CORN SEED PRODUCTS INJURY RESPONSE TO SELECTED HERBICIDES UNDER HIGH PH SOILS

TRIAL OVERVIEW

- High pH soils are common in Western Kansas and Eastern Colorado.
- Corn seed products have varying tolerance to high pH soils and these products may have differential injury response to selected growth regulator and HPPD inhibitor herbicides when applied on high pH soil conditions.

RESEARCH OBJECTIVE

- The trial was designed to determine corn seed product injury response to selected herbicides applied early postemergence, when planted in high pH soils.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Bethune, CO	Silt loam	Corn	Strip-till	05/08/2017	10/10/2017	240 bu/acre	34,000 seeds/acre

SITE NOTES:

- The trial was planted in two blocks. One block was placed on high pH soils (pH = 8.3) and a check plot was planted on more neutral pH soils (pH = 7.7).
- The trial was sprayed with each herbicide product, early postemergence, at the maximum labeled rate across the rows at the V2 (two visible leaf collars) growth stage.
- Plots were evaluated for herbicide injury one week after spray application and rated using the following scale.
  Warning = plots exhibiting greater than 50% herbicide injury.
  Caution = plots exhibiting 10 to 49% herbicide injury.
  Good = plots exhibiting less than 9% herbicide injury.

UNDERSTANDING THE RESULTS

		Herbicide Active Ingredient (site of action)			
Relative Maturity (RM)	Corn seed product tolerance rating to high pH soil	tembotrione (HPPD inhibitor) - Laudis® applied at 3 fl oz/acre	isoxaflutole (HPPD inhibitor) - Balance® Flexx applied at 5 fl oz/acre	mesotrione (HPPD inhibitor), metolachlor (long-chain fatty acid inhibitor), glyphosate (EPSP synthase inhibitor) - Halex® GT applied at 4 pt/acre	dicamba (growth regulator) - Clarity® applied at 16 fl oz/acre
100 RM	Good				
101 RM	Average				
103 RM	Good				
104 RM	Good				
105 RM A	Caution				
105 RM B	Caution				
107 RM	Good				
109 RM	Good				
110 RM	Good				
112 RM A	Good				
112 RM B	Caution				
113 RM	Good				
	Herbicide Injury Response Ratings	Good	Caution	Warning	

Table 1. Corn seed product injury response to various herbicide active ingredients in high pH (8.3) soil conditions.

- No herbicide injury response was observed in near neutral pH (7.7 pH) soil conditions (data not shown).
- Only one of the corn seed products rated as having "good" tolerance to high pH soils (109 RM) exhibited herbicide injury response to tembotrione ("warning").
- Corn seed products not recommended for high pH soils, 105 RM A, 105 RM B, 112 RM B ("caution" tolerance to high pH soils), exhibited increased herbicide injury response for nearly all herbicide active ingredients.

WHAT DOES THIS MEAN FOR YOUR FARM?

- Corn seed products rated as "caution" for planting in high pH soils generally have a greater risk of exhibiting herbicide injury response from certain HPPD inhibitor and growth regulator herbicides.
- If high pH soils are a concern, consult your local seed dealer about selecting the appropriate corn seed products that have high pH tolerance and fit your agronomic needs.
- Use care when selecting herbicide programs for weed control if planting corn seed products with "average" or "caution" pH tolerance ratings to high pH soil.