

Caution: Herbicide Tank Mixes Can Injure Your Corn

Introduction:

With the change of policy of registered tank mixes a few years ago, various herbicide tank-mixes have evolved to control volunteer glyphosate canola in glyphosate tolerant corn stands. Some herbicide options may have harmful effects on corn, despite being registered individually on the crop. To address this issue, and several recommendations from competitors in the market, Pioneer conducted an herbicide tank-mix study.

Study Guidelines:

This study addresses the potential effect of certain herbicide groups when tank-mixed with glyphosate & applied to glyphosate tolerant corn. It also aims to provide recommendations on how to best control glyphosate tolerant canola volunteers within glyphosate tolerant corn fields. The study consisted of several hybrids from Pioneer and competitors. These hybrids were randomized and treated with 5 different herbicide treatments (table 1)

Table 1. *Herbicide Treatment list*

Treatment	Application Rates
Glyphosate	1.0L/ac (360 g ae equivalent)
Glyphosate + Banvel	1.0L/ac (360 g ae equivalent) + 0.243L/ac
Glyphosate + 2,4-D	1.0L/ac (360 g ae equivalent)+ 0.4L/ac (600 g/L)
Glyphosate + MCPA	1.0L/ac (360 g ae equivalent)+ 0.45L/ac
Glyphosate + Pardner	1.0L/ac (360 g ae equivalent) + 0.48L/ac

Herbicide injury notes were taken at 3 days, 10 days and 21 days post application and yield, moisture and brittle snap scores were recorded. Herbicide applications were done at V3-V4 stage

Observations

When comparing treatments to the Glyphosate only treatment the following observations were noted in all hybrids, including competitive product..

- Significant lodging and stunting occurred in 2,4-d, Banvell II and MCPA Amine treatment after 3 days post application in all hybrids, including competitive hybrids.
- Significant Brittle snap occurred in 2,4-d treatment.
- Minor Brittle snap occurred in Banvell II & MCPA.
- Some leaf burn was noted in Pardner treatment.
- 2,4-d ↓ yields by an average of 24% across all hybrids.
- Yields ↑ in Gly + Pardner treatment by an average of 11% across all hybrids.
- No statistical difference in hybrid interaction with any treatment.

Gly + 2,4-d



Gly Only



Gly + Banvell II



Gly +MCPA Amine



Gly + Pardner



Competitive Hybrid Gly + 2,4-d



Competitive hybrid Gly + Pardner



Results

No matter which hybrid is planted, 2,4-d + Glyphosate caused the most yield loss (as shown in the above photos taken 10 days after application). Despite the initial leaf burn, Bromoxynil products are less damaging to corn and provide good control of weeds that Glyphosate alone does not. Remember when using Bromoxynil, do not reduce your water volumes. Dicamba and Phenoxy herbicides can cause significant crop injury. Always read and follow herbicide labels directions and rates, or consult your local Pioneer Hi-Bred Sales Rep. For more information, consult Pioneer's Herbicide Hybrid Management Guide