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Introduction

- Volunteer corn is a problematic weed in soybeans.
- It results either from the overwintering seeds of the corn hybrid used the previous year or from a failed corn stand in a corn replant situation.
- It can reduce soybean yield up to 25% at volunteer corn density of 5,380 plants ha⁻¹ (Beckett and Stroller, 1988).
- Volunteer corn seeds contaminate the harvested soybeans and reduce the market quality.
- It also plays a role in survival and dispersal of corn rootworm and grey leaf spot disease.
- Information is not available for control of glyphosate- resistant corn volunteers in glufosinate-resistant soybeans.



Objective

To compare the efficacy of glufosinate applied alone or with the tank mix of graminicides for control of glyphosate-resistant corn volunteers in glufosinate-resistant soybeans.

Materials and Methods

- Field experiment was conducted in Clay County, NE in 2013.
- Study was established in a randomized complete block design with four replications.
- Each plot was 3.0 m wide and 9.0 m long and consisted of four rows of Liberty Link 'Stine 30 LC 28' soybeans spaced 0.75 m apart.
- Early-POST application of different herbicides was done 30 days after volunteer corn planting.
- Height of corn plants during application was 30-35 cm.
- Late-POST glufosinate application was done 15 days after Early-POST herbicides application.
- Visual control ratings of volunteer corn at 15, 30, 45, 60, 90 and 120 days after E-POST and L-POST treatments were recorded.
- Volunteer corn biomass harvested and fresh and dry weights were recorded.
- Data was analysed by SAS (9.3) using Proc Mixed model.

Table 1. Treatments used in the study

Treatments	Code	Rate(kg ai ha ⁻¹)
Nontreated control	A	-
Glufosinate	B	0.45
Glufosinate	C	0.6
Glufosinate	D	0.74
Glufosinate fb Glufosinate	E	0.45 fb 0.6
Glufosinate fb Glufosinate	F	0.6 fb 0.6
Glufosinate fb Glufosinate	G	0.74 fb 0.6
Clethodim fb Glufosinate	H	0.14 fb 0.6
Clethodim + Glufosinate fb Glufosinate	I	0.14 + 0.6 fb 0.6
Quizalofop fb Glufosinate	J	0.04 fb 0.6
Quizalofop + Glufosinate fb Glufosinate	K	0.04 + 0.6 fb 0.6
Fluazifop fb Glufosinate	L	0.21 fb 0.6
Fluazifop + Glufosinate fb Glufosinate	M	0.21 + 0.6 fb 0.6
Fenoxaprop + fluazifop fb Glufosinate	N	0.13 fb 0.6
Fenoxaprop + fluazifop + Glufosinate fb Glufosinate	O	0.13 + 0.6 fb 0.6
Sethoxydim fb Glufosinate	P	0.35 fb 0.6
Sethoxydim + Glufosinate fb Glufosinate	Q	0.35 + 0.6 fb 0.6

Results

Fig 1. Control of glyphosate- resistant volunteer corn in glufosinate- resistant soybeans at 15 and 30 DAT

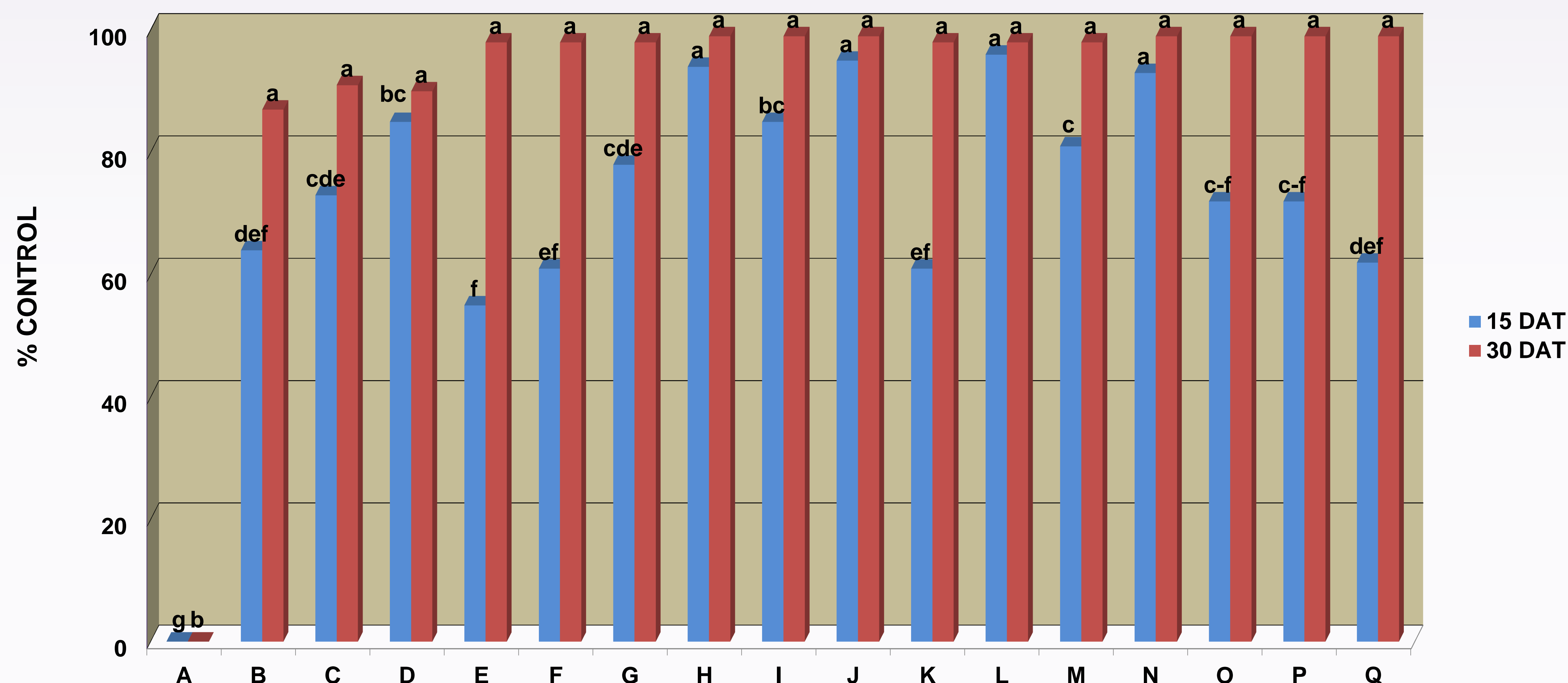
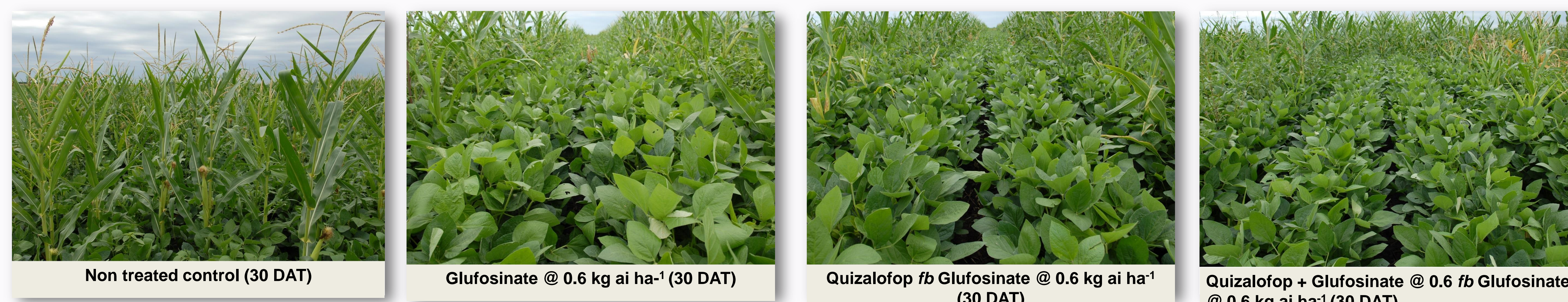
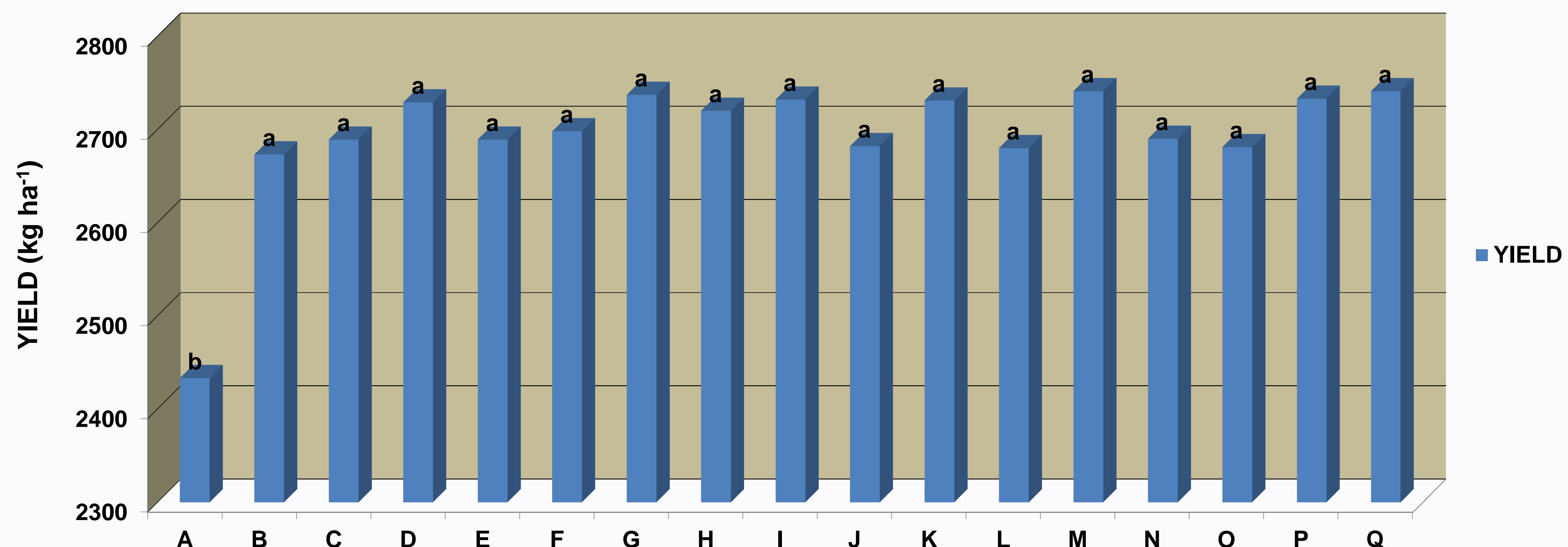


Fig 2. Yield of soybean (kg ha⁻¹)



Conclusion

- Control of glyphosate- resistant volunteer corn was 90% with all graminicides (except sethoxydim) applied alone, at 15 DAT compared to glufosinate applied alone.
- A follow-up application of glufosinate resulted in > 90% control of volunteer corn with no difference among herbicide treatments.
- Control of volunteer corn was > 90% beyond 30 DAT in all herbicide treatments; however, glufosinate applied alone once resulted in no control of late emerging weeds including common waterhemp and velvetleaf.
- All herbicide treatments resulted in higher yield compared with nontreated control without difference among them.