2018 Poison Hemlock Control Trial near Richmond

Introduction

Poison hemlock (*Conium maculatum*) is a highly toxic biennial, listed as a noxious weed in Kentucky, that is a common problem on right-of-ways. Infestations occur along roadsides, field margins, ditches, marshes, meadows, and low-lying areas, but this plant prefers shaded areas with moist soil. It can grow up to ten feet tall. The stems are ribbed and hollow with purplish streaks or splotches, which are characteristic for identification. Poison hemlock reproduces by seeds that fall near the plant and disperse via fur, birds, water, and, to a limited extent, wind. Most seeds fall from September through December, but they can fall as late as the end of February. The seeds germinate in the fall, but the plant usually does not bolt and produce flowers until the second spring, which is when they are most noticeable. This trial evaluates a number of herbicide control options including new formulations of 2,4-D with lower volatility (DMA4 vs Freelexx) plus the new formulation of triclopyr (Garlon 3A vs Vastlan).

Materials and Methods

The trial was established May 7, 2018 on an area mowed once a year along I75 near Richmond, KY with a thick stand of poison hemlock. The trial had 9 treatments with 3 replications arranged in a randomized complete block design with 7 ft by 25 ft plots. Application was at 20 gallons per acre. The poison hemlock plants had bolted (32 to 48 inches tall) but not yet flowered. There were also Canada thistle plants (average of 24 inches tall) and common teasel plants (average of 12 inches tall) in most of the plots at application. Plots were assessed 9 (5/16/2018) and 52 (6/28/2018) days after treatment (DAT). It was not possible to assess the plots later in the season as giant foxtail was covering the treated plot area. Vetch was covering the control plot area. Data were analyzed using ARM software and treatment means were compared using Fisher's LSD at $p = 0.05$.

Results and Discussion

All the herbicide treatments (Table 1) had dramatic effects on the tall poison hemlock plants (Figure 1) 9 DAT. There were no differences in control between the DMA 4 and Freelexx formulations 9 or 52 DAT (Table 2). However, the older Garlon 3A was slower (33% control) than Vastlan (50% control) 9 DAT but had the same % control at 52 DAT (97 to 98% control). Most of the hemlock plants were brown and dry 52 DAT but there was still some green tissue and % control was lower for the Milestone and Opensight than the other treatments. Method had the best early control (55%) on common teasel but it was not possible to get teasel rating on the second date. The best early control ratings on Canada thistle (50 to 63% control) were for DMA 4, Milestone, Solution Water Soluble, and Opensight 9 DAT.

An early spring assessment will be done in 2019 to evaluate if there is extended control with soil residual herbicides, like Milestone, Method, and Opensight.

Table 1. Herbicide Treatments, Active Ingredients and Application Rates.

Trt. No.	Product Name	Rate	Rate Unit	Active Ingredient(s)	ai Rate (per acre)
1	DMA 4	4	PT/A	2,4-D	1.9 lb ae
2	Freelexx	4	PT/A	2,4-D	1.9 lb ae
3	Milestone	5	FL OZ/A	aminopyralid	1.25 oz ae
4	Method	15	FL OZ/A	aminocyclopyrachlor	3.75 oz ae
5	Solution Water Soluble	2.28	LB/A	2,4-D	1.84 lb ae
6	Garlon 3A	1.5	QT/A	triclopyr	18 oz ae
7	Vastlan	1.1	QT/A	triclopyr	18 oz ae
8	Opensight	2.5	OZ/A	aminopyralid + metsulfuron	1.31 oz ae + 0.24 oz
9	Nontreated Check				

All herbicide treatments contained the adjuvant, Activator 90 at 0.25% v/v.

Table 2. Herbicide Treatments, Application Rates, and Data.

				Hemlock Control (%)	Teasel Control (%)	Canada Thistle Control (%)	Hemlock Control (%)
Trt. No.	**Product Name**	**Rate**	**Rate Unit**	**9 DAT**			**52 DAT**
1	DMA 4	4	PT/A	52 ab[1]	10 cde	55 ab	98 a
2	Freelexx	4	PT/A	35 ab	10 cde	13 d	90 abc
3	Milestone	5	FL OZ/A	40 ab	30 b	50 abc	82 c
4	Method	15	FL OZ/A	68 a	55 a	25 bcd	98 a
5	Solution Water Soluble	2.28	LB/A	45 ab	20 bcd	63 a	91 abc
6	Garlon 3A	1.5	QT/A	33 bc	5 de	5 d	97 ab
7	Vastlan	1.1	QT/A	50 ab	13 cde	18 cd	98 ab
8	Opensight	2.5	OZ/A	40 ab	25 bc	58 ab	87 bc
9	Nontreated Check			0 c	0 e	0 d	0 d

All herbicide treatments contained the adjuvant, Activator 90 at 0.25% v/v.

[1] Means within a column followed by the same letter are not different according to Fisher's LSD at P < 0.05.

Figure 1: View of the Opensight and Control Plots 9 DAT (May 16, 2018)
The effects of the herbicide treatment are quite dramatic on the poison hemlock!