

Two Pass Weed Control Programs in Conventional Tillage Xtend Soybeans

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Summary

The development of glyphosate-resistant weeds has greatly complicated weed control in soybeans. Roundup Ready 2 Xtend (dicamba tolerant) soybeans provide growers an alternative herbicide option for postemergence weed control in conventional tillage soybeans. Two pass programs consisting of preemergence residual herbicides followed by postemergence Roundup Power Max plus dicamba provided excellent weed control, superior to a single postemergence treatment with Roundup Power Max plus dicamba.

Introduction

Weeds are a major production problem in soybeans, especially with the development of glyphosate-resistant weeds. Roundup Ready 2 Xtend (RR2X) soybeans provide a new herbicide option for weed control in soybeans.

Procedures

A field experiment was established near Manhattan, KS, on a Reading silt loam soil with 2.7% organic matter and a pH of 5.3. The plot area had a natural infestation of Palmer amaranth (mixed population of glyphosate susceptible and resistant biotypes), velvetleaf, and ivyleaf morning glory. Asgrow 34X6 Xtend soybeans were planted at 130,000 seeds/a in 30-inch rows into a recently tilled seedbed and preemergence (PRE) treatments were applied on June 1, 2016. Minimal precipitation occurred for 14 days after planting, after which only two small rainfall events occurred until 24 days after planting. Postemergence (P) treatments were applied to 2-trifoliolate-leaf soybeans (6 inch), 3- to 16-inch Palmer amaranth, 2- to 8-inch velvetleaf, and 2- to 6-inch morning glory on June 20 at 88°F, 57% relative humidity, and clear skies. Treatments were applied with a CO₂ back-pack sprayer, delivering 15 gpa at 35 psi through TTI110015 flat fan spray tips to the center 6.3 ft of 10 by 25 ft plots. The experiment had a randomized complete block design with four replications. Crop injury was visually evaluated throughout the growing season.

Results

The small rain event 14 days after planting appeared to provide better activation of those PRE treatments that included a flumioxazin component (Fierce, Fierce XLT, and Rowel) than the other PRE treatments. Two pass programs were more effective than one pass glyphosate plus dicamba treatment for weed control, even with marginal activation of the PRE treatments initially.

Table 1. Weed control in Xtend soybeans on June 20, 2016, prior to postemergence treatment, Manhattan, KS

Treatment*	Application timing	Application rate	Palmer amaranth	Velvet-leaf	Morning glory
		oz/a	----- % control -----		
Fierce/Roundup PMax+Xtendimax#	PRE/P	3/32+22	82	65	73
Authority Elite/RU PMax+Xtendimax	PRE/P	25/32+22	33	10	68
Boundary/RU PMax+Xtendimax	PRE/P	32/32+22	30	0	0
Fierce XLT/RU PMax+Xtendimax	PRE/P	4/32+22	79	64	70
Rowel+Warrant/RU Max+Xtendimax	PRE/P	2+64/32+22	93	73	75
Roundup Power Max+Xtendimax	P	32+22	---	---	---
Least significant difference ($P < 0.05$)			8	18	18

* / indicates sequential application; RU PMax = Roundup Power Max; PRE = preemergence; EP = early postemergence; and P = postemergence.

Non-labelled dicamba product actually applied, but equivalent Xtendimax rates presented.

Table 2. Weed control in Xtend soybeans on July 18, 2016, for Palmer amaranth and velvetleaf and June 28 for ivyleaf morning glory, Manhattan, KS

Treatment*	Application timing	Application rate	Palmer amaranth	Velvet-leaf	Morning glory
		oz/a	----- % control -----		
Fierce/Roundup PMax+Xtendimax#	PRE/P	3/32+22	99	100	95
Authority Elite/RU PMax+Xtendimax	PRE/P	25/32+22	96	99	89
Boundary/RU PMax+Xtendimax	PRE/P	32/32+22	95	98	73
Fierce XLT/RU PMax+Xtendimax	PRE/P	4/32+22	99	99	92
Rowel+Warrant/RU PMax+Xtendimax	PRE/P	2+64/32+22	99	100	96
Roundup Power Max+Xtendimax	P	32+22	85	100	74
Least significant difference ($P < 0.05$)			3	1	7

* / indicates sequential application; RU PMax = Roundup Power Max; PRE = preemergence; EP = early postemergence; and P = postemergence.

Non-labelled dicamba product actually applied, but equivalent Xtendimax rates presented.



Figure 1. Application of Fierce XLT PRE followed by Roundup Power Max plus dicamba postemergence.



Figure 2. Application of Roundup Power Max plus dicamba postemergence.