ag.systems April, 2022

CORN NEWS 2022

Corn Post-Emergence Herbicides and Plant Stress

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Summary

Post-emergence corn herbicides are applied to eliminate competing weeds at a time when the corn plant is producing the rows-around on the cob.

- Caution is needed when selecting herbicides due to hybrid sensitivity to certain herbicides
- Alkaline water carriers can enhance stress from herbicides
- Corn fields planted after late April, near wheat fields or planted no-till will need a pyrethroid insecticide to control brown stink bugs
- Growers can add fulvic acid, ammino acids and/ or sugars to relieve plant stress
- ***Source***®, a new microbiome activator, applied now as a foliar, will ***replace 40-50 lbs./acre of nitrogen*** fertilizer in the sidedress application.
- Iron, molybdenum and manganese can be added to remove yield-limiting nutritional stress

Herbicide Safety: Post-emergence herbicides can be stressful on corn plants. Cooler weather and wet or very dry soil conditions compound this stress. Seed companies issue warnings for a hybrid's tolerance to four groups of herbicides when used in corn post-emergence applications:

1. Amides
2. Synthetic Auxins
3. Isoxazoles
4. Sulfonylureas

Trade names for the different groups are listed in the table below.

Corn injured by post-emergence herbicide compounded by shallow seed placement

The potential for hybrid-herbicide interaction stress is impacted by:

- The herbicide and rate used
- The method of application (gals./acre)
- The water pH (alkaline water reduces efficacy and increases stress)
- The timing of application: growth stage

When using high pH water (>7.0), add an acidifier like LI-700® or Blendex® at low doses (2-4 ozs/100 gals) to lower the pH to mitigate plant stress.

Early-Season Stinkbugs: Several corn fields were planted late in 2022 and, as the wheat dries down, stinkbug pressure is likely to increase. Adding a pyrethroid with this application is important.

Herbicide Families	Example of Products In Herbicide Family
Amides (Group 15)	Harness Surpass, Dual II Magnum, Outlook, Lasso, Topnotch, Degree, Define, Ramrod, Cinch and several generics
Benzoic Acid, Phenoxy (Synthetic Auxins) Group 4	Clarity, 2,4-D, Banvel, Distinct, Status (part is Group 19)
Isoxazoles (HPPD Inhibitors) Group 27	Balance Pro, Balance Flexx, Callisto, Impact, Laudis, Capreno, Corvus
Sulfonylureas (ALS Inhibitors) Group 2	Accent, Basis, Beacon, Permit, Steadfast, Resolve Q, Python, Leadoff

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Stink bug feeding causes three types of damage. They may kill small seedlings, produce stunted plants, or cause "suckering" (the production of tillers from the base of damaged plants) as shown in this photo. Stinkbugs are very difficult to find in corn.

Generally, the pressure is greatest on later planted corn; think late April / May. A mid-labeled rate of pyrethroids usually will stop these brown stinkbugs. Remember, each plant in 1/1,000 of an acre means a seven-bushel per acre yield loss.

Adding Biologicals to Mitigate Stress: "Biologicals" can be separated into three broad groups:

Probiotics - actual living microbes such as bacteria, fungi, algae and protozoa. Examples include all soybean inoculants, Proven N40, Ethos XB and some corn seed treatments. Almost all are placed in-furrow or on a seed to colonize the roots at germination.

Prebiotics - those materials provide nourishment to allow microbes/probiotics to flourish. Examples include Exalt, Amplify, Relay, humic/fulvic/ ammino acids, sugars, zinc.

Plant Growth Promotors (PGP) - materials that can encourage or even mimic plant functions. Some are considered plant growth promoters while other are considered microbe activators.

Many are used to activate nitrogen fixation (bacteria), phosphorous solubilization (bacteria and fungi) and increase plant health (bacteria and fungi). Examples include Source, Arcus, Accomplish LM, Titan.

Our recommendation to include with corn post-emergence herbicides is ***Exalt***™ (ROI Biologicals) to enhance nutrient uptake and stimulate plant health microbes plus ***Source***™ (Sound Ag) to replace 40-50 lbs./acre of sidedress fertilizer nitrogen.

The goal for including these materials in the spray mix is to try to overcome the stress of corn herbicide applications ***at the same time*** the corn plant is deciding the number of rows around the ears will have at pollination. Corn that has 14-16 rows around at harvest was likely stressed when this application was made.

Stinkbug damage in corn.

Iron, Molybdenum (moly) and Manganese: While essential for plant growth, these nutrients are also the "microbe" nutrients. Iron and manganese are most effective when applied as foliar nutrients. Moly can be applied either as a soil or foliar application but helps when applying iron.

These elements are difficult to manage and all three are critical for plant functions and required by microbes. In addition to increasing plant's ability to defend itself against insects and diseases, they stimulate soil and plant microbes to help the plant in these functions.

The best sources for these materials is Manganese EDTA chelate, sodium molybdenum and iron sulfate. Molyron (Renwood Farms) is a mix of moly and iron (1 pt./acre) and can be added 1 qt./acre of 6% EDTA Mn (various sources).