Planting Corn Following Wheat: Wireworms May Present Challenges in Some Fields

Because of the prolonged hard freezes in many areas of Illinois this spring, some producers are electing to till existing wheat fields and plant corn. The chances of increased wireworm damage in corn following wheat are very real. For a more in-depth discussion of wireworm life history and scouting procedures (bait stations) that can be used to detect the potential severity of infestations, please go to this University of Illinois Extension website: www.ipm.uiuc.edu/fieldcrops/insects/wireworm/index.html.

Because of the surging interest in planting Bt corn (especially the stacked hybrids), some producers who elect to plant Bt corn following a plowed-down wheat crop may be surprised to see stands that have been thinned by wireworms. Although Bt seed is treated with a low rate of a neonicotinoid insecticide (Poncho 250 or Cruiser Extreme 250), there are concerns that these systemic seed treatments may not afford the desired level of protection against economic infestations of wireworms. Because efficacy data collected from intense wireworm infestations are not plentiful, producers are urged to consider the full spectrum of control choices for this insect pest. An in-furrow application of a granular soil insecticide has been considered the traditional management tactic for heavy infestations of wireworms. For more detailed product information concerning treatment options for wireworms, please consult chapter 1 (“Insect Pest Management for Field and Forage Crops,” Table 3, page 10) in the 2007 Illinois Agricultural Pest Management Handbook. The online version is available at ipm.uiuc.edu/pubs/iapmh/index.html.

Another insect to be alert for in tilled wheat fields planted to corn is the seedcorn maggot, which thrives in conditions of high levels of decaying plant material. In 1991, a severe hailstorm in late April destroyed many wheat fields in Greene County, Illinois. Producers who planted corn into these hail-damaged wheat fields were advised to use insecticidal treatments to reduce the threat of seedcorn maggot infestations. Those who didn’t use seed treatments were reported to have suffered more significant stand losses. Insecticidal seed treatments are expected to provide greater control against maggots compared with other secondary soil insects; however, under intense infestations, greater damage to seed may occur, resulting in stand losses.

Seedcorn maggots survive the winter in previously infested fields. They pass the winter as pupae or as maggots in manure or in association with the roots of clover. The flies (adult stage) are grayish brown and approximately 1/5 of an inch long. In early May, the flies can be observed seeking out suitable fields in which to deposit their eggs. Once laid, the eggs begin to hatch at temperatures as cool as 50°F. Seedcorn maggots can complete an entire life cycle in 3 weeks, and as many as five generations per year are frequently passed in the Corn Belt. —Mike Gray

Effects of Cold Temperatures on Some of Our Early-Season Pests (Alfalfa Weevil, Black Cutworm, Subterranean Insects)

Much has been written about the effects of last week’s low temperatures on crops (alfalfa, wheat), but some have wondered about the effects on some of our early-season insect pests, particularly alfalfa weevils, black cutworm,
and white grubs. Mortality of all insects is caused by temperatures both above and below designated lower and upper lethal temperatures, which vary among insects and fluctuate (to a certain extent) according to many factors. Although we often have considerable information about a given insect’s development at different temperatures, upper and lower lethal temperatures are not known for most insects. However, some generalities may apply to our conjectures about the effects of last week’s low temperatures on some insect pests.

In general, when temperatures are below freezing, most insects die as a result of their tissues freezing. Insects can be categorized broadly into freeze-tolerant and freeze-intolerant types. Most overwintering insects and most temperate species are thought to be freeze-intolerant. Without delving deeply into insect physiology, suffice it to say that even in freeze-intolerant species, several factors affect mortality or survival. One of the primary factors is length of exposure to below-freezing temperatures. In other words, will a dip below freezing on any given day cause instantaneous mortality, or is sustained exposure to freezing temperatures required before significant mortality occurs? The scientific literature indicates that mortality of western and northern corn rootworm eggs overwintering in the soil increases with the length of exposure to freezing temperatures (<20°F). Eileen Cullen, extension entomologist at the University of Wisconsin in Madison, wrote an excellent article about this in the March 22, 2007, issue of Wisconsin Crop Manager (ipcm.wisc.edu/WCMNews/tabid/53/EntryID/224/Default.aspx). However, we often can only speculate about the effects of freezing temperatures on insect pests that become active early in the season.

It is safe to assume that early instars of black cutworms are freeze-intolerant, so any larvae that may have hatched from eggs laid in early to mid-March likely perished if they encountered freezing temperatures. Black cutworm eggs probably are more freeze-tolerant than early instars, but it’s possible that some black cutworm eggs froze, too, possibly negating degree-day accumulations that began with any intense captures in March (9 or more moths captured in pheromone traps in one or two days). Freezing or very cold temperatures also might cause indirect death in black cutworm larvae if the larvae stopped feeding and starved to death.

The scenario for alfalfa weevil larvae and freezing temperatures may be the same as for black cutworm larvae. Young instars (first and second) probably are more freeze-intolerant than older instars (third and fourth instars), but early instars often are protected within folded leaves. If the leaves froze, however, it’s likely that the larvae did not survive. Kelli Bassett, natural resources management extension educator in Hillsboro, found many dead (brown and shriveled) third instar alfalfa weevils in an alfalfa field in Montgomery County, and it’s likely that freezing temperatures caused the mortality.

So, what about our friends the white grubs, especially those widely despised Japanese beetle grubs? Throughout the winter meeting season, I shared with many people the biological fact that third instar Japanese beetle grubs (the last instar—the instar that overwinters and feeds in the spring) are susceptible to freezing below 20°F. However, we are not certain about the effects of length of exposure to such low temperatures on Japanese beetle grub mortality. To that point, it is worth sharing an observation by David Faulkner, crop testing technician in the Department of Crop Sciences at the Dixon Springs Agricultural Center. He examined 1-cubic-foot samples from several plots for white grubs and found plenty of seemingly healthy specimens, many within 1 to 2 inches of the soil surface. About 90% of the average 8 to 10 grubs per cubic foot of soil were Japanese beetle grubs.

Although the cold temperatures last week had some devastating effects on some crops, it’s likely that populations of some of our most worrisome early-season insect pests suffered, too. Unfortunately, insects somewhat insulated from the freezing temperatures (e.g., in the soil or under considerable vegetative growth or residue) probably were not affected much. So as an early heads-up (and not a novel statement), we should prepare ourselves for Japanese beetles that will begin emerging in June. In the meantime, keep watching crop fields for the presence and activities of pests, the only guaranteed way to determine their potential threat.—Kevin Steffey

### More Captures of Black Cutworm Moths

Mike Roegge, crop systems extension educator in Quincy, reported an intense capture of black cutworm moths (9 or more captured in pheromone traps in one or two nights) on April 13 and 14. Kelli Bassett, natural resources management extension educator in Hillsboro, also reported an intense capture on those dates.

Plugging April 14 into the degree-day calculator at www.sws.uiuc.edu/warm/pestdata/sqlchoose1.asp?plc indicates that cutting activity (accumulation of 300 degree-days from the date of intense capture) should be evident in the Springfield and Perry areas in mid-May. It is important to remember that black cutworm females prefer to lay eggs on the leaves of winter annuals and perennial weeds, although they occasionally will lay eggs on crop residue. Female black cutworm moths rarely lay eggs on bare soil.

As temperatures increase and field activity, including corn planting, resumes, most of the focus will be on getting the crops into the ground. However, these early flights of black cutworms suggest that we should remain on the lookout for early instar larval feeding activity (non-economic pinholes) and be prepared for cutting by older instars (third or larger). We’ll share more about control of black cutworm larvae in a near-future issue of the Bulletin.—Kevin Steffey
WEEDS

Timing Is Critical

While the following statement is a gross simplification of a complex system, agronomic cropping systems in Illinois and other Midwestern states essentially strive to grow a single plant species (usually corn, soybean, or wheat) that ultimately yields a marketable commodity for the farmer. Years of research by agronomists and plant breeders across the United States and around the world have contributed innumerable advancements and improvements that have dramatically increased crop yields. Additional research (some as old as recorded time) has identified numerous “barriers” to maximizing crop yield that, if not adequately managed or controlled, can reduce the amount of harvested commodity. Weeds are one example of these “barriers,” as weeds utilize finite resources (water, nutrients, sunlight, etc.) to the detriment of the crop. Farmers have a multitude of tools available to control weeds, but we should remember that even the most effective weed control tool does not increase crop yield; rather, these tools control weeds so as to preserve the inherent yield potential.

So how and when should weeds be managed in order to reduce their ability to compete with the crop and to (ultimately) reduce yield? It would be very difficult to make an all-encompassing statement that adequately answers this question because a long list of crop, weed, and environmental factors all interact to determine when and by how much crop yield is reduced through weed interference. However, most researchers who study crop and weed interactions would probably agree that weed interference is more likely to reduce yield potential in systems that rely exclusively on a single tactic compared with multiple tactics.

Weed management programs that consist of a single postemergence herbicide application are becoming increasingly common in Illinois agronomic crops. This approach has been more historically prevalent in soybean, but total postemergence weed control is becoming more commonplace in corn. While this tactic can provide effective and near-complete weed control, a weed-free field at harvest does not necessarily indicate that crop yields were not reduced by weed interference. Weed removal must be done before weed interference begins to reduce crop yield potential; once interference has reduced potential, simply controlling the weeds will not restore the lost yield.

Regardless of the hybrid planted or the herbicide program used, perhaps the most critical difference to remember between soybean and corn weed control is this: weed interference begins to adversely affect yield sooner in corn than in soybean. As a general guideline for post-only systems, previous research suggests that if weeds are removed from soybean within 3 to 5 weeks after emergence, significant soybean yield is less likely. That interval shortens to perhaps as early as 2 to 4 weeks for corn. Corn is more sensitive to early-season interference from grass weeds than is soybean. This fact has been at least partially responsible for the long-practiced use of soil-residual herbicides applied before corn and weeds emerge. These herbicides (in particular soil-residual products applied for annual grass control) usually allow the crop to emerge without excessive competition from grass weeds.

One potential problem with “general” guidelines that describe when weed interference reduces corn yield is that they are not very precise, and they likely vary from year to year or even field to field. Previous research has reported that weed interference began to reduce corn yield as early as the 2-leaf stage to as late as the 14-leaf stage; some reports even have indicated that season-long interference had only a minimal impact on corn yield. However, it is altogether likely that weed interference does, at some point, reduce corn yield on most acres each year. Keep in mind that with the current relatively high corn prices, any corn yield loss caused by weed interference reduces revenue more this year than in most previous years. For example, when corn is $2.50 a bushel, a yield loss of 5 bushels per acre caused by weed interference will reduce a farmer’s revenue by $12.50 per acre: at $4-per-bushel corn, that same yield loss of 5 bushels an acre now reduces revenue by $20 per acre.

We suggest utilizing multiple tactics to manage weeds before they reduce crop yield potential. A weed management program that uses soil-residual herbicides in conjunction with postemergence herbicides greatly reduces the potential for crop yield loss compared with one-pass postemergence programs. Farmers may be interested in doing their own on-farm comparison between two-pass and single-pass programs, and we would be interested to know your results.

How would you go about conducting such a comparison? Two suggested approaches include a split-field comparison and a within-field replicated treatment comparison. In a split-field comparison, one half of a field is treated with a soil-applied herbicide (select a product that will adequately control the weed spectrum present in a particular field and apply no less than 2/3 the rate suggested for that soil type) followed with a postemergence treatment. The other half of the field is treated postemergence only. In a within-field replicated treatment comparison, multiple strips across the field are treated with the sequential program (soil-applied followed by postemergence), while other strips are treated postemergence only. The more information collected for each field (crop stand counts, weed species and densities, percent weed control provided by each application, etc.), the better. Crop yield will often be the final measurement of treatment efficacy, but please bear in mind that yield (i.e., treatment) comparisons made across multiple years will provide a more accurate assessment than results obtained from any single season.
In collaboration with Dr. Jeff Bunting, herbicide technical specialist with Growmark, we have embarked on an effort to establish these types of comparisons across Illinois. If you are interested in establishing a similar comparison on your own farm, please get in contact with either me or Jeff and we’ll provide you with more details.

Per-acre weed control expenditures in 2007 may not differ much from recent years, but the potential revenue loss caused by weed interference will be greater this year than in recent years if crop commodity prices remain high. Integrating multiple weed management tactics reduces the likelihood that weed interference will adversely impact crop yields.—Aaron Hager

**PLANT DISEASES**

**Section 18 Emergency Exemptions Approved for Folicur and Orius Fungicides on Wheat in Illinois**

Folicur (Bayer CropScience) and Orius (Makhteshim Agan) fungicides received approval on April 13 from U.S. EPA for use on wheat as a section 18 emergency exemption for control of Fusarium head blight (scab). Both Folicur and Orius contain the active ingredient tebuconazole, and their use rate is 4 fl oz/A. This exemption is for the use of the products on wheat in Illinois for control of Fusarium head blight only, and the exemption expires June 20, 2007. Look for more information about Fusarium head blight in next week’s issue.—Carl A. Bradley

**CROP DEVELOPMENT**

**Epilogue on the April Freeze: Tough Decisions Remain**

We continue to get a lot of questions about the effects of the cold temperatures of April 5 to 9 on wheat and alfalfa. The answers for alfalfa are probably more certain than those about wheat, due to the uniformity of alfalfa damage. That is, nearly all of the top growth, or at least the leaves and upper stem, froze on alfalfa, while the lower stem generally survived. Despite the fact that alfalfa height at the time of the freeze ranged from less than 6 inches in northern areas to 20 inches or more in the southern part of the state, the entire crop was in vegetative growth, and regrowth is also vegetative, meaning that the amount of growth has less effect on regrowth potential.

On the question of whether dead alfalfa tops should be cut and harvested to “help” regrowth, the answer is no. There is very little to harvest in the top growth in the northern half of Illinois, and by the time the crop is cut (we’ll call it first cutting, even though it might resemble second cutting), the dead residue from the first cutting will be mostly gone. Even if some gets included in the first harvest, its effect on quality will not be so negative. It is possible that alfalfa seeded last summer might have limited root reserves that make it difficult to grow back. If new leaves and shoots appear in the next few weeks, regrowth should be okay, even though it might be slow.

Questions about wheat are more difficult to answer, and they are not getting much easier over time. Here are some questions and answers regarding the wheat crop:

*Might here be damage to the head even where it was less than 6 inches above the ground and less than an inch long during the freeze and it still looks healthy?* We continue to think that such heads are intact, though we realize that the normal protection from surrounding leaf tissue might have been compromised by the breezy conditions during the freeze. Heads at that developmental stage have not completed forming the cells that will become the pollen and egg cells, so unless there are physiological disruptions from the cold temperatures, we think heads should be normal on such plants. At the same time, we recognize that this was truly an unusual event, and we cannot rule out some unhappy surprises that may appear only after heads emerge. Cold weather when wheat is in the boot stage is usually blamed for heads emerging twisted or even bleached and sterile. We hope that heads as small as many were at the time of the freeze will not show such symptoms, but it might help to split some stalks occasionally over the next few weeks to see if heads are developing normally. In one photo that I was sent, the head looked normal but there was a darkened area at the base of the head that looked like it had moved up from the stem. Freeze injury of the lower stem likely resulted in formation of this material, and it moved in the xylem up to the head. It is not at all certain that the plant will be able to fill its head normally after this happens.

*Can plants grow out of lower stem injury caused by freezing?* There have been a number of reports that larger (jointed) plants that showed freeze damage on lower stems seem to be holding their own, with some new leaf growth and an improved appearance. But many fields like this may not continue to thrive. Though some stem function returned after the freeze, the plant is not able to completely repair damage to its “plumbing,” and stems are likely to stay more fragile and subject to breakage where they were frozen. It has been relatively cool since the freeze, and heads are still small, so things have worked okay so far. Once the heads start to develop and temperatures increase, demand for water and the need for physical support might well cause stems to break, or leaves might start to wilt because stems can’t conduct water fast enough.

*What about leaf damage?* In the fields with larger plants, much of the exposed leaf area was damaged or destroyed by freezing. If plants were at Feekes stage 8 (emergence of the flag leaf), then about two-thirds of the total leaf area was exposed. Stage 9 is complete emergence of the flag leaf, at which time all of the leaf area is exposed. While tillers may come on in some damaged fields, the amount of leaf area left to fill grain will become an issue. As with damage to the stem, the larger the plants at the time of the
freeze, the more damage there was to leaves. Many leaves that showed only minor darkening during and after the freeze may have recovered some, but unless leaves have a deep green color, they do not have full photosynthetic capacity. If only some of the leaf area is left and it does not have a good, green color, the ability to produce grain is decreased. Wheat tends to have a little more leaf area than it needs to produce high yields, so the amount of leaf loss may not be directly proportional to yield, but we can’t lose much leaf area without reducing yield.

**What about planting another crop into damaged wheat?** Recent questions about this have included ones on allelopathy and other problems that might carry over from wheat to corn. Allelopathy is the production of something (a chemical or group of chemicals) that form as residue breaks down and can damage the next crop. There is some potential of this as wheat residue breaks down, though we usually do not know what the chemical(s) are that cause it. The rate of formation of such breakdown products is usually fast early in the breakdown process, then less over time. It also takes moisture and biological activity, so it will be slow if conditions are cool and dry. Incorporating residue with tillage might increase rates of formation, but if these materials form away from the seed and seedling, they will not do much damage. Thus it might help some to delay planting into residue so that it can dry down, and residue that is not incorporated might stay drier and away from soil microbes and might break down more slowly. But the surest way to avoid allelopathy is to keep residue away from the row. Most do this by using planters equipped with trash movers to clear off the row before planting. We usually worry more about corn than soybean, but research has shown that allelopathic chemicals are often toxic to many plants. On the positive side, allelopathy seldom kills plants, and many crops will grow out of early damage caused by allelochemicals.

**How do we treat nitrogen applied to wheat if we’re planting another crop?** Some work at Kansas State indicated that about half of the N applied to wheat as an early topdress should be available to the corn crop. If N was applied late, more of it might be available. But the N taken up by wheat will become available only slowly to the corn crop, and some of it might be lost in different ways, so we can’t count on recovering all of it. I would suggest that half the total N applied for the wheat crop be considered available to the corn crop that replaces damaged wheat, if the wheat was clearly past jointing when it was damaged. If smaller wheat was damaged, especially if N was applied late, then up to 3/4 of the N should be available to the following corn crop. If soybean replaces destroyed wheat, the N applied to wheat should have little effect on the soybean crop, but of course this means no return to the N investment.

**How long can we wait to decide to keep a wheat crop or not?** Knowing how well the wheat crop is recovering from freeze damage is taking longer than we expected, due in part to the very slow return to warm temperatures. If you are not seeing some good stem growth—if plants have not increased in height by more than an inch or two—by this weekend, then the crop may have suffered more damage than it seemed at first. An increase in height should be accompanied by emergence of healthy, green leaf tissue at the top of the plant. Healthy wheat gets marginally harder to kill the older it gets, but this might be countered by warmer temperatures and by the fact that in damaged wheat, leaf area that appears after damage might help take up herbicide. This presents a dilemma: the longer we wait, the more chance the wheat crop has to show its potential to recover and produce good yields, but waiting to destroy the crop means more residue to contend with and later planting of the replacement crop. When the crop that will replace wheat has a high price like it does this year, planting delays and planting difficulties due to more residue carry higher penalty costs. This suggests making the decision on replacing damaged wheat earlier rather than later.

**Will there be enough seed and fertilizer to replace wheat with corn?** We think that there is enough corn seed in Illinois to plant an additional 2% or 3% of corn acres that replacing a sizeable chunk of wheat acres would mean. Choice of hybrids and even seed companies was already restricted due to the large increase in corn acres, so adding additional acres will only restrict such choices a little more. Nitrogen fertilizer is somewhat similar in that we think there will be enough to go around. But with so much yet to be applied this spring, spot shortages could develop. With the N that was applied to wheat, the corn crop that replaces it will not need N at or before planting, so delaying N application to sidedress time might make sense.

—Emerson Nafziger

**Dealing with the Delayed Start to Corn Planting**

The fact that less than 1% of Illinois corn was planted by April 15 means that the start of corn planting is considerably later than it’s been in recent years. With so much on the line with high corn prices this year, there is growing concern that we are starting to lose some yield potential for each day that passes with little planting progress. Corn that we planted here at Urbana on April 2 was just starting to germinate on April 17, with roots and shoots less than a quarter of an inch long. The seed was still very sound, reflecting its past two weeks in the refrigerator that the soil has been. There has thus been little agronomic advantage to planting in early April this year.

Illinois is a large state, so characterizing effects of planting date on yield is not easy or very precise. If we use data for the whole state, we see that corn yield is not very well correlated with an early start to planting, as indicated by the percentage of corn planted by
April 10 (Figure 1). But the percentage of corn planted by the end of April shows some correlation with yield (Figure 2). Though it’s not a perfect predictor of yield, this indicates that each percentage point increase in corn planted by April 30 means another half bushel in statewide yield. The three highest percentages (all above 72%) planted by the end of April during the past 14 years were in 2004, 2005, and 2006, long enough for some people to develop this as an expectation.

With typically rapid planting after April 30 regardless of how the year turns out, this correlation tends to decrease at later dates. But the message is that we get most of the crop planted during April in the better years and that failure to do so tends to result in low yields. The adage that “it matters when you finish planting, not when you start” appears to hold true. While there are plenty of anecdotes about individual fields that were planted late and still yielded well, years that allow timely planting tend to be better corn years.

We are not yet to the end of April, so there’s little reason to start serious worrying about when we’ll finish planting and how much the “delay” will cost. With today’s equipment, we can plant faster than ever before. We have planted at more than 5% per day over some 10-day periods in several recent years, and if every field in Illinois were fit to plant at the same time, we likely could plant at least 75% of the corn crop in a week. We estimate that the median number of days Illinois producers need to plant their entire corn crop is about 5. This might be higher by half a day or so this year because of increased corn acreage.

Even with the ability to plant fast, wet fields and some wet weather ahead will probably delay corn planting past the ideal time. The “standard” data used to predict planting delay penalties is some that we generated 15 years ago. Tables are in the *Illinois Agronomy Handbook*, as well as a replant calculator based on these data. It shows that planting in late April produced the highest yields, and that yield declined by 3% from May 1 to May 10, by 6% from May 10 to May 20, and by 10% from May 20 to May 30. This is about ½ bushel per day of delay for the first 10 days of May, 1 bushel per day during the second third of May, and 1-½ bushels per day for the last third.

More recent work showed similar responses to planting date, but a little more penalty to late planting. Averaged over 7 trials in the northern half of Illinois in 2005 and 2006, we found the following yield response, averaged over 30,000 and 35,000 populations.

<table>
<thead>
<tr>
<th>Planting date</th>
<th>Yield (bu/acre)</th>
<th>Yield (% of first date)</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 5</td>
<td>190</td>
<td>100</td>
</tr>
<tr>
<td>April 23</td>
<td>203</td>
<td>107</td>
</tr>
<tr>
<td>May 9</td>
<td>198</td>
<td>104</td>
</tr>
<tr>
<td>May 30</td>
<td>147</td>
<td>79</td>
</tr>
</tbody>
</table>

The data in this table start in early April and include a couple of cases where planting in early April produced lower yields than planting in late April. Like the earlier data, the highest yield was produced in the last week of April—
April 24, to be precise. Yield penalties for planting delays were about twice as great, on a bushel basis, than in the earlier work. Corn lost yield at about 1 bushel per day from May 1 to 10, 2 bushels per day from May 10 to 20, and almost 3 bushels per day during the last third of May. This is on a higher base yield than was the earlier work, so percentage reductions are not as different, but it’s reasonable to conclude, at least as a preliminary finding, that the yield penalty from late planting has not decreased with newer hybrids.

In the southern part of the state, yields declined much more rapidly after mid-April in 2006, with yield loss close to 50% by early June at Dixon Springs. Growing conditions were very favorable at Dixon Springs in 2006 (the highest yield in the mid-April planting was more than 270 bushels per acre), but at Brownstown, yields were lower and the planting date response was much less. We are continuing these trials, but at this point I can say that delaying planting past April is likely to cause as much yield loss in southern Illinois as in the rest of the state. Of course, with higher rainfall in southern Illinois, planting early is often not possible.

It’s been a tough start to April, but there’s hope that we will catch up quickly with a return to better temperatures and less rainfall. One lingering effect of the cold temperatures is slow drying of the surface soil. But some excess water has drained away, so planting will get under way in some areas as soon as soil can warm up (sighing that drying is more complete) and there are a few days without rain.

Related to the planting date question is the question of whether anhydrous ammonia should be put on before planting, how many days there should be between NH₃ application and planting for the crop to be safe, and whether it might be better to wait until after planting to apply NH₃. Our normal recommendation has been to wait at least 3 to 5 days between application and planting. But ammonia applied to cool, wet soils does not spread very far from the point of release, and the application slot tends to remain intact. If the soil dries out after application in such conditions, then ammonia can be released from the application band and can move up the application slot, causing damage to any plant tissue that is in the vicinity. In such cases, even waiting two weeks after application to plant may not prevent injury. If the soil does not dry out, there is little danger of injury, since ammonia will stay put in wet soils.

Ammonia often goes on when soil is considered a little too wet to plant, which contributes to the problem. In fact, soils that are in good condition for ammonia application are also in good condition to plant. If it gets to be late April before either operation can be done, it might make more sense to plant first and apply N later. With RTK and autosteer, it might be possible to avoid any problem with ammonia by applying it between where the rows will be planted. It is also possible to apply ammonia immediately after planting rather than wait until the crop has emerged. — Emerson Nafziger

**REGIONAL REPORTS**

**Northern Illinois**

Field activity is still limited by wet soil conditions throughout the region. Anhydrous ammonia application, tillage, and dry fertilizer application are occurring in some areas but not on a wide scale. Dave Feltes, IPM extension educator, caught 7 black cutworm moths on April 13 in Whiteside County. Winter annuals such as henbit and chickweed have become more apparent in soybean stubble throughout the region.

Jim Morrison, crop systems extension educator, reports that much of the alfalfa in northwest Illinois has a “brown cast” due to early April cold temperatures, but in most fields new growth is evident from the axillary stem buds and crown buds. Plants are expected to survive, but first harvest will be delayed due to the cold injury. Wheat is exhibiting brown leaves as well due to the cold weather; plant survival is expected to be good, though throughout most of the region.

The dates and topics have been set for the 2007 Crops Training Center programs at the Northern Illinois Agronomy Research Center at Shabbona: June 8, Corn/Soybean Disease Update; June 28, Corn/Soybean Insect Update; August 8, Weed Competition/Corn and Soybean Plant Disease Update. All programs are from 9:00 am to noon. Preregistration is required; contact Greg Clark, Whiteside County Extension Unit, 815-772-4075, gmclark@uiuc.edu.

**Southern Illinois**

Health of the wheat and alfalfa crops continues to be the major concern. Wheat condition varies throughout the region, with some fields obviously dead, some relatively uninjured, and the vast majority somewhere in between. The farther south one travels the more significant the degree of injury, because the wheat was more advanced in its stage of development. The greatest field-to-field variability seems to exist in the corridor bordered by IL Route 16 on the north and IL Route 50 on the south. South of Route 50 the situation deteriorates more markedly. In many cases, the leaf tissue and upper canopy aren’t exhibiting a great deal of injury, but the lower stem tissue has been damaged around 1 to 2 inches above the ground. Assessing the level of damage both within and between fields has been complicated by the cool and cloudy conditions immediately following the freeze. These weather conditions have tended to mask the level of injury that may be present. As sunshine and warm temperatures return, damage in fields will become much more apparent.

Alfalfa recovery has been very slow, and the presence of alfalfa weevils isn’t helping the situation. Where axillary regrowth is present, stems are damaged badly enough that severe lodging is apt to occur. Unfortunately, field conditions have been too wet up to this point to harvest and salvage most fields.
West-Central Illinois

There’s nothing like a day or two of sunshine and nice temperatures to improve one’s perspective. Across the region, folks are noting considerable variation in the degree of damage to the wheat crop. Depending on the plant’s growth stage when the cold weather occurred, levels of damage range from slight to serious. Most plants that were at Feekes 7 or beyond show damage to the lower stem. This portion of the plant has been weakened, and in many cases it may not support the plant to maturity. Mike Roegge, crops systems educator in Adams–Brown Counties, suggests that 99% of the crop he has examined is healthy beyond some upper leaf desiccation. Producers are continuing to find bird cherry oat aphids in the wheat.

Alfalfa fields are also variable depending on the quality of the stand and the conditions going into the cold weather. Stems in some fields were killed back to the soil line, while in others only the top 4 or 5 inches were killed. With regrowth occurring from both the crowns and buds along the stem, there will be uneven development across fields for the first cutting. Alfalfa weevil larvae are resuming activity in the southern part of the region. Some third instars were killed by the cold, and first instars are still present.

There were reports of intense black cutworm captures late last week in three locations. Degree days will be tracked from this point forward to help predict cutting dates.

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