Purdue Cooperative Extension Service

August 19, 2005 - Issue 21

In This Issue

Insects, Mites, And Nematodes

Soybean Aphid, Recent Treatment Quandaries Becoming Clear – (*John Obermeyer, Christian Krupke, and Larry Bledsoe*)

- Most soybean aphid are white dwarves, their impact does not seem as great on later reproductive soybean.
- Aphid populations seem to be dwindling, many possible reasons.
- Winged aphids are moving, targeted location is unknown at this time.

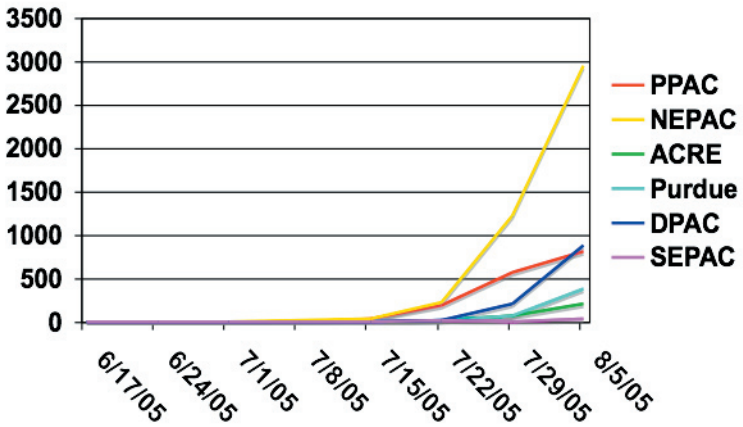
Phone calls and field visits have revealed a change in the soybean aphid, which bodes well for many soybean fields. We certainly seem to be over the hump in terms of infestation intensity, and with advanced soybean growth stages being prevalent in many fields, careful inspection and consideration should be given before further treatments are applied.

The vast majority of aphids being found at this point are the small, white dwarves, as discussed in last week's *Pest&Crop*. Though this small morph of soybean aphid feed and reproduce, it does not seem to have equal impact as the "regular" sized "Mountain Dew" colored version. It is still uncertain what caused this change in the aphid, but considering the same thing happened in previous years (but only later in the season) it may due to the advanced growth stage of the soybean crop (most being R5 to R6) and/or hot, dry conditions through much of the season. Plants with over 250 white dwarf aphids/plants do not appear to be sticky with honeydew nor do they have their lower leaves darkened with sooty mold. Most white dwarves are being found lower in the canopy, and few if any aphids are colonizing new growth. Physiological changes in the later reproductive stages of the soybean plant are obviously contributing to reduced aphid growth and reproduction.

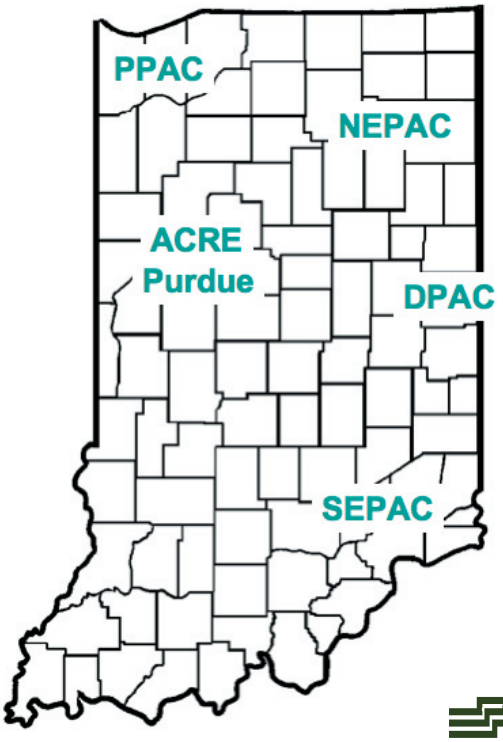
Some pest managers from northern Indiana have reported that aphid numbers seem to be declining. Recent counts taken at a Pinney-Purdue soybean aphid research field in Porter County have confirmed this. This may attributed to a variety of factors, including winged aphid dispersal, predation, hard-rains, etc. Chris DiFonzo, Michigan State Extension Entomologist, has reported fungal diseases becoming obvious in many Michigan locations. Certainly the recent heavy dews and fog are conducive for a disease outbreak within the aphid population.

Soybean aphid is certainly on the move, however. Winged aphids are still being found on plants, but more apparent are the numbers being captured in suction traps placed six Indiana locations, see graph below. What is uncertain is whether these winged aphids are seeking new plants/areas to colonize or buckthorn for overwintering. Note that the numbers of winged aphids captured in suction traps do, in fact, reflect the intensity of infestation a given region of the state has endured. Though the infestation has been significant throughout the northern counties of Indiana, the Northeast region seems to have taken the hardest hit, thus the highest winged aphid counts from the Northeast Purdue Agricultural Center.

Indiana's SBA Suction Trap Counts, 2005



SBA Suction Trap Locations



Is this the man some of you have seen in your fields??? Soybean aphid honeydew coated pants from NE Indiana.

Rootworm Beetles Very Active in Soybean, Even Treated Fields - (*John Obermeyer, Christian Krupke, and Larry Bledsoe*)

- Variant western corn rootworm beetles continue to visit soybean fields to feed and lay eggs.
- Sampling doesn't require the use of nets or traps, visual inspections can be effective in assessing relative beetle numbers
- Within days of treating for aphids, rootworm beetles are back in fields.

Sweeping soybean fields to sample for variant western corn rootworm beetle populations throughout the state has been ongoing for several weeks. Though we don't have exact counts yet, it is evident that beetle numbers are significant in many areas of the state. Stay tuned to future *Pest&Crop* issues as we report the catches by county.

Knowledge of beetle numbers in soybean helps one to gauge the potential risk of rootworm damage to next year's corn. Few beetles mean low risk, thus little need for rootworm protection next year. Lots of beetles means higher risk, and the insecticide "insurance" to protect next years' corn will likely pay off. Several pest managers throughout the state have initiated a sampling program for their soybean fields. Because of the high variability of beetle numbers from field to field, those willing to inspect soybean now may reap the benefits next spring. Sampling for rootworm beetle in soybean fields does not require sticky traps or sweep nets, but they do make decision-making more accurate. Visual inspections during the morning hours, while walking through the field and carefully observing the upper canopy, should help you reach a management decision. If you see high numbers of beetles in the middle of a soybean field, protection of corn in 2006 may be warranted. Soybean fields should be visited weekly until early September.

It has been a challenge to conduct this random survey in areas of the state that have treated most of their soybean fields for aphids. Occasionally we have resorted to sampling fields that have been recently treated, based on visual evidence (wheel tracks). However, from the beetle numbers in these sweeps, it is obvious it took little time for western corn rootworm beetles to re-infest a once deadly environment. The variant beetle seems determined to enter soybean fields and lay eggs. Producers have NOT eliminated their risk of first-year corn damage by treating soybean fields this year. A recent five year, multi-state/county program failed to eliminate first-year corn damage even when fields were monitored weekly and treated as many as three times a season. If more proof is needed, consider the challenge in the previous paragraph and go see for yourself. Happy Scouting!

Morning hours provide easy viewing of beetles on top of the soybean leaves.

Rootworm beetles are attracted to flowering weeds.

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

County/Cooperator	8/2/05 - 8/8/05							8/9/05 - 8/15/05						
	VC	BCW	ECB	SWCB	CEW	FAW	AW	VC	BCW	ECB	SWCB	CEW	FAW	AW
Dubois/SIPAC Ag Center								0	15	2	0	0	0	12
Jennings/SEPAC Ag Center	0	6	41	0	0	0	2	0	3	9	0	0	0	0
Knox/SWPAC Ag Center	0	1	5	1	0	0	2							
LaPorte/Pinney Ag Center	0	5	277	0	0	0	0	0	0	203	0	0	0	1
Lawrence/Feldun Ag Center	0	10	11	0	0	0	0	0	7	0	0	0	0	4
Randolph/Davis Ag Center	0	1	80	0	0	0	2	0	1	66	0	0	0	8
Tippecanoe/TPAC Ag Center	0	0	47	0	0	0	17	0	8	24	0	0	0	19
Vermillion/Hutson	0	0	30	0	0	0	1							
Whitley/NEPAC Ag Center	0	3	437	0	0	0	4							

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

Agronomy Tips

Corn Yield Trends for Indiana: 1930 to 2005 - (*Bob Nielsen*)

Historical grain yields provide us with a glimpse of yields yet to come, although like the stock markets, past performance is no guarantee of the future. State average corn grain yield in Indiana has increased at a fairly constant 1.6 bushels per acre per year since 1930 primarily due to improved genetics and production technology (Fig. 1).

Since 1995, Indiana's corn crop yield has split even, with half of those years below trend and half above. The current USDA estimate for 2005 puts the Indiana corn crop at 145 bushels per acre (bpa), or about 1 percent **below** the 2005 trend line yield of 146.4 bpa and nearly 14 percent below last year's record crop of 168 bpa (Fig 1). By comparison, recent years' departures from trend yield (Fig. 2) were 2004 (+16.0%), 2003 (+2.0%), 2002 (-14.5 %), 2001 (+11.5 %), and 2000 (+6.3 %).

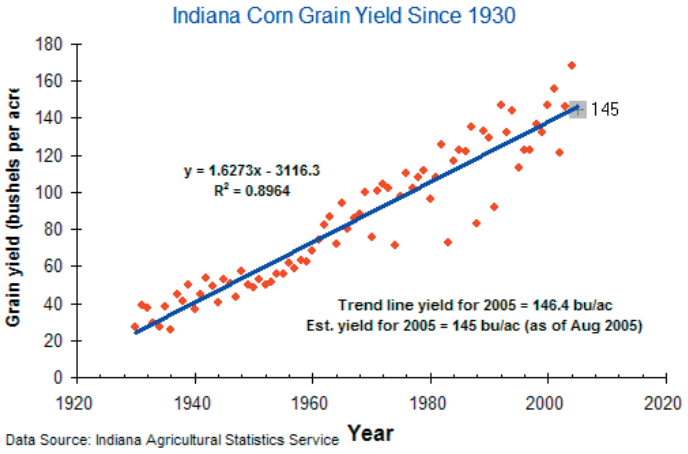


Figure 1

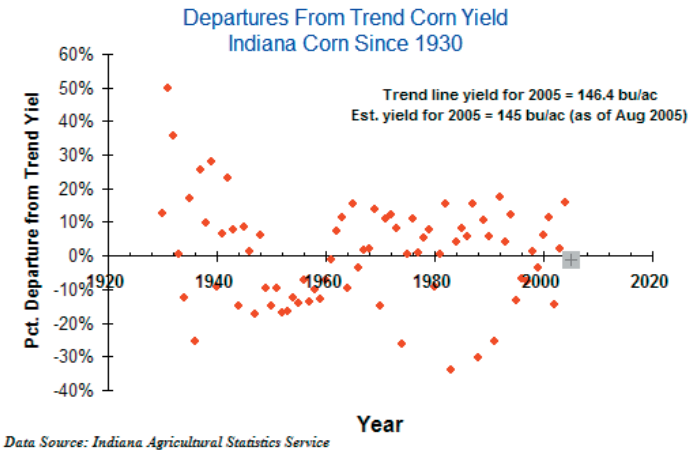


Figure 2

Annual grain yield values fluctuate above and below the trend line throughout the more than 70 year period of records, but four disaster years are especially noteworthy. Late planting plus early fall frosts in 1974 resulted in state average corn yields 26% less than the trend value. Severe droughts in 1983, 1988 and 1991 resulted in yields 34%, 30% and 26% less than trend values.

Because the departures from trend for these four years are so dramatic, it is of some interest to calculate the trend line for corn grain yield without their inclusion. In so doing, the annual rate of yield increase is slightly greater (1.7 versus 1.63 bu/ac/yr) and the estimated trend yield for 2005 changes from 146.4 to 151.0 bpa (Fig. 3). Such values may be more true estimates of statewide yield potential in "normal" years.

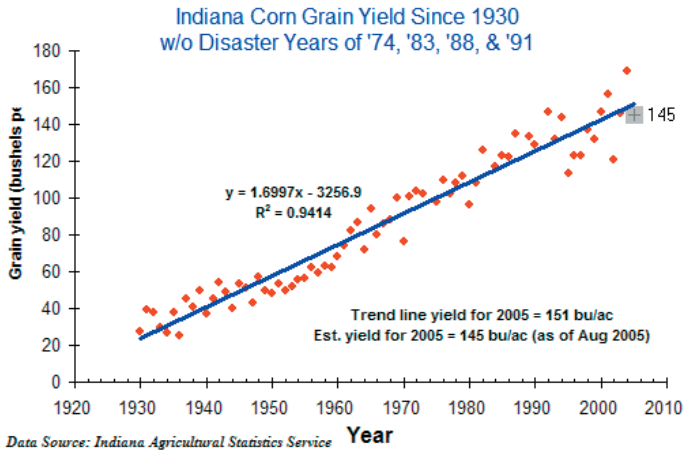


Figure 3

The top five U.S. corn grain producing states are Iowa, Illinois, Nebraska, Indiana and Minnesota (Fig. 4). According to the final USDA production estimates for 2005, these five states (7.7 billion bushels) accounted for about 65 % of the total estimated grain yield for the U.S. in 2004 (11.8 billion bushels).

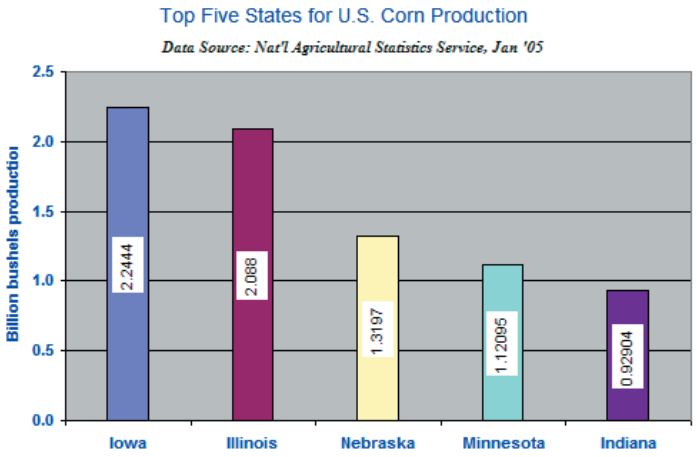


Figure 4

For the first time in a number of years, corn yields per acre in 2004 for the U.S. Midwest rivaled those often obtained in more western areas of the U.S. (Fig. 5). Consistently high corn yields are more often achieved in western states such as Washington and Arizona because of their relatively better corn growing climates including a) fewer cloudy and hazy days, b) less rainfall and humidity contributing to less disease, c) availability of irrigation, and d) fewer stressful hot nights during grainfill.

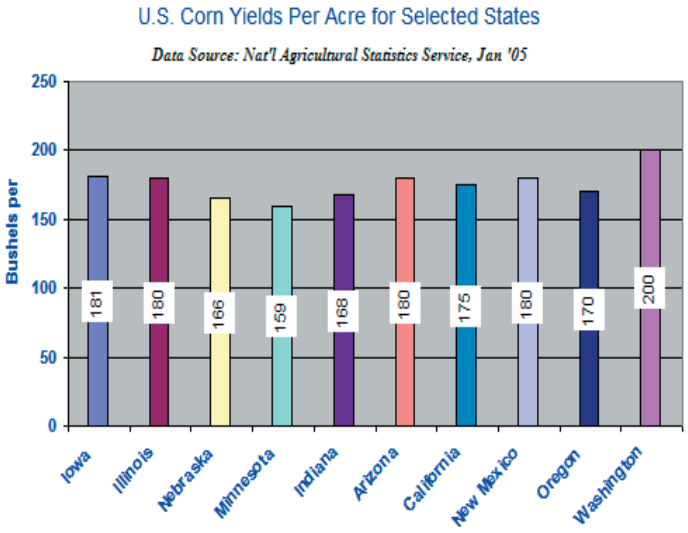


Figure 5

For More Information...

For more statistics about Indiana agricultural production, browse the Web site of the Indiana Agricultural Statistics Service at <http://www.nass.usda.gov/in/>.

For more statistics on U.S. national crop production estimates, look at the National Agricultural Statistics Service Crop Production Web site.

Related References

USDA-NASS. Jan 2005. **Crop Production 2004 Summary.** United States Dept. of Agr - Nat'l Ag. Statistics Service, Washington, D.C. Online at <http://usda.mannlib.cornell.edu/reports/nassr/field/pcp-bban/cropan05.pdf> [URL verified 8/9/05].

USDA-NASS. 2005 (12 Aug). **Preliminary District Estimates - Indiana.** Indiana Field Office of USDA - Nat'l Ag. Statistics Service, W. Lafayette, IN. Online at <http://www.nass.usda.gov/in/pressrel/de081205.txt> [URL verified 8/12/05].

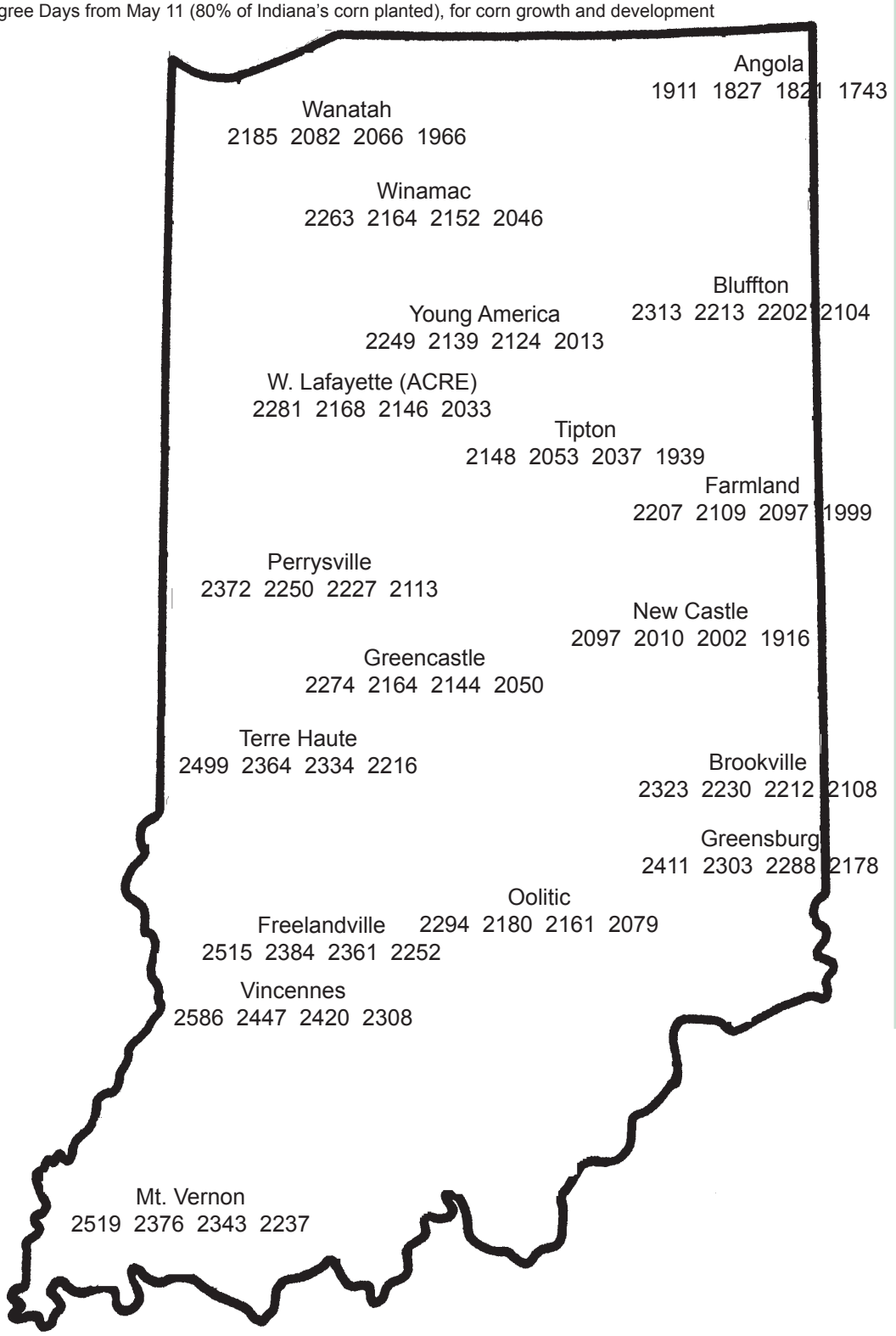
Weather Update

Temperatures as of August 17, 2005

MAP KEY

Location
GDD(10) GDD(35) GDD(55) GDD(80)

GDD(10) = Growing Degree Days from April 15 (10% of Indiana's corn planted), for corn growth and development
GDD(35) = Growing Degree Days from April 27 (35% of Indiana's corn planted), for corn growth and development
GDD(55) = Growing Degree Days from May 4 (55% of Indiana's corn planted), for corn growth and development
GDD(80) = Growing Degree Days from May 11 (80% of Indiana's corn planted), for corn growth and development



4" Bare Soil Temperatures 8/17/05

Location	Max.	Min.
Wanatah	87	67
Columbia City	86	70
W. Lafayette	92	68
Farmland	84	70
Butlerville	83	69
Vincennes	84	73