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Conditions right for foliar diseases in corn

The corn crop is developing rapidly and many fields are at various stages of tasseling and silking. Consequently, it is time to monitor for foliar diseases that may impact grain fill. As expected, anthracnose (Colletotrichum graminicola) leaf blight development has practically stopped. Gray leaf spot (Cercospora zeae-maydis) (Figure 1) and eyespot (Kabatiella zeae) (Figure 2) are now developing on the lower leaves of plants in many fields. In at least one field in Clay County, gray leaf spot lesions were observed on the ear leaf.

Weather conditions over the last two weeks have included periods of high relative humidity and daily temperature differentials of 20 to 30 degrees, providing for extended periods of leaf wetness due to nightly condensation. Although some daily temperatures were higher than ideal for gray leaf spot, infection periods did occur. The weather forecast for very high temperatures this week may significantly slow the spread of the gray leaf spot pathogen.

The next 30 days are critical for protecting corn plants from yield loss to foliar disease.

The next 30 days are critical for protecting corn plants from yield loss to foliar disease. Monitor for the development of gray leaf spot (see NebGuide 1384, Gray Leaf Spot of Corn) in the middle third of the plant; i.e., around the ear leaf. Use the following guideline for fungicide application (See NebFact 428, Fungicide Management of Foliar Diseases of Corn): If there are two lesions per leaf on the ear leaf or above on more than 50% of the plants in the field, the potential for yield loss exists on susceptible hybrids and a fungicide application may be cost effective. This is more often true in seed production fields than in field corn.

The second phase of Stewart's wilt of corn occurs after tasseling and may be observed within the next three to four weeks. It is not expected to be as widespread this year as in the past two years. Stewart's wilt can directly impact yield as well as predispose plants to stalk rot. Of equal concern is the impact on export of seed from affected fields; some countries have quarantine restrictions on the Stewart's wilt pathogen.

Additional information on these diseases can be found on the web at Plant Disease Central at pdc.unl.edu.

Jim Stack, Extension Plant Pathologist, South Central REC

Set your calendars

Soybean Management Field Days Aug. 14-17
See the Aug. 3 Crop Watch for more information or check the web site at http://ardc.unl.edu/home.htm
Field and pest updates

Bob Wright, Extension entomologist at the South Central REC:
Western bean cutworm moth numbers were increasing in light traps at Aurora and Clay Center by the end of last week. Current light trap information can be found at http://entomology.unl.edu/fieldcrops/
Continue to scout for western bean cutworm egg masses. For more information refer to Extension Educator Ron Seymour’s article in the July 6 Crop Watch.

Painted lady butterflies were very abundant along Highway 6 between Hastings and Minden last Friday. I was able to find eggs on soybeans, and wild sunflowers. Eggs are laid singly, and are light green in color when first laid. Continue to scout for thistle caterpillars; remember that defoliation thresholds drop to 20% in reproductive stage soybean. For more information refer to Extension Entomologist Tom Hunt’s article in the July 6 Crop Watch.

Gary Hein, Extension entomologist at the Panhandle REC:
Defoliating caterpillars are still being found in alfalfa, including webworms and loopers. Mexican bean beetle adult populations are very active and egg laying has peaked in dry beans. Egg mass sampling and treatments, if necessary, should be done now to avoid later defoliation. Also, we have seen potato leafhoppers in dry bean fields. Dry beans should be monitored for leafhoppers to prevent leaf symptoms from developing. The threshold for dry beans is one leafhopper per trifoliate. With the abundance of caterpillars this year, all crops should be monitored for general feeding caterpillars (wooly bear caterpillars, variegated cutworms, webworms and others).

Gary Hall, Extension Educator in Phelps and Gosper counties:
Dry conditions prevail in our area.

Western bean cutworm eggs typical of those found in Saunders County.

Crop irrigation is at 100%. Thistle caterpillars will be hatching from eggs laid recently. I have evaluated some fields with an egg on about 30% of the leaves. The hope is that these eggs won’t survive. Crops are looking good and seem to have caught up from the late planting.

Terry Gompert, Extension educator in Knox County:
Corn and pastures have really grown the past week after the rains. Both could be above average in production. We have received many calls regarding converting field crops to pasture, which is good. Soybean are not covering the rows and weeds are becoming more of a problem. Soybean yields likely will be below average.

Jennifer Chaky, coordinator of the UNL Plant and Pest Diagnostic Clinic: The following diseases were diagnosed July 2-13:
Corn - Fusarium (Clay and Saunders counties and two samples from Hamilton County), Northern Corn Leaf Spot (Saunders County), zinc deficiency (Custer County);
Soybean - Fusarium (Boone,
Soybeans may need extra weed control

Poor seed quality and a wet early growing season are adding up to weed trouble for some Nebraska soybean producers this year.

Soybeans may need late-season weed control treatment, said Alex Martin, a weed scientist in the University of Nebraska's Institute of Agriculture and Natural Resources. That's because in many fields, soybeans haven't grown up thickly to create a plant canopy that shades out weeds.

Last summer's hot, dry weather wrecked havoc on soybean seed production. Seed did not develop properly, which resulted in poor germination rates this spring. This low germination seed resulted in uneven soybean stands, Martin said.

When plants are distributed unevenly, the crop canopy -- essential for weed control -- is open.

"The crop helps us with weed management because it discourages weeds from growing," he said. "When the stand isn't ideal, it leaves the opportunity for weeds to develop."

The most important function of the canopy is to block out light, which weeds need to grow. Weeds and crops compete for light, nutrients and water.

Too many weeds, particularly weeds bigger than the crop, will reduce soybean yields.

Bob Klein, an IANR crop systems specialist at North Platte, said the cool, wet weather during soybean planting and establishment in some areas of Nebraska reduced stand quality, vigor and growth.

Roundup Ready soybeans aren't exempt from weed problems. These soybeans are genetically modified to tolerate spraying with the non-selective herbicide.

"Years such as this point out the advantage of a combination of pre- and post-emergence herbicide treatments," Klein said. "The pre-treatment provides residual control, while the post-treatment controls weed escapes and late-emerging weeds."

Glyphosate products such as Roundup Ultra and Touchdown do not provide residual control. The glyphosate products can only be used on Roundup Ready soybeans.

Martin said Roundup Ready soybeans can be treated with Roundup up to 25 days before harvest, but herbicides used on conventional beans have more limitations. Producers should make sure the treatment is appropriate for the plants' growth stage because some chemicals shouldn't be used after flowering begins.

Not all fields will require extra treatment, Martin said.

"Producers who compensated for poor seed quality by increasing the seeding rate during planting will have fewer problems than those who didn't make adjustments," he said.

The decision to treat late-season weeds should be made on a field-by-field basis, Martin said. NU Cooperative Extension's 2001 Guide for Weed Management in Nebraska, EC-130, and WeedSoft weed management software, both available at local extension offices, can help producers determine potential yield loss and the best method of treatment.

Martin and Klein advised producers to control weeds as soon as possible or when weeds are small.

"The longer you wait, the harder it is to control," Martin said. "With timely treatment, weeds have little effect on yields and harvest will be easier," Klein said.

Field and pest updates (Continued from page 158)

Buffalo, Cass, Clay, Johnson, Knox, Lancaster, Perkins, and Pierce counties), Phytophthora (Lancaster), Pythium (Cass County), Rhizoctonia (Madison and Pierce counties).

Barb Ogg, Extension Educator in Lancaster County: During the July 12 Crop Management Diagnostic Clinic at the ARDC (Saunders County), I found a single western bean cutworm (WBC) egg mass in the corn field plots. It is unusual to find western bean cutworm egg masses this far east in Nebraska. As is typical, this western bean cutworm egg mass was purplish in color and on the top side of the corn leaf. This is probably an isolated incident, but it might be wise to scout for these egg masses in eastern Nebraska cornfields.

I also found grape colaspis adults on corn plants. They feed on corn silks, soybean foliage and many vegetables and legumes. Larvae were reported feeding on corn roots earlier in the springtime so adults this year may be more numerous than usual. Adults superficially resemble northern corn rootworm beetles and are about the same size, although they are more robust. Grape colaspis feeding on corn silks or soybean foliage rarely justify an insecticide treatment.
Long-term research yields new concept for managing bean leaf beetles in soybeans

Second-generation bean leaf beetles feeding on soybean pods can cause significant economic damage. Management of the beetles during pod setting and filling can be frustrating because farmers often watch sub-economic populations of beetles feed on pods for a couple of weeks before the populations reach economic thresholds. Also, this is a busy time of year and turn-around time between reaching an economic threshold and actually treating the field can be several days. Entomologists at Iowa State University have developed a new concept for managing bean leaf beetles that may help avoid pre-threshold damage and damage occurring when treatment is delayed. Before we describe the plan, let’s review the biology of the beetle.

Lifecycle of the bean leaf beetle

Two generations of bean leaf beetles occur in Nebraska. Second generation beetles overwinter as adults; these beetles are seen in the spring feeding on seedling soybeans. They feed, mate, lay eggs, and then die in early to mid June. The first generation of beetles begin to emerge in July. The offspring from this generation are the second generation of beetles, which generally begin to emerge in August. This is the most damaging generation of bean leaf beetles. Total developmental time from egg to adult can range from 25 to 40 days. Because of this range, it is common to see adults from the first generation and the second generation in the field at the same time. As the generations overlap, beetles will be present at some level from mid-July until the end of the growing season. Because of this overlap it is important to monitor beetles regularly to determine shifts in population, which will aid in management decisions.

Bean leaf beetle

Damage

Bean leaf beetles will feed on soybean leaves throughout the season, but leaf feeding seldom causes yield loss. Most damage (economic yield loss) occurs when second-generation beetles feed on the developing pods. This yield loss can occur in several ways. Pods may be clipped from the plants, however this is not the primary cause of yield loss. Many flowers and pods are aborted naturally and to blame pod loss on bean leaf beetle feeding may be a costly mistake. Beetles normally injure soybean pods by feeding on the outside layer of the pod, leaving a thin layer of tissue still covering the seed. They do not usually eat into the developing seed, although this may occur on very small pods. Fungal pathogens may enter the pod from the feeding sites, causing seeds to appear shrunken, discolored, and moldy, which can result in reduced yield and dockage. Soybeans are most susceptible to yield loss from pod feeding after full pods are formed and seeds begin developing.

The new management concept is to sample the first generation beetles and then use that information to determine if the second generation will require treatment. Following is a discussion of the plan as proposed by Iowa State University entomologists.

(Continued on page 160)
Bean leaf beetles (Continued from page 160)

Applying the method

Sample your soybean fields after most of the first generation beetles have emerged; one week after peak emergence is ideal. Since first generation beetles have begun emerging across most of Nebraska, sampling can begin now.

Use a sweep net or drop cloth to sample the fields. If the number of beetles reaches or exceeds the thresholds (Tables 1 & 2), stop sampling. If the sample is below the threshold, sample the following week. If the sample remains below the threshold, sample again in a week. When the first generation beetle population begins to decline, stop sampling. If the threshold is not reached, then the second-generation beetle population should not reach an economically damaging level.

If the first generation population exceeds the threshold, the second generation likely will reach economically damaging population levels. Scout your fields again in late August to monitor for the first emerging second-generation beetles. When the second generation beetles begin to emerge, treat the field with an insecticide. The best choice is an insecticide with residual activity, but make sure it has an acceptable preharvest interval (45 days or less).

Drop cloth sampling method

Perhaps the most accurate way to sample beetles is with a drop (or shake) cloth. A drop cloth is a 3 x 3 feet piece of muslin or plastic attached on each side to dowel rods. Walk 100 feet in from the edge of the field. Hold one rod against the base of the plants and lay the cloth between the rows. Shake the plants against the cloth to knock off any insects and count the beetles. In narrow row beans you can still sample with a drop cloth but the procedure is slightly different. Set the rod at the base of the row of plants you want to sample and lay part of the cloth on the ground and hold the rest of the cloth upright or the opposite row to be sampled. Shake the soybeans against the upright cloth, and then count the beetles knocked down on the bottom of the cloth. Sample through the field in at least five locations to get a good estimate of the population. It is best to sample four locations for every 20 acres of field. Consult Table 1 for the number of beetles per 3-foot of row that justifies treatment of second-generation beetles.

Sweep net sampling

Walk 100 feet in from the edge of the field. Walk steadily while taking 20 broad, 180° sweeps with a sweep net. Sample through the field in at least five locations to get a good estimate of the population. It is best to sample four locations for every 20 acres of field. Consult Table 2 for the number of beetles per 20 sweeps that justifies treatment of second-generation beetles.

For more information on the biology and management of the bean leaf beetle, refer to NebGuide G90-974, The Bean Leaf Beetle in Soybeans. This NebGuide also is available on the Internet at http://www.ianr.unl.edu/pubs/insects/g974.htm

Tom Hunt
Extension Entomology Specialist
Haskell Agricultural Laboratory
NortheastREC
Keith Jarvi
IPM Extension Assistant
Northeast REC

Table 1. Economic thresholds for first-generation bean leaf beetles (average number of beetles per 3-foot of row) that predict economic damage caused by second-generation beetles. If thresholds are met, consider treating second-generation beetles in August.

<table>
<thead>
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<th>Crop value $/bu</th>
<th>Management cost ($/acre)</th>
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Table 2. Economic thresholds for first-generation bean leaf beetles (average number of beetles per 20 sweeps) that predict economic damage caused by second-generation beetles. If thresholds are met, consider treating second-generation beetles in August.

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If threshold is not reached, then the second-generation beetle population should not reach an economically damaging level.
Check corn roots for injury, reassess management program

Western corn rootworm beetles have been emerging since early July in southeastern and south central Nebraska, indicating that rootworm larval feeding is ending. Mid to late July would be a good time to dig roots to evaluate the efficacy of your rootworm management program.

Soil insecticides are applied in a narrow band or infurrow to the soil, or as a seed treatment, and corn roots grow beyond the treated zone where rootworm larvae may survive. Also, plant lodging may occur without significant rootworm feeding. Dig and wash some roots to check for rootworm injury before assuming that rootworm damage is responsible for lodging.

Rootworm insecticide efficacy can only reliably be evaluated if replicated, untreated check strips are left in the same field as the treatment. Without check strips, you won't know whether the absence of injury is due to insecticide efficacy or the absence of rootworms.

Root damage from rootworm feeding can be rated using the Iowa 1-6 injury rating system (see diagram). Before corn plants can be rated for injury they need to be at a growth stage where at least three nodes of roots are clearly visible. Dig at least 10 randomly selected plants from several areas of a field. Leave a 9-inch cube of soil surrounding the root system, wash the roots to remove soil and rate each plant for injury using the rating scale.

The relationship between root injury rating and yield loss is complex, but usually a root injury rating of three or more is needed to cause economic yield loss. The corn plant has the capacity to regrow roots and compensate for some early season injury, especially if soil moisture and fertility are adequate during the regrowth period. If several weeks have passed between the end of rootworm injury and the time of root rating, new root growth may hide the injury. Examine roots carefully to accurately rate them.

An alternative method to evaluate root injury has been developed at Iowa State University and is gaining acceptance. It is based on a 0-3 scale. This system was developed to avoid some of perceived problems with the traditional 1-6 scale, including that the 1-6 scale is not linear (e.g., a rating of 4 does not represent twice as much injury as a rating of 2), and that the 1-6 scale is hard to explain. The 0-3 scale is linear and the meaning of the injury values are easy to understand. Another potential advantage to the 0-3 scale is that it is more sensitive in detecting differences at low levels of injury compared to the 1-6 scale; this is particularly important in some research applications.

In this scale 0 = no damage, 1 = one complete root node is pruned (as defined in Figure 1, page 163), 2 = two complete nodes of roots are pruned, and 3 = 3 nodes of roots are pruned. Fractional ratings are possible, e.g. 1.5 = equivalent of 1½ nodes of roots pruned.

A web site further describing the 0-3 rating system is at http://www.ent.iastate.edu/pest/rootworm/nodeinjury/nodeinjury.html

Bob Wright
Extension Entomologist
South Central REC

Grazing dryland corn

When pastures are short due to dry weather, dryland corn fields also will be too dry to produce much grain. To salvage your corn, provide feed for your livestock, and reduce pasture damage, try green chopping or grazing your corn.

If you green chop, watch out for high nitrates. Cut high to leave lower stalks in the field and never allow green chop to heat in the wagon or feed bunk. That makes the nitrates even more toxic. Chop just what your animals will eat in one meal.

Grazing probably is the cheapest and safest way to use this corn. It may sound crazy to graze corn, but without grain, corn is similar to other summer annual grasses like sudangrass, millet, and cane. In fact, corn leaves and stalks often contain more TDN and protein than these more commonly used grasses.

If you do graze corn, use an electric fence to strip graze the field. Otherwise, cattle trample and destroy too much of it. A single electric wire that can be moved every few days works well for stock cows, but be sure to train them to the fence. It may not be what you planned, but chopping and grazing may provide salvage options.

Bruce Anderson
Extension Forage Specialist
Corn rootworm  (Continued from page 160)

Figure 1. Description of the Iowa State University 1 to 6 root damage scale.

Rating   Description of root system

1  No noticeable feeding damage.
2  Feeding scars present but no root pruning.
3  At least one root pruned, but less than an entire node of roots pruned.
4  At least one full node of roots pruned but less than two full nodes.
5  At least two full nodes pruned, but less than three full nodes.
6  Three or more full nodes of roots pruned.

To qualify as a pruned root, the root must have been pruned to within 1 1/2" of the plant. It is not necessary for all of the pruned roots to originate from the same node to qualify as a root system with a full node pruned. It is only necessary that the number of roots pruned is equivalent to that in a full node.
NUPlains to be released for 2002 crop

White wheat gaining a toehold

All across western Nebraska, wheat growers are cautiously eyeing NUPlains, the first hard white wheat variety released by the University of Nebraska and the USDA Agricultural Research Service. This is hard red winter wheat country and growers, seed producers, and elevator managers are not quite sure what to make of this new class of wheat. Will it create greater value for the industry or only bring confusion and extra costs?

Hard white wheat has a unique combination of processing, bran color, and bran flavor properties. White wheat bran is less obvious in flour and food products than red bran. In addition, white bran does not impart the bitter taste associated with red bran. Hard white wheat is preferred over hard red wheat in countries where a high percentage of the wheat bran is included in the flour. It is also preferred in countries where noodles, flat breads, and steamed bread are popular.

Production requirements for hard white winter wheat and hard red winter wheat are similar. In general, white wheats are more susceptible than red wheats to sprouting in the head at harvest. A few white wheat selections have shown resistance to sprouting and are being used as sources of sprout resistance in white wheat breeding programs. Until white wheat sprouting resistance is similar to that of red wheat, drier areas such as the Nebraska Panhandle and eastern Wyoming may have a production advantage. With less rain and lower humidity the potential for damage is less.

If white wheat is produced in a red wheat area, volunteer red wheat in production fields and accidental mixing in seeding, harvest, handling and storage could create serious problems. Hard white wheat growers and grain merchandisers must prevent mixing of hard white and hard red wheats. Until commercial facilities are dedicated to white wheat storage, growers may need to store white wheat on the farm.

Before growers plant hard white wheat, they should be sure to identify a buyer for their grain. They should not assume that the elevator down the road will want to handle hard white wheat. Because hard white wheat has been grown on such a small acreage to this point, domestic millers and bakers are unsure of how it will work in their businesses. It is anticipated that hard white wheat will have at least as much value for the bakers and millers as hard red winter wheat, and perhaps slightly more value; however, that is merely speculation at this point. Grain merchandisers willing to market hard white wheat in the near future face the risk that hard white wheat could possibly have less value in the market place than hard red winter wheat, at least until greater quantities of hard white wheat becomes available.

Despite these challenges, several grain merchandisers in western Nebraska have indicated an interest in handling NUPlains hard white wheat grain beginning with the 2002 harvest (see table). Each one is in the process of developing strategies for handling delivery and marketing of hard white wheat for next year. Interested growers should contact the elevator, or elevators,

(Continued on page 165)

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<td>Crossroads Cooperative Association</td>
<td>Sidney</td>
<td>Bob Kelly</td>
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<tr>
<td>Farmers Co-op Elevator</td>
<td>Big Springs</td>
<td>Larry McCroden</td>
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<td>Chappell</td>
<td>Mike Pollnow</td>
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<td>Frenchman Valley Farmers Co-op</td>
<td>Imperial</td>
<td>Tim Greene</td>
<td>308-882-3200</td>
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<td>Grant Co-op Exchange</td>
<td>Grant</td>
<td>Mike Wyatt</td>
<td>308-352-4726</td>
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<td>Scoular Grain Company</td>
<td>Sidney</td>
<td>Dave Cook</td>
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Lyon’s Panhandle research addresses new crop rotations

This is the sixth in a series of stories on the research pursuits of our contributing authors. Most NU Extension specialists also have major appointments in the NU Institute of Agriculture and Natural Resources’ Research Division.

White wheat production and development is one of the program priority areas for Drew Lyon, who has been dryland cropping systems specialist at the Panhandle Research and Extension Center since May 1990.

Before that Lyon was a University of Illinois Assistant County Agricultural Advisor in Kane County from 1981 through 1983, and a technical service representative with American Cyanamid in Michigan for a little more than a year in 1989 and 1990.

White wheat

(Continued from page 161)

nearest to them if they are considering seeding a hard white wheat variety this fall.

Nuplains seed will be available this fall from several Nebraska seed growers. To see a list of these growers, visit the Hard White Wheat Web Site at:

www.hardwhitewheat.unl.edu.

It is difficult to predict what the future for hard white wheat is in the Great Plains, but now is the time for growers to be deciding if they want to grow hard white wheat this fall. Growers should be watching university variety tests to see how hard white wheat performs in their localities. For additional information on hard white wheat, including wheat variety test information, visit your local Extension office, or visit the Hard White Wheat Web Site.

Drew Lyon
Extension Dryland Cropping Systems Specialist

Lyon, who is an associate professor in the UNL Department of Agronomy and Horticulture, received a B.S. from the University of Illinois at Urbana-Champaign in 1980 and an M.S. and Ph.D. in Agronomy/Weed Science from the University of Nebraska-Lincoln in 1985 and 1988, respectively.

Lyon’s research and Extension responsibilities include the investigation and development of resource-efficient cropping systems for dryland crops that emphasize weed control, water management, and soil conservation. Much of his current research program focuses on strategies to reduce or eliminate the use of summer fallow in dryland crop rotations in the Nebraska Panhandle. Winter wheat-fallow systems, while having a low risk of failure, are not considered profitable and summer fallow has many negative impacts on soil quality and sustainability. One of the goals of his research is the development of more intense crop rotations that increase profitability, manage risk, and improve or maintain soil productivity.

His current Extension emphasis involves educational efforts on hard white wheat. This new class of wheat is being introduced this fall with the first seed of Nuplains becoming available to growers this summer. Lyon has held numerous meetings with growers and elevator managers over the past two years, established a web site and worked with the media to provide information on Nuplains and hard white wheat in Nebraska. Lyon can be contacted at: Panhandle Research and Extension Center, 4502 Avenue I, Scottsbluff, Nebraska 69361-4939; Phone: (308) 632-1266; Fax: (308) 632-1365; and Email: dlyon1@unl.edu

Ally exemption okayed for sorghum, expires July 31

The Nebraska Department of Agriculture (NDA) has issued a specific exemption for a herbicide to control broadleaf weeds in grain sorghum.

The U.S. Environmental Protection Agency (EPA) gave approval to issue a Section 18 exemption to use metsulfuron methyl – formulated as Ally -- on grain sorghum to control triazine-resistant broadleaf weeds. Examples of triazine-resistant weeds infesting grain sorghum fields in Nebraska include pigweed, waterhemp, and kochia. The exemption expires July 31.

The Nebraska Department of Agriculture applied for the exemption at the request of the Nebraska Grain Sorghum Board and the Nebraska Grain Sorghum Producers Association.

“Sorghum growers currently have very few alternative herbicides that are effective and economical, especially considering current grain prices,” said Alan Tiemann of Seward, chairman of the Nebraska Grain Sorghum Board.

To use Ally, which is manufactured by DuPont, follow all label directions, restrictions, and precautions on the EPA registered product label, as well as restrictions in the release notice. Other restrictions include:

• Applications of Ally to sorghum must be tank mixed with 2,4-D amine.

• A single application of Ally may be made by ground or aerial equipment.

• Retailers are required to obtain a permit to sell Ally. Applicators can only buy sorghum-labeled Ally from permitted dealers.

For more information or to obtain a permit, contact the Nebraska Department of Agriculture at (402) 471-2394.
You asked about it: thistle caterpillars in soybeans

Tom Hunt, Extension entomologist, Northeast REC: We have received a number of inquiries regarding the continued presence of the painted lady (thistle) caterpillar in soybeans. As discussed in the July 6 Crop Watch, we recommend using defoliation thresholds to determine the need for treatment. These thresholds account for the defoliation of one pest or the combined defoliation of several pests.

Remember, in vegetative (pre-flowering) stages consider treatment if the insects are present and feeding and defoliation will reach 40%. In pod-forming or pod-filling stages consider treatment if the insects are present and defoliation will reach 20%. These percentages can vary 5% to 10% according to the stage or type of insect(s) present, environmental conditions, the specific stage of the soybean, and the size and condition of the canopy.

A common question has been: Just how many thistle caterpillars does it take to justify treatment? Just like defoliation this depends on a variety of factors, such as environmental conditions, the specific stage of the soybean, and the size and condition of the canopy. For example, in one of our experiments last year our soybeans had 1551 sq. cm of leaf tissue per plant at soybean stage R5. Twenty percent defoliation would be 310 sq. cm.

Since a thistle caterpillar consumes approximately 242 sq. cm, it would take 1.3 larvae per plant to reach 20% defoliation at R5. These beans were in 30-inch rows at about eight plants per foot, so it would take 10.4 larvae per row foot to reach 20% defoliation at R5. This is similar to information presented by Kansas Extension, which sets the threshold at 10 larvae per foot or where defoliation becomes severe (more than 25%) during pod set.

Again, thistle caterpillar thresholds do not consider additional defoliation by other defoliators (e.g. bean leaf beetle, woolybear) and will vary according to a variety of things, particularly relative canopy size and environmental conditions.

Bob Wright, Extension entomologist, South Central REC: I’ve been getting questions about how long the painted lady (thistle) caterpillar is likely to stay in soybean fields.

Several growers have been asking about the potential for the painted lady butterfly larvae (thistle caterpillar) to continue feeding in sunflower and causing significant damage. Because the populations of this insect are so great this year, it is likely that this insect will continue feeding in sunflower for some time. In limited situations, populations may become great enough to warrant treatment, particularly if spot treatments are used.

As flowers are approaching the bud and heading stages, defoliation will have a greater impact on the plant. It is important to protect the upper leaves of the plant because they are the most important in determining yield. Lower leaves often turn yellow as the plant begins to head and become less important. If flowers are growing well and the larvae are confined to the lower leaves, infestations will have less impact. However, if the larvae are defoliating the upper leaves during the bud and heading stages, the impact of that defoliation will be longer lasting.

Before budding, sunflowers can tolerate perhaps 40-50% defoliation without much yield impact. It likely would take more than one larvae per plant to produce this level of damage. Once the bud and heading stages have started, defoliation of the upper leaves should be kept below about 25% to avoid significant losses. These thresholds can be modified downward slightly for flowers with higher yield potential or greater value.

Insects in sunflowers alert

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As the sunflowers approach blooming, it is time to evaluate the potential for problems from the sunflower head moth. This insect is attracted to sunflowers as soon as they begin to bloom and lay eggs within a few days after pollen is available from the sunflowers. Treatments must be timed just after the heads have opened in order to control the adult moths before significant egg laying occurs. After hatching the larvae feed among the florets and are not exposed to the insecticides, making control difficult. Many growers miss this treatment window and allow for better survival of the early hatching larvae.

Head moth damage potential can be assessed using pheromone traps to detect moth populations or direct counts of moths on the heads. Direct counts need to be done near dusk when the moths are active. The threshold for head moth is one to two moths per five heads at the beginning of bloom.

Gary L. Hein
Extension Entomologist
Panhandle REC

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