Purdue Cooperative Extension Service

August 29, 2008 - Issue 21

In This Issue

Insects, Mites, And Nematodes

Soybean Aphid Attacking Late-Maturing Fields in Northern Indiana, Spider Mites Complicating Control Decisions - *(John Obermeyer, and Larry Bledsoe)*

- Scout soybean fields in northern counties now!
- Numbers of both aphids and mites vary considerably from field to field.
- Hot temperatures won't kill aphids, drought is driving mites.
- Treatment threshold and application guidelines given below.

Recent phone calls from pest managers in northern counties of Indiana, especially where very dry, indicate that some soybean fields still in R4/R5 growth stages are "dripping" with aphids. To boot, in some of these fields, spider mites populations are building. Because of the tremendous variability in aphid and mite numbers from field to field, diligent scouting NOW can pay big dividends. The following is a quick scouting review. Remember, if your beans are at the R6 growth stage, there is little benefit to treating aphid or mite populations unless the field is under drought stress.

Sampling: Count aphids, primarily on the undersides of leaves, on at least 20 plants in various areas of the field. When aphids are just beginning to colonize soybean plants, they will be concentrated on the most active growing points – the newest unrolled leaves and the developing pods. Shortcuts: if aphids are observed on the petioles and stems, that plant is over 250 aphids. If honeydew and sooty-mold are obvious as you walk the field, the threshold has been exceeded.

Aphid Number: Should you find an average of 250 or more aphids/plant during the pod and seed development stages (R1-R4), a treatment is justified. Threshold of ≥250

Soybean aphid and spider mites, not a good combination

aphids/plant includes a week to get field sprayed. During the seed-fill stages (R5-R6), treatment is not as clear-cut. If aphid numbers are increasing and plants are under stress, however, a treatment is justified, see accompanying threshold graphic. Do NOT treat soybean beyond the R6 stage of growth, the plant is already beginning to senesce and any aphids that are there will not impact yield.

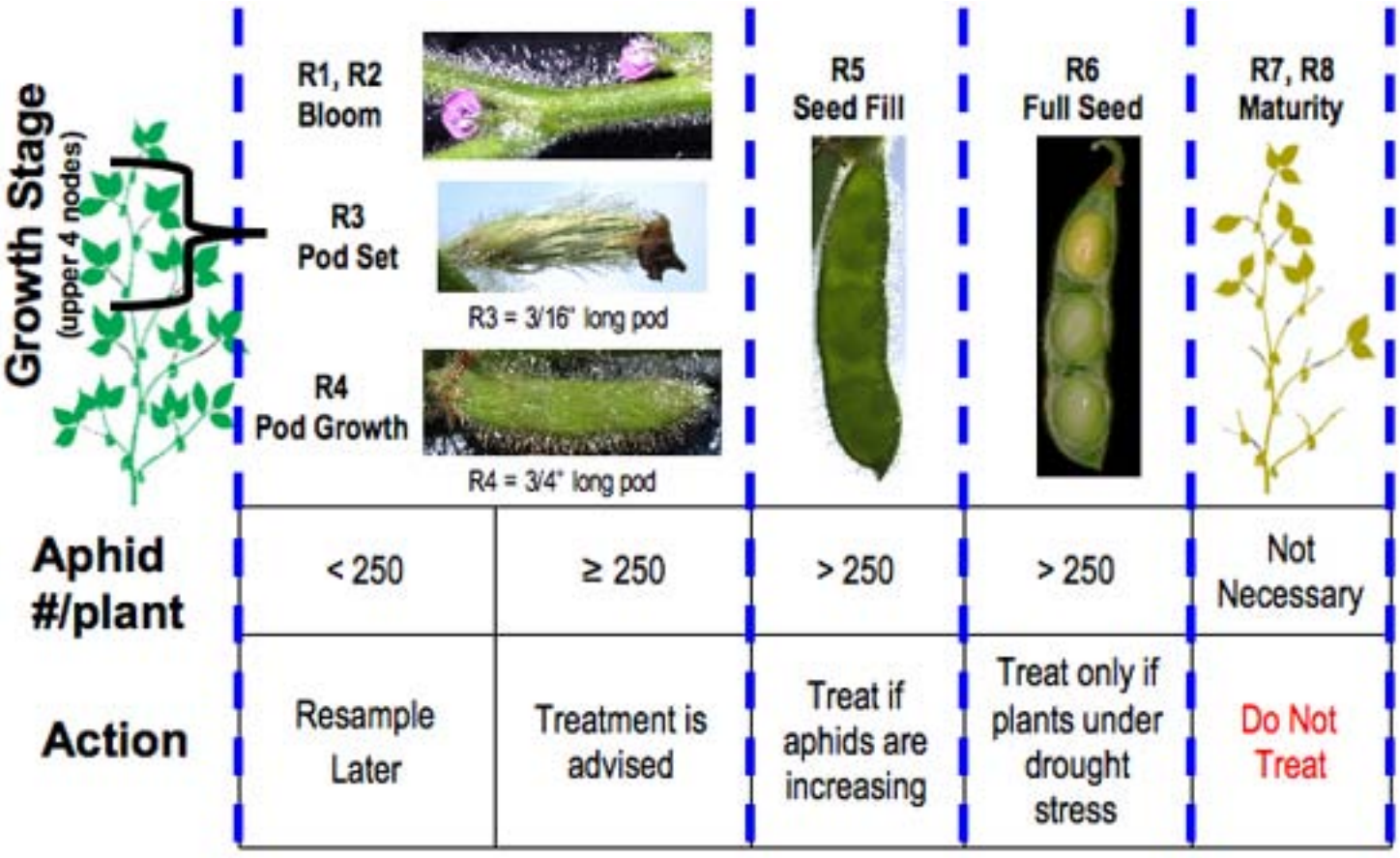
Spider Mites: Exact thresholds are not developed because of the complex-interacting factors between crop, environment, and the mites. Basically, if extensive leaf discoloration is apparent, spider mites are positively identified in the field, and hot, dry conditions are expected to persist, then controls are recommended.

Weather: High temperatures (90's) are less than optimal for soybean aphid growth and reproduction, but don't stop them. Rainfall, including some hard downpours, has had some negative effect on aphid populations, but does not wipe them out. Spider mites only thrive under dry conditions, because moisture stressed plants actually provide a more nutritious feast than do healthy ones and dry conditions reduce naturally occurring pathogenic fungi that kill mites. Complicated, isn't it!

Predators: Most pest managers calling to report aphid numbers are reporting fewer "good guys" than normal. Seems as though this sudden surge of aphid and mite activity has overwhelmed the slower-developing beneficial insects.

Treatment: Should control for aphids and/or mites be necessary, complete coverage on the foliage seems to be the key. Ground driven rigs applying at least 20 gallons per acre with 40 PSI at fine to medium droplet size will help penetrate the canopy. Aerial application success is dependent on finished spray volume (we recommend 5 gallon/acre) and air movement into the canopy. If spider mites are significant within fields with soybean aphid, then organophosphate products, i.e., chlopyrifos should be considered alone or in a tank mix.

Products labeled for soybean aphid and spider mite control can be viewed at <http://extension.entm.purdue.edu/publications/E-77.pdf>.



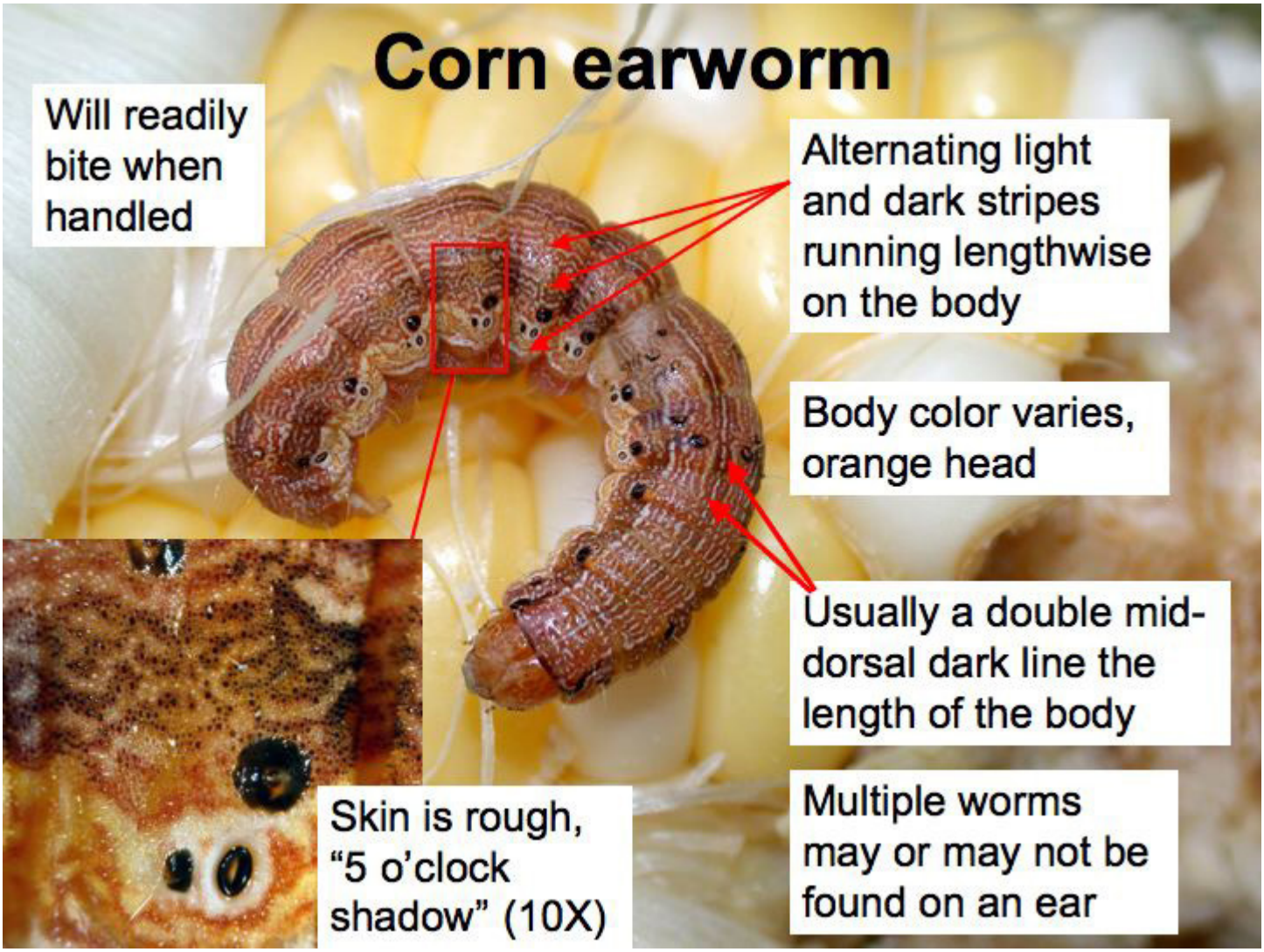
Soybean aphid threshold treatment guide

Western Bean Cutworm Sightings Continue in Northern Indiana – (*John Obermeyer*)

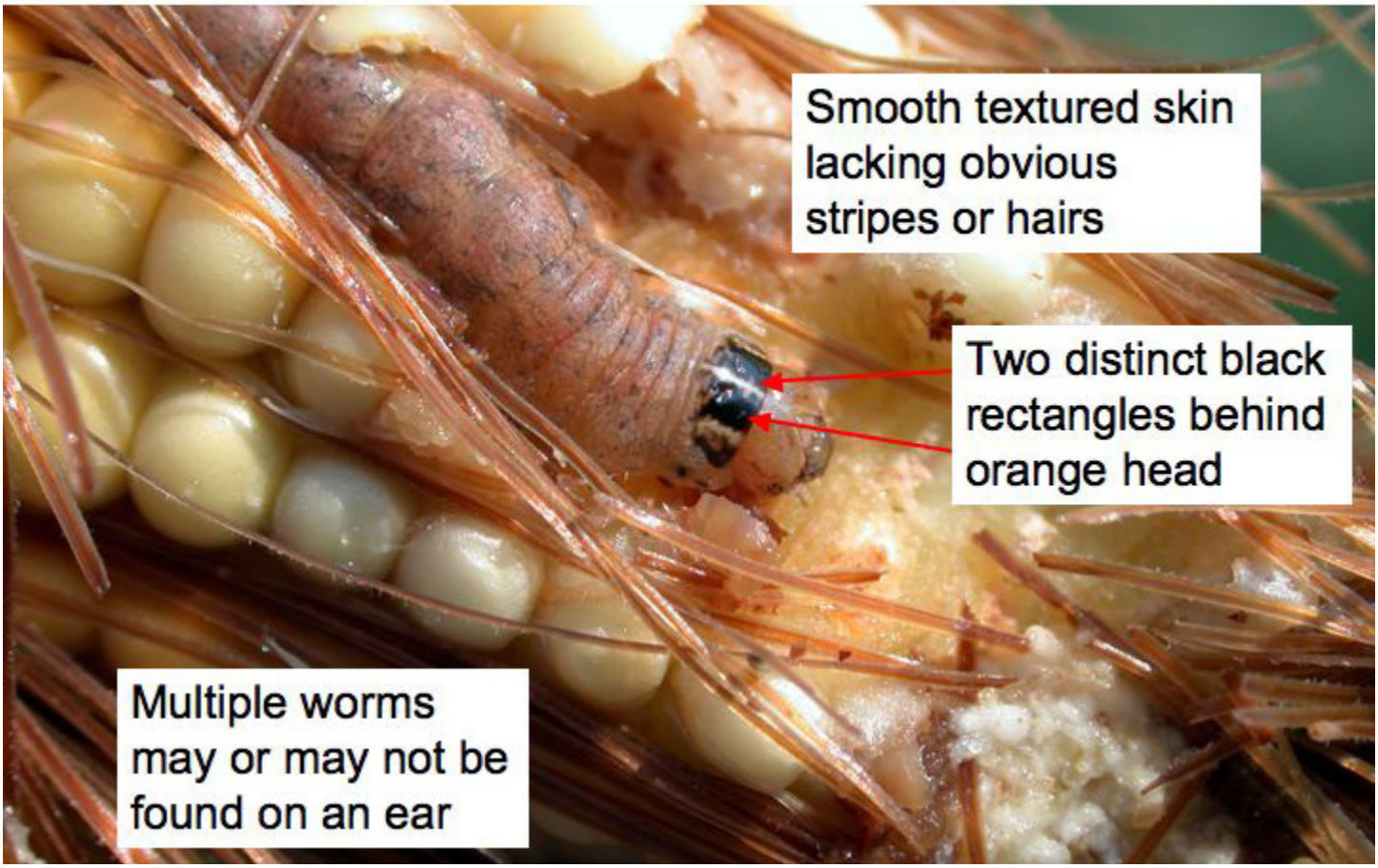
Thanks to those that have called/e-mailed to give updates on western bean cutworm observations and extent of field damage. Certainly it seems as though there is a high correlation of infestations with sandier soils in northern Indiana counties. Thanks to Steve Barry, North Central Co-op, for calling about an infestation in Marshall County. Though the field was primarily infested with corn earworm, western bean cutworm larvae were positively identified, adding another county known to be infested. This year, so far, Pulaski County has had the most reports. Again, areas of infestation tend to have lighter texture soils and higher concentrations of non-Bt trait corn, such as popcorn. Please continue to keep us informed, thanks!

Tips for "Worm in the Ear" Identification – (*John Obermeyer and Larry Bledsoe*)

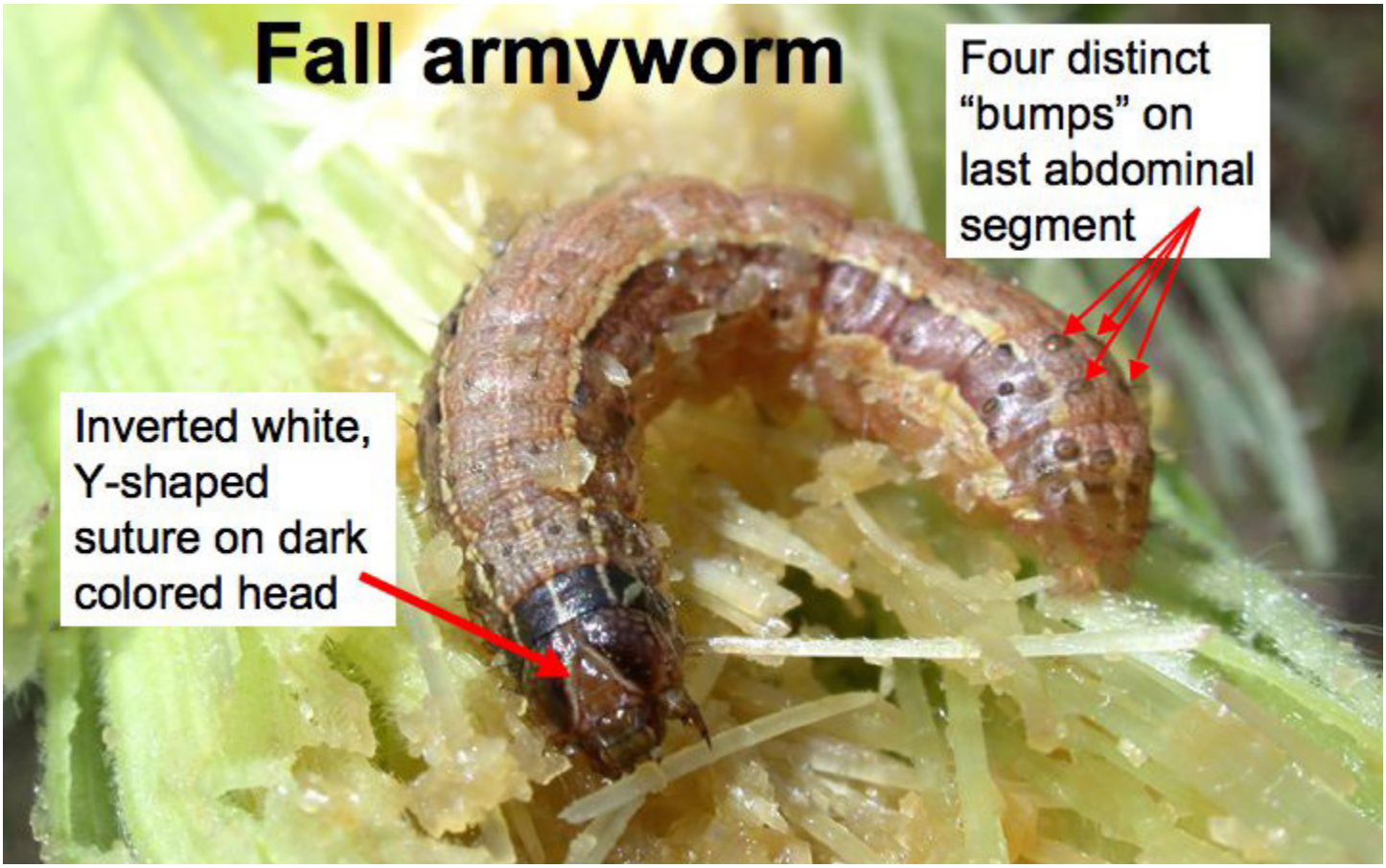
Several caterpillars in the ear can be very similar in appearance and habits, so identification to species of some of the worms in ears can be tricky. Some identification tips, though not foolproof, appear below for the corn earworm, western bean cutworm, and fall armyworm. We suggest you inspect cornfields soon before the larvae leave the ear and pupate. Note that, in general, you cannot use overall body color or damage for identification.



Western bean cutworm



Fall armyworm



Black Light Trap Catch Report - (*John Obermeyer*)

County/Cooperator	8/11/2008 - 8/18/2008							8/18/2008 - 8/25/2008						
	VC	BCW	ECB	SWCB	CEW	FAW	AW	VC	BCW	ECB	SWCB	CEW	FAW	AW
Dubois/SIPAC Ag Center	0	0	3	0	0	0	0	0	0	2	0	0	1	0
Jennings/SEPAC Ag Center	0	0	3	0	0	0	0							
Knox/SWPAC Ag Center	0	2	1	2	0	0	0	0	0	3	2	0	4	0
LaPorte/Pinney Ag Center	0	0	21	0	0	0	0	0	0	14	0	0	0	0
Lawrence/Feldun Ag Center	0	8	0	0	0	0	0	0	2	0	0	0	2	0
Randolph/Davis Ag Center	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Tippecanoe/TPAC Ag Center	0	1	21	0	0	0	0	0	0	0	0	0	0	0
Whitley/NEPAC Ag Center														

VC = Variegated Cutworm, BCW = Black Cutworm, ECB = European Corn Borer, SWCB = Southwestern Corn Borer, CEW = Corn Earworm, FAW = Fall Armyworm, AW = Armyworm

Plant Diseases

White Mold of Soybean - (*Kiersten Wise*)

Due to the cool, wet weather conditions we had in northern Indiana right before and during soybean flowering, it is no surprise that we are seeing more white mold on soybean this year. The disease, caused by the fungus *Sclerotinia sclerotiorum*, is not common every year, but conditions have been favorable this summer for white mold infection.

White mold is usually first noticed when infected soybean plants begin to wilt. Yellow to brown leaves that remain on the stem are also commonly observed in white mold infections. The foliar symptoms can be confused with other diseases like brown stem rot, SDS, or Phytophthora root rot. It is helpful to get a closer look at the stems of the plant if these symptoms are observed in a field. If the affected plant is examined closely, lower stems will have a white, bleached appearance and white fuzzy growth, or mycelium, may be noticeable on the stem surface (Figure 1). If the stem is split open at this bleached area, hard, black fungal structures called sclerotia will be present in the stem. These sclerotia can also be visible on the stem surface.

The amount of yield loss due to the disease depends on the level of infection in a field as well as timing of infection. Plants that are infected earlier in the season may be deprived of water and nutrients due to infection, and may not produce seed. Soybeans that are at maturity at the time of infection will often still produce normal seed and severe yield loss may not be observed, depending on the amount of plants infected within the field.

The sclerotia are able to survive in crop residue and can also survive for several years in the soil. In the spring, sclerotia near the soil surface will germinate and produce mycelia or a fruiting body called an apothecia above the soil surface. The apothecia produces spores that are wind and splash dispersed onto surrounding plants in the field. These spores need a food source to establish infection in the plant, and they typically germinate and colonize the senescing

Figure 1. White bycelial growth on soybean stem infected with white mold (*Photo credit: Greg Shaner*)

flowers of the soybean plant. Because of this, symptoms are often observed on soybean stems near nodes of the plant.

White mold infections are favored by cool, cloudy, wet, and humid weather at flowering. The disease is more problematic in soybeans with thick stands, narrow row spacing, and an early-closing canopy. To manage the disease, a combination of tactics must be used to prevent white mold infection and spread.

If white mold is present in fields this year, consider harvesting those fields last. This will help prevent spread of sclerotia into new fields. Another option to avoid introduction of the disease into new areas would be to clean the combine between fields when harvesting areas with white mold present.

Other management tactics include:

1. Use partially-resistant varieties in areas where white mold is problematic, and always plant clean seed that is free of sclerotia.

2. Planting soybeans early in the spring has been shown to increase white mold severity in fields with a history of the disease (2). Early plantings of soybean can cause flowering and canopy closure to occur at the same time as spore dispersal of the fungus. This leads to increased disease pressure in the field. If possible, wait to plant soybean in fields that have had white mold in past years.

3. Consider using long rotations in field with white mold to reduce the amount of sclerotia present in the soil. A one-year rotation away from soybean is not enough to impact the long-lived sclerotia population in the soil. Three to four year rotations with small grains and corn included in the rotation give the best results for white mold control.

4. *Sclerotinia* is also able to infect many different hosts, such as alfalfa and other legumes, and weeds like lambsquarters, ragweed, and velvetleaf. Good weed control is important in areas with white mold to prevent build up of the disease in fields due to weedy hosts.

5. Row spacing and planting populations are also important to consider in white mold control. Wider rows do promote more air movement in the canopy, but 30-inch rows often do not yield as well as plants in 15-inch row spacings. Lowering the planting population to less than 150,000 plants per acre in fields with a history of white mold is recommended instead of increasing row spacing (1).

6. There are fungicides available for use on white mold, however penetration of the fungicide into the canopy can be an issue depending on the timing of fungicide application. Fungicides may be most useful on fields where susceptible varieties are planted in a field with a history of white mold impacting yield. Currently, only two fungicide modes of action are labeled for use on white mold. The strobilurin or QoI fungicide group is NOT currently labeled for use on white mold. If considering a fungicide application for white mold, read fungicide labels carefully to determine what product to use.

Check out these sites for more information on white mold:

1. Purdue Extension Bulletin BP-43-W. Diseases of Soybean: White Mold <http://www.ces.purdue.edu/extmedia/BP/BP-43-W.pdf>

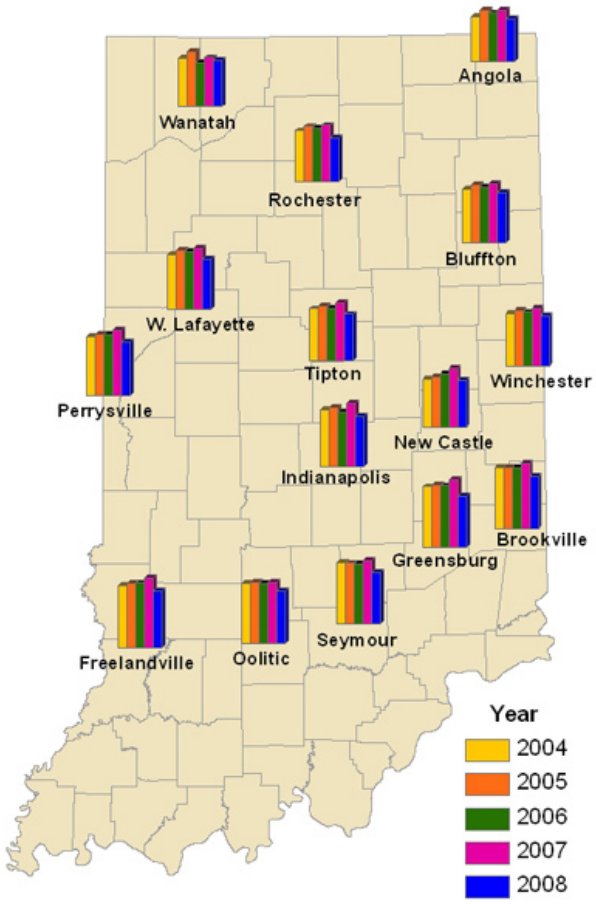
2. University of Wisconsin's Soybean Plant Health Site: <http://www.plantpath.wisc.edu/soyhealth/cause.htm>

Bug Scout

You're supposed to collect the insects - not beat them to death!

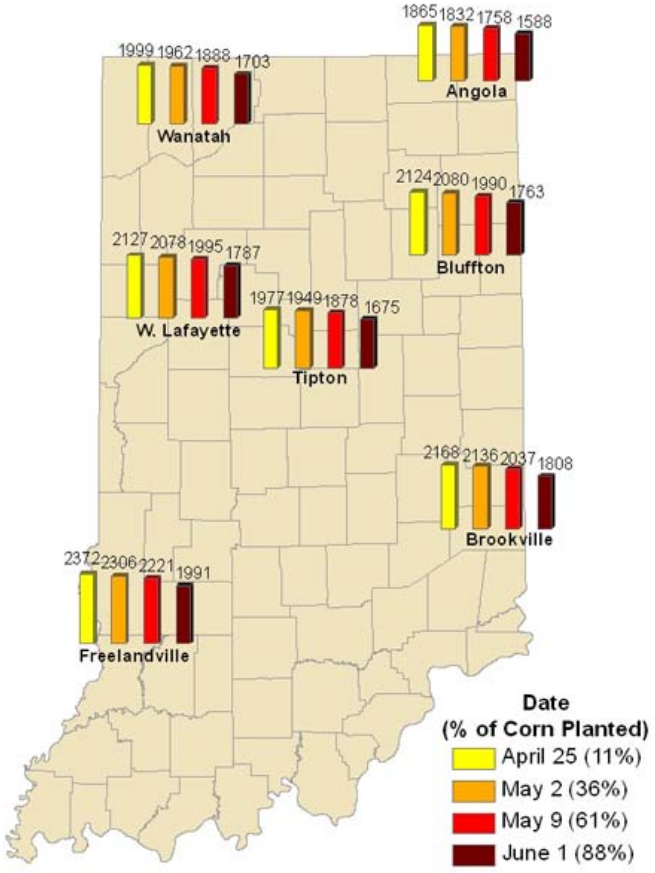
Weather Update

Accumulated Growing Degree Days (86/50) Since January 1



Data Provided by Indiana State Climate Office
Web: http://www.iclimate.org

Accumulated Growing Degree Days (86/50) by % of Corn Planted



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