Dandelion Control with Spring Applied Treatments in No-Till Soybean

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INTRODUCTION

•The combination of no-till production practices and low-residual postemergence herbicide programs has led to a resurgence of several perennial weed concerns.

•Dandelion (*Taraxacum officinale*) is one such concern in Indiana, especially in the northeastern portion of the state.

•Research regarding spring dandelion control in soybean is limited.

OBJECTIVE

•To evaluate various herbicide combinations for spring dandelion control in no-till soybean.

MATERIALS AND METHODS

• A field study was conducted in a cooperator field near Huntington, IN.

• Preplant burndown herbicides and rates, shown in Tables 1 and 2, were applied on April 26 to individual plots measuring 10 by 50 ft, arranged in a RCB design with 4 replications.

•Soybeans were drilled on May 31 by the cooperating farmer.

•A late postemergence blanket treatment of 0.5625 lb/A glyphosate (Roundup Weathermax) plus ammonium sulfate was applied to all treatments, including checks, by the cooperating farmer on July 3.

•Rosette counts (along a transect) were collected at the post harvest rating.

•Data were subjected to ANOVA and means were separated using Fisher's Protected LSD (P=0.05). Rosette counts were transformed (square root) prior to analysis, and de-transformed for presentation.

RESULTS AND DISCUSSION

Table 1. Dandelion control with spring applied, preplant burndown treatments in no-till soybean at 19, 37, and 73 days after treatment (DAT) near Huntington, IN (2003).

Treatment[a]	Rate	May 15 (19 DAT-burndown)	June 2 (37 DAT-burndown)	July 8 (73 DAT-burndown)[b]
	(lb/A)	---------- TAROF (% Control) ----------		
Glyphosate(WMAX)+AMS/	0.77+5% v/v /	60	**93**	63
Glyphosate(WMAX)+AMS/	1.16+5% v/v /	70	**97**	**94**
Glyphosate(WMAX)+2,4-D(EH)+AMS/	0.77+0.47+5% v/v /	42	**87**	71
Glyphosate(WMAX)+2,4-D(EH)+AMS/	0.77+0.94+5% v/v /	42	**91**	**87**
Glyphosate(WMAX)+flumioxazin+AMS/	0.77+0.06375+5% v/v /	81	**94**	74
Glyphosate(WMAX)+flumioxazin +2,4-D(EH)+AMS/	0.77+0.06375 +0.47+5% v/v /	60	58	33
Glyphosate(WMAX)+carfentrazone+AMS/	0.77+0.0125+5% v/v /	60	**87**	46
Glyphosate(WMAX)+carfentrazone +2,4-D(EH)+AMS/	0.77+0.0125 +0.47+5% v/v /	37	74	66
Glyphosate(WMAX) +chlorimuron ethyl&sulfentrazone+AMS/	0.77+0.0125 +0.02&0.103+5% v/v /	60	**97**	73
Glyphosate(WMAX) +chlorimuron ethyl&sulfentrazone +2,4-D(EH)+AMS/	0.77+0.0125 +0.02&0.103 +0.47+5% v/v /	48	**95**	**88**
Paraquat +chlorimuron ethyl&sulfentrazone+AMS/	0.5 +0.02&0.103+5% v/v /	24	82	33
Paraquat+chlorimuron ethyl&sulfentrazone +2,4-D(EH)+AMS/	0.5+0.02&0.103 +0.47+5% v/v /	47	**90**	51
Paraquat+metribuzin+2,4-D(EH) +COC/	0.5+0.375+0.47 +1% v/v /	22	30	33
Paraquat+metribuzin +chlorimuron ethyl&sulfentrazone+COC/	0.5+0.1875 +0.02&0.103+1% v/v /	36	**89**	56
Paraquat+metribuzin+2,4-D(EH) +chlorimuron ethyl&sulfentrazone+COC/	0.5+0.1875+0.47 +0.02&0.103+1% v/v /	43	**89**	54
LSD (0.05)		18	12	21

[a] Glyphosate(WMAX) = Roundup Weathermax from Monsanto; 2,4-D(EH) = ethylhexyl ester

[b] Evaluation (July 8) is also 5 DAT – LPOST application. LPOST application (July 3) made by cooperating farmer: Glyphosate(WMAX) (0.5625 lb/A) + AMS

•At the May 15 rating, the addition of 2,4-D to all glyphosate combinations decreased dandelion control. In contrast, the addition of 2,4-D to paraquat combinations resulted in increased dandelion control.

•By June 2, these 2,4-D interactions were only evident with glyphosate+ flumioxazin (94% vs. 58%) and glyphosate+carfentrazone (87% vs. 74%).

•Glyphosate at 1.16 lb/A, glyphosate+2,4-D (0.77+0.94 lb/A), and paraquat+chlorimuron ethyl&sulfentrazone+2,4-D were the only treatments still providing >85% control 73 DAT – pre (July 8).

Table 2. Late season dandelion control in no-till soybean, transect counts and % control, 120 days after late postemergence application of glyphosate(WMAX) near Huntington, IN (2003).

		Oct 31 (120 DAT- LPOST)[b]	
Treatment[a]	Rate	TAROF Rosettes	TAROF
	(lb/A)	(# / 50 ft transect)	(% control)
Glyphosate(WMAX)+AMS/	0.77+5% v/v /	10	**86**
Glyphosate(WMAX)+AMS/	1.16+5% v/v /	1	**99**
Glyphosate(WMAX)+2,4-D(EH)+AMS/	0.77+0.47+5% v/v /	14	73
Glyphosate(WMAX)+2,4-D(EH)+AMS/	0.77+0.94+5% v/v /	2	**96**
Glyphosate(WMAX)+flumioxazin+AMS/	0.77+0.06375+5% v/v /	6	**91**
Glyphosate(WMAX)+flumioxazin +2,4-D(EH)+AMS/	0.77+0.06375 +0.47+5% v/v /	15	74
Glyphosate(WMAX)+carfentrazone+AMS/	0.77+0.0125+5% v/v /	18	78
Glyphosate(WMAX)+carfentrazone +2,4-D(EH)+AMS/	0.77+0.0125 +0.47+5% v/v /	12	83
Glyphosate(WMAX) +chlorimuron ethyl&sulfentrazone+AMS/	0.77+0.0125 +0.02&0.103+5% v/v /	1	**97**
Glyphosate(WMAX) +chlorimuron ethyl&sulfentrazone +2,4-D(EH)+AMS/	0.77+0.0125 +0.02&0.103 +0.47+5% v/v /	1	**99**
Paraquat +chlorimuron ethyl&sulfentrazone+AMS/	0.5 +0.02&0.103+5% v/v /	15	**85**
Paraquat+chlorimuron ethyl&sulfentrazone +2,4-D(EH)+AMS/	0.5+0.02&0.103 +0.47+5% v/v /	6	**92**
Paraquat+metribuzin+2,4-D(EH)+COC/	0.5+0.375+0.47+1% v/v /	22	68
Paraquat+metribuzin +chlorimuron ethyl&sulfentrazone+COC/	0.5+0.1875 +0.02&0.103+1% v/v /	4	**92**
Paraquat+metribuzin+2,4-D(EH) +chlorimuron ethyl&sulfentrazone+COC/	0.5+0.1875+0.47 +0.02&0.103+1% v/v /	2	**97**
Untreated Check		31	--
LSD (0.05)		3	18

[a] Glyphosate(WMAX) = Roundup Weathermax from Monsanto; 2,4-D(EH) = ethylhexyl ester

[b] July 21 evaluation is also 86 DAT – burndown application. Oct 31 evaluation is also 188 DAT – burndown application. LPOST application (July 3) made by cooperating farmer: Glyphosate(WMAX) (0.5625 lb/A) + AMS

•An attempted rating on Aug 7 (35 DAT – LPOST) indicated that the late postemergence application (0.5625 lb/A glyphosate) made by the cooperating farmer on July 3, temporarily provided near complete dandelion control in all plots.

•A post harvest rating (Oct 31) showed that all chlorimuron ethyl&sulfentrazone (with or without 2,4-D) treatments were still providing >85% control.

•At this post harvest rating, glyphosate alone (both rates), glyphosate+2,4-D (0.77+0.94 lb/A), and glyphosate+flumioxazin were also providing >85% control.

CONCLUSIONS

•These results demonstrate that a number of herbicide treatment combinations can be effective for suppression of established dandelion in the spring.

•A late postemergence application of glyphosate (0.5625 lb/A) was still required to obtain season long dandelion control.