Evaluating Corn Roots for Corn Rootworm Damage

Corn rootworms (CRW) are an important economic pest in Wisconsin. CRW larvae feed on corn roots. By evaluating the extent of root injury you can determine:

- the effectiveness of your rootworm management practice(s)
- if resistance to the Bt Corn Rootworm hybrids is occurring
- if rootworms are a problem on first year corn

Evaluate corn roots in **mid-July to early August.**

Dig several roots per field. Wash off all soil with a power washer.

Roots grow from nodes that are often called whorls.

A root is considered pruned if chewed back to within 1½” of the stalk.

Estimate extent of root injury using the Nodal Injury Scale (NIS).
The NIS rating system, developed by Iowa State University, is a based on a decimal system.

1.20

The number to the left of the decimal equals the number of root nodes completely pruned. The number to the right equals the percentage of the next node of roots pruned.

In the example above, a NIS rating of 1.20 would mean that 1 complete node (or equivalent) of roots is pruned + 20% of the next node is pruned.

Economic threshold guidelines:

- If NIS rating < 0.25, no economic loss
- If NIS rating is between 0.25 and 0.75, economic loss is dependent on plant stresses (compaction, fertility, disease, etc.)
- If NIS rating is > 0.75, economic loss is likely

Resistance to BT CRW should be considered:

- If NIS rating is 1.0 and at least two consecutive years use of a single Bt toxin
- If NIS > 0.5 or with at least two consecutive years use of pyramid Bt CRW toxins