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2005 Pest&Crop Survey is now available. Please take a few minutes to complete the survey. This helps us evaluate if we are meeting your needs. Click here to complete the on-line survey and thank you!

This is the last issue for 2005. The Pest&Crop 2005 Index is in this issue.



HAPPY HOLIDAYS

Insects, Mites, And Nematodes

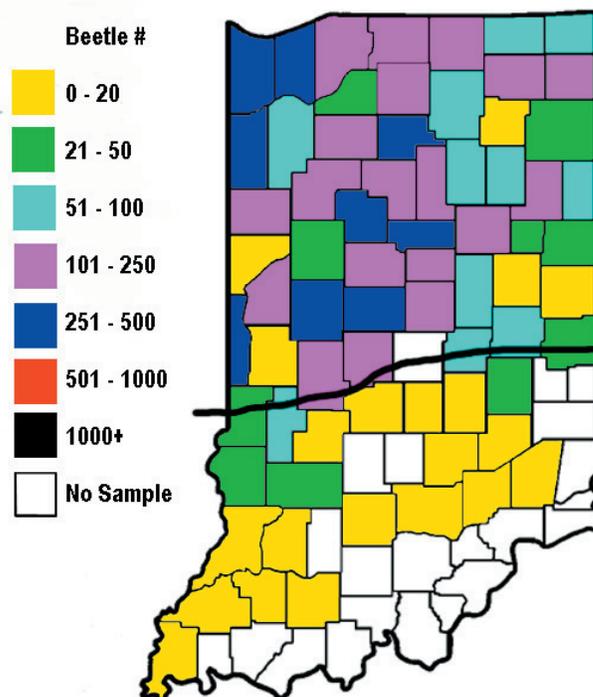
Corn Rootworm's 2005 Impact Lower Than Anticipated – (John Obermeyer, Christian Krupke, and Larry Bledsoe)

- It was a relatively quiet year in Indiana for rootworm larval damage.
- Good early-season growing conditions and lack of strong storms kept rootworm damaged plants upright.
- Beetles seemed abundant during corn pollination but later soybean sweeps revealed lower statewide numbers.
- Beetles were present in soybean fields treated for aphids before and after application to lay eggs.

In 2004, rootworm beetle numbers were high in many corn and soybean fields. It was reasonable to believe that many eggs were laid and waiting to hatch and feast upon 2005 corn. Environmental conditions seemed perfect this spring and early summer for both corn and rootworm larval development. From this and the early root feeding we observed, we fully anticipated severely lodged cornfields in many areas of the state. It didn't happen.

For the second year in a row, corn planting was on record pace and growing conditions afterward promoted early plant

2005 Indiana County Western Corn Rootworm Sweep



vigor. As well, rootworm larval hatch and development was on schedule this past spring. During the corn's critical rapid vegetative growth, just before tasseling, rootworm larvae were at their peak of feeding. Root systems weakened by feeding predispose top-heavy plants to lodging. Weather fronts with gusty winds moving through during this period can potentially push susceptible plants (and sometimes entire fields) over. In 2005, severe storms did not occur during this pre-tassel period of growth. Even during the mild drought conditions before and during pollination this past season, good brace root development and anchoring of plants occurred. It is likely that many fields with marginal rootworm protection dodged the "bullet" this past season by not getting pushed over during early summer storms.

Once rootworm beetle emergence commenced, initial reports of economic silk clipping in areas of the state seemed to support our suspicion of rootworm larval (and emerged adult) numbers. In addition, where pest managers inspected roots in these beetle-infested fields, they found significant root injury. Treatment decisions to protect silks were complicated by spotty pollination because of the dry conditions that had affected many areas of the state. However, by the time we conducted soybean sweeps for western corn rootworm beetles, July 22 through August 19, numbers captured were lower than expected (see accompanying color-coded map). If you desire to see the state map with specific soybean sweep numbers from 2005, refer to the October issue of the *Pest&Crop* or click [HERE](#). We can only speculate that the beetle's life span, approximately 6 to 8 weeks, was cut short by hot and dry conditions. Also, lower beetle numbers in the soybean sweeps in northern counties may have reflected mortality effects of insecticides intended to treat soybean aphid. This, by the way, does NOT eliminate next year's risk because of the pre and post treatment egg laying that occurred.

Bottom line, 2005's beetle numbers may have been lower but this has not reduced the perceived risk to next year's first-year corn. See the following article.



Perceived Risks to Western Corn Rootworm Damage in First-Year Corn – (John Obermeyer, Christian Krupke, and Larry Bledsoe)

- Risks of 2006 WCR damage is based on beetle numbers and past trends.
- The following risks are to be used as a general guideline, refinement should be done on a local scale.
- Risk categories defined below.

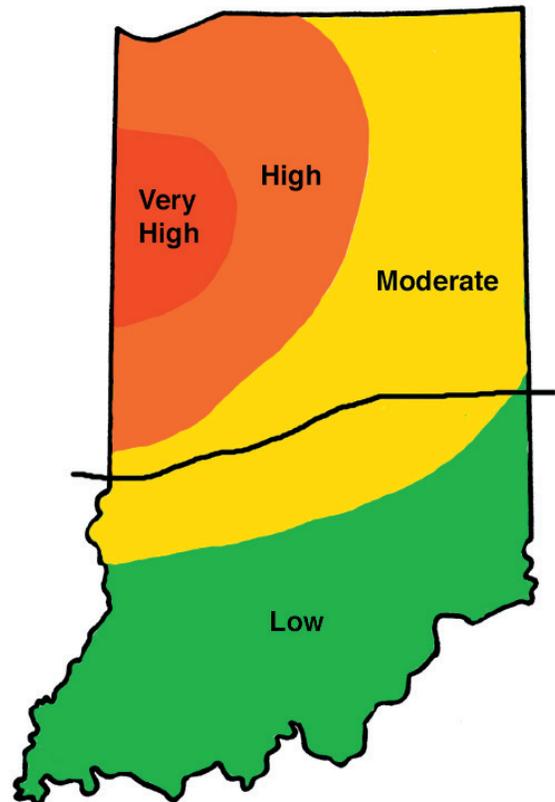
Weather is, and will always be, the major influence on insect numbers and subsequent crop damage. Numerous other biotic and agronomic variables occurring statewide or in localized areas make predictions of corn rootworm problematic.

Nevertheless, the following risk map has been developed by previous year's soybean sweeps taken while western

corn rootworm (WCR) beetles were actively laying eggs and frequency of reported larval damage. Because we draw these conclusions from a few fields sampled per county there is a large margin of error. We continue to encourage pest managers to monitor soybean fields in their *specific* area so that more precise risks can be assigned and appropriate management strategies implemented.

Producers in "fringe" areas may consider on-farm strip trials with rootworm products to determine the economic impact of WCR in their first-year corn. The following article, "Rootworm Soil Insecticides: Choices, Considerations, and Efficacy Results," may give some guidelines in choosing a product.

Indiana Colored Corn Rootworm Risks



"Very High" indicates that consistently high numbers of WCR beetles have been found in soybean fields. First-year WCR damage is likely and may be severe in parts of or whole fields.

"High" risk indicates that most soybean fields sampled or observed in that area contained high numbers of WCR beetles coupled with the fact that first-year corn rootworm damage frequently occurs.

"Moderate" risk means that WCR beetle numbers vary from field to field and that significant first-year rootworm damage is expected to be spotty.

"Low" risk areas have consistently low WCR beetle numbers in soybean with very few, if any, damaged first-year corn fields expected.



Rootworm Soil Insecticides: Choices, Considerations, and Efficacy Results - (John Obermeyer, Christian Krupke, and Larry Bledsoe)

- Four delivery methods for rootworm insecticide exist, none provide 100% control.
- Brief discussion of each delivery method and product rootworm efficacy compared.

When one uses a rootworm control product it is important to remember that protection of the primary portion of the root system from economic rootworm attack is the goal. Also, one needs to understand that products do not provide 100% control (60-80% control more likely) and occasionally some economic damage may occur depending on the larval population, weather, planting date, plant development, and time of larval hatch. All of these factors can ultimately impact product performance and must be considered when using a soil insecticide. The important things for producers to understand are the positive and negative aspects of each product and determine which fit best within their farming system. Also, one needs to understand what the warranty for each product really means. Finally, it makes sense to have untreated check strips in fields to gauge the performance and economics of the products used.

Listed below, by application method, are the current registered soil products and their efficacy in protecting roots in 2005 Indiana and Illinois university rootworm trials. Products were grouped by application technology for easier comparison. There is no consideration of other insect pests (e.g., wireworms, white grubs, cutworms) in these evaluations.

Insecticide-coated seed: The benefits and convenience of having a soil insecticide “wrapped” directly on the seed is clear. Cruiser (1.25mg rate) and Poncho 1250 (1.25 mg rate) are both from the neo-nicotinoid class of insecticides. These products must be custom applied to seed with specialized equipment, therefore producers must order them at the time of seed purchase. Using seed-applied insecticides for corn rootworm control in high-risk areas (see previous article) may be a gamble. This is because of the inconsistencies that have been seen in university trials throughout the Midwest. The labels literally state “protect” or “protection” from rootworm...not control. For producers in areas with low to moderate rootworm pressure, these seed treatments may be beneficial and may also offer protection from other soil insect pests, e.g., wireworms, seedcorn maggots, etc.

Insecticide Coated Seed Root-Rating Performance¹, 2005

Location	Best ² Rating	Cruiser 1.25	Poncho 1250	Check
Lafayette, IN	0.05	0.93	0.19	1.83
Wanatah, IN	0.02	0.10	0.08	0.79
Columbia City, IN	0.05	0.06	0.08	0.09
DeKalb, IL	0.18		0.78	2.37
Monmouth, IL	0.13		0.55	2.25
Urbana, IL	0.14		1.21	2.32

¹Node Injury Scale 0-3. 0 = no damage, 3 = severe root pruning, 0.25 or greater - plants likely predisposed to a significant yield loss

²The “Best Rating” is the least amount of rootworm damage for any product in the plot

Liquid soil insecticides: Producers have had the option of using liquid insecticides such as Capture, Lorsban, and Regent for several years. For some producers, plugging a planter for liquids better suited their operation. Some soon found that the performance of these products under high rootworm pressure was inconsistent, sometimes with disastrous results. We would encourage producers in the very high-risk areas shown on the map above to carefully evaluate their recent experiences with rootworm before considering liquid insecticides. The efficacy results of these products for 2005 are as expected, namely satisfactory performance where rootworm pressure is light to moderate and mostly unacceptable levels of damage when pressure feeding is high.

Liquid Soil Insecticide Root-Rating Performance¹, 2005

Location	Best ² Rating	Capture	Regent	Lorsban 4E	Check
Lafayette, IN	0.05	0.45	0.89	0.29	1.83
Wanatah, IN	0.02	0.19	0.09	0.14	0.79
Columbia City, IN	0.05	0.06	0.08	0.14	0.09
DeKalb, IL	0.18	1.44	1.64	0.49	2.37
Monmouth, IL	0.13	0.99	1.53	0.26	2.25
Urbana, IL	0.14	1.46	2.25	0.91	2.32

¹Node Injury Scale 0-3. 0 = no damage, 3 = severe root pruning, 0.25 or greater - plants likely predisposed to a significant yield loss

²The “Best Rating” is the least amount of rootworm damage for any product in the plot

Granular soil insecticides: Granular insecticides have long been considered the standard to which other rootworm control products are compared. Their shortcomings include being bulky, dusty, and time-consuming to use. However, they have also delivered the most consistent level of performance. Though formulations and product names have

changed over the last several years, the chemical classes have remained the same...organophosphates and synthetic pyrethroids. Insect resistance or enhanced biodegradation has not been an issue with the current registered products. There is a concern of using these products when planting very early, incorporating the granules into the soil to slow UV degradation and/or off-target movement from rainfall is strongly encouraged.

Granular Soil Insecticide Root-Rating Performance^{1,2}, 2005

Location	Best ³ Rating	Aztec 2.1	Force 3G	Fortress 2.5	Lorsban 15G	Check
Lafayette, IN	0.05	0.29	0.38	0.20	0.19	1.83
Wanatah, IN	0.02	0.12	0.13	0.06	0.14	0.79
Columbia City, IN	0.05	0.09	0.15	0.06	0.07	0.09
DeKalb, IL	0.18	0.29	0.47	0.20	0.29	2.37
Monmouth, IL	0.13	0.48	0.41	0.37	0.46	2.25
Urbana, IL	0.14	0.32	0.48	0.20	0.66	2.32

¹Node Injury Scale 0-3. 0 = no damage, 3 = severe root pruning, 0.25 or greater - plants likely predisposed to a significant yield loss

²All products applied in T-band except for Fortress 2.5G which was placed in-furrow

³The "Best Rating" is the least amount of rootworm damage for any product in the plot

Transgenic BT-CRW Root-Rating Performance¹, 2005

Location	Best ² Rating	YieldGard RW	Force 3G	Check
Lafayette, IN	0.05	0.05	0.38	1.83
Wanatah, IN	0.02	0.02	0.16	0.79
Columbia City, IN	0.05	0.05	0.06	0.09
DeKalb, IL	0.18	0.70	0.47	2.37
Monmouth, IL	0.13	0.21	0.41	2.25
Urbana, IL	0.14	0.19	0.48	2.32

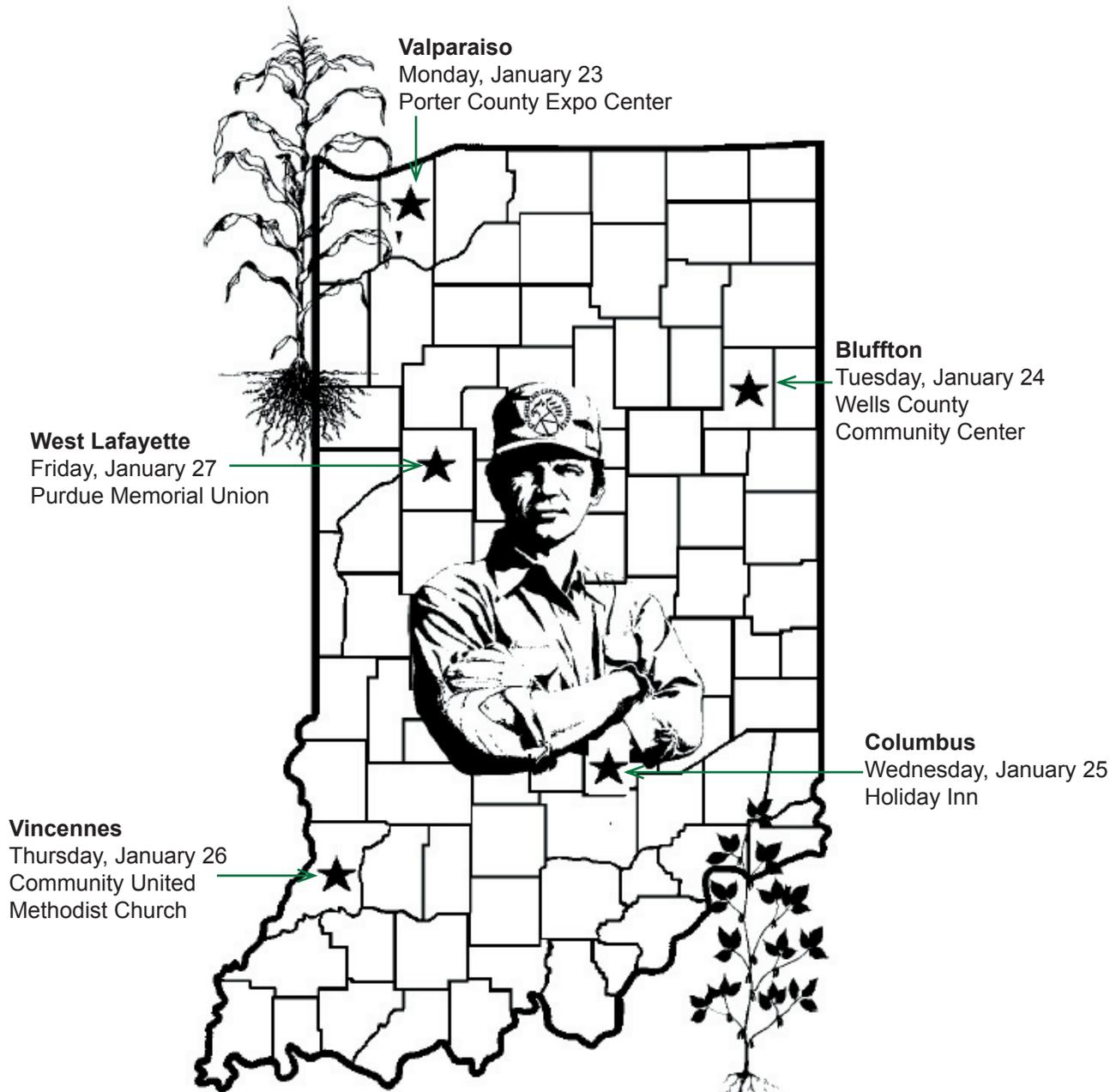
¹Node Injury Scale 0-3. 0 = no damage, 3 = severe root pruning, 0.25 or greater - plants likely predisposed to a significant yield loss

²The "Best Rating" is the least amount of rootworm damage for any product in the plot

Bt Corn Rootworm: This technology, although far from perfect, has been the most consistent in protecting roots from significant damage in its short history on the market. Dow/Pioneer's Herculex event will be commercially available to producers next season. Unfortunately, direct data comparisons with Monsanto's YieldGard rootworm performance are not available at this time. Both Herculex and YieldGard seed will be packaged with either Cruiser (low rate) or Poncho (low rate) for protection from other soil insect pests, e.g., wireworms, seedcorn maggots, etc. It will be mandatory that producers follow refuge guidelines (20% within or adjoining field). The 20% non-Bt refuge will need chemical protection from rootworm.

Bits & Pieces

2006 Crop Management Workshops January 23 to 27, 2006



Valparaiso
Monday, January 23
Porter County Expo Center

Bluffton
Tuesday, January 24
Wells County
Community Center

West Lafayette
Friday, January 27
Purdue Memorial Union

Columbus
Wednesday, January 25
Holiday Inn

Vincennes
Thursday, January 26
Community United
Methodist Church

**Sponsored by the
Purdue Pest Management Program**
in cooperation with the Departments of
Agronomy, Botany and Plant Pathology,
and Entomology

Additional Information
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765-494-4563, obe@purdue.edu

SCHEDULE

*(Central Time for Valparaiso,
other locations are Eastern Standard Time)*
8:30-9:00 Registration
9:00-11:50 Morning Presentations
11:50-12:35 Lunch Provided
12:35-4:15 Afternoon Presentations
4:10 CCH/CEU Forms

TOPICS

(for each location)
Disease, Insect, and Weed
Control Strategies
State and Federal Pesticide
Regulations
Pesticide Application Dynamics
Pesticide Transportation

Brochures soon to be mailed to all Indiana commercial applicators. Online registration, with a credit card, is available after Monday November 28, 2005. Go to www.conf.purdue.edu and click on the "Programs Catalog" and then click on "Conferences" and choose the Crop Management Workshop you want to attend.

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