

#### -Purdue Cooperative Extension Service

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### Insects, Mites, and Nematodes\_\_\_\_\_

Western Bean Cutworm Moths: Slow Beginning – (Christian Krupke and John Obermeyer)

- Moth catches are well behind 2010 levels.
- Degree-day accumulations well behind as well.
- · Peak moth catch predicted to occur in mid-July.

As noted in last weeks *Pest&Crop*, the pheromone trapping program for western bean cutworm is underway. After last seasons high numbers of moths and damage (mostly in northern counties), combined with a snowy winter (favorable conditions for overwintering larva) we have been warning of the possibility of even higher numbers in 2011. So far, that has not happened. Does that mean that WBC pressure will be lower this year? Too soon to say.

Our trap catch numbers this year, are well off the pace of 2010, see the following WBC pheromone trap report. As of this time last year, total WBC catches were well over 1,000, compared to this year's couple dozen. A good deal of this is certainly due to the atypically warm spring weather we had last year –in fact, June of 2010 (the month when most of the development of WBC pupae happens) was the warmest in 39 years, and the 11<sup>th</sup> warmest June since 1895, according to the Indiana State Climate Office. This followed a warm May in 2010 as well. May of this year was "average" for In-

diana, and although the story for June 2011 is not yet complete, it will certainly be cooler than last year. This all adds up to delayed insect development and later pressure. Coincidentally, our corn planting is well behind the 2010 pace as well. It will be interesting to see whether the WBC moths are synchronized with the desirable stage of corn for egg-laying (pre-tassel), as they were in 2010.

It's also interesting to note that in other states where WBC has moved in over the past decade (Iowa, Illinois), there has been a pattern of increasing damage and trap catches for a few years, followed by a decline and levelingoff. This is probably due to a combination of natural enemies and pathogens regulating the WBC population and pest managers more aggressively treating infestations. We would expect the same pattern in Indiana at some point, but it's impossible to say whether this is the year that we begin the decline. However, with so much awareness of the pest and so many tools to manage it effectively, we would not expect the trend of increasing damage to continue for very long.



http://extension.entm.purdue.edu/pestcrop/index.html

	Black Light Trap Catch Report - (John Obermeyer)														
	6/14/11 - 6/20/11							6/21/11 - 6/27/11							
County/Cooperator	VC	BCW	ECB	SWCB	CEW	FAW	AW	VC	BCW	ECB	WBC	CEW	FAW	AW	
Dubois/SIPAC Ag Center	0	3	0	0	0	0	0	0	0	0	0	0	0	6	
Jennings/SEPAC Ag Center	0	0	0	0	0	0	3	0	2	0	0	0	0	7	
Knox/SWPAC Ag Center	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
LaPorte/Pinney Ag Center	0	1	0	0	0	0	6	0	0	0	0	0	0	12	
Lawrence/Feldun Ag Center	0	0	0	0	0	0	10	0	1	0	0	0	0	33	
Randolph/Davis Ag Center	0	0	0	0	0	0	1	0	2	0	0	0	0	0	
Tippecanoe/TPAC Ag Center	0	0	3	0	0	0	15	0	164	0	0	0	0	117	
Whitley/NEPAC Ag Center	0	0	0	0	0	0	8	0	5	0	0	0	0	15	
VC = Variegated Cutworm, BCW = Black Cutworm, ECB = European Corn Borer, SWCB = Southwestern Corn Borer, WBC = Western Bean Cutworm, CEW = Corn Earworm, FAW = Fall Armyworm, AW = Armyworm											=				

## Plant Diseases

#### Bacterial Blight in Soybean – (Kiersten Wise)

Soybean fields damaged by heavy rain, winds, and hail are showing symptoms of bacterial blight of soybean. Leaves infected by *Pseudomonas* sp. are yellow or orange water-soaked angular lesions present. As lesions age, they turn dark brown and fall out of the leaf tissue, giving leaves a tattered appearance (Figure 1).

Bacteria survive on soybean residue and in seed, and enter plants through stomates and wound caused by equipment or other mechanical damage, or from weather events such as hard rains and hail. Long periods of leaf wetness and cool weather favor infection. Hot, dry weather will limit disease development.

Varieties will vary in their resistance, however resistance ratings may not be widely available. Yield loss may occur if disease is severe and plants defoliate. However, most fields in northwest Indiana exhibiting symptoms of bacterial blight are only moderately affected by the disease. In-season control methods, such as copper fungicides, must be applied when symptoms first appear, and are generally not practical for managing the disease. Preventative management options include crop rotation, tillage, and planting resistant varieties. These methods can lower the risk of bacterial blight developing in the subsequent soybean crop.



Figure 1. Symptoms of bacterial blight on soybean

County       Cooperator       WBC Trapped         Adams       Roe/Mercer Landmark - Pleasant Mills       0       0	e <b>k 2</b>
County   Cooperator   Week 1   Week     Adams   Roe/Mercer Landmark - Pleasant Mills   0   0	e <b>k 2</b>
Adams Roe/Mercer Landmark - Pleasant Mills 0	)
	<u>ר</u>
Allen Anderson/Syngenta Seeds 0 0	J
Allen Gynn/Southwind Farms - Ft. Wayne 0 (	)
Benton Babcock/Ceres Solutions - Boswell 0	C
Boone Dennis Carrell - Leganon (	)
Clay Bower/Ceres Solutions - Clay City 0	C
Clay Bower/Ceres Solutions - Brazil 0	C
Clinton Rick Foster/Purdue Entomology - Rossville 0	C
DeKalb Hoffman/ATA Solutions 0	C
Dubois Eck/Purdue CES - Jasper 0 (	C
Fayette       Schelle/Falmouth Farm Supply       0       0	C
Fountain Mroczkiewicz/Syngenta - Rob Roy (	C
Fulton Jenkins/North Central Coop - Kewanna 1	7
Fulton       Jenkins/North Central Coop - Rochester       5       2	2
Hamilton Beamer/Beck's Hybrids - Atlanta 0 2	2
Hamilton Beamer/Beck's Hybrids - Sheridan 0 0	)
Hendricks Andy Nicholson/Nicholson Consulting	C
Henry Schelle/Falmouth Farm Supply 0	)
Jay Shrack/RanDel AgriServices - Dunkirk 0 (	)
Jennings Bauerle/SEPAC - North Vernon 0 0	C
Knox Bower - Ceres Solutions - Frichton 0	)
Knox Bower - Ceres Solutions - Oaktown 0	C
Knox Bower - Ceres Solutions - Vincennes 0	C
Knox Hoke/SWPAC 0 0	C
Lake Kleine/Kleine Farms - Cedar Lake 0	1
Lake Moyer- Shelby 0	3
Lake Moyer- Schneider 0	)
LaPorte Barry/Kingsbury Elevator (	C
LaPorte Rocke/Agri Mgmt Solutions - House 0 (	C
LaPorte Rocke/Agri Mgmt Solutions - LaCrosse 0	1
Montgomery Steine/Nicholson Consulting 0	1
Newton Moyer - Lake Village 0	)
Newton Ritter/Purdue CES - Morocco 0 0	)
Porter Leuck/PPAC - Wanatah N 0 0	)
Pulaski Rocke/Agri Mgmt Solutions - Francesville 0 (	)
Pulaski Rocke/Agri Mgmt Solutions - Medaryville 1	5
Putnam Nicholson/Nicholson Consulting - Greencastle 0 (	)
Randolph Boyer/DPAC - Farmland 0 (	)
Rush Schelle/Falmouth Farm Supply 0	)
Starke Wickart/Wickert Agron Svc N. Judson 0 0	)
Sullivan Bower/Ceres Solutions - Sullivan 0 0	)
Tippecanoe Bower/Ceres Solutions - West Point 1	3
Tippecanoe Nagel/Ceres Solutions - Otterbein 0	1
Tippecanoe Obermeyer/Purdue Entomology - Agron Farm 0 (	)
Tippecanoe Westerfeld/Monsanto 0	)
Whitley Walker/NEPAC - Columbia City 0	1

# Agronomy Tips

**Cover Crops for Prevented Planting Acres** – (*Eileen Kladivko, Agronomy Dept., and Barry Fisher, Indiana NRCS*)

Excessive rainfall and prolonged ponding conditions this spring have resulted in many fields remaining unplanted to corn or soybeans this season. These "prevented planting" acres, while unfortunate for this year's production, should be managed in ways to prevent further soil degradation and to increase soil productivity for next year. Cover crops are an excellent option for producers to consider for protecting their soil and increasing productive capacity for succeeding years. This article briefly describes the benefits of growing cover crops compared to leaving the soil bare and fallow, and then it provides guidance on selecting and seeding cover crops for prevented planting acres.

Producers are advised to check with FSA and their crop insurance agent about harvest restrictions for cover crops.

Prolonged and excessive rainfall and ponding can cause soil aggregates to break down, especially near the soil surface. Flooding and erosion remove valuable topsoil and all the nutrients, organic matter and soil organisms it contains. When these fields finally dry out, the surface becomes hard and crusted and is prone to further erosion by water or wind. If tillage is performed to control weeds and the soil is left bare, soil organic matter declines and nutrients can be lost through leaching, even on fields not subject to water erosion.

To rebuild lost productive capacity and improve soil quality, growing a cover crop for the remainder of the season is crucial. In fact, having something green and growing during all non-frozen times of the year is a key concept for improving soil quality, decreasing nitrate leaching to drainage waters, and improving water quality.

#### Improve soil tilth and biological activity in topsoil

Cover crops protect the soil from further erosion by both water and wind. High biomass cover crops help build soil organic matter, improve soil aggregation, and stimulate soil biological activity by adding their roots and shoots to the soil. Fibrous roots enmesh soil particles and provide food for microorganisms which in turn produce polysaccharides and other "sticky" substances which stabilize soil aggregates. Cover crops also provide additional food for soil fauna such as earthworms. The roots and soil biological activity also increase soil porosity and decrease density near the soil surface, leading to improved infiltration into the soil. Both the root growth and top growth of the cover crops will contribute to building soil organic matter faster than if the soil is left bare or growing weeds.

#### Increase permeability and decrease compaction

Deep rooted cover crops can penetrate compacted layers and provide deep, continuous channels for water

percolation and root penetration of subsequent cash crops. Prevented planting acres have a longer time window for these tap-rooted crops to grow than is present after typical soybean or corn harvest dates, and so the benefits can be substantially greater than possible in a normal year. If fields have so much compaction that deep tillage or subsoiling is required to remediate the condition, planting a deep rooted cover crop after the tillage operation will help stabilize the gains in permeability, rebuild soil structure, and stimulate soil biological activity along root channels.

#### **Build soil nitrogen**

Cover crops can build soil nitrogen by fixing atmospheric N (legumes) or by trapping residual soil N to prevent it from leaching into drainage waters. A legume or legume mix planted in early summer may provide more than half of the required N for next year's corn crop. Brassicas or grasses can trap or scavenge over 40 pounds of residual N from the soil originating from fertilizer or soil organic matter mineralization and even larger amounts where manure was recently applied. This protects water quality, and some of the scavenged N will be available to succeeding cash crops while the rest helps build soil organic matter.

#### Selecting cover crops

When selecting which cover crops to plant, producers should consider their main purposes of the cover crops for their situation. Grasses usually provide the greatest amount of biomass both below and above ground and will build soil organic matter most quickly. Summer grasses such as sorghum-sudangrass and millets are good choices for early summer plantings while the more familiar annual ryegrass and cereal grains can be planted mid- to late-summer. Legumes will fix atmospheric nitrogen that can be used by next year's cash crop. Cowpeas are an excellent choice for mid-summer plantings, while hairy vetch, crimson clover, and winter peas can be planted through late summer. Be sure to inoculate all legume seed. Brassicas such as oilseed radish, turnip, rapeseed and canola have tap roots that help break up tillage pans and improve permeability while being an excellent nitrogen scavenger and can be planted mid- to late-summer.

Often a mix of cover crops provides more benefits than a single species, and producers should consider a mix including two or three of the plant classes discussed above. These species mixes stimulate soil biological activity more quickly due to the diversity of crop and root types. A mix of a fibrous-rooted grass and a legume or brassica with a tap root will produce soil improvement throughout the soil profile.

There are several tools to help producers select cover crops for their situation in Indiana. The Midwest Cover Crops Council has a selector tool that was built starting with Indiana conditions and experience <a href="http://www.mccc.msu">http://www.mccc.msu</a>.

edu/selectorINTRO.html>. Producers enter their state and county, and are provided with a chart of various cover crops and their planting date windows. Producers can further narrow the list by inputting up to three desired purposes of the covers, such as N scavenger or soil builder, and selecting from that list. A few common mixes are also included in that chart. The Indiana NRCS Seeding Tool <<u>http://www.nrcs.usda.gov/technical/efotg</u>/> also provides guidance on cover crop species and allows more flexibility in determining mixes. Both tools provide the dates and seeding rates for planting the various cover crops. With prevented planting there are obviously many more choices for cover crops than when seeding after corn or soybean harvest.

Other considerations for cover crop choices include whether the cover crop will winterkill or will overwinter. The advantage of those that winterkill is that the producer does not need to terminate them in the spring, but the overwintering species will continue to provide some additional growth and benefit next spring. Some summer planted cover crops may need to be managed by mowing or killing before seedhead formation to prevent them from becoming a weed next year. If residual herbicides were applied this year, producers should consult herbicide labels for plant back restrictions, as some covers are sensitive to some of the residual herbicides. See <a href="http://www.btny.purdue.edu/WeedScience/2011/">http://www.btny.purdue.edu/WeedScience/2011/</a> CoverCrops11.html> for more information. Growers should also check with their crop insurance agents to understand the termination requirements for next spring on any cover crops that overwinter.

#### Seeding cover crops

For prevented planting conditions it is best to seed the cover crop with a drill or planter to assure good soil seed contact. This is especially important given the crusted, hard top soil often present after prolonged soil ponding.

#### Conclusions

Cover crops can be an excellent management tool to improve soil productivity under any conditions but especially on prevented planting acres. Producers are encouraged to utilize the opportunity to rebuild soil productive capacity after a difficult spring by growing cover crops for the remainder of the growing season.

# Weather Update





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



> 6.00

Average Temperature (°F): Departure from Mean June 21, 2011 to June 27, 2011



Indiana State Climate Office www.iclimate.org Purdue University, West Lafayette, Indiana email: iclimate@purdue.edu

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