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EC98-1562 Corn Insects: Quick Reference

Robert J. Wright
University of Nebraska, rwright2@unl.edu

J. F. Witkowski
University of Nebraska&#8211Lincoln, jwitkowski1@unl.edu

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Robert J. Wright, Extension Entomologist
John F. Witkowski, Extension Entomologist

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This Extension Circular provides abbreviated information on the economically important corn insect pests found in Nebraska. It provides a brief description of the insect, damage symptoms, incidence, sampling scheme, economic thresholds and available references for each pest. Additional information can also be found at the UNL Entomology Department web site.

EARLY SEASON

Insect and Reference	*Brief Description*	*Damage Symptoms*	*Incidence*	*Sampling Scheme*	*Economic Threshold*
Seed corn maggot G1023	The maggots are yellowish-white, ~ 1/4" long, sharply pointed at the head end, legless, and tough-skinned.	Maggots feed inside the kernel; either the seed fails to germinate or the seedling 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. If damage is severe early, may need to replant.
Seed corn beetle G1023	Beetles are dark brown with a lighter brown border stripe on the wing covers, or a uniform brown; ~1/4" to 1/3" long.	Beetles feed inside the corn seed below the soil surface. Seeds fail to	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 beetles.	Not available. If damage is severe early, may need to replant.
White grubs G1023	Generally white with a brown head, a C-shaped body, and three	*Phyllophaga* grubs can seriously damage corn	May and June (statewide)	Dig up several damaged plants and examine roots and	Not available. Post-emergence plant

	pairs of short legs. True white grubs (*Phyllophaga*) have two parallel rows of spines on the underside of the last abdominal segment; annual white grubs (*Cyclocephala*) have no detectable pattern of spines.	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*.		surrounding soil for white grubs.	insecticide treatment not effective. If damage is severe early, may need to replant.
Black cutworm G1153	Larvae are dark gray to brown above with faint lighter stripes. Skin has strongly convex, rounded granules of varying sizes (like sandpaper).	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)	Count 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 < 1/2" long.
Dingy cutworm G1153	Larvae are dull dingy brown with a broad buff gray dorsal stripe subdivided into triangular areas on each segment and bordered by a narrow dark stripe on each side. Skin granules are round, coarse and isolated.	Mostly feeds above the ground on foliage. May cut plants off at or below soil surface; damage not usually serious because it normally is above plant's growing point.	April through June (statewide)	Rarely necessary.	Often not economic because the insect completes feeding and development before the plant's growing point is close to soil surface. Identification critical.
Wireworms G1023	Larvae are hard-bodied, light tan to reddish tan, long, flat or nearly rounded. Up to 1" long.	Feeds inside the seed before germination or in plant below the soil line in seedling corn. Seed or seedling may be weakened or killed.	April, May, and June (statewide)	Baited traps: 1/2 cup each untreated wheat and corn placed ~ 4" deep in the soil; cover with small sheet black plastic and cover the black plastic with clear	Average of one or more wireworms per baited trap. Post emergence insecticide treatment not effective. If damage is severe early,

				plastic. Trap left in soil undisturbed for 2-3 weeks before planting can predict wireworm damage potential.	may need to replant.
Flea beetles	Small, shiny black, stout-bodied beetle with black legs adapted for jumping, ~ 1/16" long.	Feeds on leaves; causes narrow white strips by scraping off the green tissue between veins. May transmit Stewart's wilt.	May and into June (primarily eastern and southern Nebraska)	Count flea beetles on 25 corn plants in each of several locations in the field. Rate leaf according to scraping damage.	Four to five flea beetles per plant and corn < 6" tall, or leaves of seedlings with 30% of the green tissue removed and corn <3-leaf stage.
Chinch bugs G806	Fully grown chinch bugs are ~ 3/16" long, with black body and white forewings. Newly hatched bugs are very small and bright red. There are five nymphal instars.	Injures 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 southcentral Nebraska. Populations build up during dry years.	Inspect border rows of cornfields planted near ripening small grains for chinch bug migration. Examine 25 plants in at least 4 locations in field for reddish nymphs or black and 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 on 3" plants. 50 or more 12" plants. Economic threshold lower if plants are under stress.
Sod webworm	Larvae are short, rather thick-bodied, usually spotted and	Usually in first year corn out of pasture or sod - small	May and June, generally, north-central	Count wilting or cut plants in 20 feet of row in each of	Not available. Usually same threshold as for black

	coarse-haired, active worms, from ~1/4" to 3/4" long. Will be found in webbed or silk-lined tunnels usually adjacent to corn plant.	corn plants cut off near surface of ground as if attacked by cutworms. Often feeding occurs when growing point is below ground and damaged plants recover.	and western Nebraska where corn grows in sandier soils; may occur elsewhere where similar soil conditions exist.	several locations in the field.	cutworms.
Corn rootworm larvae G774 G1108	Small whitish larvae up to 1/2" long with black to dark brown head and anal plate.	Feeds on and tunnels into roots of corn plants.	Late May, June, and mid-July (statewide)	Dig up 2 plants at each of 5 locations with the soil from 6-8" around the plant. Sift soil 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 H2O).	None available. An average of 2-3 larvae per plant has been used by some consultants to determine need for emergency controls.
First generation European corn borer (ECB)	Whitish-gray caterpillar with small black spots on body and shiny black head. From 1/8-1" long.	Feeds on leaves in whorl of corn, then bores into stalk when half-grown. Survival 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 with feeding damage; unroll several damaged whorls, record number of live worms/plant. Note size of worms.	Depends on price of corn, yield potential, cost of application, and number of larvae, 3-5% loss per borer that reaches maturity per plant. See worksheet at Entomology Web site.
Corn leaf aphids G838	Small, blue/green, usually wingless insects in the	Feeds by sucking juices from corn plant; does not	Throughout season (statewide)	Examine five sets of 20 plants during late whorl stage and	15-30 aphids per plant 14-21 days before tasselling may

	whorl and tassel.	inject salivary toxins.		tassel emergence.	indicate the need to treat; populations often decline after tassel emergence.
Corn root aphids G1023	Small (1/16" long), bluish-green to grayish-green, spherical aphids.	Feeds below ground on corn roots. Infested plants are stunted, may wilt, become yellow and die. Most severe injury in dry years.	Throughout growing season	Dig up 2 row feet of plants at 5 locations in a field. Record number of plants with live aphids and showing symptoms.	No economic thresholds developed. If damage is severe early, may need to replant.
Grasshoppers G791 NF328	From 1/5 to >1.5" long. Front pair of wings are leathery; immature stages lack wings. Color varies with species, yellow, green to tan; hind legs well developed for jumping.	Grasshopper injury to corn consists primarily of leaf feeding. Heavy losses may occur from feeding on plant stems or ripening kernels of grain.	Throughout the latter half of the growing season, particularly following several dry years (statewide)	Count numbers of grasshoppers per square yard as you move through the field or field margin.	Within the field, 3-7, 8-14, 15 or more hoppers per sq yd indicate light, moderate, or heavy populations, respectively. In field margins, 11-20, 21-40, and more than 40, respectively.
Stalk borer G521	Young larvae are purple to black, with prominent longitudinal white stripes at front and rear ends of body. Stripes are interrupted at mid-body by a solid dark purple to black area on the third thoracic segment and first three abdominal segments. Fully grown larvae are uniformly dirty	Larval damage results in deformed or stunted plants caused by either burrowing into the base of the plant and tunneling upward through the center of the stalk or entering through the whorl and tunneling	June through early July	Dissect plants in field borders. Check for larvae in corn at 1,400-1,700 degrees days (41 °F base) from Jan. 1.	Generally a pest only in field borders. Economic thresholds vary from 15-50% infested plants, depending on plant stage and corn value.

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LATE-SEASON

Insect and Reference	*Brief Description*	*Damage Symptoms*	*Incidence*	*Sampling Scheme*	*Economic Threshold*
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. Later bores into stalk.	Late July, August, and sometimes early September. The larvae overwinter wherever corn is grown.	Look for fields pollinating during early 2nd ECB moth flights. Inspect 10 plants in at least 5 locations, counting egg masses on underside of leaf, and larvae in leaf axils and ear tips.	25-50% of plants with an egg mass and corn at blister stage or earlier. See worksheet at Entomology Web site.
Two-spotted spider mite (TSM) G1167	Mature TSM are ~ 1/32" long, with two well-defined spots near the front of the body. TSM is somewhat larger and more robust than BGM.	Mites destroy individual cells on undersides of leaves, causing yellow spots; in severe cases leaf death occurs. TSM tends to occur over the entire plant as populations increase.	May be present throughout the growing season, particularly in drought-stressed field areas. Most common in July, August, and into September (statewide)	Examine the undersides of the leaves of several plants in several different parts of the field. Note the mite species present, the distribution of colonies and the amount of injury.	For TSM only or TSM + BGM, 15-20% of total leaf area with active TSM colonies and moderate damage apparent. Economic threshold table in NebGuide G1167.
Banks grass mite (BGM) G1167	BGM pigmentation extends along the entire length of the body. BGM appear narrower and slightly flatter.	BGM populations tend to start at bottom of plant and move up.	BGM often appear earlier than TSM	Same as above.	For BGM only. One lower leaf yellowing and colonies present up to the ear zone. Econonic threshold table in NebGuide G1167.
Armyworm	Dark green	Feeds on	Usually July-	Larvae feed	Treat when feeding

G1300	worms up to 1 1/2 " long, with several yellow and orange stripes on sides and down middle of back. Heads are brown with honey-comb shaped markings.	leaves, sometimes only leaving the mid-rib. If field not infested with grassy weeds, infestation usually starts on edge of field, with worms moving in from grassy areas.	September, but may be anytime during season (statewide)	at night so worms often are not detected until damage present. Check grassy and low lying areas around or in fields. Hailed fields may be at risk because of grassy weed growth.	is causing the loss of two lower leaves before hard dent stage.
Variegated cutworm G1300	Larvae found in several colors, with a distinct pale yellow diamond-shaped dot on the mid-dorsal line of most of the segments.	Feeds on variety of crops; sometimes can be found feeding at the tip of the corn ear. Economic damage is rare.	August (statewide)	Examine 25 eartips in each of several areas of the field.	Not available.
Western bean cutworm G1300	Eggs laid in masses on the upper side of the leaf. Eggs are pearly white when laid, but by hatching time (4-7 days later) are bluish-black. Young cutworms are dark brown with faint diamond-shaped markings on their backs. Older larvae change to lighter color; by maturity, they're gray to pinkish brown and three short, white stripes run lengthwise on the first segment	Larvae feed on grain in ear; multiple cutworms may occur in single ear greatly reducing grain yield. If pollination has not occurred, young larvae may keep silks chewed back, interfering with pollination.	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 10 plants in 5 or more 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.

	behind the head.				
Corn earworm G1300	Color varies from yellow or pink to green, sometimes almost black. Body usually marked with alternative light and dark strips. Skin covered with microspines. May 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. Usually only one mature larva develops per ear.	Late July, August, and September (statewide)	Examine silks for eggs' presence during green silking period. Examine eartips for small larvae.	Treatment not economically justified for field corn. Seed corn, popcorn and sweet corn may require treatment.
Fall armyworm G1300	General appearance similar to armyworm. On the head is a white, upside-down, Y-shaped marking that clearly distinguishes it from the armyworm.	Larvae feed 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 (WCR) adults G774 G1300 * MP 63	Female WCR beetles are yellow with black stripes; male beetles vary from striped to nearly black. They are ~ 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 feed on silks and pollen.	July to first frost (statewide)	Examine 50 plants per field, searching over whole plant. Also, unbaited yellow sticky traps may be used; 12 traps per field. See NebGuide G774.	In continuous corn, ~0.75 beetle/plant or 6 beetles/trap/day may produce an economically damaging rootworm population in corn the following year. Numbers of beetles/plant that may interfere with pollination varies; controls are justified only when severe silk clipping

					occurs at 25-50% pollen-shed.
Northern corn rootworm (NCR) adults G774 G1300 MP 63	NCR beetles are green to to yellowish green, sometimes almost tan, without stripes. They are about the same size as WCR.	Tend to emerge a little later than WCR but damage is same. Also, feed on pollen of a wide variety of plants.	July, up to first frost (generally common only in northern Nebraska)	Not validated, but probably the same as for WCR.	Although not validated, probably same as for WCR. Some research shows 1 WCR=2NCR.
The Extension publications listed also are available from your local Extension Office. * *Adult Corn Rootworm Management*, UNL Agricicultural Research Division, Miscellaneous Publication 63					

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