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## CropWatch No. 94-19, Sept. 2, 1994

Lisa Brown Jasa

University of Nebraska-Lincoln, ljasa@unlnotes.unl.edu

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# CROP WATCH

University of Nebraska Cooperative Extension  
Institute of Agriculture and Natural Resources

No. 94-19  
Sept. 2, 1994

*Trouble expected for winter wheat*

## Hopper numbers high in the west

The abundance of grasshoppers in western Nebraska will likely cause problems this fall in the winter wheat crop. Wheat field borders should be evaluated now and treatment options planned.

Table 1 summarizes the thresholds often used to determine when treatment is feasible. These thresholds need to be modified for grasshopper control in winter wheat because the amount of leaf material available is minimal and the grasshoppers are nearly grown and can consume a great deal of plant material. **Because of these factors, light to moderate infestations in winter wheat fields and borders can cause stand reduction or loss.** Generally, treating wheat borders or the area surrounding the wheat will control this problem. There are several options for controlling grasshoppers along the margins of these winter wheat fields. Timing and preparation are important to all of these options.

The most common method of grasshopper control along the borders of wheat fields is to spray the borders for grasshoppers just before the wheat emerges. Timing is critical to optimum control. If the application is made too early there will be no residual in the borders when the wheat emerges and grasshopper populations may build back too quickly. If it is

Table 1. Thresholds for determining grasshopper control (grasshoppers per square yard).

<i>Infestation</i>	<i>Field*</i>	<i>Field Margin*</i>	<i>Treatment necessary?</i>
Non-economic	0 to 2	5 to 10	Usually not
Light	3 to 7	11 to 20	Questionable
Moderate	8 to 14	21 to 40	Probably
Heavy	15 or more	41 or more	Yes

applied too late, some of the earliest emerging wheat may already be damaged. The residual of the treatments will vary, but it is important to monitor the wheat borders and the margins after treatment to make sure the grasshoppers do not re-enter the field and cause significant damage. A repeat application after 7-14 days may be required if grasshopper pressure persists. The best products for controlling grasshoppers in non-cropland borders (ditches and other water areas) are Asana XL and Orthene 75S. Orthene also can be used to treat adjacent rangeland. These treatments can only be used in areas adjacent to wheat, and not on growing wheat.

The most effective treatments to control grasshoppers on wheat include dimethoate (Cygon), Furadan and Lorsban. Refer to the labels of all these chemicals for the proper rates, safety precautions

and restrictions. When treating wheat or adjacent pasture or range, read and follow all label restrictions on grazing. If rate ranges are listed for these chemicals, the higher rates generally should be

*(Continued on page 129)*

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# Bean leaf beetles found feeding on pods

As soybeans reach maturity, there is less succulent foliage for bean leaf beetles to feed on and they may turn to the pods or beans inside for food. This can be a concern to growers who find damaged or dropped pods. Dropped pods will reduce yield and damaged pods can lead to seed spoilage or discoloration.

A grower finding such damage may consider an insecticide treatment to kill the beetles, even though the loss at this time of year may not justify the cost of the treatment. Growers should avoid becoming overly alarmed by the perception of loss.

Use a sweep net to obtain an estimate of the number of beetles present in the field. By taking 25 sweeps in each of four locations in a field and determining the average number of beetles per sweep, the accompanying table can be used to make informed decisions regarding whether a treatment is justified based on the expected price of soybeans and the cost of treatment.

**Steve Danielson**  
Extension Entomologist  
**Tom Hunt**, Extension  
Technologist, Entomology

## Worker Protection Standard explained

A new Extension NebGuide entitled *Worker Protection Standard for Agricultural Pesticides* was released this week by the University of Nebraska-Lincoln Extension Publications. It provides information on whether an individual is covered or exempt from the Standard and explains how to comply. Contact your area Extension Office to order a copy or write Bulletins, PO Box 830927, University of Nebraska, Lincoln, NE 68583-0927.

Table 1. Economic thresholds (beetles per sweep)

Crop value, \$/bu	Pest-management costs, \$/a*			
	6.00	8.00	10.00	12.00
5.00	4(3)	5(4)	6(5)	8(5)
6.00	3(2)	4(3)	5(4)	6(5)
7.00	3(2)	4(3)	4(3)	5(4)
8.00	2(2)	3(2)	4(3)	5(3)

\*Numbers in parantheses are for drilled soybeans with a 7-inch row spacing.

## Correction

I reported in Crop Watch issue 94-13 about popcorn and seed corn pest management manuals produced by Purdue University. The popcorn pest management manual (IPM-5) should be ordered from Purdue Extension Entomology, NOT the Purdue Media Distribution Center as indicated. Send

orders to 1158 Entomology Hall, Purdue University, W. Lafayette IN 47907-1158, 317-494-8761. The seed corn pest management manual (IPM-2) is now out of print, but will be revised and reprinted over the winter.

**Bob Wright**, Extension  
Entomologist, Clay Center



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Lisa Brown Jasa, Editor

For more information about a particular subject, write the authors at the addresses below:

UNL Department of Entomology  
202 Plant Industry Bldg.  
Lincoln, NE 68583-0816

UNL Department of Agronomy  
279 Plant Science Bldg.  
Lincoln, NE 68583-0915

UNL Department of Plant Pathology  
406 Plant Science Bldg.  
Lincoln, NE 68583-0722

UNL Department of Agricultural  
Meteorology  
236 L.W. Chase Hall  
Lincoln, NE 68583-0728

## Hopper (Continued from page 127)

used at this time of year because of the difficulty in controlling the larger adult grasshoppers.

Bait provides another option for grasshopper control. This is in the form of Sevin insecticide impregnated on bran bait at a rate of 2% or 5%. This method can provide good control when properly timed just before emergence. The key to this method is an even distribution of bait and a reapplication if the bait no longer attracts grasshoppers. Rain will substantially reduce the attractiveness of the bait.

Another option for controlling grasshoppers is to put down an insecticide around the field borders with one or two passes with the drill at planting time. This option reduces the need to monitor wheat fields but requires specialized application equipment. Thimet and DiSyston are registered for use at planting on winter wheat. The biggest concern with these products is the capability to meter out the chemical at the proper rate. It is not acceptable to add the product to the planter box. The small granules rapidly sift to the bottom and metering will be erratic. Also, this method will increase the possibility of phytotoxicity, especially with Thimet, and also increase the safety hazard to the operator. Grass seeder attachments can be used to meter the granules, but this method can be quite variable. A metering system (e.g. Gandy boxes) is the best method for applying these granules at planting. Some erratic results also have been seen with these granules during dry conditions. The wheat seed may be placed in enough moisture to germinate and grow, but there is not enough moisture to activate the granules so that the wheat plants can take up the chemical.

Another control method is to use Furadan 4F as a direct microtube injection into the seed furrow or to mix it with liquid fertilizer. Mixing Furadan with liquid fertilizer can improve product effectiveness, but problems of compatibility need to be addressed. Most applications with liquid fertilizer are done by injecting the Furadan into the fertilizer line just ahead of the manifold and relying on the mixing action at the manifold to keep the product mixed. Use tank mixes with Furadan cautiously. This product is highly toxic and any method that increases the handling of it will significantly increase the risk to the handler. Compatibility must be checked and agitation maintained to keep the product well mixed. Anyone considering this method should check with their dealer to make sure they take proper precautions in mixing and handling this product. A supplier for the injection apparatus for the microtube method and injection into the

liquid fertilizer line is Agri-Inject Inc. (Yuma, CO, 303-848-5336).

All of these treatments should give adequate control of low to moderate grasshopper populations. If grasshopper populations are high, complete control may be very difficult. In this case the borders can be planted at an extra high (perhaps double) wheat density to allow for the possible loss of some of the plants. This would probably only be needed in the first pass with the drill on the edges.

The key to managing this problem is in being prepared. This includes having access to the right equipment and applying treatments at the right time. Monitor fields regularly even after treatment to see the effects of the treatments and when the treatment is no longer providing control. Under extreme conditions a combination of methods or multiple applications may be necessary to control this problem.

Gary Hein, Extension Entomologist, Scottsbluff

## Conference set on biocontrol of insects

*Biological Control of Insects*, a conference on beneficial natural enemies and their use in pest management, will be held at the Nebraska Center for Continuing Education, Lincoln, on Nov. 1-3. This conference will cover the basic principles of biological control of insects, as well as specifics on its use in different settings.

Speakers will include University and USDA scientists conducting biological control research in the midwest. There will be sessions covering biological control of insects on corn, grain sorghum, alfalfa, livestock, turf, ornamentals and horticultural crops. A laboratory session will provide an opportunity to see live and preserved specimens of many beneficial natural enemies.

Registration materials and program information are available from Nancy Fields, conference coordinator, 402-472-2844.

Bob Wright, Extension Entomologist, Clay Center

# Gray leaf spot identified in "wet" corn fields

Gray leaf spot of corn, caused by *Cercospora zea-maydis*, is appearing throughout much of central and eastern Nebraska. This disease is most damaging in continuous corn, especially no-till continuous corn.

Gray leaf spot is favored by high humidity and frequent rains, which is why it usually does not cause significant damage in Nebraska. Fogs and heavy dews may provide enough moisture to produce an epidemic in susceptible hybrids. River bottom fields or low-lying areas are most frequently affected by gray leaf spot. This disease can become serious in heavily irrigated, densely populated, reduced tillage, continuous corn.

The causal fungus overwinters in corn leaf tissue and other debris. Sporulation occurs in early spring during periods of warm weather and high humidity or frequent rainfall. On older plants, infections are usually seen on the lower leaves. Secondary leaf infections can occur, resulting in a loss of all or most of the leaf tissues. Symptoms are pale brown to gray lesions 1/4 to about 2 inches long. Lesions are parallel to the midvein and have a square or rectangular

appearance which differs from the other common corn leaf blights which are usually rounded at the ends. Lesions may coalesce and produce large areas of dead tissues or loss of entire leaves.

Control of gray leaf spot is based on crop rotation and tillage. Because the fungus depends on crop debris for overwintering sites

and sporulation, fields with a history of severe gray leaf spot should be rotated away from corn. A one-year rotation is usually sufficient to permit breakdown of crop debris and reduction of inoculum levels.

**Diane A. Merrell, Extension Plant Pathology Assistant**

## Dividend fungicide released for seed treatment in wheat

Ciba-Geigy recently announced the EPA registration of Dividend fungicide for use as a seed treatment for wheat diseases. Dividend is a systemic fungicide that controls seed-borne and fall foliar diseases of wheat. It is applied as a water-based slurry through standard slurry or mist-type commercial seed treaters.

Table 1 shows diseases controlled by Dividend and application rates for winter wheat. At a rate of 1/2 fl oz/CWT, Dividend will not control fall foliar diseases, and at 1/4 fl oz/CWT it will only control common bunt and loose smut. Thus, to provide the maximum spectrum of disease control the treatment rate should be 1 fl

oz/CWT. At this rate, common root rot, Fusarium root and crown rot, and take-all are partially controlled. Partial control of take-all would be useful for wheat that is to be planted into former CRP fields, where a high potential of this disease exists.

The following restrictions apply to fields planted with Dividend-treated seed:

1. Green forage may not be grazed until 55 days after planting.
2. Do not plant any crop other than wheat within one year to fields where treated seeds were planted.

**John E. Watkins  
Extension Plant Pathologist**

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## CROPWATCH

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Table 1. Diseases controlled by Dividend fungicide and recommended application rates.

Diseases controlled	Fall foliar diseases controlled	Rate/CWT
Common Bunt	Powdery Mildew	1 fl oz
Dwarf Bunt	Leaf Rust	1 fl oz
Flag Smut	Septoria Leaf Blotch	1 fl oz
Loose Smut	(Controlled for up to 6 weeks after planting)	1 fl oz
Seed-borne Septoria		1 fl oz
General Seed Rots		1 fl oz
Fusarium Seed Scab		1 fl oz

# Recent highs accelerate crop growth; more sunshine forecast for after Labor Day

Summer conditions can best describe the weather pattern across Nebraska the past two weeks. Temperatures have averaged well above normal across the entire state. Precipitation has been abundant over a small area of the state, mostly in the McCook, Concord, and Beatrice areas. The remainder of the High Plains Climate Center Automated Weather Data Network indicates precipitation was between 0 and 80 percent of normal. The Panhandle continues to be exceptionally dry, with precipitation amounts ranging from 0% to 20% of normal.

Temperatures are forecasted to be above normal after the Labor Day weekend. Precipitation is expected to be normal over eastern Nebraska and below normal over western Nebraska. Normal highs for the first week of September range from 78°-82° F and lows between 50°-55° F. Normal precipi-

tation for the first week of September is 0.40 inches at Scottsbluff, 0.70 inches at Grand Island, and 1.05 inches at Omaha.

The warm temperatures have accelerated crop development. Seventy three percent of the corn crop is in the dent stage and 5% is considered mature and safe from frost. Twenty four percent of the soybean crop is turning color and 3% is dropping leaves. Of the sorghum crop, 68% is turning color and 1% is considered mature and safe from frost. At present, producers expect the corn harvest to begin in earnest around Sept. 15. This would be two to three weeks earlier than the past two seasons. This estimated harvest date is dependent on favorable growing conditions during the next two weeks, along with appropriate harvest weather by mid-September.

The warm temperatures and below normal precipitation re-

corded across the state the past two weeks has further depleted subsoil moisture reserves. As of Aug. 28, soil moisture estimates indicate that only east central and northeast Nebraska have reserves at or above 50% of the available moisture the soil can hold. If the general weather trend of below normal precipitation and normal to above normal temperatures persists, expect below normal subsoil moisture next spring.

Sept. 1 officially begins the recharge season, although crop growth during the next two weeks will require 1-3 inches of additional moisture. By Sept. 15, depletion of subsoil moisture by most crops should be completed for all practical purposes. A detailed recharge projection will appear in the next issue of *Crop Watch*.

Al Dutcher  
State Climatologist  
Agricultural Meteorology

## *Kansas crops stressed by heat, dry spell*

Temperatures were at or above normal over all but southeast Kansas last week. The eastern divisions received an average of at least 1 inch of rain during the week while the western division received less than 1/3 inch.

The recent lack of moisture is stressing fall crops, causing crop condition to deteriorate for the second week in a row, according to Kansas Agricultural Statistics, the County Extension Service, and the National Weather Service.

All but a few fields of corn in the northwest have reached the dough stage. Eighty-five percent of

the acreage has reached dent stage, compared to 45% last year and the average of 55%.

Silage, high moisture, and dryland corn harvests have begun in southern Kansas. Hail, wind and lack of moisture caused a significant decrease in corn condition. Condition is rated 73% good to excellent, 26% fair and 1% poor.

Sorghum stands have headed except for a few fields in southern counties. One-half of the crop is turning color, well ahead of the 20% for both last year and the average. Five percent of the sorghum crop is mature, ahead of

1% one year ago and the average of 3%. Condition is rated 64% good to excellent, 33% fair and 3% poor to very poor.

Nearly all of the soybean crop has reached the podding stage, with only a few fields in the southeast yet to pod. Lack of moisture for most of the week caused the condition of soybeans to decline to 43% good to excellent and 57% fair.

Seeding of wheat has begun in some southwestern counties.

National Weather Service  
Topeka, Kansas

# Nebraska weather data as of August 28

Accumulated from	Growing degree days*				Precipitation***				Evapotranspiration rates						
	Fahrenheit, Base 50**				8/21-8/28		4/1-8/28		Emer	Prior	Prior	8/28	Next	Next	Days*****
	5/1	5/10	5/20	5/31	Act	%****	Act	%****	Date	Week	3 Days	3 Days	3 Days	Week	
Ainsworth	2191	2120	1941	1757	.20	31	12.83	87	5/5	.25	.20	.15	.24	.27	-2
Alliance	2055	1976	1811	1660	.00	0	4.14	35	5/5	.42	.41	.334	.39	.38	1
Arthur	2135	2059	1898	1727	.04	9	11.09	83	5/5	.35	.36	.21	.34	.33	7
Beatrice	2471	2408	2240	2021	1.83	189	5.75	87	5/5	.26	.20	.09	.25	.28	1
Central City	2372	2310	2130	1906	.00	0	13.39	82	5/20	.25	.23	.18	.28	.31	-6
Clay Center	2404	2342	2169	1958	.00	0	14.96	89	5/5	.27	.23	.17	.28	.31	0
Concord	2179	2128	1960	1756	1.93	339	14.14	86	5/20	.27	.24	.17	.28	.31	-8
Curtis	2379	2304	2133	1944	.54	110	9.03	62	5/5	.19	.19	.17	.19	.19	7
Elgin	2220	2164	1993	1787	.31	50	13.98	86	5/20	.31	.27	.14	.32	.35	-5
Gordon	2096	2026	1856	1710	.00	0	9.72	76	5/20	.50	.50	.43	.43	.40	3
Grant	2296	2217	2047	1862	.16	37	7.52	56	5/5	.34	.33	.21	.32	.32	1
Holdrege	2423	2351	2181	1982	.08	13	15.09	92	5/5	.12	.11	.10	.11	.12	2
Lincoln	2570	2507	2327	2092	.08	10	15.24	91	5/5	.17	.15	.09	.18	.20	1
McCook	2495	2411	2231	2034	1.34	239	12.37	88	5/5	.04	.04	.03	.04	.04	5
Mead	2361	2298	2127	1909	.83	84	17.24	83	5/5	.25	.21	.12	.26	.29	-4
North Platte	2248	2174	2004	1818	.20	56	12.24	91	5/5	.30	.30	.20	.31	.31	3
O'Neill	2153	2090	1922	1737	.43	77	17.32	113	5/20	.26	.22	.17	.28	.32	-7
Ord	2297	2231	2058	1859	.28	39	18.27	118	5/20	.27	.24	.15	.30	.33	0
Red Cloud	2473	2409	2245	2037	.04	6	12.35	74	5/20	.39	.33	.23	.35	.38	1
Rising City	2350	2292	2125	1906	.63	90	16.26	105	5/5	.27	.23	.16	.28	.32	-2
Scottsbluff	2215	2121	1950	1779	.00	0	4.57	46	5/5	.27	.26	.21	.29	.30	4
Shelton	2418	2353	2169	1949	.01	1	16.21	104	5/5	.09	.09	.06	.10	.11	-1
Sidney	2161	2080	1927	1763	.00	0	10.28	87	5/5	.39	.38	.26	.36	.35	11
Tarnov	2270	2212	2047	1843	.55	87	15.12	90	5/5	.23	.20	.14	.25	.27	-2
West Point	2316	2253	2079	1859	.35	46	16.10	93	5/20	.26	.23	.14	.27	.30	-5

\*Using the growing degree days accumulated since emergence as a guide:

Corn is estimated to mature at about 2400 gdds for short season hybrids; 2500 for midseason, and 2700 for long season hybrids;

Soybeans are estimated to mature at about 1950 for short season hybrids; 2360 for midseason, and 2450 for long season hybrids; and

Sorghum is estimated to mature at about 2125 for short season hybrids; 2200 for midseason, and 2350 for long season hybrids.

\*\*Base 50 is used for corn, sorghum and soybean production.

\*\*\*Precipitation is a seven-day summary ending Aug. 28.

\*\*\*\*Percent of normal precipitation levels.

\*\*\*\*\*Days indicates number of days ahead or behind normal, relative to accumulated growing degree days on Aug. 28.

# Reduce Hessian fly losses through cultural practices

Surveys last fall indicated a significant presence of Hessian flies throughout the southern wheat growing areas of Nebraska. Growers need to consider the management of this insect when planning for fall planting.

Late summer is the best and perhaps only time to battle the Hessian fly. Generally, chemical controls are not a practical solution so cultural practices are the only means to prevent serious losses. To reduce Hessian fly fall infestations:

- 1) control volunteer wheat before planting;
- 2) plant Hessian fly resistant or tolerant wheat varieties; and
- 3) plant after the fly-safe date (*see map*).

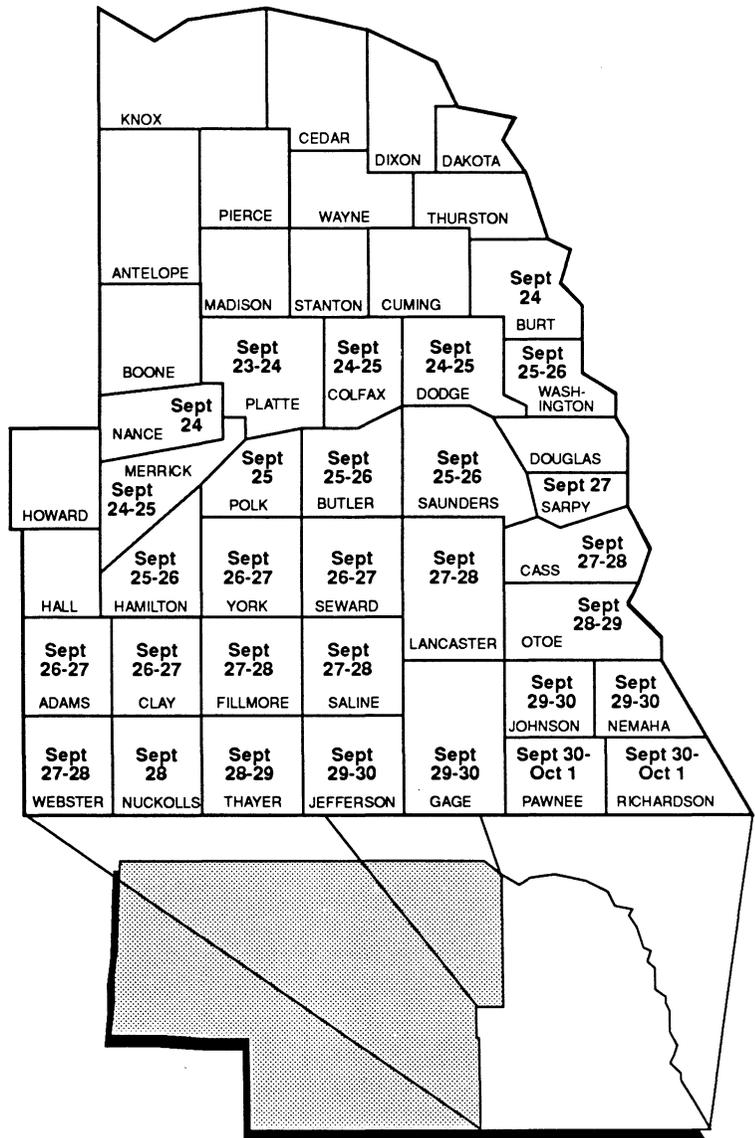
It is important that growers not rely solely on following the fly-safe planting dates, but rather incorporate two or all three practices into their management program.

The Hessian fly spends the summer in the flaxseed stage on wheat stubble. In the fall, adults emerge to deposit eggs on early seeded or volunteer wheat. Plowing will bury many flax seeds deep enough to prevent adults from reach the surface, but may promote erosion. Planting after the fly-safe date allows seedlings to emerge after most adult flies have died. Fly-safe dates are averages based on several years of observations. A hot, dry September can delay fly emergence. Moist, cool weather may cause average emergence dates to be earlier than the averages indicated on the map. Fly-safe dates have not been developed for western Nebraska, however, growers should not plant before the recommended date for their elevation. This delayed planting also will reduce potential problems from several other insects and diseases.

Producers wanting to plant early should strongly consider planting resistant varieties. Varietal resistance to the Hessian fly does not guarantee immunity, but should reduce the probability of severe infestations. Among the Hessian fly resistant varieties available are:

Resistant — Arkan, Brule, Redland, 2163, Norkan, and Vista;

Moderately resistant — Arapahoe, Buckskin, Colt, Rawhide, and Vona.



*Fly-safe planting dates for eastern Nebraska for a year with average temperatures. Actual fly-safe dates may be earlier than normal if the cool, wet weather continues.*

Be careful when choosing wheat varieties because many popular varieties such as Karl, Thunderbird, Abilene, Scout 66, Siouxland, Centura and the TAM #'s are susceptible to the Hessian fly.

**Steve Danielson, Jack Campbell and Gary Hein  
Extension Entomologists**

## *Webworms found in alfalfa fields*

A few cases of webworm damage to alfalfa have been reported in Johnson and Saline counties in southeast Nebraska. In both cases, the damage was limited to a few acres within a field and the webworms had matured to the adult (i.e. moth) stage. Large numbers of moths were noticed prior to or during harvest and the webbing along with associated defoliation was found upon further inspection.

There is no guarantee that further losses from this pest will occur this year or next year, even though an additional generation is to be expected. Growers should scout alfalfa fields the rest of the season and next year. Treatment is only recommended if 20% to 30% percent of the plant terminals are infested with feeding webworm caterpillars and the crop is more than two weeks from harvest.

**Steve Danielson**  
Extension Entomologist

## Itch mites a problem in seed facilities

We have received a few questions recently about people having skin irritation and itching from working in facilities where seed is processed. The seed often is brome grass and the workers often are working in close physical contact with the seed.

This problem is usually associated with the straw itch mite, which is so tiny that it is invisible to the naked eye. The mite is a predator that feeds on other small arthropods in the seed storage facility. When it gets on a person's skin, it can bite and cause small, reddish eruptions that will itch for a few days in most cases. Severely affected persons may have hun-

dreds of bites and suffer fever, vomiting, body pains, and secondary skin infections.

The solution to the problem is to rid the facility and the seed/grain of mites. This is done by fumigation, which should be done only by a commercially certified professional applicator who is very familiar with the process. The problem usually becomes less severe in affected facilities as cooler weather moves in. Limiting worker exposure also is helpful.

**Steve Danielson**  
Extension Entomologist