



Result Demonstration/Applied Research Report

2003 - 2004 Hog Potato Weed Control Demonstration
Scurry County
Cooperator: Jon Derouen

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Summary

Twenty-one treatments were applied to Hog Potato on October 16, 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 Hog Potato 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, Hog Potato (*Hoffmanseggia densiflora*) is a problem in crop production and non-crop areas. A low weak slender stemmed perennial 6 to 10 inches tall, which reproduces from seeds, from creeping underground horizontal roots, and from deep seated nutlike tuberous enlargements of the roots. The twice divided leaves are alternate, 2 to 5 inches long including the stalks, and are covered with glandular dots and fine incurved hairs. They are divided into 3 to 5 pairs of primary leaflets (or divisions), each of which is further divided into 5 to 10 pairs of oblong secondary leaflets only 1/8 to 1/4 inch long. The flowers have 5 yellow or orange red petals about 1/2 inch long, each narrowed into a stalk covered with small glands. The flowers occur along the upper part of the stems, the flowering part only about 2 to 6 inches long and covered with small sticky tackshaped reddish glands. The flattened, slightly curved pods, 2/3 to 1 2/3 inches long, are dark reddish brown, and have few to several seeds. The grayish seeds are smooth, flattened eggshaped, and slightly more than 1/8 inch long. A common native weed, often forming large colonies in heavy alkaline soil along roadsides, ditch banks, and waste places, becoming a troublesome pest when it spreads to adjacent cultivated lands and pastures.

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: Jon Derouen
Location: One mile north and three miles east of Dunn, Texas

Application Information:

Date Applied:	October 16, 2003
Time:	2:30 to 4:30 p.m.
Wind Speed:	1 to 4 miles per hour
Wind Direction:	South
Air Temperature:	74 to 82 ⁰ Fahrenheit
Relative Humidity:	25 to 40%
Pressure:	32 pounds per square inch
Boom Height:	10 inches above the top of the weed
Water Applied:	20 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 Hog Potato plants were four inches tall and actively growing when the herbicides were applied. High gallonage was needed to get adequate coverage of the plant. The Hog Potato plant population averaged 3 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 Hog Potato. On July 13 (nine months after plot establishment) the plots were rated and information collected is reported in Table 1. Several of the herbicide treatments controlled more than 90 percent of the Hog Potato. Some of the products applied still had soil activity at the time the plot was rated July 13.

Table 1. Data collected from Jon Derouen's Hog Potato Control Test (Scurry County, 2004)

Treatment	Cost of Herbicide Per Acre	Percent Hog Potato Control (July 13, 2004)
Tordon 22K @ 32 ounces per acre + C.O.C. @ 1% v/v	\$20.48	99.33 a
Remedy @ 1.5% v/v + Reclaim @ 1.5% v/v	\$53.61	98.67 a
Tordon 22K @ 32 ounces per acre + 2,4-D @ 32 ounces per acre + C.O.C. @ 1% v/v	\$25.38	97.67 a
Remedy @ 1.0% v/v + Reclaim @ 1.0% v/v	\$35.06	97.67 a
Surmount @ 32 ounces per acre + C.O.C. @ 1% v/v	\$???.??	96.00 a
Remedy @ 0.5% v/v + Reclaim @ 0.5% v/v	\$18.55	96.00 a
Distinct @ 6 ounces per acre + C.O.C. @ 1% v/v	\$31.32	76.67 ab
Clarity @ 64 ounces per + C.O.C. @ 1% v/v	\$44.00	68.33 ab
Remedy @ 0.5% v/v + 2,4-D @ 32 ounces per acre + C.O.C. @ 1% v/v	\$9.98	60.00 ab
PastureGard @ 32 ounces + C.O.C. @ 1% v/v	\$???.??	53.33 b
Arsenal @ 16 ounces per acre + C.O.C. @ 1% v/v	\$36.32	51.67 b
Clarity @ 32 ounces per + C.O.C. @ 1% v/v	\$22.00	0.00 c
Check	\$0.00	0.00 c

NOTE: In the table on page 3 the individual or combination of letter a, b, or c 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 control of the Hog potato was less than expected. Arsenal was used in this plot because studies from other states showed this to be one of the better herbicides for controlling Hog potato. Another surprise was that anything was even coming up in the plot where 16 ounces per acre was used. Most plants growing in the plot were stunted and growing slowly.

Results and Discussion (continued)

Clarity at 64 ounces per acre controlled the target weed. According to the label you should be able to plant cotton back in the plot 6 months after the herbicide is applied. I think that might be correct in an area where it rains but I have seen cotton injury several times in acreage where the high rate of clarity was used in the Fall. The 32 ounce rate per acre was not effective in controlling the Hog Potato, however, at this rate the soil residual was low enough that most of the cotton was developing correctly.

Distinct at the 6 ounce per acre rate controlled Hog potato better than expected. According to the label you should be able to plant cotton back in the plot 6 months after the herbicide is applied.

PastureGard (triclopyr + fluroxypyr) controlled 53 percent of the weeds when applied at the 32 ounce per acre rate. This product has a limited use on ditch banks and CRP acreage. Hog potato was the only weed growing in the plots.

Reclaim and Remedy was used at three different rates in this test and all of them controlled a high percentage of the Hog potato plants.

Surmount used at 32 ounces per acre was effective in controlling the Hog potato.

Tordon 22K did an impressive job in controlling the Hog potato. The 32 ounce rate still had some soil activity ten months after the plot was established. The addition of 32 ounces of 2,4-D in a tank mix did not increase the level of weed control in this test.

Several factors that improved the performance of the herbicides in this test. They included actively growing Hog potato, increased gallonage of water, and applying the material under favorable environmental conditions.

Acknowledgments

I want to take this opportunity to thank Jon Derouen for his help in plot establishment and management.

I would also like to thank the following companies for providing herbicide for this test.

BASF who provided the Arsenal, Clarity and Distinct
Dow AgroSciences LLC who provided the PastureGard, Reclaim, Remedy, Surmount and Tordon 22K
UAP who provided the 2,4-D and C.O.C.

Trade names of commercial products used in this report are included only for better understanding and clarity. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M University System is implied. Readers should realize that results from one experiment do not