2020 Advanced Crop Advisors – Fargo,ND

Points to consider when choosing a neonicitinoid seed treatments for soybean

- Neonicitinoids (Group 4A) are the most widely used class of insecticides.
  Corn, soybeans, cotton, wheat, canola, fruits, vegetables, ornamental horticulture, turf
- Neonicitinoid seed treatments are targeted against early-season pests
- A valuable crop protection component for some insect pests
  E.g. preventing virus transmission in soybeans for seed production
- Their broad spectrum, ease of use and low mammalian toxicity encourage widespread prophylactic use
- 79-100% U.S.A. corn and 33-44% soybean seed treated (2011 estimate).
  Corn amount doubled 2011-15, Soybeans projected to hit 50% of acres
- Neonicitinoid seed treatments have the potential to cause adverse environmental effects through dust and through leaching into bodies of water
- A seed treatment does not eliminate the "need" for scouting
- Research has shown that under concurrent, low insect pressure, neonicitinoid seed treatments increase production costs without economic benefit
- Soybeans can compensate for stress including stand loss, defoliation
- Yield impacts from insect defoliation (LAI) are not the same as disease, low light, etc. (photosynthetic rate)
- Populations of secondary pests can be flared and beneficial populations can be affected
- Neonicitinoid resistant pest populations can be selected.
- The economic benefit of neonicitinoid seed treatment depends on the insect pest populations in a field
- Early season insect populations are rare and sporadic
  Use scouting and field history to assess risk
- Combinations of insecticides and fungicides make assessing insecticide impacts difficult
- Multi-state research projects show widespread, prophylactic neonicitinoid seed treatments not advisable from a pest control, yield, or economic standpoint in the north central region
  A different pest complex can change the odds in the mid-south

Bruce Potter
University of Minnesota Extension IPM Specialist
University of Minnesota SW Research and Outreach Center
23669 130th Street
Lamberton,MN 56152
bpotter@umn.edu
Cell: (507) 276-1184
http://swroc.cfans.umn.edu/ag-programs/Pest-management
Twitter: https://twitter.com/SWMNpest Facebook: https://www.facebook.com/swroc

2020 Advanced Crop Advisors – Fargo, ND

Key points in the management of European corn borer (ECB) in field corn.

- Historically, diseases (*Nosema* and *Beauvaria)* and parasites caused 5 to 7 (mean 5.33) year cycles in MN ECB populations.
    - *Current low ECB populations make it hard to identify population cycles but Nosema is still a factor.*
- ECB populations have been suppressed since the widespread adoption of Bt.
    - *Bt effects extend beyond the field in which they are planted*
    - *Suppression and economic benefits continue*
- Current population remain very low but risk is not zero.
    - *Risk increases with prolonged use of non-Bt over a wide area*
    - *Scouting important to prevent economic yield loss*
- Resistance to single Bt trait reported in eastern Canada
    - *Assumed to be a different biotype than MN, etc.*
- Multivoltine and univoltine biotypes require different scouting and control timings
    - *Univoltine should predominate in north*
    - *Break diapause at different times*
    - *Attack different corn stages/yield loss potential/insecticide efficacy*
    - *Prioritize scouting based on risk*
- Use of moth flight data and degree-day models improves efficiency
- Dynamic economic threshold includes variable price, control cost, loss/borer/stage
- Bt is compatible with IPM (crop rotation, biocontrol, natural tolerance)
- Resistance management is a concern

Additional references

NCR 327 https://store.extension.iastate.edu/Product/European-Corn-Borer-Ecology-and-Management-and-Association-with-other-Corn-Pests

ISU condensed version of above https://store.extension.iastate.edu/Product/Ecology-and-management-of-European-corn-borer-in-Iowa-field-corn

NDSU https://www.ag.ndsu.edu/extensionentomology/field-crops-insect-pests/Documents/corn/european_corn_borer

MN Bt Advice https://blog-crop-news.extension.umn.edu/2019/11/reducing-bt-trait-acres-in-2020.html

Products are mentioned for illustrative purposes only. Their inclusion does not mean endorsement and their absence does not imply disapproval.