



Result Demonstration/Applied Research Report

2004 Runnels County
Morningglory Control Demonstration
Cooperators: Wilburn and Glen Pullin

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Summary

Six treatments were applied to morningglory on August 4, 2004 using a post directed rig. Morningglory population on August 4 was two plants per square foot. The number of morningglory that established a plant was reduced in plots where Caparol 4L and Valor were applied. At the time of plot establishment, the morningglory was in a two leaf stage to runners 10 inches long. All herbicides applied significantly reduced the number of morningglory when compared to the check. There was no significant difference between treatments.

Problem

In the Southern Rolling Plains Area of Texas, several species of morningglory impact cotton production. Morningglory is a problem in crop production and non-crop areas. The most challenging species is Sharppod Morningglory (*Ipomoea trichocarpa* var. *trichocarpa*), and it exists in this plot. Also, in the plot is Entireleaf (*Ipomoea hederacea* (L.) Jacq.) and Ivyleaf (*Ipomoea hederacea* var. *integriscula*) Morningglory.

Sharppod morningglory has sepals, leaves and stems that may be pubescent. It is characterized by its heart-shaped and/or deeply lobed leaves, and a rosy lavender flower that has a dark lavender center. Sharppod originates from seed and quickly develops a branched rootstock, becoming a perennial plant in a few weeks. Pre-emergence herbicides such as prometryn or fluometuron provide good seedling control and suppression of perennial plants. However, the perennial plants will require treatment with postemergence herbicides to keep them under control. Our studies have shown that preemergence herbicides need to be followed by postemergence applications of glyphosate at 1.0 lb./acre of active ingredient. The glyphosate application controls any plants coming from seed, and temporarily stops the growth of perennial plants, but generally does not kill them. It is important to follow the initial glyphosate treatment with a sequential application 10-14 days later for improved

control. Delaying the sequential application longer than 20 days results in reduced control. Late-season flushes of Sharppod can continue to cause problems that can only be managed by hooded or lay-by applications of glyphosate or other post-directed products such as diuron plus MSMA. Most burndown post-directed herbicides such as Cobra, or Aim offer vine defoliation and can help to keep the field harvestable. Post-harvest treatments with hormone herbicides (2,4-D, dicamba) to actively growing morningglory vines will also aid in killing the perennial rootstock and help to keep sharppod morningglory infestations to a manageable level the following season.

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: Wilburn and Glen Pullin
Location: 0.25 miles south of U.S. Highway 67 on Farm Road 1678

Application Information:

Date Applied:	August 4, 2004
Time:	10:30 a.m. to 12:30 p.m.
Wind Speed:	4 to 7 miles per hour
Wind Direction:	South
Air Temperature:	88 to 94 ⁰ Fahrenheit
Relative Humidity:	40 to 55%
Pressure:	36 pounds per square inch
Boom Height:	16 inches
Water Applied:	15 gallons per acre
Nozzle:	Flat Fan 8003 Even Flow
Sprayer:	28 inch Hooded Sprayer (Redball 410)
Ground Speed:	4.0 miles per hour
Application Device:	Self propelled rig
Plot Size:	13.33 feet wide by 75 feet long
Test Design:	randomized complete block design with three replications

Plant Information

The Ivyleaf, Entireleaf and Sharppod Morningglory was actively growing at the time of application and the runners were 7 to 10 inches long on the older plants. The plant were larger than desired but rainfall had kept us from making a timely application. This plot has significant weed pressure and more seeds germinated after the plot was established.

Results and Discussion

These plots were evaluated on September 14, 2004 (40 days after plot establishment) and several of the herbicides controlled more than 80 percent of the morningglory. Some of the products applied had soil activity and controlled weeds for three to four weeks. The information collected on September 14 is summarized in Table 1.

Table 1. Runnels County Morningglory Control Test(plot rating conducted on September 14, 2004)

Treatment	Herbicide cost per acre	% Morningglory Control
2.0 oz/A Valor WP plus 16 oz of Roundup WeatherMAX plus 0.17 lb/gal AMS plus 0.25% v/v Activator 90	\$10.13 + \$5.38 \$0.51 + \$0.91 = \$16.93	86.67 a
1.0 oz/A Aim plus 2.4 pints of Caparol 4L plus 1% Herbimax (C.O.C.)	\$5.62 + \$8.63 + \$1.39 = \$15.64	85.00 a
28 oz of Roundup WeatherMAX plus 0.17 lb/gal AMS per acre	\$9.40 + \$0.51 = \$9.91	81.67 a
2.0 oz/A ET plus 16 oz of Roundup WeatherMAX plus 0.17 lb/gal AMS plus 1% Herbimax (C.O.C.)	\$5.00 + \$5.38 \$0.51 + \$1.39 = \$12.28	78.33 a
1.0 oz/A Aim plus 16 oz of Roundup WeatherMAX plus 0.17 lb/gal AMS plus 1% Herbimax (C.O.C.)	\$5.62 + \$5.38 + \$0.51 = \$11.51	70.00 a
1.0 oz/A ET plus 16 oz of Roundup WeatherMAX plus 0.17 lb/gal AMS plus 1% Herbimax (C.O.C.)	\$2.50 + \$5.38 + \$0.51 = \$8.39	65.00 a
Check	\$0.00	0.00 b

NOTE: In Table 1, the individual or combination of letter a or b 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

All treatments in this test work equally well. The level of weed control was lower than expected due to the continuous emergence of morningglory after the test was established. The addition of Roundup to the tank mixes was important since weak rooted perennial weeds existed in the plots.

In comparing the benefit of using the hooded sprayer to cultivating, it appears to be equal in this test. Soil moisture is not a limiting factor in this field in 2004. When soil moisture is limited, the loss of lint production due to plowing is generally enough to pay for the herbicides applied.

This was the first plot established since the hooded sprayer was built. Most of the herbicides applied would have seriously injured the cotton plant if drift occurred. No burn was noted on any of the leaves after the plot was established.

The higher rate of ET resulted in a four day quicker burndown of the morningglory. The herbicides mixed with Roundup WeatherMAX resulted in quicker desiccation of the morningglory than the plots where only Roundup WeatherMAX was applied.

Acknowledgments

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

- FMC Corporation who provided the Aim
- Monsanto Company who provided the Roundup WeatherMAX
- Nichino America Incorporated who provided the ET
- Syngenta Crop Protection, Inc. who provided the Caparol 4L
- UAP Southwest who provided the Activator 90 (non-ionic surfactant) and Herbimax (crop oil concentrate)
- Valent U.S.A. Corporation who provided the Valor WP

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 represent conclusive evidence that the same response would occur where conditions vary.