Managing Volunteer Corn in 2,4-D Tolerant Soybeans

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Introduction

- Tank mixing 2,4-D with grass controlling herbicides creates antagonism
- Antagonism **will cause** reduced grass and volunteer corn control

Implications for poor volunteer corn control

- Soybean yield loss (10-50+%), inadequate control creates potential corn rootworm management issues
- Harvestability issues and marketing concerns from soybean contaminated with corn grain

Methods

- Small-plot replicated research trials were conducted at Waseca and Rochester in both 2022 and 2023
- 16 tank-mix treatments and 2 sequential applications were evaluated for volunteer corn (VC) control
- Tank-mixes consisted of a core treatment of 2,4-D alone or 2,4-D plus glyphosate
- Each core treatment was tank mixed with a high and low rate of two different grass controlling herbicides (select max and assure II) all combinations were with and without a *S*-metolachlor (SMOCH) residual tank-mix component
- Sequential applications consisted of the 2,4-D plus glyphosate base treatment followed by the low rate of each grass controlling herbicide, applied 7 days after the core treatment

Results

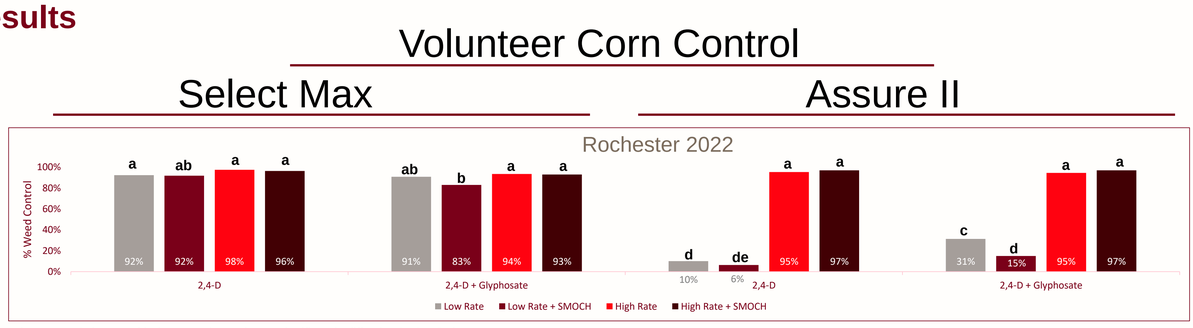

Figure 1 a. Columns with the same letter do not significantly differ (P=0.10, LSD)

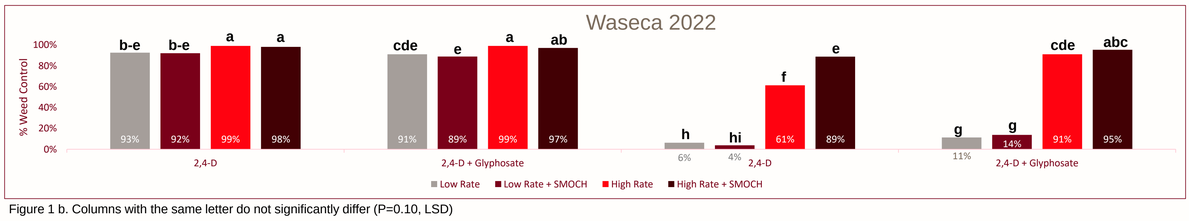

Figure 1 b. Columns with the same letter do not significantly differ (P=0.10, LSD)

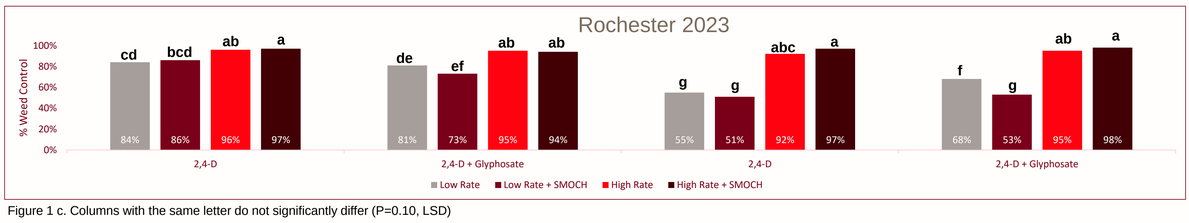

Figure 1 c. Columns with the same letter do not significantly differ (P=0.10, LSD)

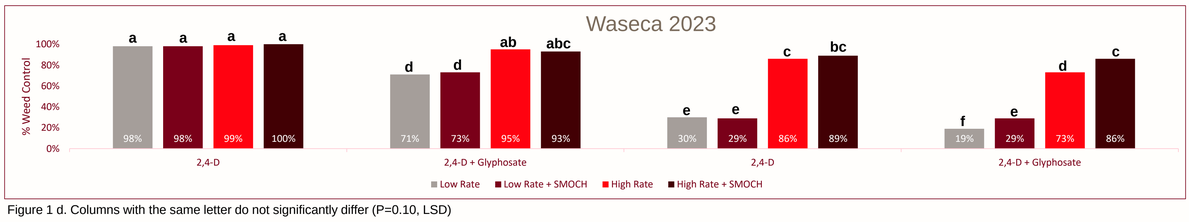

Figure 1 d. Columns with the same letter do not significantly differ (P=0.10, LSD)

Discussion

Select Max

- Tank-mixes with select max at the higher rates provided consistent and adequate (≥ 90%) VC control
- Tank-mixes with select max at low rates provided better weed control than tank-mixes with assure II at low rates.
- In 2022, tank-mixes with select max at low rates provided adequate or nearly adequate VC control (Figures 1 a,b)
- In 2023 at Rochester, tank-mixes with select max at low rates did not achieve adequate (< 90%) VC control (Figure 1 c)
- In 2023 at Waseca, tank-mixes with low rates of select max and 2,4-D alone had adequate VC control, while tank-mixes with low rates of select max and 2,4-D plus glyphosate had inadequate VC control. (Figure 1 d)

S-metolachlor

- Regardless of tank-mix combination, when VC control was acceptable, addition of SMOCH did not have any negative impact on VC control

Assure II

- In 2022 and 2023 at all sites, the low rates of assure II in tank-mixes with or without glyphosate resulted in reduced volunteer corn (VC) control when compared to the higher rate tank mixes (Figures 1 a-d)
- In 2022 and 2023 at all sites, the low rates of assure II in tank-mixes with or without glyphosate resulted in unacceptable (<90%) VC control
- High rates of assure II in tank-mixes resulted in inconsistent VC control
- In 2022 and 2023 at Waseca, high rates of assure II in tank-mixes resulted in mostly unacceptable VC control (Figures 1 b,d)
- In 2022 at Waseca high rates of assure II in tank-mixes including glyphosate resulted in better VC control than tank mixes without glyphosate (Figure 1 b)
- In 2022 and 2023 at Rochester, high rates of assure II in tank-mixes resulted in acceptable VC control (Figures 1 a,c)

Sequential Treatments

- Sequential treatments provided adequate control of VC and were often some of the best treatments (data not shown)

More details!