

Tall Ironweed Control in Grass Pastures using Fall-Applied Herbicides

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Tall ironweed (*Vernonia altissima* Nutt.) is a perennial broadleaf commonly found in cool-season grass pastures throughout Kentucky. It can be found in varying environmental conditions, such as low, wet bottoms to upland sites. In Kentucky, tall ironweed is ranked as the most troublesome and third-most common weed found in grass pastures. Vegetative characteristics include alternate, smooth leaves with finely serrated margins on 6 to 9 ft tall, erect stems that are widely branched at the top. It produces reddish-purple flowers in August through September. Each tall ironweed plant is capable of producing new seed and reproduces vegetatively from axillary buds formed on root crowns.

The grazing quality of a grass pasture can be substantially lowered by the presence of tall ironweed because of its unpalatability to livestock. This leads to an increase in tall ironweed populations over time. In addition, lack of good and timely management practices such as proper soil fertility, poor grazing practices, and lack of frequent mowing can also increase its prominence over time. Pasture renovation is sometimes needed for controlling troublesome weeds such as tall ironweed. Using timely applications of herbicides to selectively remove tall ironweed is one method to reduce problem infestations.

Previous research on tall ironweed control indicated that 2,4-D and glyphosate (i.e. Roundup) applied in late-summer provided inconsistent control; however, herbicides that contain triclopyr applied mid-summer provided the greatest reduction in tall ironweed basal bud regrowth when evaluated 10 months after treatment. In addition, 2 years of consecutive triclopyr treatments provided greatest suppression in tall ironweed populations. However, 2,4-D, triclopyr, and other synthetic auxin herbicides

applied early- to mid-summer can impact, through off-target movement, the growth and development of nearby sensitive broadleaf crops. Therefore, delaying treatment until late summer and/or fall reduces this risk.

Field experiments were initiated in 2000 and repeated through 2003 to evaluate tall ironweed control in cool-season grasses near Quicksand, KY. In addition, a separate study was initiated in 2003 in Meade County to examine tall ironweed control under a true grazed system. Table 1 contains tall ironweed control and population data across the three study years near Quicksand, KY. Table 2 contains tall ironweed control and population data evaluated in 2004 and sensitivity of white clover to various herbicides when applied the previous fall (September). All sites were mowed in late summer to keep tall ironweed in a vegetative growth stage. Tall ironweed growing in a vegetative growth stage, short stature and newer leaves was more desirable to treat than older, flowering plants with tall, mature stems.

Herbicide products containing triclopyr (i.e. Redeem R&P and Crossbow) provided the greatest control the following year (8 and 12 months after treatment). A significant reduction in tall ironweed stem counts was also evident with Redeem R&P and Crossbow. Herbicides containing 2,4-D and/or dicamba (i.e. Banvel, WeedMaster, and Overdrive) were less effective on tall ironweed. One of the major drawbacks to the use of pasture herbicides is that they can severely reduce, or eliminate stands of clover and other legumes in pastures. Redeem R&P, Crossbow, WeedMaster, Banvel, and Overdrive severely injured white clover stands (Table 2). Poor results in 2002 across all herbicide treatments were attributed to lower ambient air temperatures at the time of herbicide treatment in September 2001 (Table 1).

Table 1. Tall ironweed control 12 months after treatment with fall-applied herbicides in mowed cool-season grasses near Quicksand, KY.

Treatment	Rate/A	Tall Ironweed Control (12 MAT)					
		2001 ^a		2002 ^b		2003 ^c	
		(%)	(stems/10 ft ²)	(%)	(stems/10 ft ²) ^d	(%)	(stems/10 ft ²)
Redeem R&P + NIS	1.5 pt 0.25%	84	<1	57	8	63	2
Redeem R&P + NIS	2.0 pt 0.25%	91	0	66	8	79	<1
Crossbow	2.0 qt	94	<1	63	7	82	<1
Banvel	1.0 pt	53	3	55	8	58	3
Untreated	-	0	8	0	18	0	10
LSD(0.05)		7	2	11	6	13	3

^aHerbicide treatment date: September 5, 2000. Initial stem density of 5 stems/10ft².

^bHerbicide treatment date: September 25, 2001. Initial stem density of 6 stems/10ft².

^cHerbicide treatment date: September 17, 2002. Initial stem density of 7 stems/10ft².

^d10 months after treatment.

Table 2. Tall ironweed control 8 months after treatment with fall-applied herbicides in a mowed cool-season grasses in Meade County.

Treatment ^a	Rate/A	White Clover Injury	Tall Ironweed Control (May 25, 2004)	
		----- (%) -----	----- (%) -----	- (stems/10 ft ²) -
Redeem R&P + NIS	1.5 pt 0.25%	88	79	2
Redeem R&P + NIS	2.0 pt 0.25%	95	84	2
Crossbow	2.0 qt	68	84	0
WeedMaster	2.0 pt	78	70	6
2,4-D Amine	1.0 qt	8	60	2
Banvel	1.0 pt	80	45	5
Overdrive + NIS	8 oz 0.25%	75	25	9
Untreated	-	0	0	8
LSD(0.05)		14	17	3

^aAll treatments were applied September 11, 2003.

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