Control of Glyphosate-Resistant Giant Ragweed (*Ambrosia trifida*) by Tank- Mixing Glufosinate with 2,4-D and/or Dicamba in Corn

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INTRODUCTION

- Glyphosate-resistant giant ragweed is a problematic and most competitive weed in corn and soybean.
- Currently, limited POST herbicide options are available for effective control of glyphosate-resistant giant ragweed.
- With no glufosinate-resistant broadleaf species reported yet, glufosinate is an alternate option for controlling glyphosate resistant weeds including giant ragweed in glufosinate-resistant corn.
- The next-generation herbicide-tolerant corn being build on the Roundup Ready platform with two additional herbicide tolerances, including dicamba and glufosinate, to provide farmers more options in their weed management system.

OBJECTIVE

- To evaluate efficacy of tank-mixing glufosinate with phenoxy-herbicides for control of glyphosate-resistant giant ragweed.

MATERIALS AND METHODS

- An experiment was conducted in 2013 at Clay County, NE in a corn field infested with glyphosate-resistant giant ragweed.
- The experiment was arranged in a randomized complete block design (RCBD) with four replications.
- The treatments included glufosinate, 2,4-D and dicamba applied alone and in two / three-way tank-mixes at varying rates.
- The treatments were applied 30 DAP and giant ragweed plants were >30 cm tall.
- The observations were recorded for visual weed control, weed density and weed biomass and yield.
- Data were subjected to ANOVA using PROC MIX procedure in SAS.

Table 1. Herbicide treatment details and application rates.

Herbicide treatment	Application rate (kg ae ha^{-1})
Nontreated Control	
Glufosinate + Dicamba	0.45 + 0.28
Glufosinate + Dicamba	0.45 + 0.56
Glufosinate + Dicamba	0.59 + 0.28
Glufosinate + Dicamba	0.59 + 0.56
Glufosinate	0.45
Glufosinate	0.59
Dicamba	0.28
Dicamba	0.56
2,4-D	0.28
2,4-D	0.56
Glufosinate + 2,4-D	0.45 + 0.28
Glufosinate + 2,4-D	0.45 + 0.56
Glufosinate + 2,4-D	0.59 + 0.28
Glufosinate + 2,4-D	0.59 + 0.56
Dicamba + 2,4-D	0.28 + 0.14
Glufosinate + Dicamba + 2,4-D	0.45 + 0.28 + 0.14
Glufosinate + Dicamba + 2,4-D	0.59 + 0.28 + 0.14
Glufosinate + Dicamba + 2,4-D	0.59 + 0.56 + 0.14
Glufosinate + Dicamba + 2,4-D	0.59 + 0.56 + 0.28

a). Glufosinate + Dicamba + 2,4-D 30 DAT

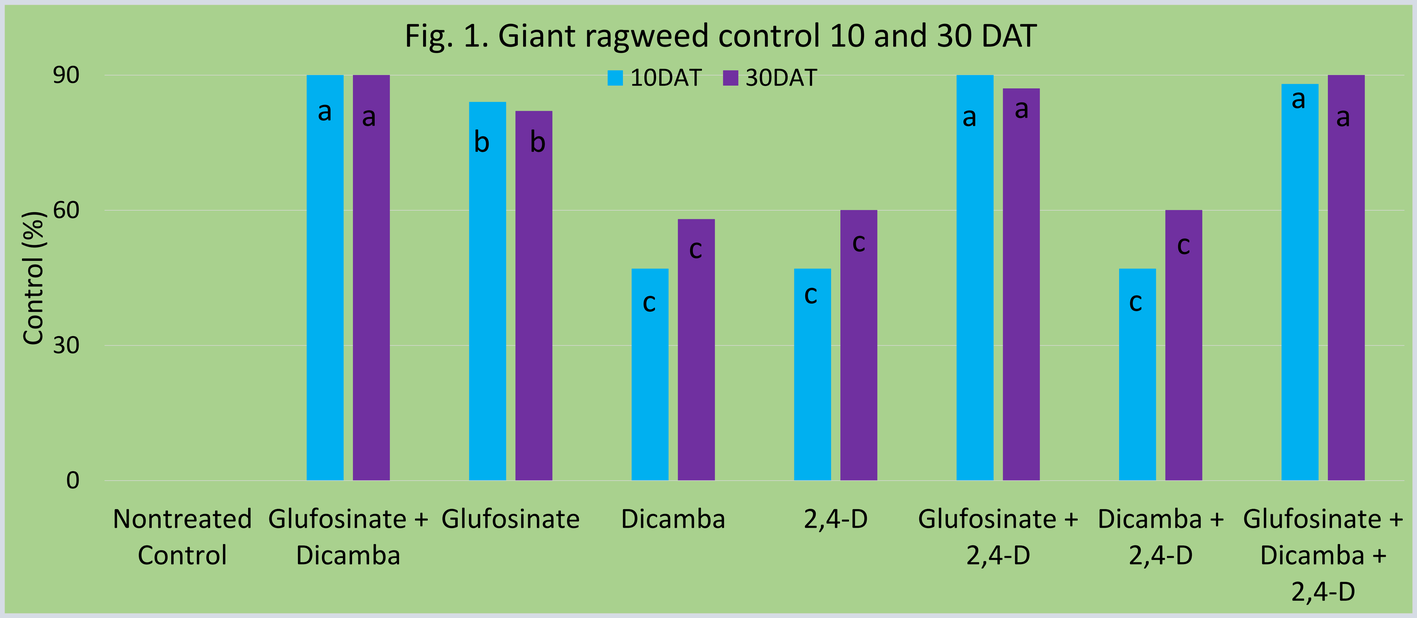
b). Glufosinate 30 DAT

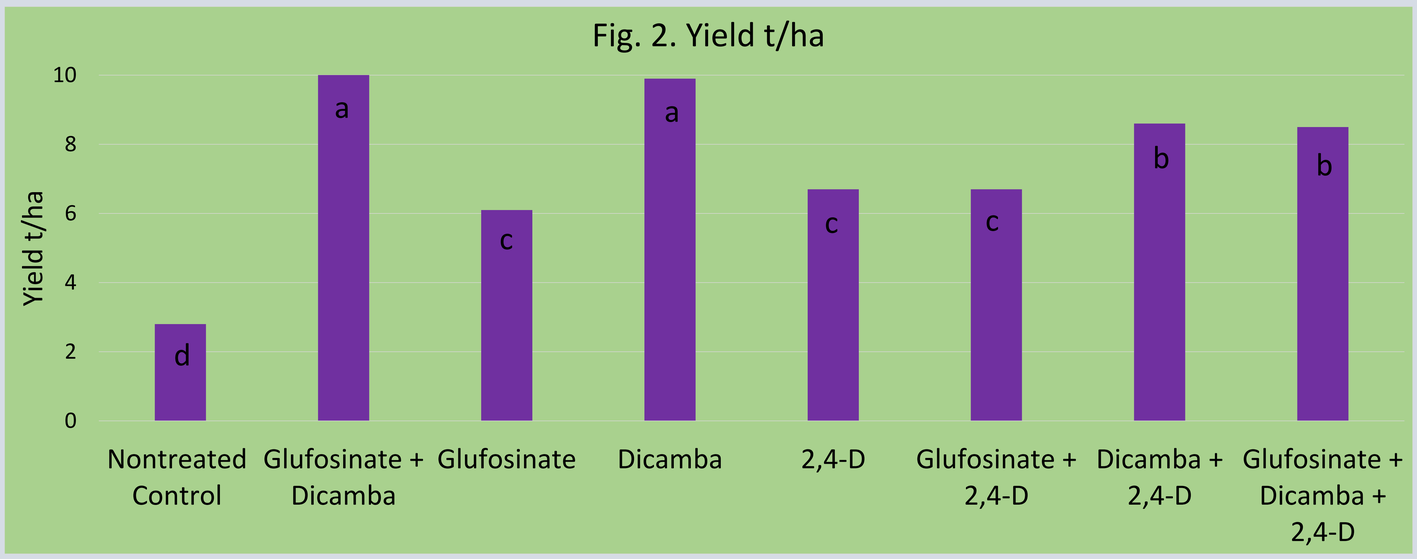
c). Glufosinate + Dicamba 30 DAT

d). Glufosinate + 2,4-D 30 DAT

e). Nontreated control

RESULTS





CONCLUSIONS

- The results revealed glufosinate applied in tank-mix with 2,4-D and/ or dicamba provided 90% giant ragweed control at 10 and 30 DAT compared to glufosinate, dicamba or 2,4-D applied alone.
- More yield was obtained with tank-mixtures compared to alone applications except dicamba used alone.
- Giant ragweed control was <10% with 2,4-D used at a lower rate of 0.28 kg ae ha.$^{-1}$ (Data not shown).
- Among the tank-mixes, glufosinate + dicamba, 2,4-D + dicamba and glufosinate + dicamba + 2,4-D provided significantly higher yield compared to alone application of glufosinate, 2,4-D and glufosinateglufosinate + 2,4-D tank-mix.