Pest & Crop

June 21, 2002 - No. 14

In This Issue

Insects, Mites, and Nematodes

Anemic European Corn Borer Numbers – (*John Obermeyer, Rich Edwards, and Larry Bledsoe*) –

- Moth flights and subsequent larval damage have been low
- Short corn probably encouraged many moths to lay eggs elsewhere
- Second brood moth egg laying may be diluted by so many late-planted fields

Black light moth counts, field surveys, and reports from pest managers throughout the state confirm that European corn borer populations are low. The highest infestation that we've heard about was in early-planted popcorn in southwestern Indiana; it being only 40%. Apparently, low levels of overwintering larvae and the delayed planting season have combined to reduce the first brood population.

At Purdue's Diagnostic and Research Center this week, we had the opportunity to monitor our tallest corn (6-7 leaves) on a daily basis. Egg laying has occurred in this plot, although the larvae are having a difficult time getting established in the puny whorls. Their high mortality is probably attributed to high levels of DIMBOA (a naturally occurring chemical that can be toxic to corn borer) within the plants and the many predators seen in the plot. Interestingly, small borers have been observed in nearby wheat stems. Likely, female moths have been laying eggs on many alternative hosts, including wheat, flowers, weeds, vegetables, etc.

What does this mean for the second generation? These second generation moths are typically attracted to the late planted/maturing cornfields for egg laying and in 2002 this represents about 90% of Indiana's corn. This being the case, the moths won't be concentrating on certain fields, but likely will be drawn to many late pollinating fields. Our guess is that the 2002 European corn borer population will be a bust, although Edwards says there is a slim possibility that some fields could be impacted. But overall, some good news from your friendly bug guys!

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European Corn Borer Survey - June 18 - 19, 2002 (Ron Blackwell)

County (Fields) Sampled	Extended Leaf Height (in.)	% of Plants/Field w/ Damage	Avg. # Egg Masses/ Plant	Avg. # Larvae/ Damaged Plant
Fountain 1	34.6	12%	0.0	0.8
Fountain 2	31.2	19%	0.0	0.8
Jasper 1	20.9	0%	0.0	0.0
Jasper 2	34.2	5%	0.0	1.5
Jasper 3	30.7	0%	0.0	0.0
Jasper 4	33.7	12%	0.0	0.3
Porter 1	24.4	0%	0.0	0.0
Porter 2	29.2	0%	0.0	0.0
Porter 3	32.3	0%	0.0	0.0
Porter 4	22.9	0%	0.0	0.0
Tippecanoe 1	29.4	3%	0.0	0.0
Tippecanoe 2	22.3	2%	0.0	0.0
Tippecanoe 3	21.8	0%	0.0	0.0
Tippecanoe 4	30.5	8%	0.0	1.3
Vermillion 1	53.5	3%	0.0	0.0
Vermillion 2	51.1	3%	0.0	0.0
Vermillion 3	51.5	2%	0.0	0.0
Warren 1	49.9	7%	0.0	0.3

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Fall Armyworm-Like Damage Reported in Corn Whorls - (*John Obermeyer, Rich Edwards, and Larry Bledsoe*)

- Whorl damage in southern Indiana could be fall armyworm
- ID differences between armyworm species is given
- When necessary, spot treat with a high clearance rig using ample water
- Control decisions and products discussed below

We've heard of one report in southwestern Indiana (thanks to Bart Lofton with Golden Harvest) and one from Illinois near St. Louis, of knee-high corn whorls being riddled by armyworms. Electronic pictures of the worms sent to us show the characteristics of fall armyworm. Obviously, two infestations in two states is no reason to panic. Consider this more of a head's up to pest managers that will be visiting corn for the remainder of the summer.

Late planted corn is attractive to fall armyworm moths, which have arrived in the state, albeit in very low numbers. Typically we don't see damage from this occasional pest until mid to late season. Should moth flights from southern states increase, they will find ample "late planted" fields in which to lay their eggs. Initially, small larvae feed on the leaf surface, causing a "windowpane" effect. Whorl feeding by larger larvae appears as ragged-edged holes with excessive frass (worm poop) being quite evident. Feeding on cornhusks and kernels may also occur later in the season. If whorl damage is noted, the field should be sampled by examining 20 consecutive plants in at least 5 areas of the field. Count and record the number of plants showing damage in each area. Determine the percentage of fall armyworm-damaged plants for the field. Also, be sure to note whether the fall armyworms are still present and feeding. It may be necessary to pull some whorls and unroll the leaves to find the larvae. Estimate the size (length) of several of the worms.

The head of the fall armyworm is gray, yellow, or brown, with a predominant white, inverted Y-shaped suture on the front. This feature distinguishes the fall armyworm from the similar-appearing true armyworm, whose head is pale gray or greenish-brown in color and covered with a network of dark lines. With either species, once worms are over 1-1/2 inch in length they are soon to complete their larval stage and feeding is nearing completion. Also, one should look for parasitized larvae, elongated white balls (eggs of a parasitic fly) usually near the back of the worm's head. Parasitized larva will reduce feeding and eventually be killed.

In those corn fields where the yield is expected to be at least 60% of the normal yield, an insecticide may be necessary if 75% of the plants exhibit feeding damage and the larvae are less than 1-1/4 inch in length. If applying an insecticide, be sure to apply the insecticide in sufficient water to reach the target area. Fall armyworm will often form a "plug" with their frass in the whorl, making it difficult for insecticide penetration. Ground sprays directed over the row are generally more effective than broadcast sprays. Aerial applications are not recommended. Treatments to control fall armyworm in ear tips are not effective. For insecticides see Extension Publication E-219-W, *Corn Insect Control Recommendations* – 2002 (Rev. 1/02), which can be viewed at: <http://www.entm.purdue.edu/entomology/ext/targets/e-series/EseriesPDF/E-219.pdf>.

Fall armyworm larva and damaged corn whorl

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Soybean Aphid Making the Big Move – (*John Obermeyer*) – The Purdue "Soybean Aphid Crew" have found aphids in V3 soybean at the Agronomy Research Center (Tippecanoe County) on June 18. This is about a month sooner than last year. This indicates that soybean aphids are moving from their winter host, buckthorn, onto the summer host, soybean. Mind you, this is first observation, not an alert about economic infestations. States in the northern corn belt observed this move about one week earlier. It is way too soon to speculate on what this means. Stay tuned to future issues of the *Pest&Crop*.

Soybean aphids

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Black Light Trap Catch Report
(Ron Blackwell)

County/Cooperator	6/4/02 - 6/10/02							6/11/02 - 6/17/02						
	VC	BCW	ECB	SWCB	CEW	FAW	AW	VC	BCW	ECB	SWCB	CEW	FAW	AW
Clinton/Blackwell	0	0	221	0	0	0	1	1	0	82	0	0	0	1
Dubois/SIPAC	0	1	6	1	0	0	1	5	0	0	0	0	0	0
Jennings/SEPAC	0	0	63	0	0	0	1	9	0	21	0	0	0	12
Knox/SWPAC	1	8	11	7	0	0	4	4	1	1	0	0	0	1
LaPorte/Pinney Ag Center	0	0	151	0	0	0	3							
Lawrence/Feldun Ag Center	1	0	1	0	0	0	2	2	0	0	0	0	0	2
Randolph/Davis Ag Center	0	0	219	0	0	0	8							
Vermillion/Hutson			64							3				
Whitley/NEPAC	0	0	240	0	0	0	5	0	0	253	0	0	0	9

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

Weeds

Corrections and Clarification – (*Glenn Nice*) -

I am afraid that I have a few corrections and some things to clarify on past weed science articles and publications.

Senecio in Indiana (appeared in *Pest&Crop*, May 3rd issue 7):

In the above article I referred to common groundsel (*Senecio vulgaris*) and golden ragwort (*S. aureus*) as being the plant that has been coloring our fields yellow. However, it would seem I got mixed up in the common name game. The plant that we are seeing is most like (*S. glabellus*) referred to by the Weed Science Society of America as cress-leaf groundsel or butterweed. Golden ragwort (*S. aureus*) is a perennial with basil leaves that are round with long petioles (looking similar to a spoon). Cress-leaved groundsel is an annual. However, *S. glabellus* is still often referred to as "golden ragwort" in Indiana, and this will be kept in mind for future reference.

Weather Delays and Rotation Restrictions (appeared in *Pest&Crop*, May 17th issue 9):

Fields with labeled applications of all three acetochlor products (Harness, Surpass, Topnotch) can be rotated into soybean and wheat, implying "next season." However, The Surpass and Topnotch labels indicate a 4 month rotation restriction to wheat. In the Rotation table provided in the article, the statement "May be planted if 1X rate is used" appeared. This statement should be removed, it is not recommended to apply more than labeled rates unless specified by recommendations on the label. Rotations restrictions are as stated above.

2002 Weed Control Guidelines for Indiana

In the "Estimated Levels of Weed Control Normally Expected with Corn Herbicides" table (page 9), Callisto's control rating for black nightshade PRE is a zero. This should be a "9."

In the "Rotational Crop Restrictions" (page 10) for corn herbicides Callisto's rotation restriction for soybean reads 18 months. This should be a "next season" rotation restriction.

On page 48, in the alfalfa weed control recommendations, Raptor's special instructions and remarks are blank. It should read, "Apply Raptor when majority of the weeds are between 1 and 3 inches and actively growing. **Do Not** cut or feed for 20 days or harvest for 70 days after application. **Do Not** apply more than 6 oz / year."

On page 53, in the "Combination Herbicides for Corn and Soybeans" table Celebrity Plus common names are "nicosulfuron Distinct". It should read, "nicosulfuron dicamba diflufenzopyr".

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Purdue University Weed Science Field Day – (*Glenn Nice and Thomas Bauman*) -

Dr. Bauman will be holding his annual Weed Science Field Day July 9th from 8:30 am to noon. You are welcome to come and see what we are up to research wise. Authorization for giving Continuing Certification Hours (CCH) has been applied for. For more information please contact us at 765-494-9871.

Plant Diseases

Wheat Scab - (*Gregory Shaner*) –

• Wheat scab is sporadic but not generally severe

Despite the abundant rain this spring, scab (*Fusarium* head blight) is not apparently a major problem in Indiana wheat fields. I have had reports of only a few fields that have a high incidence of blighted heads, but many fields probably have some blighted heads. Rain during flowering or early grain filling is critical for scab development. It's not so much the inches of rain, as the number of hours of rain during these critical growth stages that determines how much scab will develop. Temperature is also important. Temperatures between 60 and 86 ˚F are most favorable for scab.

Scab is most easily recognized before the heads begin to lose color as they naturally ripen. All or a portion of scabby heads will be bleached white. Initially, only a few spikelets are bleached, but over time the blight extends to much or all of the head. Grain from blighted heads will be shriveled and some kernels will have a chalky appearance ("tombstones"). Scabby grain often contains a toxin produced by the scab fungus. This toxin, referred to as DON (deoxynivalenol) or vomitoxin, is very stable and will show up in finished wheat products made from scabby grain. The Federal Drug Administration recommends that finished wheat products contain no more than 1 ppm of DON. Severely scabbed grain may contain more than 20 times this level.

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Seedling Blights in Corn and Soybeans - (*Gregory Shaner*) –

• Wet, cool soils favor development of seedling blight

I have received a lot of reports of seedling blight, especially in corn. Both seminal (seed) roots and crown roots on infected plants may show symptoms of rot. Tips of roots may be brown and mushy, and it may be possible to strip away the outer layer of the root (the cortex), leaving only the inner stele. Rotting of the mesocotyl seems particularly common this year. This is the short segment of stem between the seed and the crown tissue. If this occurs, the seminal roots, even if they are intact, cannot conduct water and minerals to the shoot because the mesocotyl connection is broken.

Seedling blights do not occur in isolation from other problems. They are a problem when conditions are unfavorable for rapid development of seedlings. They are likely to be worse where corn or soybeans have been sitting for long periods in cool, wet soils. Compaction or surface crusting can also aggravate the problem.

Now that we are finally having some dry, warm weather, *Pythium* species should be less active. I have seen a few plants recently that were evidently infected with *Penicillium oxalicum*. This fungus thrives in warm weather, in contrast to many of the seedling blight fungi. These plants had necrotic leaf tips and short, erect, somewhat brittle leaves.

Soybean fields I have been in have many skips in the row. Pre-emergence seedling blight (the seed rots before the plant emerges) may have contributed to this problem. Seedling blight may also attack the plant after it has emerged. Plants may be stunted, yellow, or necrotic. I am not seeing much obvious post emergent seedling blight. However, inspection of roots of many plants that are more or less normal, but perhaps a bit stunted, reveals necrosis on lateral roots.

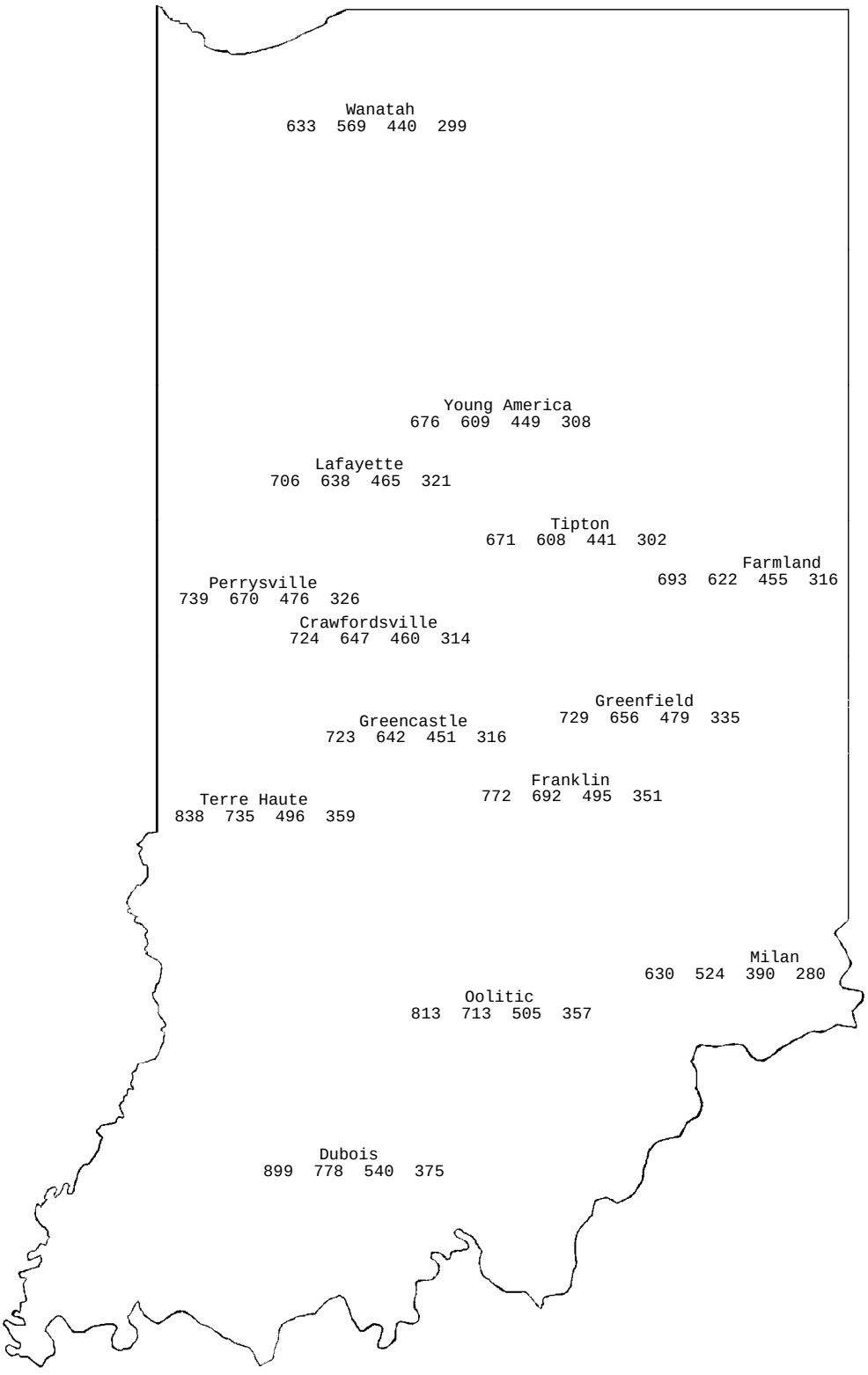
As air and soil temperatures rise, soils dry out, and plants start growing more vigorously, the activity of seedling blight fungi should diminish. However, the effects of a compromised root system may become more obvious. This will be particularly true where soils are compacted or crusted and root development is shallow and restricted.

Weather Update

MAP KEY
Location
GDD(2) GDD(10) GDD(43) GDD (75)

Temperature Accumulations from Jan. 1 to June 19, 2002

GDD(2) = Growing Degree Days from April 21 (2% of Indiana's corn planted), for corn growth and development
GDD(10) = Growing Degree Days from May 5 (10% of Indiana's corn planted), for corn growth and development
GDD(43) = Growing Degree Days from May 26 (43% of Indiana's corn planted), for corn growth and development
GDD(75) = Growing Degree Days from June 2 (75% of Indiana's corn planted), for corn growth and development



4" Bare Soil Temperatures 6/19/02

Location	Max.	Min.
Wanatah	83	65
Columbia City	82	60
Winamac	89	67
W Laf Agro	80	65
Tipton	76	68
Perrysville	76	68
Crawfordsville	70	69
Terre Haute	89	69
Oolitic	77	69
Dubois	86	67

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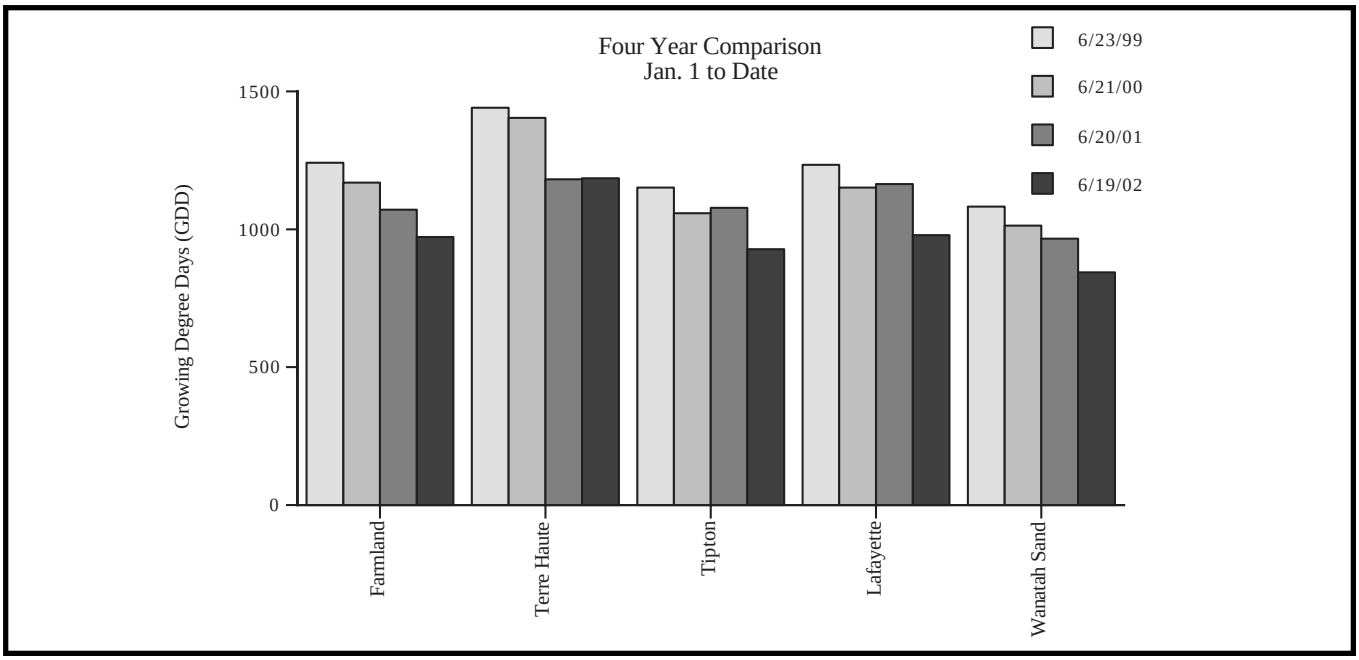

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