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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

No. 94-16
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Greenbug numbers increasing

Surveys of sorghum fields across the state indicate that greenbug numbers have increased to near economic levels in some isolated fields. We are not sure exactly why one field will have high numbers of greenbugs and the surrounding fields will have few if any of the pests, but this may relate to whether the fields were planted to greenbug resistant hybrids.

Growers should scout their sorghum at least once a week for greenbugs on the underside of the lower leaves and the damage that they cause to the leaves. From boot to soft dough stages, consider insecticide treatment if greenbug colonies are present on most plants, before one lower leaf has been killed, and if parasite numbers are low (less than 20% of greenbugs parasitized). Parasitized greenbugs become mummified, are tan or brown in color, and appear swollen or bloated. Once parasitization reaches 20% or higher, greenbugs will be eliminated in 7 to 10 days without the insecticide treatment.

If insecticide treatment is determined necessary, refer to the list of insecticides in EC94-1509, *Insect Management Guide for Nebraska Corn and Sorghum.* One treatment is usually sufficient to protect sorghum from further greenbug damage.

Steve Danielson
Extension Entomology Specialist

Scout now for 2nd generation European corn borer eggs

Second generation European corn borer moths have begun to emerge in south central Nebraska and will be laying eggs during August (see July 22 *CropWatch* for predicted egg-laying periods).

Fields with green silks during the peak moth flight period are most susceptible to second generation egg laying. The white, flat eggs overlap each other like fish scales and are laid in masses of 5-40 eggs. Eggs are most likely found on the underside of leaves, near the mid-rib, on the ear leaf and the three leaves above or below the ear leaf. A black spot is visible on the eggs for about 24 hours before they hatch. The spot is the head of the developing corn borer; this stage is often referred to as the black head stage.

European corn borer

Begin scouting fields soon to determine when egg laying begins in your area. To determine whether control would be profitable, examine 25 plants at four sites per field (100 plants total). Record the number of egg masses and the number of plants sampled. Go through the calculations outlined in the following worksheet to determine if an economic infestation is present. You will also need to know:

-crop stage;
-expected yield;
-expected market price for corn;
-percent control with insecticide; and
-cost of control (insecticide plus application costs).

Use of this worksheet will allow you to better evaluate the factors influencing the cost/benefit relationship for second generation

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Inside

Greenbug watch in Kansas

Light to moderate populations of greenbugs were found in some early planted milo fields in Ford, Finney, and Haskell counties in southwest Kansas. Winged greenbugs were common in a field in the Plymell area of Finney County. Growers in nearby counties in particular and in the western half of Kansas in general, should begin regular checking of milo fields for possible serious buildups of this pest during the next few weeks. The greenbug is capable of very rapid population increases. Lady beetles were moderate to abundant in most milo fields checked in western Kansas.

Kansas Department of Agriculture Insect Survey Report (July 22)

Summer black stem now active in alfalfa

Central and eastern Nebraska alfalfa growers should begin scouting their third cutting of alfalfa for summer black stem and other leaf disease development. The most obvious symptom is premature leaf defoliation starting with the lower leaves and progressing upward in the canopy. The leaf spots, which develop before the stem lesions, are ash-gray and roughly circular. They are much larger than the lesions of common leaf spot. Lesions on the stem are long and range from a reddish to a chocolate brown.

Summer black stem can be a problem in the second and third cuttings. Warm-to-hot, wet or humid weather favors disease development. As with most leaf and stem diseases of alfalfa, losses are greatest if harvest is delayed until full bloom.

Now is the time to scout fields regularly so that cutting schedules can be adjusted to compensate for disease activity. Adjusting the cutting schedule to reduce leaf loss is the most practical and economical control method.

John E. Watkins
Extension Plant Pathologist

Herbicide guide to be revised

Farmers, Extension educators, industry representatives, and all other users of the Extension *Herbicide Use Guide* are invited to submit suggestions for the 1995 edition. We appreciate your previous input. You have helped make the *Nebraska Herbicide Use Guide* a most useful weed control aid for farmers, dealers, applicators, farm managers, consultants, Extension educators, and others.

Please send your suggestions by **Sept. 1** to the Agronomy Department - Weed Science, Attention John McNamara, 362 Plant Science Building, University of Nebraska, Lincoln, NE 68583-0915.

Alex Martin
Extension Weeds Specialist
John McNamara, Extension Assistant, Agronomy-Weed Science

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Lisa Brown Jasa, Editor

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Second generation European corn borers *(Continued from page 109)*

European corn borer treatments. Average values are suggested in the worksheet, but may be modified for local conditions.

1) Borer survival is suggested to be 15%. Larval survival varies with weather conditions and irrigation. In irrigated corn, larval survival may be 20% or more, while in dryland corn with no significant rainfall, it may be 10% or less. Survival of eggs and small larvae decreases greatly in hot, dry weather, or with extended periods of heavy rain.

2) Yield loss will be about 4% per borer for infestations occurring before silks turn brown and 3% per borer after silks turn brown, but before blister stage. These averages are based on published research, but only account for physiological yield losses (reduced grain production) and do not consider yield loss from stalk breakage or ear drop. These factors are difficult to predict and vary with hybrid, cultural practices and weather.

3) Percent control with insecticides is suggested to be 75%; change this value if you think that control will be different under your situation.

Infestations are most damaging when corn borers enter the stalk early in the reproductive cycle of corn. There is a short time between first egg hatch and significant stalk tunnelling when corn borers are best controlled. Concentrate scouting efforts in this early egg laying period and repeat every three to five days. Often second generation egg laying may extend for 21 days or more. Although later hatching corn borers do not directly reduce grain yield as much, they may still cause stalk breakage or ear drop. Early harvest of fields damaged by corn borers and selecting varieties with good stalk strength and resistance to stalk rot can reduce this loss.

If treatment is needed, time insecticide applications to coincide with the beginning of egg hatch to achieve acceptable control. Generally, liquid and granular formulations of the same insecticide are equally effective against corn borer larvae. A listing of registered insecticides, their rates and restrictions is available in EC 94-1509, *Insect Management Guide for Nebraska Corn and Sorghum*, available at your local University of Nebraska Cooperative Extension office.

Bob Wright, Extension Entomologist, Clay Center

Management worksheet for second generation European corn borers

_____	Number of egg masses/plant x 23 eggs/egg mass x 15% survival* = _____ borers/plant
_____	Borers/plant x 4% yield loss/borer** = _____ % yield loss
_____	% yield loss x _____ expected yield (bu/A) = _____ bu/acre loss
_____	Bu/A loss x $ _____ sale price/bu = $_____ loss/acre
$ _____	Loss/A x 75% control = $_____ preventable loss/acre
$ _____	Preventable loss/acre
— _____	Cost of control (chemical + application costs)
= $_____	Profit (+) or loss (-)/acre if treatment is applied

If preventable loss exceeds cost of control, insecticide treatment is likely to result in economic benefit.

* Assumes 15% survival rate; may vary with weather.

**Use 3% loss per borer/plant if infestation occurs after silks are brown. The potential economic benefits of treatments decline rapidly if infestations occur after corn reaches the blister stage.

Nebraska weather data as of July 24

	Growing degree days*				Precipitation***				Evapotranspiration rates						
Accumulated	*Fahrenheit, Base 50***				*7/17-7/24*		*4/1-7/24*		*Emer*	*Prior*	*Prior*		*Next*	*Next*	
from	*5/1*	*5/10*	*5/20*	*5/31*	*Act*	*%****	*Act*	*%****	*Date*	*Week*	*3 Days*	*7/24*	*3 Days*	*Week*	*Days*****
Ainsworth	1487	1416	1237	1053	.00	0	11.22	97	5/5	.27	.25	.19	.31	.34	1
Alliance	1369	1290	1126	975	.09	18	3.91	40	5/5	.35	.30	.28	.35	.38	2
Arthur	1424	1348	1187	1016	.47	67	10.46	96	5/5	.27	.22	.16	.30	.35	6
Beatrice	1699	1637	1468	1249	.06	7	11.46	84	5/5	.26	.22	.11	.29	.34	3
Central City	1654	1591	1411	1187	.64	92	9.80	74	5/20	.22	.21	.13	.30	.34	0
Clay Center	1664	1602	1429	1218	.47	61	12.72	95	5/5	.22	.19	.07	.29	.34	3
Concord	1536	1485	1316	1113	.01	1	11.47	87	5/20	.24	.26	.20	.30	.32	0
Curtis	1607	1531	1361	1172	.47	67	7.35	62	5/5	.29	.28	.22	.35	.38	5
Elgin	1539	1484	1313	1107	1.26	170	12.64	96	5/20	.25	.24	.15	.31	.35	0
Gordon	1364	1294	1125	978	.04	6	9.06	86	5/20	.34	.29	.26	.34	.37	1
Grant	1557	1478	1309	1123	1.73	275	6.69	62	5/5	.32	.31	.27	.37	.40	2
Holdrege	1653	1581	1212	1411	.07	9	12.66	97	5/5	.27	.24	.13	.32	.36	4
Lincoln	1771	1708	1528	1293	.04	6	12.95	99	5/5	.26	.24	.18	.31	.34	3
McCook	1696	1612	1235	1432	.06	9	8.80	79	5/5	.30	.28	.18	.35	.39	5
Mead	1659	1596	1425	1207	.28	35	15.35	96	5/5	.25	.24	.16	.30	.33	1
North Platte	1529	1455	1098	1284	.43	62	11.22	100	5/5	.24	.24	.17	.31	.35	4
O'Neill	1489	1426	1258	1073	.31	41	16.18	134	5/20	.25	.23	.20	.30	.34	0
Ord	1588	1522	1350	1150	.39	56	13.62	116	5/20	.24	.22	.14	.30	.34	1
Red Cloud	1694	1629	1465	1258	.63	82	10.09	78	5/20	.29	.23	.07	.31	.36	2
Rising City	1638	1580	1413	1193	.43	62	13.98	118	5/5	.22	.21	.15	.30	.34	1
Scottsbluff	1486	1392	1220	1050	.20	44	4.26	49	5/5	.29	.27	.27	.35	.38	4
Shelton	1672	1606	1423	1203	.73	116	11.65	94	5/5	.22	.20	.06	.30	.35	2
Sidney	1421	1340	1186	1022	.59	105	7.83	82	5/5	.37	.35	.28	.38	.40	7
Tarnov	1572	1515	1350	1145	.94	133	12.76	96	5/5	.23	.22	.15	.30	.33	1
West Point	1645	1581	1407	1187	1.02	162	13.94	101	5/20	.24	.23	.15	.29	.32	1

*Tasseling/silking normally begins at approximately: 1200 GDD's (short season); 1300 GDD's (mid season); or 1400 GDD's (long season)
**Base 50 is used for corn, sorghum and soybean production.
***Precipitation is a seven-day summary ending on July 24.
****Percent of normal precipitation levels.
*****Days indicates number of days ahead or behind normal, relative to accumulated growing degree days on July 24.