AgriLIFE EXTENSION
Texas A&M System

Aerial Control of Yucca

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Summary

The herbicide Cimarron Max (Rate II) was aerially applied alone and in combination with other herbicides to a dense stand of yucca in Menard County. Although there were no significant differences between treatments, there was a general trend toward higher and more consistent control of yucca when 2,4-D or Telar was added to Cimarron Max (Rate II) as compared to Cimarron Max alone. There was no significant advantage to applying two sequential annual treatments as compared to a single treatment.

Problem/Introduction

There are 20 species of yucca on Texas rangelands. This plant can reach densities that result in reduced forage production and restriction of livestock utilization of that forage. Until recently there was no effective broadcast herbicide treatment for this plant. In 2006, Dupont developed a broadcast herbicide application using Cimarron Max at Rate 1 or Rate 2, with the addition of an additional ½ to ¾ lb a.i./ac of 2,4-D. Dupont recommend a treatment window of spring through fall, before frost. They also recommend a second treatment, within 1 to 2 years of the initial treatment.

As of this date there is little data across the various species of yucca concerning which rate of Cimarron is best, exactly how much 2,4-D if any should be added to the herbicide mix and if the 2nd treatment is financially beneficial.

Objectives

The objectives of this herbicide trial are to:

- Evaluate rate and specific herbicide mix for aerial broadcast control of yucca.
- Evaluate efficacy of 2 consecutive treatments as compared to a single treatment for control of yucca.

Materials/Methods

This herbicide trial was established treating yucca (Yucca reverchonii) on the Lee Clark Ranch in Menard County. All herbicide treatments were applied by fixed wing aircraft, using a 65 ft. swatch and 4 gpa total spray volume (Table 1). All treatments were mixed with water and included the addition of 1 pt/ac of crop oil concentrate.

The first replication of treatments applied on 9/28/05 included:

Treatment 1: Cimarron Max at rate II
Treatment 2: Cimarron Max at Rate II + ½ lb a.i./ac 2,4-D ester
Treatment 3: ½ oz Cimarron + 1/8 oz/ac of Telar + 1 lb/ac a.i. 2,4-D ester
Treatment 4: ½ oz/ac of Cimarron + 1/8 oz/ac of Telar

On 9/25/06, treatments plots 1 through 3 were split and ½ of each plot was retreated with the same herbicide mix and application method. Also on this date, a second replication of the 2005 plots (treatments 1 – 3) was established in the same general area. These plots were split and ½ of each plot retreated in October, 2007. This design results in 2 replications (across years) of each treatment, both as a single treatment and as two consecutive annual treatments

Table 1. Conditions at time of application.

Spray Conditions	9/28/05 Application	9/25/06 Application	10/28/07 Application
Total Spray Volume	4 gpa	4 gpa	4 gpa
Start Time	7:50 am	9:30 am	8:00 am
End Time	8:41 pm	11:30 am	9:10 am
Temperature	74 to 80 F	63 to 78 F	68 F
Relative Humidity	56% to 61%	34%	65%
Wind	0 to 3 mph - SW	1 to 5 mph - NE	1 to 2 mph - S

Control following treatment was determined by establishing a permanently marked 300 ft. by 10 ft. belt transect within each treatment plot (one in single treatment area and one in double treatment area). All yucca whorls within each belt transect were counted before and 1 and 2 years following treatment.

Results/Discussion/Economic Impact

Although there were no significant differences between treatments 1 or 2 years after treatment (Table 2), there was a general trend toward higher and more consistent control of yucca when 2,4-D and/or Telar was added to Cimarron Max (Rate II) as compared to Cimarron Max alone. There was no significant advantage to applying two sequential annual treatments as compared to a single treatment.

Table 2. Percent control 1 and 2 years following treatment of yucca.

Herbicide(s)	# Applications	Rep	% Control[1] 1 YAT	2 YAT
Cimarron Max (Rate II)	1	1	51	86
		2	39	31
		Avg.	45	59
	2	1	81	78
		2	33	31
		Avg.	57	55
Cimarron Max + 2,4-D (Rate II + 1/2 lb)	1	1	88	91
		2	79	77
		Avg.	84	84
	2	1	91	77
		2	79	66
		Avg.	85	72
Cimarron + Telar + 2,4-D (1/2 oz + 1/8 lb + 1.0 lb)	1	1	60	95
		2	84	84
		Avg.	72	90
	2	1	77	82
		2	84	52
		Avg.	81	67
Cimarron + Telar (1/2 oz + 1/8 lb)	1	1	86	84

1 – There were no significant differences between means comparing herbicide treatment applied or number of applications within a treatment at the 95% confidence level.

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