

Burndown evaluation of white campion in no-till soybeans. Trower, Timothy L. and Chris M. Boerboom. The purpose of these studies was to evaluate burndown herbicide options to control white campion prior to soybean planting. Treatments evaluated were flumioxazin tank mixed at 0.0625 and 0.094 lb/A with 2,4-D+glyphosate or at 0.094 lb/A with chlorimuron&thifensulfuron+glyphosate, 2,4-D+glyphosate, metribuzin+paraquat, linuron+paraquat and 2,4-D+paraquat. Carfentrazone-ethyl tank mixed with glyphosate, 2,4-D and 2,4-D+glyphosate were substituted for treatments that were generally ineffective in 2003. Also included in 2004 was glyphosate applied alone and flumioxazin+paraquat. White campion (MELAL) was the primary weed species, but horseweed (ERICA) was evaluated at the last evaluation timing. Soybeans in the 2004 study were planted on June 12, 2004 at a depth of 0.5 inches in 7-inch rows. The study was conducted in Otsego Township, Wisconsin on a sandy loam soil. Soybeans in the 2003 study were planted on May 30 at a depth of 0.5 inches in 7-inch rows. The 2003 study was conducted at Rio, Wisconsin on a sandy loam soil. Trial design was a randomized complete block with 10 by 25 foot plots replicated four times. Herbicide applications were made with a CO<sub>2</sub> backpack sprayer calibrated at 20 gpa and equipped with XR8003 nozzles. Application data were as follows:

Date	5/14/03	5/05/04
Treatment	PREPLT	PREPLT
Spray		
gpa	20	20
psi	23	23
mph	3	3
Temperature (F)		
air	80	64
soil		71
Soil moisture (surface)	dry	dry
Wind/direction (mph)	2, SE	3, S
Relative humidity (%)	20	29
Cloud cover (%)	5	100
Soybean		
leaf no.	--	--
height (inch)	--	--
White campion		
leaf no.	8	10-14
height (inch)	2-3	1.5-5.5

No crop injury was observed with any treatment. Flumioxazin at 0.0625 or 0.094 lb/A tank mixed with 2,4-D+glyphosate and 2,4-D+glyphosate applied alone were the most active treatments on white campion May 14 with 66 to 73% control. Tank mixing 2,4-D with glyphosate improved initial burndown compared to glyphosate applied alone, averaging 66 and 33% white campion control, respectively. The flumioxazin+2,4-D+glyphosate tank mixtures reached maximum activity May 24 with an average of 96% control compared to 97% control for 2,4-D+glyphosate and 82% for glyphosate applied alone. Flumioxazin tank mixed with chlorimuron&thifensulfuron+glyphosate initially provided less white campion control when compared to the other flumioxazin tank mixtures; however, late-season control was superior with flumioxazin+chlorimuron&thifensulfuron+glyphosate compared to flumioxazin+2,4-D+glyphosate. Flumioxazin+2,4-D+paraquat was an ineffective treatment on white campion. White campion burndown with glyphosate or glyphosate+ 2,4-D was not increased by tank mixing carfentrazone-ethyl. 2,4-D+glyphosate and flumioxazin+ chlorimuron&thifensulfuron+glyphosate were the only treatments to provide acceptable late-season white campion control, averaging 95 and 99%, respectively.

Most treatments provided 94% or greater horseweed control when evaluated July 23. Linuron+paraquat was the least effective treatment at 79% control followed by carfentrazone-ethyl+2,4-D, flumioxazin+ 2,4-D+paraquat and carfentrazone-ethyl+glyphosate.

Differences in white campion control were observed between 2003 and 2004. Control from metribuzin+paraquat and linuron+paraquat decreased the most from 2003 to 2004, averaging 39 and 45% decrease in late-season control, respectively. White campion control was consistent with flumioxazin+chlorimuron&thifensulfuron+glyphosate from 2003 to 2004 while flumioxazin+2,4-D+glyphosate applied at 0.094+0.5+0.75 lb/A was inconsistent (Department of Agronomy, University of Wisconsin-Madison).

Table 1. Burndown evaluation of white campion in no-till soybeans in 2004 (Trower and Boerboom).

Treatment	Rate <sup>b</sup> (lb/A)	Weed control <sup>a</sup>			
		MELAL		ERICA	
		May 14 (%)	May 24 (%)	July 23 (%)	July 23 (%)
Untreated		0	0	0	0
Glyphosate+AMS	0.75+2.5	33	82	68	100
2,4-D + glyphosate + AMS	0.5+0.75+2.5	66	97	95	100
Flumioxazin+2,4-D+glyphosate+AMS	0.0625+0.5+0.75+2.5	73	95	80	100
Flumioxazin+2,4-D+glyphosate+AMS	0.094+0.5+0.75+2.5	71	92	63	96
Flumioxazin+clim&thif+ glyphosate+AMS	0.0625+0.00494&0.00156+ 0.75+2.5	55	77	99	100
Metribuzin+paraquat+NIS	0.28+0.75+0.25%	49	66	59	100
2,4-D+paraquat+NIS	0.5+0.75+0.25%	46	40	0	94
Linuron+paraquat+NIS	0.75+0.75+0.25%	45	54	48	79
Carfentrazone-ethyl+2,4-D+COC	0.0078+0.475+1%	20	13	0	85
Carfentrazone-ethyl+glyphosate+AMS	0.0078+0.75+2.5	38	84	74	83
Carfentrazone-ethyl+glyphosate+ 2,4-D+AMS	0.0078+0.56+ 0.24+2.5	61	78	74	99
Flumioxazin+paraquat+NIS	0.0625+0.75+0.25%	43	45	20	85
LSD (P=0.1)		10	13	16	13

<sup>a</sup>Weed control is a visual rating of biomass reduction ranging from 0 to 100%, where 100% is complete control.

<sup>b</sup>Glyphosate and 2,4-D rates are in lb ae/A.

Table 2. Burndown evaluation of white campion in no-till soybeans in 2003 (Trower and Boerboom).

Treatment	Rate <sup>b</sup> (lb/A)	MELAL control <sup>a</sup>			
		May 16	May 22	June 2	June 20
		(%)	(%)	(%)	(%)
Untreated		0	0	0	0
2,4-D + glyphosate + AMS	0.5+0.75+2.5	13	54	87	89
Flumioxazin+2,4-D+glyphosate+AMS	0.0625+0.5+0.75+2.5	43	82	84	87
Flumioxazin+2,4-D+glyphosate+AMS	0.094+0.5+0.75+2.5	40	70	87	85
Flumioxazin+clim&thif+ glyphosate+AMS	0.0625+0.00494&0.00156+ 0.75+2.5	18	69	85	90
Metribuzin+paraquat+NIS	0.28+0.75+0.25%	50	81	97	97
2,4-D+paraquat+NIS	0.5+0.75+0.25%	70	60	63	45
Linuron+paraquat+NIS	0.75+0.75+0.25%	46	69	97	88
Clim&thif+2,4-D+ quizalofop+COC+AMS	0.00494&0.00156+0.5+ 0.0275+1%+2.5	8	30	51	38
Clim&thif+tribenuron+ 2,4-D+quizalofop-P+COC+AMS	0.00494&0.00156+0.0059 0.5+0.0275+1%+2.5	8	38	85	93
Tribenuron+2,4-D+quizalofop-P+ COC+AMS	0.0059+0.5+0.0275+ 1%+2.5	10	30	45	35
Clim&thif+sulfentrazone+2,4-D+ quizalofop-P+COC+AMS	0.00494&0.00156+0.188+0.5+ 0.0275+1%+2.5	25	41	48	25
Thifensulfuron+quizalofop-P+COC+AMS	0.0234+0.0275+1%+2.5	5	10	40	30
LSD (P=0.1)		7	7	8	12

<sup>a</sup>Weed control is a visual rating of biomass reduction ranging from 0 to 100%, where 100% is complete control.

<sup>b</sup>Glyphosate and 2,4-D rates are in lb ae/A.