

# **EFFECT OF TIMING OF APPLICATION ON HENBIT AND COMMON CHICKWEED CONTROL AND YIELD OF CONVENTIONAL TILLAGE WHEAT (Warren County, Calloway County, And UKREC 2003 - 2004)**

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## **INTRODUCTION:**

There is an increasing interest in applying herbicides in the fall rather than in the spring for controlling broadleaf weeds in wheat. This approach is beneficial for achieving optimum yields in no tillage wheat and for obtaining effective control of certain species such as cornflower. However, little has been done to determine if fall applications provide an advantage over spring applications for managing such weeds as common chickweed and henbit in conventional tillage wheat.

The objective of this research was to evaluate the effect of fall and spring applications of Harmony Extra and Sencor on broadleaf weed control and yield of wheat planted in a conventional tilled seed bed. Results of similar studies were reported in the UK Wheat Science 2001-2002 and 2002-2003 Research Reports.

## **METHODS:**

Pioneer 2552 was planted in tilled seedbeds in early to mid October at Calloway County, Warren County, and the University of Kentucky Research & Education Center (UKREC) near Princeton, KY.

Harmony Extra (thifensulfuron + tribenuron) and Sencor (metribuzin) were applied as fall sprays in late November to early December and as spring treatments in late March. Details on herbicide rates and dates of applications are listed in Table 1. Herbicide treatments were applied with a CO<sup>2</sup> pressurized back pack sprayer in a spray volume of 20 gpa. A non - treated check was included for comparison with herbicide treatments.

Visual ratings of ground cover occupied by weeds in the row middles of non-treated wheat were used to gauge the level weed pressure at the time the herbicides were applied. The estimates for groundcover occupied by broadleaf weeds at the time of fall treatments for Calloway County, Warren County, and UKREC were 22, 24, and 13%, respectively; whereas, the ground cover estimates for the spring treatments were 67, 47, and 87%, respectively.

Common chickweed (*Stellaria media*) and henbit (*Lamium amplexicaule*) were present at all three sites. Also, annual bluegrass (*Poa annua*) occurred at Calloway County and speedwell (*Veronica* spp.) was present at Warren County. The only species that had populations uniform enough to evaluate for weed control were henbit at Calloway County and Warren County and common chickweed at UKREC. Visual ratings for control were made in late April. Plots were harvested with a small plot combine in mid June.

## **RESULTS:**

All treatments provided acceptable control of henbit and common chickweed, regardless of timing of application (See Table 1). The lowest control of henbit at Calloway County was 87% with Sencor applied at 2 oz/A in the fall. The least control of henbit at Warren County was 89%

with Harmony Extra applied at 0.5 oz/A in the spring. Common chickweed control ranged from 98 to 100% at UKREC and was equal for all treatments.

By late April, the annual bluegrass became a dominant weed in a number of plots at the Calloway County site and varied depending on treatment. Approximately 80% of the row middles were infested with annual bluegrass for all of the Harmony Extra treatments and for the two fall-applied Sencor treatments (data not shown). The spring-applied Sencor at 4 and 6 oz/A had only 38% and 26% annual bluegrass, respectively.

Wheat yields at the two county sites were not improved by any of the herbicide treatments when compared with the non-treated check and ranged from 87.3 to 91.5 bu/A for Calloway County and from 80.1 to 88.8 bu/A for Warren County. Wheat yields at the UKREC site ranged from 72.3 to 83.7 bu/A and were slightly greater than the check for fall-applied Harmony Extra at 0.3 and 0.5 oz/A and for Sencor applied at 2 and 4 oz/A in the fall and Sencor applied at 4 oz/A in the spring.

#### **SUMMARY:**

The results of this year's research tend to support those from the previous two years. Harmony Extra and Sencor provide good to excellent control of common chickweed and henbit, regardless of timing of application. Sencor applied in the fall, at the low rate of 2 oz/A, may occasionally provide less than maximum control of these two species, yet the wheat yield still remains optimum.

Delaying application of Harmony Extra didn't appear to limit final control of common chickweed nor wheat yield. However, the fact that delaying Harmony Extra treatment until spring did limit wheat yield in a previous study, suggests that there may be occasions where a fall treatment of Harmony Extra is preferred over a spring application where common chickweed is present.

**TABLE 1. IMPACT OF FALL AND SPRING APPLIED HARMONY EXTRA AND SENCOR ON BROADLEAF WEED CONTROL AND WHEAT YIELD (2003-2004)**

Herbicide	Rate	Timing	Henbit Control (%)		Chickweed Control (%)	Wheat Yield (Bu/A)		
			Calloway Co (4/28/2004)	Warren Co (4/27/2004)	UKREC (4/28/2004)	Calloway Co	Warren Co	UKREC
Harmony Extra Nonionic Surfactant	0.3 oz/A 0.25% v/v	Fall	96	94	99	90.4	87.8	82.2
Harmony Extra Nonionic Surfactant	0.5 oz/A 0.25% v/v	Fall	99	93	97	90	86.9	80.5
Harmony Extra Nonionic Surfactant	0.5 oz/A 0.25% v/v	Spring	97	89	100	90.9	81.3	77.7
Sencor 75 DF	2 oz/A	Fall	87	96	98	91.5	87.2	81.1
Sencor 75 DF	4 oz/A	Fall	98	96	99	90.4	88.8	80.5
Sencor 75 DF	4 oz/A	Spring	100	96	98	91.2	88.6	83.7
Sencor 75 DF	6 oz/A	Spring	100	98	100	88.4	80.1	79
Non-treated Check			0	0	0	87.3	86.8	72.3
	LSD (0.05)		6	6	3	NS	NS	7.8
			<u>Calloway County</u>		<u>Warren County</u>		<u>UKREC</u>	
Planting Date:			10/20/2003		10/15/2003		10/13/2003	
Fall Application Date:			12/9/2003		12/8/2003		11/21/2003	
Henbit Size in Fall			1" diameter		2" diameter		1" diameter	
Chickweed Size in Fall			1.5" diameter		1" diameter		1" diameter	
Weed Cover in Fall			22% (16% broadleaves + 6% Poa)		24%		13%	
Spring Application Date:			3/24/2004		3/23/2004		3/23/2004	
Henbit Size in Spring			6" diameter		4" diameter		4" diameter	
Chickweed Size in Spring			4" diameter		3" diameter		5" diameter	
Weed Cover in Fall	Spring		87% (67% broadleaves + 20% Poa)		47%		87%	