

2005 FINAL REPORT
Georgia Agricultural Commodity Commission for Corn

TITLE: Tropical Spiderwort Management in Corn with Lay-by Herbicides

INVESTIGATORS:

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JUSTIFICATION:

Tropical spiderwort (*Commelina benghalensis*) is rapidly becoming one of the most troublesome weeds in Georgia. A recent survey of county extension agents indicated that tropical spiderwort can be found in 33 counties in central and south Georgia. It is extremely problematic in the counties that border Florida including Seminole, Decatur, Grady, Thomas, Brooks, and Lowndes. Since the majority of tropical spiderwort does not emerge until late-May or early-June, it is not considered to be serious weed problem that affects the yield and harvesting of early-planted field corn. However, tropical spiderwort that emerges in corn often causes major problems in subsequent rotational crops due to the large amount of seed that can be produced from July until November. The inability to adequately control tropical spiderwort in field corn may be one of the main reasons why this weed has developed into such a problem in Georgia.

POTENTIAL BENEFIT:

The implementation of successful tropical spiderwort management strategies in field corn will help improve control in subsequent rotational crops by reducing the overall populations of this weed in a field.

OBJECTIVES:

- 1) To evaluate tropical spiderwort control with various lay-by herbicides (Aim, Gramoxone, Evik) applied alone and in combination with residual herbicides (Dual Magnum, Atrazine, Axiom)
- 2) To verify that tropical spiderwort does not reduce the yield of early-planted field corn.

MATERIALS AND METHODS

A dryland field trial was established in Grady County at the Jim Tenewitz Farm. The corn hybrid, DK 67-60RR, was planted on May 4, 2005. Plot size was 3 rows (38") X 25'. Traditional small plot techniques were used and each herbicide treatment was replicated four times. The herbicide treatments were applied on May 25, 2005 using 15 GPA and XR11002VS flat fan nozzles. At the time of application, the corn was 22" tall and the tropical spiderwort was 3" tall. Spiderwort populations averaged approximately 20/ft². Corn yield data were obtained by hand-harvesting a 10' section of the center row of each plot. Yields were adjusted to 15.5% moisture. All data were subjected to analysis of variance (ANOVA) and means were separated using Duncan's Multiple Range Test (P = 0.05)

RESULTS

The results of this field trial are presented in Table 1. The treatments that provided the best control in this test were Aim, Gramoxone Max, and Evik applied in combination with Dual Magnum. Corn yields were not influenced by any herbicide treatment.

CONCLUSIONS

Although the Aim, Gramoxone, or Evik + Dual Magnum treatments provided fair control of tropical spiderwort, their use did not result in significant improvements in corn yield. In fact, the cost of these treatments greatly exceeded returns. Additionally, control with all of these treatments was poor at harvest. Consequently, it may not be practical to control tropical spiderwort in early-planted field corn. Herbicide inputs might be better utilized when applied post-harvest.

Table 1. Tropical spiderwort and corn yield response to lay-by herbicide applications, 2005.

Herbicide	Rate/A	Tropical Spiderwort Control - %			Corn Yield (Bu/A)
		9 DAT ^a	35 DAT	63 DAT	
Untreated	--	0 c ^b	0 f	0 e	166 a
Aim 2EC + COC ^c	1.5 oz 1% v/v	71 b	50 d	0 e	169 a
Aim 2EC + Dual Magnum 7.62EC + COC	1.5 oz + 1.33 pt + 1% v/v	94 a	93 a	73 a	168 a
Aim 2EC + Atrazine 4L + COC	1.5 oz + 2.0 qt + 1% v/v	76 ab	70 bc	18 de	169 a
Aim 2EC + Axiom 68DF + COC	1.5 oz + 10.0 oz + 1% v/v	86 ab	68 bc	26 cd	179 a
Gramoxone Max 3SC + NIS ^d	16.0 oz + 0.25% v/v	79 ab	38 e	0 e	167 a
Gramoxone Max 3SC + Dual Magnum 7.62EC + NIS	16.0 oz + 1.33 pt + 0.25% v/v	83 ab	90 a	55 ab	171 a
Gramoxone Max 3SC + Atrazine 4L + NIS	16.0 oz + 2.0 qt + 0.25% v/v	79 ab	59 cd	0 e	170 a
Gramoxone Max 3SC + Axiom 68DF + NIS	16.0 oz + 10.0 oz + 0.25% v/v	80 ab	58 cd	3 e	161 a
Evik 80DF+ NIS	2.0 lb 0.25% V/V	71 b	51 d	0 e	175 a
Evik 80DF + Dual Magnum 7.62EC + NIS	2.0 lb + 1.33 pt + 0.25% v/v	78 ab	94 a	70 a	177 a
Evik 80DF + Atrazine 4L + NIS	2.0 lb + 2.0 qt + 0.25 v/v	71 b	66 bc	4 e	168 a
Evik 80DF + Axiom 68DF + NIS	2.0 lb + 10.0 oz + 0.25% v/v	79 ab	78 b	41 bc	176 a

^aDAT = days after treatment.

^bMeans in the same column with the same letter are not significantly different according to Duncan's Multiple Range Test (P = 0.05).

^cCOC = crop oil concentrate (Herbimax)

^dNIS = non-ionic surfactant (Activator 90)