grey.	Larval damage results in deformed or stunted plants caused by either burrowing into the base of the plant and tunnel ing upward through the center of the stalk or entering through the whorl and tunneling down.	June through early July	Complete dissection of the plant. borders.	Not available. Gener ally a pest only in field
		LATE-SEASON			
Second generation European corn borer (ECB)	See first generation above.	Initially feeds on pollen in leaf axil, ear tip, etc. If pollen is not available, borer will move around to sheath and collar area to feed.	Late July, all of August and sometimes early September. The larvae overwinter wherever corn is grown.	Look for fields pollinating during early ECB II moth flights. Inspect 10 plants in at least 5 locations, watching for egg masses on underside of leaf, and larvae in leaf attils and ear tips.	Twenty-five to 50% of plants with an egg mass and ear kernels at blister stage or earlier.
Two spotted spider mile (TSM) and Banks Grass miles (BGM) G93-1167	Similar in appearance, but the two spotted spider mite is somewhat larger and more robust. Banks Grass mites appear narrower and slightly flatter. In mature TSM, pigmentation appears as two well-defined spots near the forward end of the body. BGM pigmentation extends along the entire length of the body.	Damage similar. BGM populations tend to start at bottom of plant and move up. TSM tends to distribute themselves over the entire plant as populations increase. Both species destroy individual cells on undersides of leaves, causing premature drydown of plant.	May be present throughout the growing season. More easily observed in July, August and into September (statewide)	Examine the undersides of the leaves of several plants in several different parts of the field.	For BGM only. One lower leaf yellowing and colonies present up to the ear zone. For TSM only or TSM + BGM, 15-20% of total leaf area with active TSM colonies and moderate damage apparent.
"True" Armyworm G82-713 G82-615 RP98	Dark green worms up to 1 1/2 oz" length, with several stripes on sides and down middle of back. Heads are brown with honey-comb shaped markings.	Feeds on leaves of grasses, sometimes only leaving the mid-rib. If field not infested with weeds, infestation usually starts on edge of field, with worms moving in from grassy areas.	Usually July - September, but may be anytime during season. (statewide)	Larvae feed at night so worms often are not detected until damage present. Check grassy and low lying areas around or in fields.	Treat when feeding is causing the loss of two lower leaves, before hard dent stage.

Insect & Reference	Brief Description	Damage Symptoms	Incidence	Sampling Scheme	Economic Threshold
Variegated cutworm G82-613 RP98	Larvae found in several colors, but the distinctive feature is a distinct pale yellow dot on the mid-dorsal line of most of the segments.	Is a cosmopolitan feeder and sometimes can be found feeding at the tip of the developing corn ear. Economic darn age is rare.	August (statewide)	Examine 25 eartips in each of several areas of the field.	Not available.
Western bean cutworm G82-613 RP98	Young cutworms emerging from eggs are dark brown with faint diamond-shaped markings on their backs. As they grow. larvae change to lighter color; by maturity, they're gray to pinkish brown. As cutworms near maturity, three short, dark stripes appear running lengthwise on the first seg ment behind the head. Eggs are laid in masses on the upper side of the leaf. Eggs are pearly white when freshly laid, but by hatching time (4-7 days later) are a bluish black color.	If pollination has not occurred, young larvae may keep silks chewed back, interfering with pollination. More mature larvae concentrate feeding on the developing kernels.	July, August and September (Primarily sandy soil areas of Nebraska)	Examine upper surface of upper leaves for eggs; the tassel, leaf axils and ear tips for young larvae on several plants in several different parts of the field.	Treat if 8% of plants are infested with newly hatched larvae in tassels and/or eggs on leaves, and corn is at least 95% tasseled. If corn is at milk stage before eggs are laid, no treatment needed.
Corn earworm G82-613 RP98	Color varies from yellow or pink to green, sometimes almost black. Body usually marked with alternative light and dark stripes. Skin covered with small, thorn-like microspines. Can be confused with western bean cutworm.	Eggs individually laid on silks and newly-hatched larvae tunnel into ears where they feed on developing kernels. Feeding usually starts at the ear tip and works downward.	Late July. August and September (statewide)	Examine silks for eggs' presence during green silking period. Examine eartips for small larvae.	None needed for com mercial corn. Seed corn and sweet corn may require preventive treatment.
Fall armyworm G82-613 RP98	General appearance similar to armyworm. On the head is a white, upside down Y-shaped marking that clearly distinguishes it from the true armyworm.	More common in late sweet corn. In field corn, damage caused by larvae feeding in ears, ear shanks and stalks. Damage similar to the corn earworm, but not usually as severe.	Late July, August and September (statewide)	Examine ear tips.	Not available.
Western corn rootworm beetle adults G82-613 G87-839 RP98	Female western rootworm beetles are yellow with black stripes: male beetles vary from striped to nearly black. They are about 1/6" to 1/4" long.	Adult beetles begin emerging in July and begin feeding on corn leaves, producing white, parchment-like areas. Beetles later move to ear tips to feed on emerging green silks.	July to first frost (statewide)	Two sampling schemes are: whole plant count and ear zone count. Consult NebGuide G87-839.	In continuous corn, based on 18,000 plants/ acre, approximately one beetle/plant or 0.5 beetles per ear zone may produce an economically damaging rootworm population in corn the following year. Numbers of beetles/plant that may interfere with pollination varies, depending on stage of corn and environmental conditions. Generally, con trols are justified only when severe silk clipping occurs at 25-50% pollen shed.
Northern corn rootworm beetle adults G82-613 G87-839 RP98	Northern corn rootworm beetles are green to yellowish green, sometimes almost tan, without stripes. They are the same size as western species.	Tend to emerge a little later than western species but damage is same. Feed on pollen of a wide variety of plants.	July up to first frost (Generally common only in northern Nebraska).	Again not validated, but probably the same as for western species. Two sampling schemes are: whole plant count and ear zone count Consult NebGuide G87-839.	Although not validated, probably same as for western species. Some research shows I WCRW = 2NCRW.

Footnotes:
[1]Insect Pest Management for Corn in the Western Great Plains. 1986. Cooperative Extension Service, Kansas State University, Manhattan, KS.
[2]Corn Pest Management for the Midwest. North Central Regional Publication No. 98. Ohio State University, Columbus, OH.
[3]NebGuide.

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Kenneth R. Bolen, Director of Cooperative Extension, University of Nebraska, Institute of Agriculture and Natural Resources.