

EFFECTIVENESS OF DIFFERENT COMBINATIONS OF GRAMOXONE EXTRA AND TORDON 22K OR GRAZON P+D FOR INDIVIDUAL PLANT TREATMENT OF PRICKLYPEAR

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Summary

Six combinations of Gramoxone Extra, Tordon 22K, and Grazon P+D were used to spot treat pricklypear to determine effectiveness and treatment cost in six locations in five southwest Texas counties. Average 12-month plant-kill and resprouting ranged from 46 to 92% and 2 to 29%, respectively. Average treatment cost ranged from \$0.09 to \$0.18 per plant.

Introduction

Pricklypear infestations create management problems in terms of competition for water and soil nutrients, animal movement, animal health problems, and fenceline and corral maintenance. Tordon 22K (picloram) is highly effective for pricklypear control, but acts slowly (1 to 2 years). Gramoxone Extra (paraquat), labeled for pricklypear spot treatment, used alone or in combination with Tordon 22K provides rapid knockdown of treated plants. Demonstrations reported here were established to compare several rates and combinations of Gramoxone Extra and Tordon 22K or Grazon P+D as individual plant treatments to the suggested standard treatment of 3% Gramoxone Extra + 1% Tordon 22K.

Experiment

Pricklypear infesting 6 pastures in Edwards, Kinney, Maverick, Uvalde, and Val Verde counties was

treated with individual foliar sprays of six different herbicide rates and combinations mixed in water with 0.25% surfactant (Table 1). Treatments were applied between July 11 and August 17, 1995. In Gramoxone Extra treatments, both sides of the pad were sprayed. Plots were observed 2 weeks, 6 months, and 12 months after treatment.

Results

At 2 weeks, Gramoxone treatments generally showed mottling or desiccation in more than 90% of the plants and 80% of the pads. Pad desiccation was greatest in the 3% Gramoxone + 1% Tordon 22K and 3% Gramoxone treatments. Tordon 22K showed only slight yellowing at 2 weeks. At 6 months, desiccation in the 1% Tordon 22K treatment had increased to about 70% of the plants and 50% of the pads, and almost 20% regrowth was observed in the 3% Gramoxone treatment. At 12 months, 3% Gramoxone Extra + 1% Tordon 22K produced 92% plant-kill (Table 1). Plant-kill was slow (46%) in the 1% Tordon 22K treatment. None of the P+D plots achieved 100% plant-kill as in some 1.5% Gramoxone + 1% Tordon 22K plots. Although average plant-kill for the 3% Gramoxone treatment was 63% at 12 months (Table 2), this treatment was highly variable. Plant-kill was most consistent in the 3% Gramoxone + 1% Tordon 22K as exhibited by the lowest standard deviation (Table 1). Basal sprouting was greatest at 29% in the 3% Gramoxone treatment (Table 2).

BOTTOM LINE

For rapid pricklypear kill in fencelines or corrals, the most effective and reliable treatment was 3% Gramoxone Extra + 1% Tordon 22K.

In all other treatments, basal sprouting was 2 to 6%. Treatment costs for chemicals in these demonstrations are shown in Table 3. Lowest average cost was for the 1% Tordon 22K, 1.5% Gramoxone Extra + Grazon P+D, and 3% Gramoxone Extra treatments. Cost per plant was \$0.05 to \$0.42, depending on size of plants. Average cost per plant was \$0.10 to about \$0.18.

Conclusions and Implications

- ◆ The 3% Gramoxone Extra + 1% Tordon 22K and 1% Tordon 22K treatments are currently suggested by the Texas Agricultural Extension Service.
- ◆ Although time required to reach expected control levels is different for these two treatments, expected control level with both treatments is 75-100%.
- ◆ Three percent Gramoxone Extra + 1% Tordon 22K was the most

effective and reliable treatment for spot treatment with rapid plant-kill as the objective.

- ◆ Addition of Gramoxone at 3% to Tordon doubled the cost per gallon of spray mix and per plant treatment cost.
- ◆ The P+D treatment reduced treatment costs, but the control level was lower and more variable than with 3% Gramoxone + 1% Tordon 22K.

Table 1. Percent pricklypear plant kill 12 months post-treatment in six result demonstrations in five southwest Texas counties.

Treatment	1% Tordon 22K	1.5% Gramoxone + 1% Tordon 22K	3% Gramoxone + 1% Tordon 22K	1.5% Gramoxone + 1.5% Tordon 22K	1.5% Gramoxone + 2% Grazon P+D	3% Gramoxone
Avg	47	80	92	76	78	63
STD	28.1	19.3	5.7	12.9	13.7	27.2
Min	16	46	83	56	48	11
Max	98	100	100	93	90	86

Table 2. Percent pricklypear basal sprouting 12 months post-treatment in six result demonstrations in five southwest Texas counties.

Treatment	1% Tordon 22K	1.5% Gramoxone + 1% Tordon 22K	3% Gramoxone + 1% Tordon 22K	1.5% Gramoxone + 1.5% Tordon 22K	1.5% Gramoxone + 2% Grazon P+D	3% Gramoxone
Avg	2	2	2	6	5	29
STD	2.5	3.2	2.1	7.9	6.1	29.7
Min	0	0	0	0	0	0
Max	6	8	5	22	17	89

Table 3. Pricklypear treatment costs for six result demonstrations in five southwest Texas counties.

Treatment	1% Tordon 22K	1.5% Gramoxone + 1% Tordon 22K	3% Gramoxone + 1% Tordon 22K	1.5% Gramoxone + 1.5% Tordon 22K	1.5% Gramoxone + 2% Grazon P+D	3% Gramoxone
Cost/gal	0.99	1.52	2.04	1.98	1.15	1.11
Avg Cost/plant	0.09	0.13	0.16	0.18	0.1	0.1
Min Cost	0.05	0.06	0.09	0.1	0.06	0.05
Max Cost	0.19	0.35	0.32	0.42	0.19	0.37