

Escort® Combinations for Woody Plant Control

Introduction

Woody plant management is an important component to noncrop vegetation management. Utility managers strive for areas under power lines to be completely free of woody plants to allow uninterrupted of service due to tree-line contact and to have clear access in rights-of-way for maintenance purposes. Power line rights-of-way that are clear of woody plants also make for excellent fire breaks to allow containment of forest fires. Roadside vegetation managers deal with woody plants in terms of safety for travelers and work crews. A roadside that is clear of woody vegetation will typically have better line of sight and fewer hazardous trees that can cause personal injury and property damage in the event of an accident.

Control options for woody plants range from mechanical, chemical, and cultural. Chemical control options include a wide array of herbicides, from those designed to control only a few species to those designed to control a wide spectrum. Application methods for chemical control vary as well, from individual stem treatments of basal bark or cut stump, low volume foliar backpack applications, and high volume broadcast foliar treatments. Site characteristics, such as stem density, stem height, accessibility, and species composition, will determine what combination of herbicide and application method will prove most effective.

Escort (a.i. metsulfuron) is a sulfonylurea herbicide in the ALS family commonly used for herbaceous weed control. The product has efficacy on a limited number of woody plants. Unlike a glyphosate tank mix application for woody plants, an Escort application will be selective to some desirable grasses leaving suitable ground cover. Escort provides excellent control of some woody legumes such as locust. A trial was installed in the summer of 2005 to compare Escort tanks mixes for control of several woody species including black locust and redbud.

Methods and Materials

The trial was located on a distribution line operated by South Kentucky Rural Electric Cooperative located near Somerset, KY. The line had been untreated for approximately 4-5 years and had a high density of hardwoods common to an Appalachian hardwood stand. Dominant species included red maple, yellow poplar, redbud, black locust, white oak, black oak, staghorn sumac, with an occasional conifer (mostly Virginia pine). Height of target stems ranged from 1' to 10'. A randomized complete block study was installed with five treatments and three replications (Table 1). Plots were 15' wide by 30' long. Treatments were applied on July 7, 2006 using a CO₂ backpack and a Spraying Systems® handgun with an adjustable cone tip. Treatments were broadcasted at 100 GPA (high volume) due to the high density and stem height.

Data collected included overall control (defoliation) 8 WAT and control by species 1 YAT. Data were analyzed using ANOVA and treatment mean separation performed using Fisher's LSD at $p = 0.05$.

Results

8WAT

There were no significant differences detected among treatments at 70 DAT (Table 1). The three-way tank mix of Escort / Garlon 3A / Krenite; however, did provide the highest operational level of overall control of 95 % 8 WAT. Escort alone at 2 oz / ac resulted in the lowest control at 8 WAT with 55 %.

1 YAT

Significant differences between treatments were present for overall control at 1 YAT. The three-way tank mix provided significantly higher overall control levels 1 YAT (92 %) than the Escort alone treatments and the Escort / Krenite tank mix (Table 1). The Escort alone treatment at 2 oz provided the lowest overall control levels 1 YAT (45 %) and was significantly lower than the treatments incorporating triclopyr (Garlon 3A).

There were no significant differences across treatments for red maple control 1 YAT; however, there was a great deal of variation across treatments. Control levels ranged from 75 % and 71 % (Escort at 3 oz and the three-way tank mix respectively) to 24 % (Escort / Krenite tank mix). There was a treatment effect present for redbud control. Treatments utilizing triclopyr were significantly higher than those not. Triclopyr tank mixes had control levels greater than 90 % while Escort alone treatments were less than 35 % and the Escort / Krenite combination was less than 55 %.

The triclopyr tank mixes provided the highest level of yellow-poplar control as well; however, no differences were detected across treatments for control of this species. Yellow-poplar control with Escort alone does increase from 40 to 70 % when the rate is increased from 2 to 3 oz per acre. The addition of Krenite to the low rate of Escort increased control from 40 to 80 %.

The same pattern was exhibited with control of staghorn sumac. Treatments including triclopyr provided higher levels of control. There was a significant difference between the Escort alone treatment at 2 oz / ac and the remaining treatments. All treatments were extremely effective in controlling black locust; however, there were not enough data points for the Escort / Garlon 3A tank mix to include in analysis.

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Table 1: Summary Statistics for Somerset Brush Trial

				W Weed BRUSH	W Weed BRUSH	W Weed ACRRB Red maple	W Weed CCSCA Eastern redbud	W Weed LIRTU Yellow poplar	W Weed RHUSS Sumach	W Weed ROBSS Locust		
				15/Sep/2005	19/Jul/2006	19/Jul/2006	19/Jul/2006	19/Jul/2006	19/Jul/2006	19/Jul/2006		
				CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO		
				%	%	%	%	%	%	%		
				70 70	377 377	377 377	377 377	377 377	377 377	377 377		
				70 DA-A	377 DA-A	377 DA-A	377 DA-A	377 DA-A	377 DA-A	377 DA-A		
Trt No.	Type	Treatment Name	Rate	Rate Unit	Appl Description	1	2	3	4	5	6	7
1	HERB ADJ	Escort NIS	1.2 3	OZ A/A PT/A		55 a	45 c	48 a	29 b	40 a	5 b	100 a
2	HERB ADJ	Escort NIS	1.8 3	OZ A/A PT/A		67 a	60 bc	75 a	27 b	70 a	74 a	100 a
3	HERB HERB ADJ	Escort Garlon 3A NIS	1.2 24 3	OZ A/A OZ A/A PT/A		67 a	84 ab	49 a	100 a	98 a	100 a	
4	HERB HERB HERB ADJ	Escort Garlon 3A Krenite NIS	1.2 24 96 3	OZ A/A OZ A/A OZ A/A PT/A		95 a	92 a	66 a	99 a	100 a	100 a	100 a
5	HERB HERB ADJ	Escort Krenite NIS	1.2 96 3	OZ A/A OZ A/A PT/A		61 a	62 bc	27 a	55 ab	80 a	67 a	100 a
LSD (P=.05)						42.7	26.8	54.9	48.8	272.5	52.4	0.0
Standard Deviation						22.7	14.2	24.2	21.5	26.3	20.2	0.0
CV						32.82	20.69	45.93	34.91	33.89	29.13	0.0
Grand Mean						69.07	68.78	52.7	61.7	77.5	69.17	100.0
Bartlett's X2						4.86	6.751	5.552	3.939	2.549	1.457	0.0
P(Bartlett's X2)						0.182	0.15	0.235	0.268	0.11	0.483	.
Replicate F						0.720	5.658	0.094	0.763	0.089	0.326	0.000
Replicate Prob(F)						0.5156	0.0294	0.9124	0.5239	0.9215	0.7443	1.0000
Treatment F						1.371	5.376	1.743	8.378	2.582	11.180	0.000
Treatment Prob(F)						0.3255	0.0212	0.3019	0.0317	0.4326	0.0379	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)