

## **Influence of Milestone Application Dates in 2007 on Canada Thistle Control in 2008.**

Robert Wilson

A field study was initiated near Scottsbluff, Nebraska to compare the influence of different herbicide application dates on Canada thistle control the following year. The experimental design was a randomized complete block with four replications. Plots were 11 feet wide by 25 feet long and were located on a sandy loam soil with pH of 7.8 and organic matter of 4.3%. Herbicides were applied on four different dates; May 16, thistle actively growing rosette; September 13, thistle actively growing rosette; October 16, thistle rosettes with some frost damage with 20% of the leaf margins brown; and November 12, thistle rosettes with frost damaged leaves, 95% of leaf brown (Table 1). Herbicides were applied with a backpack sprayer calibrated to deliver 20 gallons of water per acre at 36-psi pressure with Spraying Systems 11002 VS nozzles. Environmental conditions at the time of herbicide application are given in Table 2.

Both Milestone and Tordon applied on May 16, September 13, or October 16 provided excellent Canada thistle control in 2008 and 2009 (Table 3). Waiting until November 12 after Canada thistle top growth had been severely damaged by frost resulted in reduced thistle control. Increasing the Milestone rate from 0.078 to 0.109 lb/acre did result in improved Canada thistle control but control was not as effective as that obtained from the October 16 application.

Table 1. Low Daily Temperatures from September 1 through November 15, 2007.

Date	Low Temperature (F)			Date	Low Temperature (F)		
	September	October	November		September	October	November
1	58	33	22	17	54	37	29
2	54	40	23	18	48	31	42
3	55	42	21	19	48	29	32
4	53	37	25	20	53	38	25
5	57	49	22	21	50	28	13
6	53	46	21	22	49	25	5
7	49	35	21	23	56	36	5
8	47	37	24	24	42	29	8
9	46	31	24	25	34	27	14
10	39	38	31	26	34	36	16
11	35	40	33	27	36	32	15
12	40	34	36	28	48	23	17
13	45	43	34	29	53	26	14
14	47	41	14	30	41	36	10
15	49	31	11	31		25	
16	48	29	31				

Table 2. Environmental conditions at the time of herbicide application.

Date	Air temperature (F)	Humidity (%)	Wind speed & direction (mph)	Time of day	Canada thistle growth stage
May 16	56	61	3 SE	9:00 am	rosette, actively growing
September 13	53	67	6 NW	9:00 am	rosette, actively growing
October 16	40	85	2 SE	10:00 am	20% frost damaged leaves
November 12	45	57	2 N	11:00 am	95% frost damaged leaves

Rainfall before and after herbicide application

Date	Amount (inches)	Date	Amount (inches)	Date	Amount (inches)
May 5	0.18	Sept 17	0.02	October 13	1.26
May 21	0.18			October 14	0.30
				October 20	0.20

no moisture in November

Table 3. Influence of Milestone Application Dates in 2007 on Canada Thistle Control in 2008.

Treatment <sup>1</sup>	Rate (lbs/acre)	Time of application <sup>2</sup>	Canada thistle				
			Stand		Control calculated from stand counts		Visual injury <sup>3</sup>
			6/13/2008	6/24/2009	6/13/2008	6/24/2009	7/1/2008
			----- (275 sq ft) -----		----- (%) -----		(%)
Nontreated	—	—	143	55	0	0	0
Milestone + Activator 90	0.078	Late spring	8	3	94	94	94
Milestone + Activator 90	0.109	Late spring	0	0	99	99	99
Tordon 22K + Activator 90	0.375	Late spring	1	0	99	99	99
Milestone + Activator 90	0.078	Mid September	1	1	99	98	98
Milestone + Activator 90	0.109	Mid September	0	1	99	98	99
Tordon 22K + Activator 90	0.375	Mid September	5	1	96	98	98
Milestone + Activator 90	0.078	Mid October	14	1	90	98	96
Milestone + Activator 90	0.109	Mid October	7	2	95	96	96
Tordon 22K + Activator 90	0.375	Mid October	8	4	95	93	97
Milestone + Activator 90	0.078	Mid November	60	39	58	30	71
Milestone + Activator 90	0.109	Mid November	32	9	77	84	87
Tordon 22K + Activator 90	0.375	Mid November	76	23	47	59	74
LSD at 5%	—	—	49	19	18	24	14

<sup>1</sup> Spray additives were combined with the spray solution at the following rate: surfactant Activator 90 at 0.25% v/v.

<sup>2</sup> Herbicides applied on May 16, 2007 (Late spring), September 15, 2007 (Late September), October 16, 2007 (Mid October), and November 12, 2007 (Mid November).

<sup>3</sup> Visual crop injury evaluated on a scale from 0 to 100 with 0 equal to no injury and 100 equal to death of the plant.