



PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

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Training Session to Focus on Managing Crop Production

Producers, agribusiness dealers, and crop scouts are invited to participate in "Managing Crop Production," a workshop sponsored by University of Illinois Extension on Thursday, June 10, in DeKalb County. The workshop will be conducted at the Crops Training Center on the Northern Illinois Agronomy Research Center, 14509 University Road, Shabbona.

Classroom discussions and in-field demonstrations will focus on implications of corn and soybean growth and development stages, as well as results of current crop production research. Row spacing, plant population, seeding date, twin rows, and deep tillage are some of the research topics to be discussed. In-field demonstrations include plant-to-plant spacing variability, soybean replanting, hail damage, and soybean plant type and herbicide application.

Dr. Emerson Nafziger, Extension crop production specialist, will lead the discussion along with Extension educators. Three continuing education units for certified crop advisers have been applied for.

Registration begins at 8:30 a.m.; the workshop will be conducted from 9:00 a.m. to 12:00 noon (lunch not provided). The cost is \$25 per person, and reservations are due by June 3 to the Quad Cities Extension Center, c/o Dave Feltes, 4550 Kennedy Drive, Suite 2, East Moline, IL 61244; telephone (309)792-2500. If you pay by check, make it payable to University of Illinois Extension. A minimum of 20 reservations is needed to conduct the workshop.—*Jim Morrison*

Wheat Twilight Field Day Set for June 23 at Shabbona

A Wheat Twilight Field Day for wheat producers and affiliated agribusiness will be held Wednesday, June 23, from 6:00 to 8:00 p.m. at the Northern Illinois Agronomy Research Center, 14509 University Road, Shabbona. Registration begins at 5:00 p.m. There is no registration fee. CEUs for certified crop advisers have been applied for.

An informal, roundtable format will allow producers to ask questions and discuss wheat production and marketing. Jim Quinton, director of the Illinois Wheat Association, will discuss "Wheat Marketing Plans and the Tools for Price Capturing." Dr. Emerson Nafziger, University of Illinois Extension crop production specialist, will review wheat management practices recommended for northern Illinois. Fred Kolb, University of Illinois small grains breeder, will report on choosing wheat varieties and managing diseases.

This program is co-sponsored by University of Illinois Extension and the Illinois Wheat Association. For more information about the meeting, contact Ellen Phillips, crop systems educator, University of Illinois, (708)352-0109.—*Ellen Phillips*

INSECTS

Insects Thus Far in 2004 (and Possible Coming Attractions)

As usual, weather has been the primary focus for corn and soybean producers throughout Illinois—first, really good weather, and now quite a bit of rain in some areas. Weather always has some influence on insects, and this year (thus far, anyway), the weather seems to be favoring us rather than the insects. Are we experiencing calm before the storm, or will insects take a backseat to other issues in field crop production this year? You probably know me well enough to know that I won't (actually can't) answer that question, but the question begs for attention. And the only way we will answer it—in hindsight—is to stay vigilant, even when insect problems seem to be few and far between. A colleague recently observed that "it's no fun scouting for insects when you can't find anything." As an entomologist, I tend to agree, but the shortage of insect pests certainly bodes well for producers.

Throughout the past few weeks, we have received reports of black cutworms, wireworms, and white grubs causing economic damage in a few fields in southern and central Illinois, but their infestations have not been widespread. Southern corn leaf beetles and flea beetles were relatively common in western counties, and a few grape colaspis larvae have been found. But overall, this group of secondary insect pests of corn has caused only localized restlessness.

We have received a handful of reports of observations of armyworm larvae but no reports yet of armyworms causing any problems in Illinois. However, Ron Hines, senior research specialist at the University of Illinois Dixon Springs Agricultural Center, reported that radio broadcasts from southwestern Missouri indicate that armyworms are feeding in wheat and grass hay fields. So keep your eyes on such

fields, if only to avoid the surprise we experienced in 2001.

Another insect to watch in the coming weeks is the European corn borer. This insect has been nearly invisible in most areas of Illinois for the past few years; some have speculated that Bt corn has been responsible for the apparent absence. Maybe, maybe not. Regardless, announcements of moth flights should always focus our attention. And as usual, Ron Hines is the first to report the first European corn borer moth flight of the season in Illinois. He recorded capturing 62 European corn borer moths in the trap in Pulaski County during the week ending May 18. His first European corn borer moth capture at that site was during the week ending May 4. A very few moths also have been captured in traps in Massac and St. Clair counties. As you know, early-planted corn is most at risk for infestations of first-generation European corn borers. Growers in southern Illinois should monitor early-planted cornfields soon, watching for evidence of leaf-feeding injury as the larvae establish in the whorls. Tunneling by larger larvae will ensue shortly thereafter.

In soybeans, the insect to focus on right now is the bean leaf beetle. An article in last week's issue of *the Bulletin* (issue no. 8, May 14, 2004) provided information about their management. The next insect to watch for in soybeans will be soybean aphids (refer to "A Brief Summary of Soybean Aphid News" in this issue of *the Bulletin*).

So far, so good. But as you know, significant insect problems can develop rather quickly. With many weeks to go before we reach the end of the growing season, our skills of observation, preparation, and reaction still will be tested.—Kevin Steffey

A Brief Summary of Soybean Aphid News

Word about soybean aphid eggs hatching on buckthorn has spread through-

out the Midwest, so now seems like an appropriate time to summarize the information. David Voegtlin, our resident aphid research specialist at the Illinois Natural History Survey, observed the first soybean aphid hatch of the season on March 27 in eight cages of his winter host trial. On April 26, he observed third-generation winged aphids in abundance on buckthorn. Chris DiFonzo, entomologist at Michigan State University, observed soybean aphid hatch on April 17 in central Michigan. Tom Hunt, entomologist at the University of Nebraska, observed soybean aphids on buckthorn near Lincoln on April 23.

Three to four generations of soybean aphids develop on buckthorn in the spring. So the aphids are ready, but what about the soybeans? The abundant third-generation soybean aphids David Voegtlin observed on April 26 were well ahead of most soybean emergence in east-central Illinois. If soybean aphid populations are developing on buckthorn elsewhere in Illinois (as surely they must be), those aphids, too, are only just now able to find soybean seedlings. When soybean aphids finally find soybeans, they will begin colonizing the plants—sometimes very young plants.

It's much too early to tell whether populations of soybean aphids will develop to threatening levels later in the summer. Predation by multicolored Asian lady beetles (and there are plenty of them around) will play a role in population regulation, and weather, of course, also will influence soybean aphid development. But it's not too early to make preparations to scout for soybean aphids—early and often. Many people were caught by surprise in 2003 because they did not begin monitoring soybean fields early enough. Early-season aphid sightings are not cause for panic, but they help establish the initial timing of colonization. So prepare now, and stay vigilant throughout the next several weeks.—Kevin Steffey

Remember to Scout Alfalfa Regrowth for Signs of Alfalfa Weevil Damage

Just a brief reminder about alfalfa weevils: They are still out there! A few responses to last week's article in *the Bulletin* titled "Where Are the Alfalfa Weevils?" have indicated that alfalfa weevil larvae are present and feeding in some fields in northwestern Illinois.

In fact, some fields were nearing the economic threshold of 25% to 50% of leaf tips skeletonized and three or more weevil larvae per stem. As infestations near economic levels, management decisions must be made. One option is to harvest the crop as early as possible. Cutting the hay removes food and shelter from the larvae and exposes them to harmful rays from the sun. Remember to scout alfalfa regrowth for signs of alfalfa weevil damage! Larvae and adults have the potential to prevent or slow regrowth by feeding on new shoots. Control may be warranted after a cutting when feeding is occurring on more than 50% of the crowns and regrowth is prevented for 3 to 6 days.

If early harvest is not possible, or an insecticide application is chosen as the management tactic, do not apply during bloom. Please refer to the article from issue no. 5 of *the Bulletin* titled "Degree-Day Accumulations and Economic Thresholds for Alfalfa Weevil" for a table of recommended insecticides for control of alfalfa weevil larvae.—*Kelly Cook*

First Potato Leafhoppers of the Year

The first sightings of potato leafhoppers have been reported this spring. Potato leafhoppers were found by Matt Montgomery, crop systems unit educator in Sangamon/Menard counties, and Dave Feltes, IPM educator for the Quad Cities Regional Center, in sweeps this past week. On May 12, Matt found 18 potato leafhoppers in

10 sweeps in alfalfa approximately 2 feet tall.

Potato leafhoppers do not overwinter in Illinois. They migrate north from the southern Gulf States, riding on northerly winds. Leafhoppers are small (1/8-inch-long), wedge-shaped insects with piercing and sucking mouthparts. Females live for approximately 1 month and during this time will lay two to three eggs in the stems and veins of plants each day. Nymphs hatch after 7 to 10 days and will mature to become adults in about 2 weeks. The entire cycle takes about 1 month, and three to four generations may be observed each year in Illinois.

While feeding, potato leafhoppers remove sap and fluid from vascular tissue from leaves, while injecting a toxic substance into the plant. This results in a yellowing of the foliage, typically beginning at the leaf margins, referred to as "hopperburn." An early symptom of hopperburn is the V-shaped yellow area on the leaf tip. However, don't confuse hopperburn with disease and nutritional disorders with similar leaf symptoms. Boron deficiency, which is quite similar to potato leafhopper injury, is usually limited to the younger leaves, whereas

leafhopper injury is found on older leaves. Watch field margins for the first signs of potato leafhopper feeding as the insects move into the field.

Alfalfa fields should be monitored on a weekly basis following the first cutting of hay. Feeding on new regrowth may stunt or delay plant growth. Using a 15-inch sweep net, make 20 sweeps in five locations of the field. Be sure to avoid sweeping wet fields; results are not necessarily representative of the damage potential of the field. Calculate a field average of potato leafhoppers per sweep. Randomly collect 20 alfalfa stems across the field to determine the average stem length. Table 1 provides the economic thresholds for potato leafhoppers. Potato leafhopper infestations will persist in fields until hard frosts occur in the fall.

Insecticides suggested for control of potato leafhoppers in alfalfa are listed in Table 2. Please follow all label directions and precautions.

For more information on the potato leafhopper, see the updated fact sheet on the Web (http://www.ipm.uiuc.edu/fieldcrops/insects/potato_leafhopper/index.html); a print-friendly version is at http://www.ipm.uiuc.edu/fieldcrops/insects/potato_leafhopper.pdf.—*Kelly Cook*

Table 1. Economic thresholds based on alfalfa height for potato leafhoppers.

Alfalfa height (in.)	Leafhoppers per sweep
<3	0.2
3 to 6	0.5
6 to 12	1.0
>12	2.0

Table 2. Insecticides recommended for control of potato leafhoppers.

Insecticide	Amount of product per acre	Pre-harvest interval
*Ambush	3.2 to 12.8 oz	14 days
*Baythroid 2	0.8 to 1.6 oz	7 days
Dimethoate 4EC	1/2 to 1 pt	10 days
Imidan 70W	1 to 1 1/3 lb	7 days
*Lorsban 4E	1/2 to 1 pt	7–14 days
*Mustang Max	2.24 to 4.0 oz	3 days
*Pounce 3.2EC	4 to 8 oz	14 days
Sevin XLR Plus	1 qt	7 days
*Warrior	1.92 to 3.2 oz	7 days

*Restricted use pesticides.

PLANT DISEASES

Illinois Seed and Seedling Diseases of Soybean

Seed and seedling diseases often dramatically influence establishment of soybean stands. Although many soybeans remain to be planted in Illinois, many have been planted, and the wet weather in some areas and fluctuating temperatures may favor development of seed and seedling diseases. This article provides a general overview of seed and seedling diseases of soybean and describes a project designed to enhance our knowledge of these diseases in Illinois.

Soybean seed and seedling diseases can develop soon after the seed is planted and continue beyond the V2 stage. Although other factors can also cause these effects, reduced germination and/or emergence that results in thin stands is an indication of seed and seedling diseases. Another indication is damping-off, which kills seedlings after emergence. These disease problems are usually associated with wet soil conditions, although major problems may not be noticed until a week or more after the wet conditions occurred.

The major pathogens that cause seed and seedling diseases of soybean are the fungal or fungal-like pathogens *Pythium*, *Phytophthora*, *Rhizoctonia*, and *Fusarium*. However, we don't have a good understanding of which of these pathogens are most common in Illinois. Please read the last paragraph in this article to get information about a project to help answer this question.

These pathogens all survive and persist in soil. The tan-brown, soft-rot symptoms on roots and stems caused by *Pythium* and *Phytophthora* are similar and are difficult to differentiate without laboratory testing. Reddish to dark brown lesions, often sunken, are typically caused by *Rhizoctonia*. *Fusarium* damping-off and root rot typically causes light to dark brown lesions. Proper diagnosis of the major problem

can help with determining best management practices.

Once a problem with seed and seedling diseases of soybean is noted, several management options can be considered this year and in the future. Whether or not to replant is based on several factors, including the magnitude of the stand reduction and the planting date. Additional information on replanting decisions can be found in the *Illinois Agronomy Handbook*, which is available from University of Illinois Extension. If the decision is made to replant due to loss from disease, fungicidal seed treatments and perhaps a cultivar with good resistance to *Phytophthora* should be considered.

Seed treatments will sometimes provide a significant benefit, while at other times they don't provide a clear benefit. Influential factors include planting date, history of seed and seedling diseases, types of seed and seedling diseases present, risk tolerance, soil compaction, seeding rates, field drainage, and tillage.

Seed treatments differ in activity against various seed and seed rotting pathogens. The systemic compounds Allegiance-FL and ApronXL are most effective for control of the "water-mold" pathogens *Phytophthora* and *Pythium*. The other group of fungicides, including Rival, Maxim-4FS, captan, and several other products, protect against *Fusarium*, *Rhizoctonia*, and other true fungal pathogens.

Azoxystrobin is a new systemic fungicidal seed treatment that recently became available for soybean in the product SoyGard, primarily for control of *Rhizoctonia* and perhaps *Fusarium*. For full-spectrum control of different pathogens, combinations of these products are often used. In addition, a biological fungicide (Yield Shield) is available to protect soybean seed against *Fusarium* and *Rhizoctonia*.

We have limited information on which seed and seedling pathogens of soybean are commonly causing problems in Illinois. We have initiated a project to get more information about these

pathogens in Illinois and are requesting your help. We want samples of soybean with seedling diseases from anywhere in Illinois to determine which pathogens are causing problems. If you visit fields or get calls regarding soybean disease at the seedling or stand establishment stage, please collect plants or have plants collected (10 plants per field, along with exact location, soybean variety, and seed treatment if any). Send them to Dean Malvick, University of Illinois, Department of Crop Sciences, N533 Turner Hall, 1102 South Goodwin Avenue, Urbana, IL 61801. Results will be reported next fall or winter.—Dean Malvick

CROP DEVELOPMENT

Not Quite Out of the Woods

Corn

Corn planted on April 15 here at Urbana is on the V4 stage and about 8 inches tall. So far, the crop has emerged and developed much as predicted by the growing degree-day (GDD) method. As I wrote several weeks ago, the corn emerged at about 120 GDDs, just as expected. We have received about 320 GDDs since emergence, which is close to the 85 GDDs per leaf that are predicted based on work by Bob Nielsen at Purdue University and Peter Thomison at Ohio State University.

Having corn get to stage V4 by May 20 is favorable. If average or higher temperatures, and hence growth rates, persist over the next weeks, we will see tassels by the end of June. Keep in mind that with the accelerating pattern of GDD accumulation throughout June, a crop that is a week ahead of normal development now may be only about 3 days ahead of normal by the end of June. A fast-growing crop can "outgrow" a number of problems, and it will use more of the sunlight in coming weeks, but if cold temperatures return, a larger crop is more vulnerable to injury.

Despite a record early corn-planting season, heavy rains and temperature swings have many people wondering whether there's "trouble in paradise" regarding the corn crop. Make no mistake—the crop went in and emerged in most fields under very good conditions, and stands in most fields are as good as we could have expected. And we have to admit to the old truism that when things are in good shape, small problems become larger problems, at least in our minds. But there are a few problems that we should look for as the crop gets started.

The first and most immediate problem in some fields or parts of fields is standing water. Though we have had enough dry weather to make the soil able to absorb an inch or two of rainfall in many fields, excess rainfall, or rain that comes very fast, will still run off and form ponds, or creeks will rise to cover fields. Larger plants have more leaf area that stays above the water level better and emerges from submergence sooner, and they can survive submergence longer than can small plants. By the time it dries off enough to consider replanting, plants should be showing substantial new growth. With warm temperatures, in fact, growth should resume within 2 days or so of the water's subsiding.

If new leaf tissue does not appear, or if it appears slowly, pull some plants and cut them open to see whether the growing point (the small triangle of stem tissue to which leaves are attached) is white and healthy looking. If it is, there's a chance that the plants may resume growth without much lasting damage. If there is any discoloration, the plant may die or fail to recover to full health.

Complicating this is the fact that roots that remain in saturated soil cannot support growth very well, diseases like crazy top might have infected the plants during submergence, leaves may have mud on them, and nitrogen loss can be substantial. It is difficult to predict, but sometimes a crop that has

been submerged simply fails to grow back very well, even when soils dry again and the sun shines.

Another problem in Indiana that Bob Nielsen has written about, and about which we have gotten a few reports in the past week, is abnormal seedling growth, often including leafing-out underground in scattered plants. This problem appears on some hybrids more than others and seems to occur more in fields planted within certain time periods—one field might be affected, while the same hybrid in fields planted a few days earlier or later shows none of the problem.

I'm going to speculate here, but when seeds planted into relatively warm soil experience a temperature drop (as has happened at least twice within the past month), the coleoptile experiences the lower temperatures first, and its growth may slow. But the new leaf inside it, "pushed" by the warmer seed deeper in the soil, continues to grow, eventually breaking out even though the coleoptile has not broken the soil surface. Coleoptile growth is usually stopped by sunlight hitting its tip, but anything that slows its growth, including some herbicides, can result in premature release of the leaf. If this theory holds, then hybrids that tend to have vigorous early growth might be the ones most affected.

Soybean

Soybean planting has been rapid, with 57% of the state's crop planted as of May 16. That's much better than in recent years, but rainfall has stopped progress in many locations, and it could be a week before planting resumes in many areas. Our data show very slow declines in yield as planting approaches the end of May, so we still have time to plant with little yield penalty. Of course, that all depends on weather later in the season, especially in August.

To see this, we need only look back at the past 2 years, both of which had delays in getting soybean planted. In 2002, we had good yields following

late planting; in 2003, especially where it rained little in August, we did not have good yields. One additional concern is wet fields where soybean has been planted. With warm soils, soybean seed can tolerate flooded or saturated soils for only a few days. Watch fields, especially lower parts of fields with standing water, and line up replanting seed as you wait for soils to dry.

Field Pea

I saw a field near St. Elmo this past week where field pea had been no-tilled into corn stalks around March 20. The field was virtually devoid of plants; I could not see any planted from the road, but someone who had seen the field more closely said there was a small area out in the field with some stand. While the spring has been cool and dry enough in general to be considered relatively good for a crop like pea, the heavy rainfall event soon after planting must have been too much for the seeds or seedlings trying to emerge. I hope that fields in other places look better. If you have seen fields of this new crop up and growing, I would appreciate an e-mail on the condition of the crop.

Wheat

Wheat continues to develop ahead of schedule, from a few days ahead in southern Illinois to more than a week ahead in the northern part of the state. Much of the crop escaped rainfall during flowering, so *Fusarium* head scab may not be as big a concern as it was last year. Color of the crop is generally good, though the return of wet conditions, accompanied by high temperatures, will not be ideal as the crop fills grain. By now, it is too late to do much about crop condition, except to hope for cool, dry weather to maximize the rate and duration of grain filling.—*Emerson Nafziger*

REGIONAL REPORTS

Extension center educators, unit educators, and unit assistants in northern,

west-central, east-central, and southern Illinois prepare regional reports to provide more localized insight into pest situations and crop conditions in Illinois. The reports will keep you up to date on situations in field and forage crops as they develop throughout the season. The regions have been defined broadly to include the agricultural statistics districts as designated by the Illinois Agricultural Statistics Service, with slight modifications:

- North (Northwest and Northeast districts, plus Stark and Marshall counties)
- West-central (West and West Southwest districts, and Peoria, Woodford, Tazewell, Mason, Menard, and Logan counties from the Central district)
- East-central (East and East Southeast districts [except Marion, Clay, Richland, and Lawrence counties], McLean, DeWitt, and Macon counties from the Central district)
- South (Southwest and Southeast districts, and Marion, Clay, Richland, and Lawrence counties from the East Southeast district)

We hope these reports will provide additional benefits for staying current as the season progresses.

Northern Illinois

The majority of the region received more than 1.5 inches of rain during the week of May 10 to May 16. Additional widespread rainfall was received early this week, which contributed to limited fieldwork in many areas. However, corn planting is virtually complete, with soybean planting estimated at more than 50% complete.

Jim Morrison, Extension educator, reports that according to PEAQ procedures (Predictive Equations for Alfalfa Quality), alfalfa should be harvested if growers desire high quality. Reports have been received concerning alfalfa weevil activity, but damage is below economic threshold levels.

Also, bean leaf beetle activity has been observed in emerged soybean. Refer to issue no.8 (May 14, 2004) of *the Bulletin* for information concerning bean leaf beetle economic threshold levels and treatment options.

Southern Illinois

More than 3 inches of rainfall last Friday brought field activities to a halt in the northwestern section of the southern region, while other areas received much less. More storms are being forecast for Tuesday and Wednesday, which will add to already saturated soil conditions. Soybean planted just prior to the rain is struggling to emerge, while soybean planted earlier is doing better.

Corn growth stages range from V2 through V6. No major problems are being reported, although some fields show scattered thin spots that may be due to earlier wireworm damage.

Wheat development is at Feekes 11. Fields with heavy stands are showing some powdery mildew development as well as septoria leaf blotch.

Musk thistle and poison hemlock are beginning to flower along roadsides and pastures.

West-Central Illinois

More than 2 inches of rain fell May 10 through May 13, halting all fieldwork.

Soils dried out enough for producers to get back in the field on Monday, only to be rained out again Tuesday afternoon.

For the most part, corn looks very good and is growing rapidly. Growth stages vary from V3 to V6 in some fields. Problems from white grub feeding continue, with one field in Morgan County showing a stand loss of up to 15%.

Soybean is emerging in about 6 days, with no major problems reported so far.

The first cutting of alfalfa has slowed due to the rain. The relative feed value could potentially decrease if the wet weather continues and harvesting is not possible soon.

Wheat development ranges from Feekes 10.5 to 11. Overall, the crop looks very good, with little foliar disease pressure evident.

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