

Canada Thistle Control with Aminocyclopyrachlor (KJM44)

Introduction

Aminocyclopyrachlor (KJM44) is a pyrimidine carboxylic acid active ingredient currently under development by DuPont. KJM44 is in the same mode of action family (i.e. auxin-type herbicides) as 2,4-D, triclopyr, dicamba, and aminopyralid. Aminopyralid has been shown to be effective in controlling stands of Canada thistle. A trial was established in late spring 2007 to compare KJM44 (80% a.i. w/w) to aminopyralid for Canada thistle control.

Methods and Materials

Eleven treatments with 4 replications were installed in a randomized complete block design on May 25, 2007. The study was located at the Spindletop Research Facility in Lexington, KY in a tall fescue dominated field. Plots measuring 10' by 30' were distributed across an even Canada thistle population. Treatments, all of which included methylated seed oil at 1% v/v, were applied at 20 GPA using a CO₂ powered sprayer mounted on an ATV. Visual percent control of Canada thistle was evaluated 17, 42, 83, and 374 DAT. Data were analyzed using ARM® software and Fisher's LSD at $p = 0.05$ for treatment means separation.

Results

Milestone VM at 7 fl oz / ac resulted in significantly higher control than Telar, KJM44 + Telar, or KJM44 at 0.625 oz / ac 17 DAT (Table 1). KJM44 at 0.625 oz / ac and Telar alone resulted in significantly lower control of Canada thistle 42 DAT than all chemical treatments except KJM44 at 3.75 oz / ac. Telar alone at 1 oz / ac resulted in significantly lower control than all other treatments 83 DAT and this trend continued into the following growing season. The KJM44 at 2.5 oz / ac treatment as well as the KJM44 plus Telar treatment maintained excellent control (> 90%) from 42 DAT through the following year.

Figure 1 shows the amount of variance in control levels by treatment 1 YAT. Percent control of Canada thistle increased as the KJM44 rate increased from 0.625 oz / ac to 2.5 oz / ac. KJM44 at 2.5 oz / ac showed consistent control across replications (i.e. low variability) 1 YAT. This pattern was also visible in the Milestone VM at 7 fl oz / ac treatment and the KJM44 plus Telar treatment.

KJM44 at 2.5 oz / ac and KJM44 at 1.25 oz / ac plus Telar at 0.67 oz / ac resulted in excellent control of Canada thistle 1 YAT (91%). These two treatments' results were consistent with that of the current industry standard, aminopyralid at 7 fl oz / ac.

Table 1: 2007 Canada thistle control

Treatment	Rate per acre	Percent control			
		17 DAT	42 DAT	83 DAT	374 DAT
KJM44	0.625 oz	53 d	87 b	75 a	58 a
KJM44	1.25 oz	68 a-d	98 a	88 a	79 a
KJM44	2.5 oz	68 a-d	98 a	95 a	91 a
KJM44	3.13 oz	71 a-d	98 a	93 a	73 a
KJM44	3.75 oz	79 abc	93 ab	76 a	86 a
KJM44	5 oz	85 ab	99 a	94 a	86 a
Milestone VM	5 fl oz	78 abc	97 a	78 a	61 a
Milestone VM	7 fl oz	86 a	99 a	93 a	86 a
Telar	1 oz	63 cd	89 b	40 b	18 b
KJM44 + Telar	1.25 oz + 0.67 oz	66 bcd	98 a	93 a	91 a
Untreated		0	0	0	7.5

Note: Treatment means in the same column followed by the same letter are not statistically different using Fisher's LSD at $p = 0.05$. All treatments included MSO at 1 % v/v.

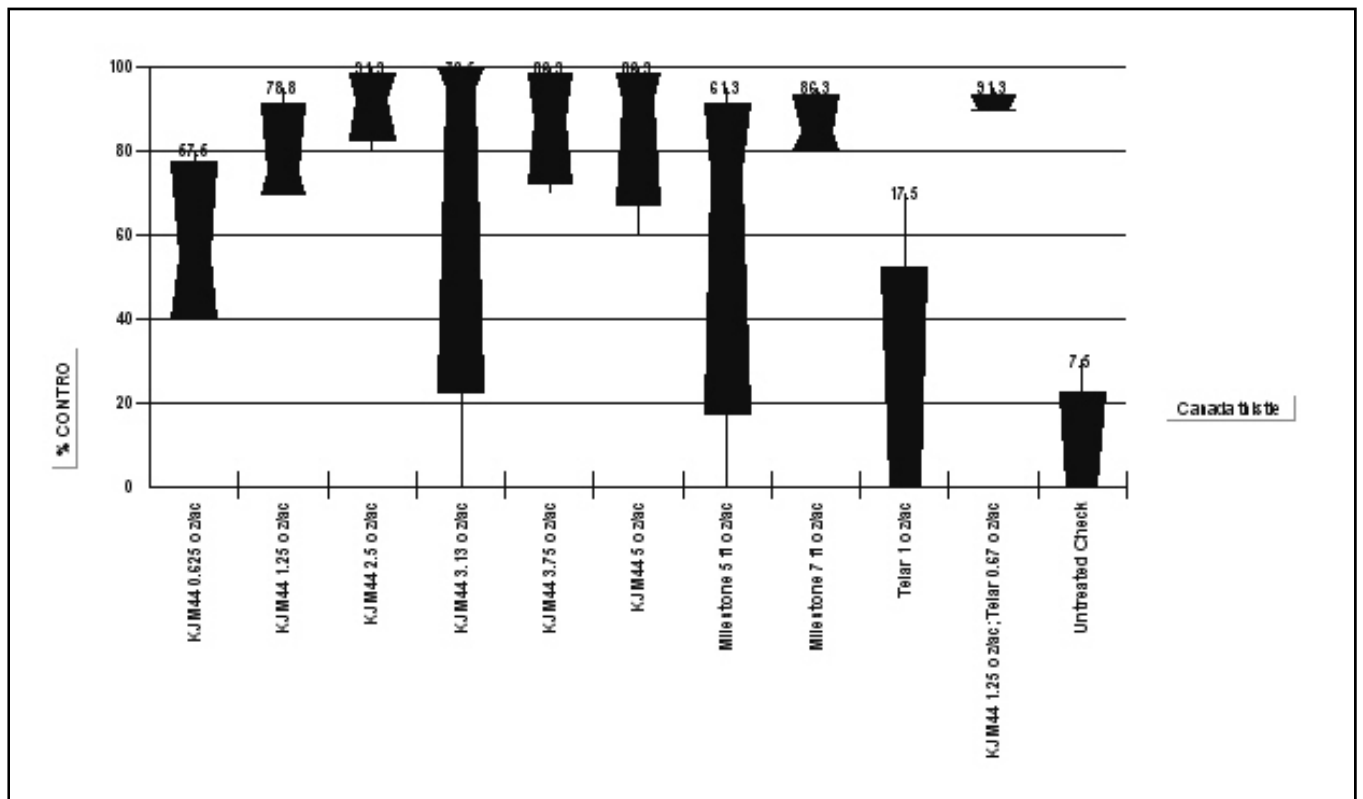


Figure 1: Box-whisker plot of treatment variance for Canada thistle control 1 YAT