



PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

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INSECTS

Soybean Aphids Reported in Minnesota Soybean Fields

On June 12, I received a report from David Ragsdale, a professor of entomology at the University of Minnesota, concerning his observations of what "appear" to be soybean aphids in four soybean fields, all in the early vegetative stages of development (V1 to V2). The soybean fields sampled (June 12) were in Houston County, located in southeastern Minnesota. The sampled fields were located near other fields that had been heavily infested with soybean aphids in August of 2000. All of the soybean fields supported "active aphid colonies." The density of aphids found in colonies ranged from just a few to roughly 50 aphids. Professor Ragsdale reported that approximately 10% of the plants randomly sampled had at least one aphid. Border rows were most heavily infested, especially those located nearest wooded areas with buckthorn, the overwintering host of soybean aphids.

Professor Ragsdale indicated that four winged aphids (alates) also were detected and that confirmation of the species identity is being sought. We'll keep you posted on other potential developments this season on the soybean aphid front. If you find aphids in soybean fields, please report these observations to us as soon as possible. We appreciate your cooperation.—Mike Gray

Large Numbers of Corn Rootworm Larvae Reported in Some Cornfields

We have received a few reports of corn rootworm larval injury, in some cases from fields that were treated at planting with a soil insecticide. Kevin Black, technical specialist with GROWMARK, confirmed moderate to severe pruning of plants was occurring in a field located in Pike County, just south of Kinderhook. Kevin and Rich Archer, Pike County Service Company, observed numerous larvae in the soil surrounding the plant samples they took. The majority of larvae observed were second and third instars; however, they also found a few pupae. This means that emergence of adult western corn rootworms will begin across central Illinois by the end of the third week in June. As Sue Ratcliffe mentions in one of her articles in this issue of the *Bulletin*, those of you who intend to monitor adult populations of corn rootworms this season better make sure that you have your traps ready to go. Evaluating soil insecticide performance for corn rootworm larval control requires a little effort. The following questions and answers are designed to provide some additional input on this topic.

Aren't corn rootworm larvae almost impossible to find?

Locating corn rootworm grubs in mid-June requires some effort. First instars are quite small and they tend to burrow into root tissue and feed internally. As rootworms reach the third and last larval instar, they become easier to find; however, a full-grown grub will not grow much beyond 1/2 inch in length. Figure 1 provides some information that can be used to determine larval instars for corn rootworms.

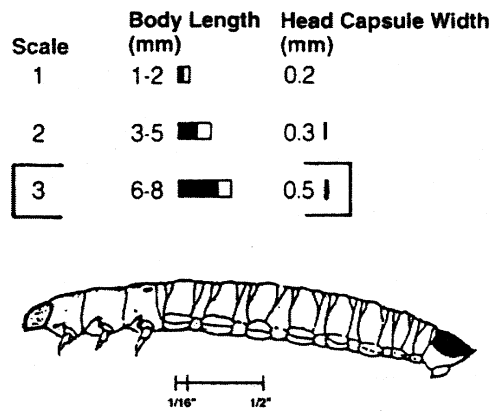


Figure 1. Body lengths and head-capsule widths for instars of the western corn rootworm.

If I find corn rootworm larvae, how concerned should I be?

Don't be alarmed. Soil insecticides will not kill 100% of corn rootworm larvae within a field. Remember that soil insecticides are placed in-furrow or in a narrow band during planting. Untreated areas between rows effectively serve as a rootworm refuge. Because the entire rootworm larval population within a treated field is not exposed to a soil insecticide application, resistance to commonly used products has not occurred for decades. Corn rootworm resistance to methyl parathion (PennCap-M) has been confirmed in Nebraska. However, this resistance developed because of the widespread and long-term use of broadcast applications of PennCap-M for egg-laying suppression programs.

When should I be concerned if I find corn rootworm larvae?

If you find three or more larvae per plant (7-inch cube of soil and roots from base of plant) and root injury is evident, a rescue cultivation treatment may be warranted. An insecticide applied during cultivation does not generally perform as well compared with a planting-time treatment. This is especially true under very dry soil conditions. Because of the earlier and earlier planting we've witnessed in recent years, the application of rescue treatments at cultivation is increasingly no longer an option for many

producers because plants are too tall.

How do I grade the performance of my soil insecticide?

To get an accurate picture of how well your soil insecticide worked, you should dig several (5 to 10) plants from about 10 different areas (treated and untreated strips) of your field. Following the digging, wash off the soil from the roots and look for any general feeding (brown scars) or, more importantly, examine the plants for pruned roots. Most entomologists across the Corn Belt suggest that a soil insecticide has done its job if it keeps root injury below a rating of 3.0 (several roots pruned to within 1.5 inches of the plant; never an entire node pruned) on the Iowa State root-rating scale. The economic root-injury index is static and varies according to the hybrid selected and the amount of precipitation that occurs throughout the growing season. Rainfall after the larval-feeding period is very important. The level of root regeneration from mid-July through mid-August may significantly affect yield.

Let's assume that I follow your suggestions and find very little root injury. Can I now assume that I got my money's worth for using a soil insecticide?

Perhaps, but only if roots also were removed from a check strip(s) and you found they were injured. Unfortu-

nately, many producers are unwilling to leave some rows untreated at planting. If you don't leave some untreated areas in your cornfield, you'll never be able to estimate the real value of your soil insecticide purchase. The use of four widely separated check strips (two to four rows per strip) works well for this purpose. Comparing root injury in treated and untreated strips throughout a field is the only way to adequately determine the value of your soil insecticide investment for rootworm control.

If I find very few rootworm adults in my cornfield in July, doesn't this suggest that my soil insecticide worked pretty well?

Not necessarily. Soil insecticides were designed to provide only one important function—root protection. Research in Illinois and other states clearly indicates that in certain years more corn rootworm adults may emerge from treated than untreated areas of cornfields. If you don't find many corn rootworm adults in your cornfield, it may simply mean that you didn't have much of an infestation to begin with. Also, corn rootworm adults are very mobile (particularly the females) and may have left your field and flown to a nearby later-planted and more generously pollinating field.

If I don't have any severe lodging in my field, is it safe to assume that my soil insecticide performed adequately?

No. Corn plants lodge for a variety of reasons that may have nothing to do with corn rootworm larval injury. Plants that are top heavy (tall with large ears) may topple over in severe thunderstorms. Saturated soils may predispose plants, even those with no root injury, to lodging because of the weakened soil structure around the root system. Conversely, if soils are extremely dry and hardened, plants with severe root pruning may not lodge because they are held in rigid "concrete-like" growing conditions.—
Mike Gray

First Flight of European Corn Borer Remains Unimpressive

The first flight of the European corn borer continues; however, the number of moths reported from several areas of the state suggests that the first-generation infestation may be very low. Ron Hines, senior research specialist, Dixon Springs Agricultural Center, indicates that he has been unable to capture European corn borer moths in his pheromone traps. On June 8, I observed very minor shot-holing caused by European corn borer larvae near Arenzville, located in Cass County. Mike Roegge, crop systems educator, Adams/Brown Extension Unit, observed on June 8 first-instar European corn borer larvae on “thigh-high” corn in Pike County. Overall, Mike indicated that not much of an infestation appeared to have established as of yet.

Although European corn borer moth numbers appear to be down, Ron Hines indicates that the southwestern corn borer moth flight remains impressive. Ron reported on June 12 that he has been capturing approximately 90 moths per day in Massac County since the June 1 peak. Based on Ron’s trapping records, this year’s capture of southwestern corn borer moths for Massac County is approximately nine times greater than last year’s moth flight.

If you detect significant infestations of European corn borers in your scouting efforts, please let us know. We would be happy to report your findings.—
Mike Gray

Stalk Borer Injury Reported in Northern Illinois

Stan Eden, crop systems educator, Ogle County Extension Unit, reported on June 11 that he had received several calls concerning infestations of stalk borers. Visits to nearby fields confirmed that corn plants were being infested by this insect pest. The areas of fields most severely affected were

those that had been infested with giant ragweed last season. As we’ve indicated in previous issues of the *Bulletin*, giant ragweed serves as an excellent overwintering site for the eggs of stalk borers. Stan reported that many of the stalk borers are still very small, suggesting that migration from their weed hosts to corn is not yet complete. Producers are encouraged to consider the use of an insecticide in areas of fields that were heavily infested last season with grasses and other weeds, especially giant ragweed. Post-emergence sprays should be applied as larvae migrate from their weed hosts to corn. Products that are labeled for stalk borer control in corn include *Ambush, *Asana XL, *Capture 2EC, *Lorsban 4E, *Pounce 3.2EC, and *Warrior. Please read the insecticide labels for more specific application instructions. All products labeled for stalk borer control are restricted-use products and may be applied only by certified applicators.—*Mike Gray*

An Epitaph for Burrower Bugs

As we’ve reported in some previous issues of the *Bulletin*, burrower bugs have been observed in many cornfields and soybean fields, especially in southern Illinois. Mark Hoard, IPM educator, Mount Vernon Extension Center, and Ron Hines, senior research specialist, Dixon Springs Agricultural Center, have received numerous calls regarding large densities of burrower bugs in corn and soybeans. In some soybean fields, impressive numbers (10 to 15 per plant) of these bugs were “crawling all over” the foliage of soybean plants. These observations caused considerable alarm, especially in those fields where yellowing plants were not growing very well. As it turns out, many of the fields in which plants were showing signs of stress also were infested with grape colaspis.

The scientific name of burrower bugs is *Sehirus cinctus cinctus*. Most burrower bugs are observed as nymphs and adults below the soil surface.

Most of their existence is spent feeding on roots. Adults also are often found on the foliage of plants. Female burrower bugs are known to provide maternal care to their young. Female burrower bugs deposit their eggs into tiny holes in the soil. The females remain on top of their eggs until hatch occurs. The story gets more interesting. Female burrower bugs bring seeds to their offspring to consume for a short while. The species of burrower bugs reported most often this spring prefers mints to feed on. According to Ron Hines, many of the fields with the greatest infestations were heavily infested with weeds this spring, such as henbit, purple deadnettle, and horsenettle. These weeds are becoming increasingly common in southern Illinois no-till fields according to Ron Hines. It is quite likely that the increase in burrower bug densities may be directly linked to an increase in weed seed densities of these hosts.

Bottom line is that it is very unlikely that burrower bugs are creating any plant damage to corn and soybean plants. In fact, they are most likely doing producers a favor by feeding on weed seeds. This saga points out an excellent IPM principle: the proper identification of an insect, weed, or plant disease is crucial before implementing any potential management strategy.

We thank Dr. Jay E. McPherson, Southern Illinois University, for providing much of the life cycle information on burrower bugs.—*Mike Gray*

It’s Time to Consider Monitoring Western Corn Rootworm Adults in Soybean Fields

The monitoring program is in its sixth year, and data from this program have shown that the new strain of western corn rootworm is now present in 40 counties in Illinois. Extension entomologists continue to recommend the use of the monitoring program to predict root injury in rotated cornfields and track the spread of the new west-

ern corn rootworm strain. In 2000, we revised the thresholds used to predict larval root injury in first-year corn. The old threshold of 2 to 7 beetles per trap per day has been raised to 5 to 10 beetles per trap per day. Data indicate 5 beetles per trap per day may result in a 3.0 root injury rating, and 10 beetles per trap per day may result in a 4.0 root injury rating. The level of root injury that may result in economic loss varies according to growing season and hybrid selection. In general, economic injury occurs with root injury ratings between 3.0 and 4.0. However, for certain corn hybrids during poor growing conditions, recent research has shown that yield losses can occur with root ratings between 2.0 and 3.0. The scouting protocol and revised predictive threshold are described in our insect information sheet that is available from your local Extension office and also on the Web at <http://ipm.uiuc.edu/publications/infosheets/1-wcornr/wcornr.html>.

Based on monitoring data from 2000, Bureau, Christian, Henderson, Henry, Lee, Menard, Ogle, Peoria, Pike, Sangamon, Shelby, Stephenson, Warren, and Whiteside are considered low-risk counties. Counties in the moderate-risk area are Clark, Coles, DeKalb, Kane, Kendall, LaSalle, Logan, Macon, Marshall, Moultrie, Putnam, and Tazwell. The 14 counties considered in the high-risk area for western corn rootworm larval damage in first-year corn are Champaign, DeWitt, Douglas, Edgar, Ford, Grundy, Iroquois, Kankakee, Livingston, McLean, Piatt, Vermilion, Will, and Woodford. If you are in a moderate- or high-risk county, we recommend monitoring your soybean fields to predict root injury in first-year corn using the Pherocon AM sticky traps. To view the 2000 WCR monitoring data by county, township, and section number, visit our Web site at <http://ipm.uiuc.edu/publications/rootworm-2000/index.htm>.

If you are interested in determining presence or absence of western corn rootworms in your soybean fields, use

the 4-trap monitoring protocol. However, if you plant to use the data to determine if a soil insecticide is needed in first-year corn, we recommend the 12-trap method. Pherocon AM (unbaited) sticky traps are available from Great Lakes IPM, 10220 Church Street NE, Vestaburg, MI 48891, (517)268-5693 and Gempler's, 211 Blue Mounds Road, P.O. Box 270, Mt. Horeb, WI 53572, (800)332-6744.—*Susan Ratcliffe*

Striped Cucumber Beetles in Cornfields and Soybean Fields

We have received reports of striped cucumber beetles in cornfields and soybean fields. These beetles closely resemble western corn rootworm adults. Striped cucumber beetles do not cause damage to corn and soybean, so don't be alarmed by the presence of these beetles in your fields. Unmated striped cucumber beetles overwinter as adults, emerge from hibernation in early April in central Illinois, and become active when temperatures reach 55°F. However, they do not fly if temperatures are below 60°F. The unusually cool weather this spring may have delayed their appearance until now. Striped cucumber beetles are slightly smaller (1/5 inch long) than western corn rootworms (1/4 inch long). The underside of the striped cucumber beetle's abdomen is nearly black, and the underside of the western corn rootworm's abdomen is green to greenish yellow. Striped cucumber beetles have markings on their forewings very similar to western corn rootworms.—*Susan Ratcliffe*

PLANT DISEASES

Early-Season Foliar Diseases—Soybean

Many areas of the state have received a lot of rain over the past week. Blowing wind and rain help move pathogens from plant to plant. Wet, cool soil in flooded fields increases sporulation and movement of many soilborne

pathogens. Recent weather conditions will probably increase the likelihood of infection by foliar and soilborne pathogens in the coming weeks.

Septoria leaf spot: Robert Bellm reported that the lower leaves of 6-inch-tall beans in Shelby County are getting brown spots, turning yellow, and falling off. These symptoms should not be a reason to replant. They are probably caused by the fungus *Septoria glycines*, the causal organism of brown spot on soybeans. Symptoms of *Septoria leaf spot*, also known as brown spot, appear as dark brown spots that are irregular in shape on the upper and lower surfaces of the unifoliate leaves. However, the pathogen can move upward into the plant canopy during periods of warm, moist weather, like last summer, which favored sporulation of the fungus. Small, brown fruiting bodies of the fungus, called pycnidia, are visible in the dead tissue of old lesions. Typically, this disease does not cause economic damage, but under conditions of continuous cropping of soybeans, infection by this pathogen can be severe and cause premature defoliation. However, crop rotation practices reduce the severity of this organism, but brown spot may still be observed on plants in the field.

Most of the previous disease articles in the *Bulletin* this season have discussed root rots caused by soilborne pathogens such as *Pythium*, *Phytophthora*, *Rhizoctonia*, and *Fusarium*. Recent weather conditions have increased the potential for infection by these organisms, and reports are slowly coming in. Mike Roegge reported poor soybean stands in a field that had been dry until last week, when it received 3 to 5 inches of rain in an hour. Some herbicide injury is present, but the roots appear to have a discolored, dry, sunken lesion on the taproot that appears to look like that caused by *Rhizoctonia* or *Fusarium*. You will recall that root rots caused by *Pythium* or *Phytophthora* organisms are wetter in nature.

Cool, wet soils and early-planted (late April and early May) beans make ideal conditions for the development of another soilborne pathogen, *Fusarium solani* f.sp. *glycines*, the causal organism of sudden death syndrome (SDS). Walking my research plots last week, I observed early stages of SDS as chlorosis of interveinal tissue on seedling leaves. The soybeans in my plots were in areas intentionally inoculated with the SDS pathogen. Soybeans were in the VC to V2 stages of growth. This week I noticed more definite interveinal chlorosis and necrosis of leaf tissue consistent with SDS. Random plants in the control plots that are not inoculated have some symptoms of SDS caused by natural populations of the pathogen. This pathogen has been known to cause foliar symptoms on young seedling plants; however, they often disappear as plants develop and soils dry out and then reappear in mid- to late August as plants mature. Please let me know if you notice SDS symptoms on your seedling beans. It is too late to implement any control measures, but hopefully weather conditions will allow the roots to grow well and regenerate sufficient root mass to replace any that may be lost due to infection by this organism. Just how early-season infection will affect yield is yet to be seen.

When checking for symptoms of SDS, keep in mind that SDS occurs more frequently in fields under high production, in wet and compacted areas, and in fields with high populations of soybean cyst nematodes, *Heterodera glycines*. Research has shown that the soybean cyst nematode (SCN) is not required for infection by the SDS pathogen. The presence of SCN appears to increase plant stress when both organisms are present, which in turn can increase the severity of foliar symptoms compared to those caused by the SDS pathogen alone.—*Loretta Ortiz-Ribbing*

WEEDS

Floppy Corn, or “Rootless Corn Syndrome”

Over the last month there have been a number of reports of corn plants “flopping in the wind” due to lack of nodal root development. There have been many theories as to the cause of these “floppy” corn plants. One theory floating around the state is that early pre-plant or preemergence applications of 2,4-D or other plant growth regulator herbicides have caused the mesocotyl to rapidly elongate above the soil surface, therefore not allowing the nodal roots to form. Even though this may sound like a valid theory, more times than not floppy corn is generally not caused by herbicide applications. In fact, typical injury symptoms from plant growth regulator herbicides applied preemergence include twisting of the mesocotyl, leaf wrapping, and sometimes leafing out underground. What we have seen on corn plants sent to the Plant Clinic are symptoms consistent with what is known as “rootless corn syndrome.”

Rootless corn usually develops when the nodal roots initiate growth at or near the soil surface. Early this season, much of the corn crop was planted in dry, loose, fluffy soil. When the weather turned wet and cold, the rains compressed the soil, causing the nodal roots to form closer to the soil surface than normal. This, along with fluctuating environmental conditions that have occurred through most of the growing season, has caused the nodal roots to cease normal growth. If nodal roots fail to form, affected corn plants depend on the seminal roots and mesocotyl for nourishment, and the seminal roots become the primary anchor for the corn plant. Without the nodal roots, the corn plants do not have much of an “anchor” to help them stay upright. This is when we see floppy corn or corn that is easily blown over by the wind. Another cause of rootless corn is shallow-

planted corn, which places the crown close to the soil surface, causing nodal root development near the soil surface rather than the usual inch depth.

Even though it’s probably too late in the season to do much for plants in this situation, what can be done for next year? It’s always important to plant corn deep enough, and if rootless corn syndrome begins to develop, row cultivation may encourage root development when moist soil is thrown around the base of the plant.—*Christy Sprague and Aaron Hager*

Herbicide Considerations When Replanting

Excessive precipitation over the past two weeks has resulted in many new “ponds” appearing in fields where corn or soybean once grew. Replanting these areas will likely be done as soon as soil conditions allow. Previous herbicide applications should also be considered as replanting decisions are made. Nearly all corn and soybean herbicide labels list rotational intervals that should be followed to reduce the likelihood of rotational crop injury. The vast majority of corn herbicides (soil-applied or postemergence) allow corn to be replanted immediately following application. However, the NorthStar (14 days), Beacon (14 days), Spirit (4 weeks), Permit (1 month), and Celebrity Plus (1 week) labels list corn replanting intervals. Table 1 is reproduced from the 2001 *Illinois Agricultural Pest Management Handbook* and contains label information with respect to corn herbicide recropping restrictions.

Being the middle of June, it appears likely that some producers who plan to replant drowned areas of cornfields might be considering replanting these areas with soybean. *Planting soybean in cornfields previously treated (this season) with atrazine is not a recommended procedure, and most labels of herbicides containing atrazine actually restrict planting soybean in fields where atrazine has been applied.*

Table 1. Corn–sorghum herbicide recropping restrictions, months.

Herbicide ^a	Comments	Field corn	Sorghum	Wheat	Oats	Rye	Alfalfa	Clover	Soybeans
<i>Acetochlor and its premixes</i>									
Degree, Harness	acetochlor	AT	NY	4	2Y	2Y	2Y	2Y	NY
Degree Xtra, Harness Xtra 5.6L	w/atrazine	AT	NY	15	2Y	2Y	2Y	2Y	NY
DoublePlay	w/EPTC	AT	NY	4	2Y	2Y	2Y	2Y	NY
FulTime	w/atrazine	AT	NY	15	2Y	2Y	2Y	2Y	NY ^b
Surpass, TopNotch	acetochlor	AT	NY	4	2Y	2Y	2Y	2Y	NY
<i>Atrazine and its premixes; simazine</i>									
AAtrex, Atrazine	pH < 7.2	AT	AT	NY	2Y	NY	2Y	2Y	NY ^b
Bicep II Magnum	w/metolachlor	AT	AT ^c	NY	2Y	NY	2Y	2Y	NY ^b
Bicep Lite II Magnum	w/metolachlor	AT	AT ^c	NY	2Y	NY	2Y	2Y	NY ^b
Buctril + Atrazine	w/bromoxynil	AT	AT	NY	2Y	NY	2Y	2Y	NY
Bullet	w/alachlor	AT	AT ^c	NY	2Y	NY	2Y	2Y	NY ^b
Guardsman, LeadOff	w/dimethenamid	AT	AT ^c	NY	2Y	NY	2Y	2Y	NY ^b
Laddok S-12	w/bentazon	AT	AT	15	15	15	18	18	NY
Liberty ATZ	w/glufosinate	AT	AT	NY ^b	2Y	NY ^b	NY ^b	NY ^b	NY ^b
Marksman	w/dicamba	AT	AT	10	2Y	10	2Y	2Y	NY ^b
Princep, simazine	simazine	AT	NY	NY	2Y	NY	2Y	2Y	NY
ReadyMaster ATZ	w/glyphosate	AT	AT	NY	2Y	NY	2Y	2Y	NY ^b
<i>Flumetsulam and its premixes; clopyralid</i>									
Hornet WDG	w/clopyralid	AT	12	4	4	4	10.5	26 ^{Fba}	10.5 ^e
Python	flumetsulam	AT	12	4	4	4	4	26 ^{Fba}	AT
Stinger	clopyralid	AT	10.5	AT	AT	AT	10.5	18	10.5 ^e
<i>Isoxaflutole, flufenacet, and premixes</i>									
Balance PRO	isoxaflutole	AT	6	6	6	6	6	6	6
Epic	isoxaflutole + flufenacet	AT	12	12	12	12	12	12	6
Axiom	flufenacet + metribuzin	AT	12	12	12	12	12	12	AT
Axiom AT	flufenacet + metribuzin + atrazine	AT	NY	2Y	2Y	2Y	2Y	2Y	NY?
<i>Imazethapyr and its premixes</i>									
Lightning	w/imazapyr	8.5 ^f	18	4	18	4	9.5	40 ^{Fba}	9.0
Pursuit	imazethapyr	8.5 ^f	18	3	18	4	4	40 ^{Fba}	AT
Pursuit Plus	w/pendimethalin	8.5	18	4	18	9.5	9.5	40 ^{Fba}	AT
<i>Sulfonylureas and their premixes</i>									
Accent	nicosulfuron	AT	10 ^d	4	8	4	10	10	0.5
Accent Gold	nicosulfuron + rimsulfuron + Hornet	AT	12	4	8	4	10.5	26 ^{Fba}	10.5 ^e
Basis	thifensulfuron + rimsulfuron	AT	10	4	8	18	10	18	0.5
Basis Gold	nicosulfuron + rimsulfuron + atrazine	AT	10	10	18	10	18	18	10 ^b
Beacon	primisulfuron	0.5	8	3	8	3	8	18	8
Celebrity Plus	dicamba + nicosulfuron + diflufenzopyr	0.25	10 ^d	4	8	4	12	12	4
NorthStar	primisulfuron + dicamba	0.5	8	3	8	3	8	18	8
Permit	halosulfuron	1	2	2	2	2	9	9	9
Spirit	primisulfuron + prosulfuron	1	10	3	3	3	18 ^g	18 ^g	10–18 ^h

Table 1. Corn–sorghum herbicide recropping restrictions, months (cont.).

^{Fba} = field bioassay needed (see label); NY = next year; 2Y = second year; AT = anytime; NY? = Injury may occur if planted next spring.

^aOther corn herbicides have no significant recropping restrictions, but Banvel, Clarity, Eradicane, and 2,4-D have replanting limits for soybeans.

^b2Y (second year) if applied after June 10 with high atrazine or Liberty ATZ and after July 1 with Basis Gold.

^cConcep or Screen seed protectant needed.

^d18 months if pH \geq 7.5.

^e18 months if <15 inches of rainfall received *and* if soil has <2% organic matter.

^fClearfield (CL, formerly IT/IR) designated corn hybrids may be replanted anytime.

^gExceed or Spirit: pH <7.8; applied before July 1; rainfall >12 inches within 5 months and >1 inch within 4 weeks of application.

^hI-70 to I-80: Spirit 10 months, Exceed 18 months or 10 months if STS soybeans. Above I-80: Exceed or Spirit 18 months.

From a practical standpoint, it's highly likely that some planting of soybean into atrazine-treated fields will occur. If this happens, it's a gamble! Like most activities of chance, there are odds of success and odds of failure. What can you do to increase the odds of success?

Anything that can be done to dilute the atrazine in the soil could prove beneficial. The easiest way to achieve this is through tillage. Tillage can help to reduce areas of high atrazine concentration in the soil so the soybeans may not be exposed to zones of high concentration all at once. Is this strategy practical given the currently wet conditions? If field conditions are suitable to plant, a tillage pass prior to planting may also be feasible.

Certain soybean varieties are more sensitive than others to the herbicide metribuzin (Sencor). It may also be beneficial to avoid planting metribuzin-sensitive soybean varieties into fields previously treated with atrazine. Contact your soybean seed representative to determine if the soybean variety you intend to plant is overly sensitive to metribuzin.

Along a similar line, producers may want to consider avoiding soybean herbicides containing metribuzin when planting soybeans into fields previously treated with atrazine. Metribuzin belongs to the same chemical family as atrazine, and the added effect of two triazine herbicides may be more than the soybeans can handle. Soybean herbicides containing metribuzin include Sencor, Canopy, Axiom, Boundary, and Domain.

Soybean seed size may also influence tolerance to atrazine. Early research suggested that planting large soybean seeds may be more beneficial than planting smaller seeds in fields treated with atrazine. The larger seed contains more stored food reserves for the seedling to survive on longer before relying on photosynthesis for its food supply.

Finally, producers may want to consider increasing the planting rate

slightly to compensate for plants that may be lost due to the atrazine. The later into the growing season the soybean planting occurs, the higher the planting rate adjustment producers may want to consider making to capture as much sunlight as possible.

There are many factors to consider when making replanting decisions. Planting soybeans in fields previously treated with atrazine is very risky, as soybeans are sensitive to atrazine. Many factors contribute to the availability of atrazine in the soil for plant uptake. Those factors that reduce the availability of atrazine can be beneficial for soybean survival. However, other factors favor enhanced atrazine availability for plant uptake. At this point in time, it's not possible to predict which factors will predominate.—
Aaron Hager and Christy Sprague

Preharvest Herbicides for Wheat

Few herbicides are cleared for preharvest applications in wheat. Clarity, glyphosate, and some formulations of 2,4-D are labeled for preharvest applications in wheat, but if you intend to plant soybeans after using one of these herbicides as a preharvest treatment, be sure to follow herbicide label precautions. Preharvest treatments in maturing wheat fields often require aerial application, and drift of any of these products out of the target area can seriously injure susceptible plants (crops, ornamentals, gardens, etc.).

Some 2,4-D labels allow preharvest treatment in wheat after the wheat is in the hard dough stage. Few label specifications are given regarding using treated wheat for seed, but it's probably wise to conduct a germination test prior to planting the seed from fields where 2,4-D was used as a preharvest treatment. Ester formulations are generally more active on weeds than amines, but esters can volatilize more easily than amines, especially when temperatures are more than 85°F. Use of amine formulations increases the preplant interval for

soybeans. The soybean planting interval after 2,4-D application is 7 days for 1 pint of ester, 14 days for 1 pint of amine, and 30 days for 2 pints of amine or ester formulations.

Several formulations of *glyphosate* can be used after the hard dough stage (30% moisture or less) and at least 7 days prior to harvest. Application rates depend on the formulation used. Do not apply to wheat grown for seed, as a reduction in germination or vigor may occur. There is no preplant delay before planting soybeans if glyphosate is used as a preharvest treatment in wheat.

Clarity (dicamba) can be used as a preharvest treatment at 8 fluid ounces per acre when wheat is in the hard dough stage and the green color is gone from the nodes (joints) of the stem. Apply at least 7 days prior to harvest. Do not use preharvest-treated wheat for seed unless a germination test is performed on the seed with an acceptable result of 95% germination or better. Clarity may be tank-mixed with 2,4-D or certain glyphosate formulations. Following a Clarity application up to 8 fluid ounces, a minimum accumulation of 1 inch of precipitation and a waiting interval of 14 days must occur prior to planting soybean.—*Aaron Hager and Christy Sprague*

CROP DEVELOPMENT

Crops Respond to Warmer Weather

In 2000, it was August before most areas of Illinois first experienced temperatures of 90°F. That will not repeat in 2001; we have already had several days in the 90s, including 3 or 4 such days just this week. As we had earlier suggested would happen, the corn crop has responded well to these warm temperatures and the sunshine that has accompanied them. Leaf color has improved greatly, and with a few exceptions, much of the corn has entered the rapid-growth stage, with increases in height of several inches per day in many fields. Corn under

such conditions goes from knee high to waist high to head high in a matter of 10 days or so.

The return of warmer weather has most people forgetting about the worries of just a week ago, when the weather was cool and wet and crop color was not very good. As the crop is now showing, we probably did not lose much yield potential to the May weather, even though it often seemed more like March than May. To many people's surprise, May growing degree-day (GDD) accumulations were actually above normal during May, primarily because we had some very warm days with GDD accumulations above 20 and the cool days did not have GDD accumulations low enough to cancel out the warm days.

We have had some reports of "rootless" corn, usually in no-till with certain herbicides applied. With rain to moisten and soften the surface soil, some of these plants will be able to establish their nodal root system and may recover well. There is little we can do to encourage this, though some people have tried to cultivate to provide soil around the base of the plant. In general, plants that have reached the 6-collar stage without a nodal root system probably will not catch up fully with their neighbors and so will have lower yield.

Soybean plants in most fields are still rather pale in color, as the nodules start to form. Within a week or so, or by the time plants have three or four trifoliolates expanded, color should return to normal. Stands of soybeans are lower than desired in fields where it has been excessively wet, but most fields probably have enough plants to justify keeping. Plant numbers of three or more per square foot probably do not need to be replanted if the plants are healthy, but many fields with this population in some areas will probably have areas with even fewer plants, and so some "repair planting" may be needed.

Wheat is ripening rapidly, and harvest is under way in the southern end of the

state. Leaf health remained reasonably good in most fields up through maturity, so test weights and yields should be good, except in fields where armyworm defoliated plants earlier. Even in such fields, yields might be better than expected due to the favorable conditions after flowering.—*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.

East-Central Illinois

Warmer temperatures and sunshine are causing the lime-green patches in soybean fields to become a more normal dark green. Rainfall has delayed

some postemergence herbicide applications, and grasses are heavy in many fields. Early evidence of SDS and rhizoctonia/fusarium has been diagnosed.

Southern counties have reported large numbers of moths that have tentatively been identified as armyworm moths. All the yellow flowered weeds seem to be blooming at once; wild parsnip and yellow sweetclover are two of the most common.

The high temperatures of the last few days seem to have caused the wheat to turn almost overnight. Many farmers have taken advantage of the weather to get their hay cut and put up.

Northern Illinois

Crop growth and development have accelerated with the warmer temperatures. Soybean planting continues in some areas due to the wet field conditions this last month. Reports of damping off in soybeans have increased this week, and some fields have been replanted. Additionally, other soybean fields are having difficulty emerging due to soil crusting.

First cutting of hay has yet to be completed. Numerous fields have been cut, received rain, and have yet to be baled.

Reports of armyworm infestations have slowed this week.

Southern Illinois

Summertime temperatures have arrived in southern Illinois. Topsoil moisture now permits planting and other fieldwork to resume. The U.S. Drought Monitor continues to show most of southeastern Illinois as abnormally dry.

Limited wheat harvest has begun. There is some concern about the availability of barges, with the Mississippi at flood stage. Early corn is rapidly growing. Later fields may have corn at multiple stages of growth. Many soybean fields are receiving postemergent herbicide spray applications.

True armyworm flight continues but may have peaked in the southernmost counties. Southwestern corn borer flight continues to be quite high in the deep south and increasing in Franklin County.

West-Central Illinois

Warm and dry weather has returned to the region. Soybean planting will be completed, and as some fields dry, farmers will evaluate soybean stands and decide whether replanting or patching is necessary. As a result of the recent wet weather, seedling diseases will probably be noticeable in some soybean fields.

The drier weather will also allow farmers to finish sidedressing corn. Yellow corn has appeared in the wet, poorly drained areas of some fields.

Postemergent herbicides are needed in many cornfields and soybean fields. Some cultivation will be done also.

Wheat is turning rapidly, with an early harvest anticipated. Symptoms of wheat scab were observed in one field.

First-harvest alfalfa is complete, while some producers will be taking second cuttings very soon.

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