Evaluation of Brush Monitor for Saltcedar Control

2003

Allan McGinty
Extension Range Specialist
San Angelo, Texas

SUMMARY

The Brush Monitor (Brown Manufacturing Corp.) is a chemical mower that has potential to control saltcedar and other noxious woody plants. The unit consists of a heavy shredding chamber, followed by a chemical application chamber that wipes and sprays herbicide on the cut stubble. The unit operates in one pass, cutting woody plants up to 3 inches in trunk diameter and then applying a directed cut stump herbicide treatment.

To evaluate the Brush Monitor for saltcedar control, herbicide trials were established during August 2002, on a Colorado River Municipal Water District recreational facility near Lake Thomas. Herbicides included in these trials were Garlon 3A, Remedy, Arsenal, and PastureGard at various rates and with various carriers.

One year after treatment, only 2 of the 18 treatments applied provided 40% or greater control. These included a 5% concentration of Remedy in an oil:water emulsion (45% and 53%) or a 5% concentration of PastureGard in a water carrier (49% and 55%). Thirty percent or less control was achieved with Garlon 3A, Remedy at 2.5% or 5% in a water carrier, Arsenal at 1.25 and 2.5% and Pasturegard at 2.5%.

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. While this plant can be controlled by the aerial application of the herbicide Arsenal, there is a risk of herbicide drift and the standing dead plant material is left in place. Individual plant leaf sprays while effective are not cost efficient due to the high saltcedar densities usually encountered. The same is true for individual plant stem sprays. There is a need to develop herbicide application techniques that can be used where the plant is removed and the remaining root crown and roots are killed with herbicide to prevent resprouting.

Saltcedar is known to be susceptible to basal stem applications of the herbicide Remedy. Although there is no data concerning the effectiveness of cut stump applications of this same herbicide on saltcedar, it is

assumed such applications would be as effective or more effective as compared to a basal stem spray. The Brush Monitor is a chemical mower that automates the process of using cut stump treatments. The Brush Monitor consists of two chambers. The first is a heavy duty shredder capable of cutting trees up to 3 in. in trunk diameter. The second chamber, using spray nozzles and brushes wipes herbicide on the cut stubble. The shielded herbicide application chamber virtually eliminates the effects of wind drift and applies herbicide only on cut stubble, not as a broadcast spray on the soil surface. The equipment operates in one pass.

Figure 1. Brown Brush Monitor

OBJECTIVES

The objective of these herbicide trials is to evaluate the effectiveness of Brown Brush Monitor with various herbicides and rates for saltcedar control.

MATERIALS/METHODS

The herbicide trials were established August 28, 2002 at a Colorado River Municipal Water District recreational facility near Lake Thomas. The Brown Brush Monitor was used for all herbicide applications. Each treatment was applied to two plots, one representing tall growth saltcedar (10 ft to 16 ft) and the other low growth (2 ft. to 3ft) or mid growth (3ft to 6 ft). The Brown Brush Monitor nozzles were operated at 50 psi for all applications. Tall growth plots were treated at 2.5 mph and 20 gpa total volume. Low and mid-growth plots were treated at 4.5 mph and 11 gpa. All water based sprays included the addition of 1/2% non-ionic surfactant and 1/4% Hi-Light Blue Dye. All oil/water emulsions were a 1:4 ratio of JLB Oil Plus and water. Herbicides included in these trials were Garlon 3A, Remedy, Arsenal and PastureGard (Table 1).

Table 1. Herbicide, rates, and carriers used with Brown Brush Monitor.

Plot Number	Herbicide	Rate/Concentration	Carrier	Growth Form
1A	Garlon 3A	1 gal/20 gal (5%)	Water	Short
1B	Garlon 3A	1 gal/20 gal (5%)	Water	Tall
2A	Remedy	1 gal/20 gal (5%)	Water	Short
2B	Remedy	1 gal/20 gal (5%)	Water	Tall
3A	Arsenal	1/2 gal/20 gal (2.5%)	Water	Short
3B	Arsenal	1/2 gal/20 gal (2.5%)	Water	Tall
4A	PastureGard	1 gal/20 gal (5%)	Water	Short
4B	PastureGard	1 gal/20 gal (5%)	Water	Tall
5A	Remedy	1 gal/20 gal (5%)	Oil/Water	Short
5B	Remedy	1 gal/20 gal (5%)	Oil/Water	Tall
6A	Garlon 3A	1/2 gal/20 gal (2.5%)	Water	Short
6B	Garlon 3A	1/2 gal/20 gal (2.5%)	Water	Tall
7A	Remedy	1/2 gal/20 gal (2.5%)	Water	Short
7B	Remedy	1/2 gal/20 gal (2.5%)	Water	Mid
8A	Arsenal	1 qt/20 gal (1.25%)	Water	Short
8B	Arsenal	1 qt/20 gal (1.25%)	Water	Mid
9A	PastureGard	1/2 gal/20 gal (2.5%)	Water	Short
9B	PastureGard	1/2 gal/20 gal (2.5%)	Water	Mid

RESULTS/DISCUSSION/ECONOMIC IMPACT

Apparent mortality one year after application is presented in Table 2. In general, Garlon 3A, Remedy in a water carrier, Arsenal and PastureGard at concentrations of 2.5% or less were not effective for control of saltcedar when applied using the Brush Monitor. The greatest control was achieved with Remedy at a 5% concentration using a 20% oil in water emulsion as the carrier and PastureGard at a 5% concentration with a water carrier.

These treatments will be re-evaluated in 2004.

Table 2. Apparent mortality of saltcedar 1 year following treatment with Brush Monitor.

Herbicide	Rate/Concentration	Growth form	Comments	% Control
Garlon 3A	1 gal/20 gal (5%)	Short	Water carrier	25 %
Garlon 3A	1 gal/20 gal (5%)	Tall	Water carrier	7 %
Garlon 3A	½ gal/20 gal (2.5%)	Short	Water carrier	3 %
Garlon 3A	½ gal/20 gal (2.5%)	Tall	Water carrier	13 %
Remedy	1 gal/20 gal (5%)	Short	Water carrier	25 %
Remedy	1 gal/20 gal (5%)	Tall	Water carrier	18 %
Remedy	1 gal/20 gal (5%)	Short	20% oil/water emulsion[1]	45 %
Remedy	1 gal/20 gal (5%)	Tall	20% oil/water emulsion[1]	53 %
Remedy	½ gal/20 gal (2.5%)	Mid	Water carrier	7 %
Remedy	½ gal/20 gal (2.5%)	Short	Water carrier	5 %
Arsenal	½ gal/20 gal (2.5%)	Short	Water carrier	10 %
Arsenal	½ gal/20 gal (2.5%)	Tall	Water carrier	15 %
Arsenal	1 qt/20 gal (1.25%)	Short	Water carrier	5 %
Arsenal	1 qt/20 gal (1.25%)	Mid	Water carrier	11 %
PastureGard	1 gal/20 gal (5%)	Short	Water carrier	55 %
PastureGard	1 gal/20 gal (5%)	Tall	Water carrier	49 %
PastureGard	½ gal/20 gal (2.5%)	Short	Water carrier	6 %
PastureGard	½ gal/20 gal (2.5%)	Mid	Water carrier	30 %

ACKNOWLEDGMENTS

The author wishes to express appreciation to the Colorado River Municipal Water District and Dow AgroSciences for paying the expense of transporting and using the Brown Brush Monitor and to Dow AgroSciences and BASF for furnishing the herbicides used in the trials.
