



Comparison of Individual Plant Leaf Spray Options for Mesquite

2009

Allan McGinty, Prof. & Ext. Range Spec., San Angelo
Jamie Osbourn, County Extension Agent, Llano
Michael Palmer, County Extension Agent, Paint Rock
Steve Estes, County Extension Agent, Anson
Cody Bundick, County Extension Agent, Eldorado
Garrett Gilliam, County Extension Agent, Robert Lee

Summary

These trials, replicated across 6 counties, compared several new Dow AgroScience herbicides to the standard Brush Busters mixture of triclopyr + clopyralid, for control of mesquite, when applied as an individual plant leaf spray.

One year following treatment, apparent mortality of mesquite varied from 50.6% to 87.6% depending on the treatment. The highest control was obtained with 1% Reclaim (clopyralid), and the lowest with 0.33% Milestone (aminopyralid).

Two years following treatment the herbicide Milestone, and all mixtures with DAS-2713 provided significantly lower control as compared to all other herbicides and mixtures, with control ranging from 29% to 35%. Mesquite control following treatment with the herbicide mixture of DAS-2707 and DAS-2708 averaged 78%. When DAS-2713 was added to this mixture, control declined to 35%. There were no significant differences between treatment means for the herbicides DAS-2707, DAS-2708, Reclaim, Remedy and Remedy Ultra when applied alone or in mixtures (control range of 69% to 78%).

Problem/Introduction

At the present time the most effective individual plant leaf spray treatment option for controlling mesquite, is the Brush Busters mixture of triclopyr plus clopyralid. These two herbicides are mixed at ½% concentrations each, with water, surfactant and dye.

This herbicide combination can be expected to provide 75% or greater root kill of treated mesquite.

In the past few years, several new herbicides have been developed and registered by Dow AgroSciences for use on Texas rangelands. Some are completely new molecules (i.e. Milestone/aminopyralid), others are new formulations of old herbicides (Remedy vs. Remedy Ultra). There are no data available comparing these new herbicides to our standard recommendations for mesquite control.

Objectives

The objective of these herbicide trials is to compare and document the effectiveness of several new Dow AgroScience herbicides when applied as an individual plant leaf spray to mesquite.

Materials/Methods

Table 1 provides the county, ranch and application date for applications made as part of these herbicide trials. Treatments applied are described in Table 2. All herbicides were mixed with water. A 90% non-ionic surfactant was added to each treatment at a ¼ % concentration. Hi-Light Blue Dye was added to each treatment at a rate of 1/3 oz/gal of spray mix. The dye was used to mark sprayed trees and to insure proper spray coverage of the leaf canopy. Each treatment, at each location, consisted of a 5 gal spray mix batch.

Applications were made with a 4-wheel ATV, equipped a 1.8 gpm Surflo pump, 2 – 10 gal spray tanks and three spray wands tipped with X-8 adjustable conejet nozzles. All foliage on the target trees were sprayed to wet, almost to the point of dripping.

Table 1. County, location and application date for the 6 trials established to compare efficacy of various mesquite individual plant leaf sprays.

| County | Ranch | Date |
|------------|-------------|-----------|
| Schleicher | Farlano | 7/2/2007 |
| Llano | Slater | 6/18/2007 |
| Concho | Bruchmiller | 7/20/2007 |
| Jones | Parater | 7/26/2007 |
| Coke | Scott | 7/30/2007 |

Table 2. Treatments applied at each location.

| Herbicide(s) | Rate |
|------------------------------|---------------------|
| Milestone | 0.33% |
| DAS2707 + DAS2708 | 0.33% + 0.5% |
| DAS2707 + DAS2708 + DAS 2713 | 0.33% + 0.5% + 0.5% |
| DAS2707 + DAS2713 | 0.33% + 0.5% |
| Reclaim | 0.50% |
| Reclaim | 1.00% |
| Remedy Ultra + Reclaim | 0.5% + 0.5% |
| Remedy + Reclaim | 0.5% + 0.5% |

Results/Discussion/Economic Impact

One year after treatment apparent mortality of mesquite varied from 51% (Milestone @ 0.33%) to 88% (Reclaim @ 1.0%). There were no significant differences between the treatment means at that time (Table 3). There was no significant difference in mesquite control using the old formulation of triclopyr (Remedy) as compared to using the new formulation (Remedy Ultra), when mixed with Reclaim.

Table 3. Apparent mortality of mesquite one year after treatment.

| Herbicide(s) | Rate(s) | County | | | | | Average ¹ |
|--------------------------------|---------------------|--------|-------|--------|------------|-------|----------------------|
| | | Coke | Llano | Concho | Schleicher | Jones | |
| Milestone | 0.33% | 17 | 64 | 25 | 100 | 47 | 51 |
| DAS-2707 + DAS-2708 | 0.33% + 0.5% | 61 | 86 | 70 | 94 | 80 | 78 |
| DAS-2707 + DAS-2708 + DAS-2713 | 0.33% + 0.5% + 0.5% | 27 | 95 | 40 | 91 | 70 | 65 |
| DAS-2707 + DAS-2713 | 0.33% + 0.5% | 24 | 60 | 0 | 86 | 73 | 49 |
| Reclaim | 0.50% | 63 | 86 | 70 | 88 | 61 | 74 |
| Reclaim | 1.00% | 71 | 100 | 92 | 89 | 86 | 88 |
| Reclaim + Remedy | 0.5% + 0.5% | 65 | 87 | 62 | 94 | 68 | 75 |
| Reclaim + Remedy Ultra | 0.5% + 0.5% | 69 | 83 | 52 | 86 | 77 | 73 |

1 - There were no significant differences between treatment means at the 95% confidence level.

Two years following treatment the herbicide Milestone, and all mixtures with DAS-2713 provided significantly lower control as compared to all other herbicides and mixtures with control ranging from 29% to 35% (Table 4). The herbicide DAS-2707 mixed with

DAS-2708 produced an average control of 78%. When DAS-2713 was added to this mixture, control declined to 35%. There were no significant differences between treatment means for the herbicides DAS-2707, DAS-2708, Reclaim, Remedy and Remedy Ultra when applied alone or in mixtures (control range of 69% to 78%).

Table 4. Apparent mortality of mesquite 2 years after treatment.

| Herbicide(s) | Rate(s) | County | | | | | Average ¹ |
|--------------------------------|---------------------|--------|--------------------|--------|------------|-------|----------------------|
| | | Coke | Llano ² | Concho | Schleicher | Jones | |
| Milestone | 0.33% | 0 | | 31 | 50 | 35 | 29a |
| DAS-2707 + DAS-2708 | 0.33% + 0.5% | 64 | | 72 | 87 | 90 | 78b |
| DAS-2707 + DAS-2708 + DAS-2713 | 0.33% + 0.5% + 0.5% | 5 | | 25 | 36 | 75 | 35a |
| DAS-2707 + DAS-2713 | 0.33% + 0.5% | 14 | | 0 | 44 | 70 | 32a |
| Reclaim | 0.50% | 57 | | 60 | 87 | 71 | 69b |
| Reclaim | 1.00% | 59 | | 89 | 80 | 78 | 77b |
| Reclaim + Remedy | 0.5% + 0.5% | 65 | | 58 | 80 | 91 | 74b |
| Reclaim + Remedy Ultra | 0.5% + 0.5% | 63 | | 68 | 80 | 75 | 72b |

1 - Means followed by the same letter are not significantly different at the 95% confidence level (LSD).

2 - Llano County plots were accidentally destroyed by landowner.

Acknowledgements

The authors wish to express appreciation to the ranches which served as cooperators for this herbicide trial. Special thanks are extended to Dow AgroSciences which provided the herbicides used and also financial support.

"The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas AgriLife Extension Service is implied.