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CropWatch No. 97-10, May 23, 1997

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Assessing the economics
When is replanting warranted?

Soil crusts on some corn planted in late April is limiting plant emergence and will likely have a serious impact on plant stands. The crusting in south central Nebraska was probably caused by a combination of wet conditions at planting and strong, drying winds and not due to heavy rains. In addition, crusting caused by heavy rains after planting is causing problems with emergence in southeast Nebraska. Many farmers with center pivot irrigation systems are using them to soften the crust, hoping to improve seedling emergence. Dryland producers and furrow irrigators have tried rotary hoeing with varied success and many are considering replanting.

Before replanting, farmers need to consider:
- Initial plant stand
- Plant stand now
- Possible replanting date
- Seed availability and maturity
- Uniformity of stands
- Uniformity of emergence
- Yield potential of late planting
- Replanting costs
- Method of replanting

Producers must evaluate their existing corn stand (see Determining stand counts, page 79) and its yield potential before deciding whether to replant. Considering the late date and the costs of replanting, be careful not to overestimate the amount of the field affected by a reduced stand and the resulting yield reduction. In some cases, only portions of the field may need to be evaluated for replanting.

If the current stand is uniform, use Table 1 (Page 80) to help determine yield potential from reduced stands as compared to optimum production. This table is based on a typical planting date (April 30) and a typical population (30,000 plants per acre) in the Cornbelt, similar to irrigated conditions in south central Nebraska. This table is also useful to estimate yield potential from late (Continued on page 79)

Major early cutworm catches signal need for field scouting

Significant catches of cutworm moths have occurred over a wide area of eastern Nebraska, indicating the need for scouting to assess the potential for damage in individual fields.

Cutworm damage is an annual event in Nebraska. Several cutworm species can attack corn. The severity and the area affected varies greatly, and is dependent on species involved, previous crop history, and weather conditions.

Cutworms that attack corn can be divided into two general categories based on seasonal life cycles. Black cutworms do not overwinter in Nebraska. Dingy, claybacked, darksided, sandhills, pale western, and other species overwinter as partially grown larvae in the soil.

Since black cutworms do not overwinter in Nebraska, they are dependent on spring weather conditions, primarily southeasterly winds, to bring them into our state. Nebraska is on the western edge of the black cutworm’s area of influence, and they are rarely found west of the 100th meridian. Because of their cutting habits and the possibility that large numbers can be present, careful scouting is needed.
Updates

**Early insects damaging sugar beets**

With the dry weather most insects are emerging early this year in western Nebraska. Small grasshoppers are moving into sugar beet fields and causing significant damage by feeding on small plants. Many of these plants are killed outright because the growing point on the plant is destroyed.

Sugarbeet root maggot flies are beginning to increase in numbers in the North Platte Valley. This is much earlier than we have seen the last two years. Populations are likely to reach treatment thresholds well before June 1 if temperatures remain warm. Alfalfa weevil larvae are active early and are becoming quite prevalent. Growers are urged to monitor fields for alfalfa weevils and, if necessary, make treatment decisions before larger larvae begin to cause substantial damage.

Gary L. Hein, Extension Entomologist, Panhandle Research and Extension Center

**Grazing restrictions for pasture herbicides**

Hard to control pasture weeds such as musk thistle, leafy spurge, and spotted knapweed can be controlled with a number of herbicide treatments, once the grazing season has begun. Many of these products require that animals be withheld from treated areas for specific periods.

A table which defines these restrictions and the time frames involved with various herbicide applications is on page 54 of the 1997 Guide for Herbicide Use in Nebraska (EC-130-97-D). This Extension Publication is available from your local Cooperative Extension office.

Alex Martin
Extension Weed Specialist
John McNamara
Extension Assistant, Weed Science

**Woody plant control best in June**

June is the best time for foliar applications of most herbicides for woody plant control. To achieve the best control, thoroughly cover foliage when plants are in full leaf and foliage is tender. Later in the summer the plants are often stressed due to dry conditions, resulting in lessened herbicide effect.

Several herbicides are available for woody plant control in pastures. These include 2,4-D, 2,4-DP, Crossbow, Banvel, and some formulations of Tordon. In non-cropland situations, Garlon, Krenite, Spike and Velpar also can be used for woody plant control. With the exception of Krenite, June is the best month for foliar applications. Krenite should be applied in late summer or early fall.

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

**Long range forecast: Continued cool temps**

The updated long lead outlook for June through August indicates a continuation of below normal temperatures is likely for the entire state of Nebraska. Below normal temperatures are predicted to last through the end of the year. There are equal chances of receiving below normal, normal, or above normal precipitation during the June through August period. The 30-day outlook for June indicates equal chances of receiving below normal, normal, or above normal temperatures and precipitation.

Al Dutcher
State Climatologist
Agricultural Meteorology

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**Crop Watch**

1997 University of Nebraska

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Lisa Brown Jasa, Editor

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planted corn.

Following is an example of evaluating a reduced stand and making a replanting decision. The current plant population of 15,000 for a field planted on April 30 has a yield potential of 82% of maximum yield, assuming the stand is uniform and conditions remain favorable for a good “flex” hybrid. The producer is considering replanting at 30,000 but cannot get to it until May 29. The yield potential would be 81% of maximum, not enough of a gain to replant.

Another factor that needs to be considered is the uniformity of the stand. (Are there gaps in the stand?) Stand gaps of 14 to 33 inches can reduce yields by an additional 2% and gaps of 4 to 6 feet can reduce yields by an additional 6%. “Flex” hybrids can compensate some for gaps, but weeds may become a problem in larger gaps.

If the corn emerges at different times or if corn is replanted and some of the original plants remain, Table 2 may be useful to determine yield potential. For example, if half of the stand came up early and the other half came 1 1/2 weeks later (EM), the yield potential is 91% of maximum. If half the plants came up early and half three weeks later (EL), the yield potential is 79% of normal, a situation where a producer may consider replanting because of the competition between plants of non-uniform size. It is interesting to note that a complete replant three weeks after a normal planting has more yield potential (88%) than that of a half early/half late combination.

E.D. Nafziger, a corn production and physiology specialist at the University of Illinois, and P.R. Carter suggest that if you can replant within two weeks of planting the original crop, filling in the existing stand may be an option (Table 2). If you replant a field three weeks after the initial planting date, yield potential is up to 10% greater if you tear up the field and start over with an even emerging stand. However, we are now about four weeks beyond the optimum planting date for southcentral Nebraska and the yield reduction from the late planting needs to be taken into consideration as well.

Replant costs such as seed, fuel, and labor have to be considered. In addition, the use and application method of herbicides, insecticides, and fertilizers will affect costs if reapplication is necessary and if the label allows it. Remember that the yield potential of replanted corn at this time is less and the grain will probably be wetter at harvest,

Determining stand counts

<table>
<thead>
<tr>
<th>Length of row to 1/1,000 of an acre for various row spacings.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Row Spacing</strong></td>
</tr>
<tr>
<td>7.5&quot;</td>
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<tr>
<td>10&quot;</td>
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<tr>
<td>15&quot;</td>
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<tr>
<td>20&quot;</td>
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<tr>
<td>30&quot;</td>
</tr>
<tr>
<td>36&quot;</td>
</tr>
<tr>
<td>38&quot;</td>
</tr>
</tbody>
</table>

A hoop with an inside diameter of 40 inches will encircle a known area of 1/5,000 of an acre. By taking plant counts with the 40-inch circle at five random locations in the field, 1/1,000 of an acre will be counted. The five separate counts reduce the variability of the sample and provide an average population when added together and multiplied by 1,000.

A hoop with a 40-inch inside diameter can be easily made from a 10-foot 7-inch length of 3/8-inch EVA plastic hose (anhydrous ammonia hose) and the appropriate barbed connector. This flexible hoop can be “folded” by grasping opposite sides of the hoop and curling it up with a twist of the wrist. A three-coiled hoop is formed (similar to a folded V-belt or band saw blade) which will easily fit under the pickup seat.

Paul Jasa, Extension Engineer
Replanting  (Continued from page 79)
resulting either in delayed harvest or increased drying costs.

The method of replanting is important as well. If the field is completely retilled, previous herbicide and insecticide applications may be disrupted. In addition, valuable soil moisture and residue may be lost. If the field is replanted without tillage (for example, slot planted in a ridge till field), the new stand will be able to use previously band-applied fertilizers and pesticides but the remaining plants may be a problem, as mentioned previously. The original stand could be controlled with a contact herbicide such as Roundup. The planter may need downpressure springs and extra weight to penetrate any crust on the surface. Any residue left over the row will reduce the chances of a crust from forming.

There is no guarantee that a replant will produce a full stand. If the factors that damaged or reduced the first planting are still present, the replanted stand may suffer too. Carefully consider the yield potential of the existing stand, the yield reduction from late planting, and all other costs before making any replant decisions.

Roger Elmore, Extension Crops Specialist, South Central Research and Extension Center
Paul Jasa
Extension Engineer

Table 1. Predicted yields at different planting dates and plant populations.*

<table>
<thead>
<tr>
<th>Plant population, 1000/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
<tr>
<td>-----------------------------</td>
</tr>
<tr>
<td>10 Apr.</td>
</tr>
<tr>
<td>20 Apr.</td>
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<tr>
<td>30 Apr.</td>
</tr>
<tr>
<td>9 May</td>
</tr>
<tr>
<td>19 May</td>
</tr>
<tr>
<td>29 May</td>
</tr>
</tbody>
</table>


Table 2. How uneven emergence affects corn grain yield. Grain yields are shown as percentages of the maximum yield of 187 bu/a obtained with even emergence of a full stand (26,000 plants/a) with early planting. Yields are average of studies with two corn hybrids in seven environments in Illinois and Wisconsin. **From Carter, P.R. and E.D. Nafziger. 1989. Uneven emergence in corn. NCR Extension Publication No. 344.

<table>
<thead>
<tr>
<th>Planting time and row pattern</th>
<th>Proportion of delayed plants</th>
<th>Grain yield as % of maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full stand even emergence</td>
<td>E none</td>
<td>100</td>
</tr>
<tr>
<td>Full stand alternate row pattern</td>
<td>M all</td>
<td>95</td>
</tr>
<tr>
<td>Full stand</td>
<td>E and M 1/2</td>
<td>94</td>
</tr>
<tr>
<td>Full stand uneven emergence within-row</td>
<td>E and L 1/2</td>
<td>85</td>
</tr>
<tr>
<td>Reduced stand plants missing</td>
<td>EEEX 1/4</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>EX 1/2</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>EEEXX 1/2</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>XXXX 3/4</td>
<td>49</td>
</tr>
</tbody>
</table>

E = Early planting (approx. May 1)
M = Planting 1 1/2 weeks after early planting
L = Planting 3 weeks after early planting
X = Missing plant
Cutworms (Continued from page 77)

transported to Nebraska if favorable weather conditions occur, they have the most potential to cause a widespread problem.

April and May weather patterns are the first key to potential black cutworm problems. In recent years pheromone traps and light traps have been used to monitor the flight patterns and populations of black cutworms. The presence of moths in a trap only indicates potential problems and is no guarantee that extensive damage will occur. Trap counts are more useful in alerting growers and consultants as to when to begin scouting efforts. Scouting should begin for black cutworm larvae before 300 growing degree days (50 degree F base) accumulate after significant catch.

Significant catches have occurred in Richardson County on April 24 and May 2, Johnson County on April 24 and May 6, Burt and Sarpy counties on May 9, and Dixon and Antelope counties on May 14. Because significant catches have occurred over a wide range of the eastern third of the state it is possible that we may have an active black cutworm year in 1997.

Black cutworm moths prefer to lay eggs in green vegetation or heavy surface residue, particularly no-till soybean stubble. If weeds are destroyed mechanically or by herbicides, the cutworms will migrate to newly emerging corn.

Cutworms that overwinter as larvae generally prefer to lay eggs in the fall in green vegetation such as small grain stubble, legumes, rye, and pasture. The eggs hatch and the larvae feed on the vegetation before overwintering. In the spring, after the previous crop is removed and the corn emerges, the cutworms will transfer their feeding activity to the corn. Damage from these species will occur as soon as the corn emerges.

Recent experience has been that corn planted into alfalfa killed in the spring has a potential for cutworm problems. Since a large number of acres of no-till corn have been planted into winterkilled alfalfa this year, especially in northeast Nebraska, extra effort should go to scouting for cutworms in these fields.

You cannot be sure that tillage will have a significant effect on cutworm populations. If fields were tilled before black cutworm migration, it may limit egg laying in those fields. Cutworms already in the field may suffer some mortality by mechanical action, but there is no guarantee that tillage by itself will eliminate cutworm problems. Many cutworm problems have occurred in conventionally tilled fields. Previous vegetation is probably the most important factor in cutworm potential.

Black cutworms and black cutworm damage. Significant cutworm catches over a wide range of the eastern third of Nebraska signal the potential for an active black cutworm year in 1997.

It is extremely rare to experience cutworm problems in continuous corn. Corn stubble is not a preferred egg-laying site. Problems in continuous corn may result from a late season flush of weeds or an interseeding of a fall cover crop such as rye, which would attract egg laying moths.

Managing cutworms in corn

Several options exist for the grower who wants to manage cutworms in corn. Since a vast majority of corn acreage is not affected by cutworms, the most economically sound practice is to scout for cutworm damage as soon as the corn emerges and apply a rescue treatment if necessary.

(Continued on page 82)
Soil cutworms (Continued from page 81)

Cutworm damage may usually first appear as small holes chewed into the leaves. Use this feeding as an early indicator. Cutworms are nocturnal and will not normally be seen on the soil surface during the day. Scrape the soil around the base of damaged plants and look for a fat-bodied, grayish-brown to blackish colored worm curled into a C-shape. The size may range from 3/8 inch to over an inch in length. They are often found near the moisture line, usually within 2 to 3 inches of the plant. Not every damaged plant will have a cutworm near it, as they will migrate from plant to plant. Survey at least 20 consecutive plants in a minimum of five places in the field, more if there are indications of feeding. Early detection of a problem is essential because most of the cutting occurs within 7-10 days of plant emergence. However, with cooler weather, growth of corn and cutworms will slow and cutting may be extended. Consider a rescue treatment if feeding damage has occurred on 5% or more of the plants. Feeding damage has occurred (one plant in a set of 20), cutting is observed, and the worms are one inch or less long.

As the cutworms become larger, they begin cutting the plants off at or under the soil level. Corn is most vulnerable in one- to four-leaf stage. Corn cut off at the soil surface may recover, but the further advanced the corn is, the less recovery there will be. From a practical standpoint, scouting should begin soon after corn emergence and through the four-leaf stage, at least every three days.

Rescue treatments

Rescue treatments are effective in controlling soil cutworms. Ambush 2E, Asana XL, Lorsban 4E, Pounce 3.2EC and Warrior 1EC have all given satisfactory control as postemergence sprays. These materials are all registered for chemigation and should provide excellent control if chemigated. In dryland situations, if the soil is dry or crusted, rotary hoeing immediately before or after Lorsban application may enhance control. The other insecticides are pyrethroids and should not be incorporated. Most labels give a range of rates to choose from. Generally, the middle range is adequate for cutworm control. Very dry conditions may require higher rates.

There is some use of planting time treatments for cutworm control. The use of granular soil insecticides and broadcasting or banding liquids has met with mixed success. In the case of black cutworms, the material may deteriorate before the black cutworms migrate into an area. Planting time treatments may work better on cutworms that overwinter in the soil, since they are already present when treatment occurs. Since excessively dry conditions may limit granular insecticide activity, all fields should be scouted, even those that had a preplant or planting time application for cutworm control. The primary drawback to using planting time treatments is economic. Since there is no way to know whether a field is or will be infested with cutworms, most of these "insurance" treatments are applied when nothing is present, resulting in possible unnecessary costs for insecticide.


Keith Jarvi
Extension Assistant
Integrated Pest Management
Northeast Research and Extension Center, Concord

Control spread of leafy spurge

Leafy spurge is an aggressive weed that continues to spread in Nebraska, greatly reducing the carrying capacity of grazing land. The weed is more common across northern Nebraska, but can be found elsewhere. Leafy spurge is a perennial and reproduces from seed as well as from buds on its deep, extensive root system. It reduces forage production, and cattle avoid grazing infested areas because it is an irritant.

Control on a large area is costly and difficult. Small patches should be treated before they spread.

Plants in a new infestation are more readily controlled than established stands because the root system is not yet fully developed. Once leafy spurge has become well established it cannot be eliminated with a single herbicide treatment.

The ideal time to treat leafy spurge in much of Nebraska this year is early to mid June. Leafy spurge is easily spotted now that plant tops are a bright yellow. All plant parts also contain a white milky sap.

(Continued on page 86)
Dry conditions limit wheat disease

Leaf rust was found in southeast Nebraska May 16 during a wheat survey. Rust severity is light with a few pustules present on lower leaves. Dry weather is predicted for much of this week which will slow disease development. The longer rust development is delayed by dry weather, the less the risk for losses due to rust. Should the weather change, and leaf rust begins to develop more rapidly, a fungicide treatment can be used to protect the flag leaves from severe rusting.

Fungicides currently registered for foliar disease control on wheat are Bayleton 50WP plus mancozeb applied at boot or Tilt applied at flag leaf emergence. Mancozeb products include Dithane M-45, Dithane F-45, Dithane DF, Manzate 200 and Penncozeb. If the mancozeb products are used alone, two applications are needed, one at boot and a second in 7-10 days, for effective foliar disease control.

Foliar fungicide treatment of wheat usually is beneficial if 1) yield potential is above 45 bu/A, 2) the variety is rust susceptible, and 3) rust develops rapidly from mid-May to mid-June because of moderate, wet weather. If the present dry trend continues, foliar diseases are not likely to be a problem; however, the situation could change rapidly so growers should check their fields regularly for the next couple of weeks.

John E. Watkins
Extension Plant Pathologist

Wheat report from the Panhandle

The condition of the winter wheat crop in the northern Panhandle was quite variable during a driving tour on Tuesday, May 20.

Much of the wheat in Dawes County looked to be in excellent shape. Soil moisture was good and the crop was progressing nicely. Some signs of winter wind damage was visible on north and west facing hill sides. Soil moisture conditions deteriorated as we traveled south from Dawes County into Box Butte and Morrill counties.

Winter wheat growing on some of the lighter soils in Box Butte and northern Morrill counties was showing severe drought stress. Much of this winter wheat was approaching the boot stage and without significant moisture very soon will be unlikely to yield much grain. Some winter wheat fields south and west of Hemingford showed signs of severe damage from blowing soil. One field north and west of Hemingford had a heavy infestation of Cephalosporium stripe.

Some tan spot was observed, but the dry spring weather has not allowed it to become a problem this year. While freeze damage to wheat leaves was observed in some areas, no damage to growing points was observed.

Drew Lyon, Extension Dryland Crops Specialist, Panhandle

Weather update

<table>
<thead>
<tr>
<th>Precipitation (%=percent of average)</th>
<th>Soil Temperature Summary</th>
<th>Growing Degree Day Accumulation</th>
</tr>
</thead>
<tbody>
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<td>5/12-5/18</td>
<td>Seven days ending on 4/29</td>
<td>For medium maturity wheat</td>
</tr>
<tr>
<td>9/1-5/18</td>
<td>Soil temperature in Fahrenheit @ 4 in</td>
<td>Ending 4/27</td>
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<tr>
<td>Act. %</td>
<td>Act. %</td>
<td>Ave.</td>
</tr>
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<tr>
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<td>York</td>
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</table>

*Dep.=departure from normal
Early grasshopper hatch in western Nebraska indicates extreme populations are building

Grasshopper hatch in western Nebraska has begun. It appears that the high grasshopper numbers seen the last few years will continue, and judging by the surprising numbers seen so far, this year may exceed last year's problems. Most of those hatching seem to be two-striped grasshoppers — the earliest hatching of the four species that cause problems in crops. Continued hatching of the two-striped and hatching of other species will likely continue over the next few weeks.

Hoppers have been reported to be damaging crops near ditches and other untilled areas which serve as hatching beds for the hoppers. Some fields of sugar beets have been severely damaged as the hoppers have eaten the beets to the ground, consuming the growing point. Crops emerging next to areas that are likely to be hatching beds should be watched closely for hopper damage.

Rangeland grasshoppers will continue to hatch over the next month. These grasshoppers will be feeding and maturing during the early part of the summer. Severe rainstorms and cool wet conditions during hatching could reduce the potential for extreme populations. If the weather continues to be warm and dry over the next month, grasshopper survival will be good and populations will likely be very high.

The situation this year will be worsened by the fact that the grasslands in western Nebraska are very dry. This has limited grass production and will increase the impact of grasshoppers on forage availability. Ranchers need to plan now how they will deal with the situation. Low grass production will make grasshopper control in most rangeland situations more costly than the potential return. But, higher value forage areas (e.g. hay meadows, sub-irrigated meadows, irrigated forage areas) probably will require control.

Management options

It will be important to use some creative control options to reduce control costs. Grasshoppers are best controlled when they are in the nymphal (immature) stages. At this time hoppers may be more concentrated in hatching beds and lower insecticide rates can be used.

Identifying these hatching beds and directing treatments to these areas may aid in limiting local populations. Consider leaving uncut trap crops of alfalfa to attract grasshoppers into small areas where they can be more economically controlled.

Strip spraying has proven effective where every other swath is sprayed. Grasshoppers move at a high enough rate that they will move into the sprayed swaths and contact the insecticide within 24-48 hours of spraying.

Border control

Another important consideration is to use border sprays around higher value grassland and cropland to keep grasshoppers from moving into these areas. The width of the border depends on the size and density of the grasshopper source. Borders should be 150 feet or larger and larger if many grasshoppers are present in the source population. Also, select an insecticide with a longer residual so the border protection can be extended as long as possible. Retreat the borders if grasshopper pressure persists.

As the summer progresses, grasshoppers will move into crop land, especially if the forage in grasslands is limited. For cropland areas, monitor grasshopper movements and use border treatments to stay ahead of damage.

We are just completing a series of Cooperative Extension NebFacts on grasshopper management. These NebFacts, which should be available at your local Cooperative Extension office in early June, are entitled: A Guide to Grasshopper Control in Yards and Gardens, A Guide to Grasshopper Control in Cropland, and A Guide to Grasshopper Control in Rangeland.

Gary L. Hein, Extension Entomologist
Panhandle Research and Extension Center
John Campbell, Extension Entomologist
West Central Research and Extension Center
Prepare to scout for stalk borers

Farmers in southwest Nebraska should start scouting for stalk borers in the next week. Others should begin scouting as temperatures warm.

Stalk borer moths lay their eggs in the fall on grassy plants. Often these are in fence rows, grass waterways or terraces bordering crop fields. These eggs hatch in late April or early May and larvae bore into the grasses or other weeds such as ragweed, and begin feeding. As they grow or if the plants are mowed or burned down with herbicides, the stalk borers move into adjacent corn plants to complete their development.

Identification

Common stalk borers are rather distinctive in appearance, with three white stripes on a background brownish-purple coloration. The two stripes on the side stop just behind the three pairs of true legs, then continue about half-way down the length of the caterpillar.

Feeding stalk borers may kill the growing point if the caterpillar bores into the base of the stalk. Feeding also can produce ragged feeding holes in the leaves if feeding starts in the whorl and moves down into the stalk.

Scouting

Data indicates 720-1110 growing degree days (base 41 F) have been accumulated from Jan. 1 to May 18 (see map). Stalk borer egg hatch begins at about 575 degree days and should be complete at 750 degree days. Scouting of corn should begin when about 1,300-1400 degree days have accumulated. Updated degree day maps will be published in future Crop Watch issues.

Check corn plants bordering grassy areas to determine the percent of plants with live stalk borers. Use the table to determine the economic threshold.

In cases where stalk borers begin feeding on grassy weeds or other vegetation in field edges, control is most effective if timed between 1400 and 1700 degree-days (base 41 F), which corresponds to the first half of the period that stalk borers are migrating from weedy hosts into corn. If the infestation is restricted to the field margin, use a border treatment. Ambush 2E (6.4-12.8 oz per acre), Asana XL (5.8-9.6 oz per acre), Lorsban 4E (2-3 pints per acre) 6, Pounce 3.2EC (4-8 oz per acre) or Warrior 1EC (2.56-3.84 oz per acre) are labeled for use against stalk borer on corn.

Bob Wright, Extension Entomologist, South Central Research Extension Center

<table>
<thead>
<tr>
<th>Leaf stage</th>
<th>Percent infested plants at two corn prices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$2/bu</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>6</td>
<td>34</td>
</tr>
<tr>
<td>7</td>
<td>100</td>
</tr>
</tbody>
</table>

Stalk borer economic thresholds (as provided by Iowa State University). Assumes $13 per acre control costs and 80% control.
In postemergence corn

How many weeds are too many?

Weeds are rapidly emerging and decisions will need to be made regarding postemergence weed control. This table shows the number of weeds per 100 ft² that will cause a given yield reduction in corn. This assumes that weeds emerged with corn and that no herbicide has been applied. These numbers only consider the effect of the weed in the current year and do not account for future weed problems due to weed seed production. This should be considered if these numbers are used to make long-term decisions.

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<table>
<thead>
<tr>
<th>Weed</th>
<th>1.0</th>
<th>2.5</th>
<th>5.0</th>
<th>10.0</th>
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<td>Sandbur</td>
<td>18</td>
<td>46</td>
<td>97</td>
<td>213</td>
</tr>
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<td>Fall Panicam</td>
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<td>46</td>
<td>97</td>
<td>213</td>
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<tr>
<td>Crabgrass</td>
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<td>37</td>
<td>78</td>
<td>170</td>
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<tr>
<td>Foxtail</td>
<td>7</td>
<td>19</td>
<td>39</td>
<td>85</td>
</tr>
<tr>
<td>Lambsquarters</td>
<td>5</td>
<td>12</td>
<td>26</td>
<td>57</td>
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<td>Common ragweed</td>
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<td>57</td>
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<tr>
<td>PA Smartweed</td>
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<td>12</td>
<td>26</td>
<td>57</td>
</tr>
<tr>
<td>Russian thistle</td>
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<td>8</td>
<td>17</td>
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<tr>
<td>Kochia</td>
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<td>7</td>
<td>16</td>
<td>34</td>
</tr>
<tr>
<td>Pigweed</td>
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<td>7</td>
<td>16</td>
<td>34</td>
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<tr>
<td>Waterhemp</td>
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<td>Shattercane</td>
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<tr>
<td>Black nightshade</td>
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<td>5</td>
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<tr>
<td>Velvetleaf</td>
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<td>Cocklebur</td>
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<td>Sunflower</td>
<td>&lt;1</td>
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</table>

Leafy spurge (Continued from page 82)

Herbicides for leafy spurge control are: 2,4-D ester (4 pounds per gallon) at 2 quarts per acre; 1 quart of 2, 4-D plus 1 pint of Tordon per acre; or Tordon 22K at 2 to 4 quarts per acre. The treatments would cost $6 per acre for 2,4-D, $15 for 2,4-D plus Tordon, and $45-$90 per acre for Tordon. Apply 2,4-D in early June just as the plant flowers. A second treatment in late fall, if moisture permits good regrowth, provides increased control. If only one treatment per year is possible, make it in early June.

Don’t expect to eliminate leafy spurge in one or two years. It will take several years to make progress toward reducing leafy spurge infestations.

Tordon 22K is much more effective than 2,4-D against leafy spurge. A 2-quart-per-acre application usually provides 50-80% control a year later, and the 4-quart rate gives 90-100% control. June is the best time to apply Tordon, although it is also effective at other times. Tordon is long-lasting and mobile in the soil. It should not be used near trees or on sandy soil where the water table is within 15 feet of the soil surface at any time.

There is interest in the use of biological control (biocontrol) measures as an alternative to herbicides for managing leafy spurge infestations. Biocontrol is the use of organisms (i.e., insects, pathogens, livestock) that feed on leafy spurge for the purpose of reducing its density, reproduction or competitive vigor. Several species of European flea beetles that belong to the genus Aphthona have been released in North America to control leafy spurge. Leafy spurge biocontrol programs are in the early stages of development and additional research is being conducted. Although biocontrol holds great promise for leafy spurge control in the future, it is imperative that producers continue to use herbicides to control leafy spurge now. Reliance on biocontrol measures at this time will result in unacceptable control and increase the size and density of leafy spurge infestations.

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