

Rotary vs. Fixed Wing for Saltcedar Control

2003

Allan McGinty, Extension Range Specialist, San Angelo
Okla Thornton, Colorado River Municipal Water District, Big Spring

SUMMARY

This project evaluates the use of fixed wing aircraft and rotary wing aircraft to aerially treat saltcedar within the upper Colorado River Basin. During September, 2003, both aircraft types were used to apply various herbicides at various speeds and volumes to saltcedar within the Lake Spence basin.

Preliminary results from these trials will not be available until 2004.

PROBLEM/INTRODUCTION

Saltcedar is an aggressive, invasive plant that infests most west Texas riparian areas. This plant is a lavish water user, transpiring up to 200 gal of water/day/plant. It also impacts streams, rivers and lakes by decreasing water flow and increasing salinity. Saltcedar reaches high densities and can be a severe management problem around recreational areas, such as picnic facilities and boat ramps.

Saltcedar infests the upper Colorado River from the headwaters above Lake Thomas to the dam at Lake Ivie. Within the watershed, saltcedar is located along the river channels and within the lake basins. Over \$2,000,000 has been secured to initiate a saltcedar control project within the watershed. Treatment will begin August, 2004. The river channels will be treated using rotary wing aircraft. This type of aircraft is desired because of the winding nature of the river channel and for drift management when treating adjacent to Texas Poppy Mallow habitat.

There is an estimated 8,000 acres of saltcedar within the Lake Spence basin and 9,000 acres within the Lake Ivie basin. These two basins, because of their large expanse, might be more suitable to fixed wing herbicide applications as compared to rotary wing. Fixed wing applications are being considered because of potential cost savings as compared to the use of rotary aircraft, and because they also have the potential of spraying the desired acreage in a shorter period of time, making best use of a narrow treatment window.

One important question to be answered is will fixed wing aircraft provide equitable control of saltcedar as compared to rotary wing aircraft? There is also the question of how fast can rotary wing aircraft be used before wind shear reduces spray droplet size below an acceptable level, in terms of providing optimum control of saltcedar. This project is designed to help answer those questions.

OBJECTIVES

The objectives of these herbicide trials are to:

- 1) Compare fixed wing vs rotary wing for control of saltcedar.
- 2) Evaluate effect of air speed on saltcedar control.
- 3) Evaluate effect of total spray volume on saltcedar control.
- 4) Compare various herbicide options for saltcedar control.

MATERIALS/METHODS

Specifics concerning the treatments applied are presented in Table 1. The herbicide applications were located within the Lake Spence basin. The herbicide trials included both fixed wing and rotary wing applications. All fixed wing applications were made with a "J" straight stream nozzle, applying 10 gpa at a speed of 130 mph. Swath width was 60 ft. Each spray plot was 300 ft x 1450 ft (5 passes).

All rotary wing applications were made using 0.27 Accuflo nozzles and a 45 ft swath width. Plot size was 180 ft x 1100 ft (4 passes). Treatments were applied at either 30 mph or 62 mph, and at either 10 gpa or 15 gpa (see Table 1).

Each herbicide treatment was mixed with water and included the addition of surfactant at a rate of 2 pts/ac. The surfactant Induce was used for all treatments with the exception of when Cimarron Max was applied, where Dyn-amik was the surfactant used.

These treatments will be replicated in 2004.

Table 1. Herbicide treatments applied.

Aircraft	Date	MPH	GPA	Herbicide/Rate
Rotary Wing	9/24/03	30	10	Arsenal (1 lb/ac)
		62	10	Arsenal (1 lb/ac)
		30	15	Arsenal (1 lb/ac)
		62	10	Arsenal + glyphosate (1/2 lb/ac + 1/2 lb/ac)
		30	10	Cimarron Max (Rate 3)
		30	15	Cimarron Max (Rate 3)
Fixed Wing	9/10/03	130	10	Arsenal (1 lb/ac)
		130	10	Cimarron Max (Rate 3)

RESULTS/DISCUSSION/ECONOMIC IMPACT

Preliminary results from these trials will not be available until 2004.

ACKNOWLEDGMENTS

The authors wish to express appreciation to BASF and Dupont Chemical Companies for furnishing the herbicides used in the trials and for financial support.

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