



Result Demonstration/Applied Research Report

2003 - 2004 Horsenettle Weed Control Demonstration
Jones County, Precinct 1
Cooperator: Wayne Stremmel

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Summary

Nineteen treatments were applied to Horsenettle on September 11, 2003. A wide range of control was achieved with the herbicides applied. Arsenal, Tordon 22K, Plateau, and Clarity were still providing the highest level of Western Horsenettle control nine months after the test was established. The higher rates of Arsenal, Tordon 22K, Plateau, and Clarity had enough soil activity that the broadleaf weeds were still being controlled when plots were evaluated on May 19, 2004 and July 13, 2004. In a non-crop situation these herbicides would be useful. In a rotation, back to cotton, the Clarity may be one of the better options.

Problem

In the Rolling Plains of Texas, Western Horsenettle (*Solanum carolinense*) is a problem in crop production and non-crop areas. Horsenettle is a perennial herb with branching rootstocks and creeping rhizomes. Two distinctive vegetative features of the plant are the yellow spines and the sessile stellate hairs with four to eight branches that cover the stems and leaves. The leaves are alternate, mostly ovate with sinuate to slightly lobed margins. Spines on the leaves are usually found along the major veins. The inflorescences are 5 to 20 flowered in cymose or racemose clusters. The petals are pale violet to white. Horsenettles are found in fields, pastures and bar ditches and extracts moisture and nutrients that could be used for the production of a crop and grass. The seed is poisonous if ingested. The plant has spines and should be handled carefully.

Objective

Through the use of a field test: 1) determine the effectiveness of herbicides at controlling the weed, 2) provide producers the opportunity of observing how effectively the herbicides control the weed, and 3) determine the economic feasibility of applying the herbicides for weed control.

Materials and Methods

Cooperating County Producer: Wayne Stremmel
Location: 1.5 miles south of Farm to Market Road 92 on
County Road 159

Application Information:

Date Applied:	September 11, 2003
Time:	11:30 a.m. to 2:15 p.m.
Wind Speed:	9 to 10 miles per hour
Wind Direction:	South
Air Temperature:	70 to 82 ⁰ Fahrenheit
Relative Humidity:	80 to 90%
Pressure:	32 pounds per square inch
Boom Height:	10 inches above the top of the weed
Water Applied:	12.4 gallons per acre
Nozzle:	Air Induction 11002 on 20 inch centers
Ground Speed:	4.0 miles per hour
Application Device:	Self propelled rig
Plot Size:	13.33 feet wide by 60 feet long
Test Design:	randomized complete block design with three replications

Plant Information

The Horsenettle plants were 10 to 14 inches tall and actively growing when the herbicides were applied. Plants were in the bloom to berry stage. The Horsenettle plant population averaged 2 per square foot.

Results and Discussion

These plots were evaluated on May 19, 2004 and most of the treatments were effective. It was determined that a later evaluation was needed to allow additional plant development of the Horsenettle. On July 13 (ten months after plot establishment), the plots were rated and information collected is reported in Table 1. Plots were rated two way: first the number of older plants (bloom to berry stage) were recorded and compared to the check plot which averaged 55 plants per plot. Second the number of small plants (less than four inches tall) were recorded in each plot and compared to the check which averaged 100 plants per plot. Several of the herbicide treatments controlled more than 90 percent of the Horsenettle. Some of the products applied still had soil activity at the time the plot was rated July 13.

Table 1. Data collected from Wayne Stremmel's Horsenettle Control Test (Jones County, 2004)

Treatment	Cost of Herbicide Per Acre	Percent Horsenettle Control (July 13, 2004)	Percent Horsenettle Regrowth (July 13, 2004)
Tordon 22K @ 32 ounces per acre + 2,4-D @ 32 ounces per acre + C.O.C. @ 1% v/v	\$25.38	100.00 a	0.00 a
Tordon 22K @ 64 ounces per acre + C.O.C. @ 1% v/v	\$40.96	100.00 a	0.00 a
Arsenal @ 32 ounces per acre + C.O.C. @ 1% v/v	\$72.64	100.00 a	4.67 a
Clarity @ 64 ounces per + C.O.C. @ 1% v/v	\$44.00	95.67 a	2.33 a
Remedy @ 1.0% v/v + Reclaim @ 1.0% v/v	\$35.06	97.67 a	2.67 a
Tordon 22K @ 32 ounces per acre + C.O.C. @ 1% v/v	\$20.48	98.33 a	8.67 ab
Surmount @ 32 ounces per acre + C.O.C. @ 1% v/v	\$??.??	84.33 abc	10.00 ab
Remedy @ 0.5% v/v + Reclaim @ 0.5% v/v	\$18.55	82.33 abcd	15.00 abc
Arsenal @ 16 ounces per acre + C.O.C. @ 1% v/v	\$36.32	86.00 ab	16.00 abc
Clarity @ 32 ounces per + C.O.C. @ 1% v/v	\$22.00	82.33 abcd	16.67 abc
2,4-D @ 32 ounces per acre + C.O.C. @ 1% v/v	\$4.90	80.00 abcd	36.67 abc
Marksman @ 96ounces per acre + C.O.C. @ 1% v/v	\$21.60	71.00 abcd	16.67 abc
PastureGard @ 32 ounces + C.O.C. @ 1% v/v	\$??.??	80.00 abcd	54.33 c
Distinct @ 6 ounces per acre + C.O.C. @ 1% v/v	\$31.32	61.67 bcd	48.33 bc
Roundup WeatherMAX @ 56 ounces per acre + 17 pounds of Ammonium Sulphate per 100 gal. of water	\$24.50	59.67 bcd	39.00 abc
Roundup WeatherMAX @ 85 ounces per acre + 17 pounds of Ammonium Sulphate per 100 gal. of water	\$37.19	55.67 bcd	18.67 abc
Weedmaster @ 48 ounces per + C.O.C. @ 1% v/v	\$10.13	53.00 cd	40.00 abc
Distinct @ 10 ounces per acre + C.O.C. @ 1% v/v	\$52.20	51.33 d	48.33 bc
Check	\$0.00	0.00 c	100.00 d

NOTE: In Table 1 the individual or combination of letter a, b, c or d beside the number are to indicate statistical significance. There is no statistical difference between numbers that have the same letter to the side (even when there appears to be a large difference in results between the materials applied).

Results and Discussion

To simplify the explanations in this section I will discuss each chemical and the level of weed control observed.

Arsenal controlled the Horsenettle at both rates used in this test. The soil activity was high enough that regrowth was limited to 4.67 to 16 percent. For non-crop purposes this herbicide has strong potential in controlling Horsenettle.

Clarity controlled the Horsenettle at both rates used in this test. The soil activity was high enough that regrowth was limited to 2.33 to 16.67 percent. For rotating back to cotton or grain sorghum the 32 ounce rate should be considered.

Distinct did not perform as well as expected. The 6 and 10 ounce rate per acre did not control Horsenettle as well as a number of herbicides in this test.

Marksman (dicamba + atrazine) performed well and a higher rate could have been used in a fallow production system. The cost factor of \$21.60 for 96 ounces was the deciding point on rate. The level of Horsenettle control was good and the soil residual activity was high at nine months with 83 percent of the broadleaf weeds still being controlled.

PastureGard (triclopyr + fluroxypyr) controlled 80 percent of the weeds when applied at the 32 ounce per acre rate. At the time of the nine month rating the soil activity was minimal with regrowth rated at 54 percent. This product has a limited use on ditch banks and CRP acreage.

Reclaim and Remedy did control the Horsenettle and at the nine month evaluation had 2.67 to 15 percent regrowth. Producers should try this in a production area according to label to see if they obtain similar results.

Roundup WeatherMAX took out a 56 to 60 percent of the Horsenettle. Since this herbicide has no soil activity the plot had regrowth of 19 to 39 percent at the nine month rating.

Surmount was effective in controlling the Horsenettle. Regrowth in the plot where 32 ounces per acre was applied was only 10 percent at the nine month evaluation.

Tordon 22K did an impressive job in controlling the Horsenettle. The 32 ounce rate still had a lot of soil activity at nine months with over 91 percent of the broadleaf weeds being controlled.

The addition of 2,4-D to the mix did not significantly increase the level of Horsenettle control.

When 2,4 D was used alone it provided a higher level of Horsenettle control than expected.

Weedmaster did a poor job in controlling the Horsenettle when applied at 48 ounces per are. By July 13 the herbicide had basically broken down and most of the broadleaf and annual weeds were actively growing in the plots.

Results and Discussion (continued)

The control of Horsenettle using a Fall weed control program was successful with a number of the herbicides applied. Producers should read and follow label directions when applying any herbicide. The intent of this test was to identify the herbicides that have the potential to control Horsenettle.

Acknowledgments

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Monsanto who provided the Roundup WeatherMAX
UAP who provided the 2,4-D and C.O.C.

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