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Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants, and Extension Personnel

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Assess Insect Management Performance:

Growers should not pass up the opportunity to assess the benefits (or shortcomings) of their insect management decisions. One option is to leave one or more untreated check strips within a treated field as a means of roughly gauging how serious pest problems would have been if intervention of some type had not been imposed. Growers of Bt corn hybrids may have a ready-made indicator of protection achieved if their nearby refuge corn was planted to a near-isoline hybrid with similar genetic background, but without the insect management trait. Getting some idea of the actual economic benefit provided by the technology trait (vs. no protection) requires a 'control': the absence of supplemental or alternative insect management strategies targeting the pest that is suppressed or controlled by the enhanced genetics on at least part of the refuge. The two hybrids should have been planted about the same time and received equivalent management (similar soil type, fertilizer, irrigation or rainfall frequency and amount, weed control, etc.). Finding unexpected damage, such as leaf injury (shothole damage) and(or) stalk or root lodging (depending on the plant genetics) should be followed up with efforts to determine if the cause was actually the same species or pest group that the trait was supposed to suppress or eliminate. Remember that different Bt events may control a different spectrum of pests. Without true replication, it is difficult to draw iron-clad conclusions. Making an effort to check out the performance of insect management products (rather than assuming success is guaranteed) can be a wise investment of time and effort for the grower, and also provide useful indications to researchers about where some of their future efforts should be directed. Scouting of fields is important as any crop consultant will verify, not only to assess the need for intervention in the first place, but also to determine the wisdom of decisions taken after the fact. Consultants, seed dealers, county agricultural extension agents, and other agribusiness specialists should be able to help troubleshoot unusual problems. Yet, even after years of diagnosing problems and attending many types of 'train the trainer meetings', the experts get surprised now and then by something they have never seen before. Even if thoroughly replicated trials are not established, growers may be able to gain better appreciation of whether they are truly satisfied with the efficacy achieved as a result of their pest management decisions and might be able to more realistically value the contributions of alternative or new technologies that claim to support profitable production. The information gleaned from comparing untreated and treated strips, while in no

way conclusive, can provide valuable preliminary indications of product efficacy, economic benefit, and may bring into better focus questions that need addressing.

Randy Higgins and J.P. Michaud

Time to Rate Roots for Rootworm Injury:

Well it is almost the 4th of July and that reminds me that now is often a good time to assess corn rootworm injury. As the previous article mentions comparing treated strips with untreated strips can be really useful in determining how well different management practices are working. So, no matter if you are using beetle sprays, soil insecticides or transgenic crops to manage rootworm beetles, it would be worthwhile to leave some untreated strips to see just how well your rootworm management system is working. One way to help asses this is to dig roots in late June or early July to determine just how much root injury has occurred. The ideal time would occur just as adult beetles are beginning to emerge. You want to wait until most of the larval feeding has been done, but before the root system has time to begin to regenerate.

Assessing damage is really a fairly simple process. Simply dig 10 to 20 roots at random from the management systems you want to compare (ideally a treated area, vs. an untreated area, but one can also compare one treatment option with another (soil insecticide vs. rootworm resistant corn). Take the roots to an area where they can be thoroughly washed to remove all soil and then rate the roots using one of the two damaging rating scales commonly employed for rating rootworm damage. The scales are based on the number of nodes of roots having heavy rootworm injury. One is based on a 3 point scale and the other is based on a 6 point scale. Both focus on the appearance of the three functional nodes (or whorls) of roots on a normal corn plant. On the three point system no damage is rated a zero, and one node (circle of roots), or the equivalent of an entire node, eaten back to within approximately two inches of the stalk is rated a 1, two nodes destroyed gets a rating of 2 and three nodes lost is assigned a 3. On the 6 point scale, no damage is rated a 1, minor root feeding is rated a 2, one root destroyed is rated a 3, one node of roots damaged is rated a 4, two nodes is rated a 5 and three nodes is a 6. (See http://www.ent.iastate.edu/pest/rootworm/nodeinjury/nodeinjury.html for more information). While one could debate which scale is better, either one will be useful to determine if there appears to be differences in the amount of damage observed among treatments. Minor differences are probably not too meaningful, but no damage vs. an entire node or two of roots missing will probably be meaningful. Notes on root damage, combined with yield estimates could be very helpful in fine-tuning future management strategies.

Phil Sloderbeck

Potato Leafhoppers:

Sampling alfalfa fields in south central and north central Kansas the last two weeks indicates adult potato leafhoppers are present. Have not yet detected any nymphs but with the adults present the eggs are being oviposited in the plant tissue so nymphs will start emerging. This is an excellent time to scout alfalfa fields to determine population densities and before damage is evident. These adult leafhoppers begin laying eggs

soon after arriving in Kansas (I first sampled and found them on 22 June) and the eggs hatch 7-10 days later. This usually continues for 6-8 weeks so there is the possibility of large numbers of potato leafhoppers in the next week and then for the next 6-8 weeks. We generally have 2-3 generation in Kansas. Remember evidence of leafhopper feeding starts at the tip of the leaf with a yellowing and then proceeds to the base of the leaf (often called “hopper-burn”). Older feeding damage may be a reddish or purple discoloration. Feeding damage in alfalfa stubble may result in short, bushy or leafy tops to plants as the leafhopper feeding reduces the elongation of the stems. Consult the Alfalfa Insect Insect Management 2005 guide at your local County Extension office or on the web at: http://www.oznet.ksu.edu/library/ENTML2/MF809.pdf for treatment thresholds and registered insecticides.

Leafhopper

Feeding damage

Jeff Whitworth

Cotton Insects

We are nearing the time when fields should be scouted for fleahoppers and tarnished plant bugs. The cotton fleahopper is probably the most common plant bug in Kansas cotton fields. They are 1/8 inch long, yellowish-green insects with an elongated, oval-shaped body. Nymphs may be white to light green, small and appear to be all legs and antennae. Another plant bug that can cause problems is the tarnished plant bug which is approximately 1/4 of an inch in length and tarnished brown in color and may be more common in cotton fields near alfalfa.

Fleahopper Adult

Fleahopper Nymph

Begin scouting for plant bugs and damage when cotton reaches the six-leaf stage. Plant bugs damage immature flower buds. If small squares (immature flower buds) turn brown and drop to the ground, the problem could be physiological or it could indicate the presence of plant bugs. If more than 20 percent of the small squares are lost in prebloom cotton, it is time to examine the plants for plant bugs.

Scouting may be difficult because adults may jump from plants if they see a shadow. During the first three weeks of squaring, the economic threshold is approximately 40 fleahoppers per 100 terminals. Other sampling techniques involve the use of a drop cloth or sweep net. When sampling with a drop cloth, a 3ft white cloth is placed between the rows and the plants are shaken vigorously over the cloth. Treatment should be considered when counts range between one bug per 1 foot of row to one bug per 3 feet of row. With a sweep net, the threshold ranges between 1 and 1½ bugs per 10 sweeps. Note that the sweep net may miss small nymphs.

Keep in mind, that while fleahoppers are not uncommon in Kansas cotton fields, populations observed so far have often been below threshold levels. Also, if square retention is 75 percent or greater, there is probably not a significant plant bug population. Where significant numbers of plant bugs are found, use insecticides that have the least effect on beneficial arthropods, because these insects are important for the suppression of bollworm later in the season. Use lower rates and do not try for 100 percent fleahopper control. Insecticides labeled for fleahopper control can be found in Cotton Insect Management 2005, http://www.oznet.ksu.edu/library/entml2/mf2674.pdf

Phil Sloderbeck

Weekly Report from the Kansas State University Insect Diagnostic Laboratory:

The following samples were submitted to the Insect Diagnostic Laboratory from June 24 through June 30, 2005:

6-24-2005, Barton County: Flatid Planthoppers on garden plants.
6-24-2005, Norton County: Small Dung Flies in office building.
6-27-2005, Morton County: Springtails in home.
6-27-2005, Ford County: Spider Mites on spruce.
6-27-2005, Allen County: Digger Bees in barn.
6-28-2005, Riley County: Acrobat Ants in home.
6-28-2005, Crawford County: Predaceous Diving Beetles in pool.
6-29-2005, Ford County: Bedbugs in home.
6-29-2005, Barton County: Various flies in home.
6-30-2005, Riley County: Brown Recluse Spider from home.

If there are any questions regarding these samples or about the identification of any arthropod please contact the Insect Diagnostician at 785-532-4739 or at bbrown@oznet.ksu.edu.

Bobby Brown

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Sincerely,

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