Soybean Aphid Management Decisions for 2004 –
(John Obermeyer and Larry Bledsoe) –

- Soybean aphid was one of many soybean stresses last season.
- “Unified” university sampling and treatment guidelines are given below.
- Applying insecticide with post-emergence herbicides is not recommended.
- Future soybean aphid populations is anybody’s best guess.

Indiana, like most states in the Midwest, has been on a steep learning curve in understanding the soybean aphid and its potential impact on our soybean crop. Many, including ourselves, were frustrated last summer with confusing/conflicting scouting and treatment decisions prevalent from universities and the industry. Early this winter university scientists from throughout this region, including some Canadian Providences, converged and shared laboratory, replicated research, and farm trial results to establish unified scouting techniques and treatment thresholds.

Certainly 2003 was a year of stress for the soybean crop: moisture (too much, too little), cool temperatures, late planting, poor nodulation, numerous diseases, soybean aphid, etc. Quoting Purdue’s soybean specialist Ellsworth Christmas from “Why Were My Soybean Yields Soooo Low?? (Pest&Crop #27, October 17, 2003), “...anything that could have gone wrong with soybeans occurred this year sometime during the growing season. Compound stresses always have a more pronounced impact on yields than a single stress.” Positive yield responses for those treating soybean aphid in a timely fashion last season certainly established that this pest contributed to those “compound” stresses.

It has been agreed by researchers that to best assess soybean aphid, whole plant counts will need to be taken. This means pulling up 20-30 plants/field and counting all the aphids, generally present on the underside of leaves. Identifying soybean growth stages is also imperative while you are scouting. Should you find an average of 250 or more aphids per plant during the early soybean reproductive stages (R1-R4), a treatment is justified. During the pod-fill stages (R5-R6) we feel that treatment becomes less effective. Unless soybean fields are under drought stress, aphid numbers/plant should be at least 500 before insecticides are applied. Treatments made in late August regardless of soybean growth stage are likely to have little value. Do NOT treat soybean beyond the R6 stage of growth. Foraging honeybees and nearby apiaries should be considered when treating at R2 growth stage (full flower).

Some sales representatives and producers have become “creative” in their pest management strategies.
The suggestion of adding insecticide to post-applied herbicide applications to control soybean aphid has serious flaws. The optimum timing for controlling weeds and aphids will not likely be the same. No matter what rumors exist about longevity of insecticides, products will give at best two weeks of efficacy. Post applied herbicides applied in mid May to late June will miss the critical timing for aphid colonization by two to five weeks. Waiting till aphids appear in mid summer to apply herbicides will result in poor weed control. A good herbicide application is dependent on good coverage of the plant canopy and reducing drift which means larger droplet size and lower pressures, however, insecticide application for aphids requires deep penetration into the foliage using higher volumes and pressures.

Will we have a repeat of the soybean aphid in future years? Certainly the soybean aphid is here to stay and it’s probably safe to say that they will be present every year, problem is, nobody knows how many. In hindsight, we believe that the aphid numbers would not have been what they were, at such a critical soybean growth stage (due to generally late planting and delayed development), had we not gotten such a large migration into the state during the later part of July/early August from areas in the Midwest with high infestations (e.g., Minnesota). We also understand that soybean aphid is favored by cooler summer temperatures. These factors alone will have us monitoring soybean aphid populations in northern Midwestern states and weather fronts moving from those areas towards Indiana. This understanding, along with the unified sampling and treatment guidelines, should help us with future management decisions.

### Pre-Applied Insecticide Corn Seed Treatments – (John Obermeyer and Larry Bledsoe) -

- Pesticides protect yield potential; they do not create yield.
- The brief systemic activity of some of these products may protect seed and seedling from some soil insect pests.
- Efficacy ratings given by product and insect.
- If a soil insecticide for rootworm is being used at planting, seed-applied insecticides are not necessary.
- Treated seed should be handled with caution!

These pre-applied seed treatments are from the new insecticide chemistry, nicotinoids that have systemic activity during the early life of the corn seedling. Higher rates of Cruiser (1.125 mg/kernel) and Poncho 1250 (1.25 mg/kernel) are the only products labeled to “protect” seedlings against rootworm. Costs of these higher rates will be competitive with the granular insecticides ($15-18/acre). Although performance of these products against rootworm were addressed in the 2003 November issue of the Pest & Crop, simplified ratings are given in the following table.

Low rates of Cruiser, Gaucho, and Poncho (0.125, 0.16, 0.25 mg/kernel respectively) have shown SOME seed/seedling protection from seedcorn maggot, wireworms, white grubs, and cutworms. The labels of these products state that they will “protect” or provide “protection” from these secondary insects. Because of lack of unbiased, replicated trial data for these secondary insects, our best “guess” ratings are given below. Producers need to consider whether this early seed/seedling protection is worth the $4-6/acre (depending on seed drop) expense. If using a soil insecticide for rootworm control, these seed treatment are not necessary. Granular and liquid soil insecticides will do as good, if not better, job of protecting early corn growth from the soil secondary insects.

<table>
<thead>
<tr>
<th>Insecticide Corn Seed Treatment Efficacy Ratings</th>
<th>CRW</th>
<th>WG</th>
<th>WW</th>
<th>SCM</th>
<th>SCB</th>
<th>BCW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cruiser (0.125 mg)</td>
<td>P</td>
<td>F</td>
<td>G</td>
<td>E</td>
<td>E</td>
<td>F</td>
</tr>
<tr>
<td>Cruiser (1.125 mg)</td>
<td>F</td>
<td>G</td>
<td>G</td>
<td>E</td>
<td>E</td>
<td>F</td>
</tr>
<tr>
<td>Gaucho (0.16 mg)</td>
<td>P</td>
<td>P</td>
<td>G</td>
<td>E</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Poncho 250 (0.25 mg)</td>
<td>P</td>
<td>F</td>
<td>G</td>
<td>E</td>
<td>E</td>
<td>F</td>
</tr>
<tr>
<td>Poncho 1250 (1.25 mg)</td>
<td>G</td>
<td>G</td>
<td>G</td>
<td>E</td>
<td>E</td>
<td>G</td>
</tr>
</tbody>
</table>

1 E=Excellent, G=Good, F=Fair, P=Poor
2 CRW=corn rootworm, WG=white grub, WW=wireworm, SCM=seedcorn maggot, SCB=seedcorn beetle, BCW=black cutworm

In some situations plant stand reduction may occur regardless of the presence of pests. Labels warn that mechanically damaged seed or seed with low vigor may experience poor germination and reduced stands.
Undoubtedly, there will be some hybrid interactions as well.

Another consideration with these insecticide seed coatings that seems to be misunderstood or disregarded is that these products need to handled with care...they are insecticides! Even though the pre-treated seed is not a restricted use product, small amounts of active and inert ingredients will wear off the seed through friction and dusts will be created. Be cautious around air planters, as “plumes” of accumulated product dust and contaminated graphite/talc may be released. Treat the seed with caution. Wear personal protective equipment per the label instructions included with the seed bag and avoid breathing the materials. Spilled seed should be treated as a chemical spill and should be cleaned up to protect non-target organisms, especially aquatic invertebrates and birds. Dispose of the empty bags according to the directions on the label.

Rootworm Insecticide Classifications and Consistency of Performance - (John Obermeyer and Larry Bledsoe) -

- The following table lists registered rootworm soil insecticides by chemical class
- Follow label uses and restrictions
- Many factors should be considered before selecting a product

See Table 3 on the following page.

Weeds

New Weed Management Tools from the Purdue Extension Weed Science Team - (Bill Johnson, Glenn Nice, and Tom Bauman) - 2004 Weed Control Guide for Ohio and Indiana (WS16) – This year we collaborated with Extension Weed Scientists at Ohio State University to produce a single guide for both states. Available on the web at <http://www btny.purdue.edu/Pubs/WS/WS-16/>. Printed version is available for $6.50 from the Ohio State Publications Distribution Office (ph. 614 292-1868)

Purdue Weed Science Website - <http://www.btny.purdue.edu/weedscience/>. Contains frequently updated newsworthy articles for agronomic crops, horticulture crops, turf and lawn, and other general items of interest. Also contains links to sites on weed identification, herbicide injury, weed science faculty, staff and students at Purdue, and weed management tools from Purdue and other Universities.

Indiana Select-A-Herb Website - <http://btny.agriculture.purdue.edu/herbsel/index.cfm>. This web-based tool provides herbicide response ratings for weeds in various cropping systems. The database is an accumulation of weed control ratings from several Midwest sources and allows the user to use drop down menus’ to find herbicides that provide good to excellent control of weeds in crops.

WeedSOFT 2004 for Indiana - <http://weedsoft.unl.edu/>. WeedSOFT® is a decision support system designed to assist growers, consultants, and extension agents in making both proactive and reactive weed management decisions. This comprehensive tool will help farmers in every step of their weed management decision. WeedSOFT® provides you with the treatment information you need according to your specific field conditions while factoring in economic and environmental principles. Whether you are considering early season soil applied treatments, control of mid-season infestations, or comparing treatments requiring additional costs for herbicide resistant crops, WeedSOFT® provides a powerful tool for your weed management decisions. The price of the software has been reduced 75% to $50 per copy. Bulk discounts are also available.

Weeds to Watch Poster – Weed communities continually shift in response to management practices. The weeds included on this poster pose in increasing threat to agronomic fields. The poster also contains maps that provide information regarding current distribution of each specie in Indiana, Illinois, Iowa, Minnesota, Wisconsin and Michigan. A pdf version of the poster is available at this website <http://weeds.cropsci.uiuc.edu/extension/Other/WeedstoWatch.pdf>.
<table>
<thead>
<tr>
<th>Factors</th>
<th>Performance: Test Plots - Band Application</th>
<th>Performance: Test Plots - Infurrow Application</th>
<th>Performance: Test Plots - Treated Seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root damage rating</td>
<td>Consistency of performance (%)</td>
<td>Consistency of performance (%)</td>
<td>Consistency of performance (%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fortress 5G</td>
<td>2.278</td>
<td>2.171</td>
<td>n/a</td>
</tr>
<tr>
<td>Lorsban 15G</td>
<td>2.367</td>
<td>2.272</td>
<td>n/a</td>
</tr>
<tr>
<td>Aztec 2.1G</td>
<td>2.282</td>
<td>2.087</td>
<td>n/a</td>
</tr>
<tr>
<td>Counter CR</td>
<td>1.983</td>
<td>1.891</td>
<td>n/a</td>
</tr>
<tr>
<td>Capture 2E</td>
<td>2.261</td>
<td>2.366</td>
<td>n/a</td>
</tr>
<tr>
<td>Force 3G</td>
<td>2.178</td>
<td>2.175</td>
<td>n/a</td>
</tr>
<tr>
<td>Regent 4SC</td>
<td>2.557</td>
<td>7.0</td>
<td>n/a</td>
</tr>
<tr>
<td>Poncho (treated seed)</td>
<td>1.987</td>
<td>7.0</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Key to symbols: -- = inadequate information, n/a = not applicable, D = danger, W = warning, C = caution, Y = yes, N = no, P = popcorn, E = seed corn, S = sweet corn.

Technical information

- Registered for use in cultivation
- Registered for popcorn/seed corn/sweet corn
- Human hazard (signal word): Granular formulation
- Liquid formulation
- Restricted-use pesticide
- Labeled for control of other soil pests at the rootworm rate
- Registered for control of soil pests at the billbug, seedcorn maggot, seedcorn beetle, seedcorn maggot, white grubs, wireworms and cutworms (granular form) or seedcorn maggot, seedcorn maggot, wireworms and cutworms (liquid form). Registered for control of other soil pests at the rootworm rate.

*Key to symbols: -- = inadequate information, n/a = not applicable, D = danger, W = warning, C = caution, Y = yes, N = no, P = popcorn, E = seed corn, S = sweet corn.

**See “Insecticide/Herbicide Plant Interaction” on page 5.
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