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It's Time to Check for Corn Rootworm Damage

Maybe a more applicable title for this article is "It's Time to Evaluate Our Corn Rootworm Management Programs".

Either way, the next 2-3 weeks will be a good time to start spot-check continuous corn fields for corn rootworm feeding injury. Peak damage will usually occur by late July. Waiting longer increases the risk of regenerated roots masking injury.

Mid to late July in Wisconsin is the time you can validate your corn rootworm management decisions by checking for root damage. This is the time period just after feeding damage would have occurred, and just before regrowth would start to mask the damage.

Some growers have elected to change their rootworm control practices because of low corn prices and very low beetle populations. Digging and rating roots for injury during this time period can confirm efficacy and hopefully relieve anxiety questioning if they made the correct choice. Evaluating roots will also give you a heads up on any Bt resistance problems you may have.

A frequently asked question is how reliable is lodging as a predictor of larval feeding?

The short answer is that corn lodging is a very poor indicator of rootworm damage. Corn can lodge because of several causes. Rootworm feeding can be a reason but you still have to dig/wash roots to verify. Incidentally, you may have corn that is standing straight yet have significant rootworm feeding.

The best way to evaluate rootworm damage is to dig a 6-7 inch ball of roots and pressure wash all the soil off to expose damage. We should evaluate 10 plants from different areas in the field to get a good survey of the field. To quantify root damage use the Nodal Injury Scale developed at Iowa State University. This is an excellent rating system. More information is available at <http://www.ent.iastate.edu/pest/rootworm/nodeinjury/nodeinjury.html>. Essentially, the injury scale uses a decimal system. The number to the left of the decimal indicates the number of complete nodes (or equivalent number of nodes) of roots pruned back to within 1 ½ of the stalk. The number to the right of the decimal indicates the % of the next node of roots pruned. A root rating of 1.2 indicates the equivalent of one complete node of roots is pruned and 20% of the next.

Relating injury to yield loss can be difficult because of several variables which include, weather, hybrid, etc. Typically, a field rating of greater than 0.75 indicates economic yields loss. Ratings less than 0.25 will probably not have economic loss. Injury between 0.25 and 0.75 is a gray area. Economic loss will be dependent on the factors mentioned above as well as compaction, general plant health and future environmental conditions.

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Surveying roots on first year corn will give you information regarding the prevalence and/or severity of damage from the rotation resistant western corn rootworm. Although damage to first year corn was originally diagnosed in Wisconsin during the 2002 growing season, its incidence has diminished. Also, there have been no reports of first year corn injury outside of southern Wisconsin. As we stress the need to revive IPM practices for corn rootworm, this information can give corn growers and crop consultants information needed to make an informed decision in rotated corn.

One of the first tools needed for resistance management is documentation. Making a practice of evaluating roots from Bt CRW hybrids will give you the information needed to make appropriate management decisions that will help delay resistance. It is unlikely we can "turn the clock back" on resistance to individual Bt CRW proteins so early detection will be important. Resistance could be expected if you have a field average NIS of 1.0 and you have been using a single Bt toxin for two consecutive years or more. Or, if a field average, NIS rating of 0.5 or higher is noticed in a field that has used a pyramid Bt CRW toxin for at least two consecutive years. If resistance is expected, please contact your county extension agent as well as your seed dealer.

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