

TITLE:

Preemergence Weed Control in Peanut at Halfway, TX, 2011.

AUTHORS:

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MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Olton clay loam
Planting Date:	April 27
Variety:	Olin (Spanish Market Type)
Application Dates:	Preemergence, April 28; Postemergence, July 18
Rainfall (Apr to Sep.):	1.9 inches
Irrigation (Apr to Sep.):	16.99 inches
Digging Date:	October 11
Harvest Date:	October 19

RESULTS AND DISCUSSION:

Palmer amaranth (carelessweed) is the most common weed found in the Texas High Plains. Palmer amaranth will compete with peanut for consumable environmental resources such as water, nutrients, and light. Uncontrolled Palmer amaranth will cause problems with digging and will cause harvest losses and reduce harvest efficiency. The most critical period for effective weed control is the first 4 to 6 weeks after planting. The objective of this research was to examine peanut response and Palmer amaranth control when using Valor SX (flumioxazin) at 3 ounces per acre (oz/A), Dual Magnum (*S*-metolachlor) at 21.3 oz/A, and Warrant (acetochlor) at 48 oz/A applied preemergence (PRE) or PRE followed by a postemergence (POST) application of Cobra (lactofen) at 12.8 oz/A plus crop oil concentrate (1% v/v). Warrant, an encapsulated herbicide for weed control in soybean and cotton, is not currently labeled for use in peanut. Olin, a Spanish market type, was planted Apr 27. Preemergence herbicides were made on Apr 28 followed by 0.8 inches of overhead sprinkler irrigation on Apr 29 (within 24 hours of application).

Complete Palmer amaranth control was observed at six weeks after planting (Jun 10) (Table 1a). This satisfies the need for effective control the first 4 to 6 weeks after planting. Residual Palmer amaranth control following Valor, Dual Magnum, and Warrant was 63%, 79-89%, and 72-80%, respectively, 11 weeks after planting (Jul 18). An early-postemergence application was needed before weed control dropped below 90%. Cobra applied mid-postemergence was ineffective due to the extreme heat and drought conditions experienced in 2011, but Dual Magnum maintained at least 80% control of Palmer amaranth late-season (Sep 23).

No peanut injury was observed on May 25 (4 weeks after planting) and slight peanut injury (2%) was observed on Jun 10 (6 weeks after planting) following several preemergence treatments (Table 1b). On Jul 18 (11 weeks after planting), Valor and Dual Magnum caused up to 10 and 12% peanut injury, respectively. This injury was still observed late-season (Sep 23). Peanut yield ranged from 1222 to 1921 lb/A and was not different from the non-treated control (1414 lb/A). Peanut grade ranged from 52 to 55 and was not different from the non-treated control (55). Results from this

study suggest that Valor, Dual Magnum, and Warrant will provide initial control of Palmer amaranth, but weed control will decrease by mid-season. Cultivation, an additional soil residual herbicide, or an EPOST treatment will be necessary for full-season weed control. No adverse effect on peanut yield nor grade should be expected from these preemergence herbicides.

Table 1a. Palmer amaranth control as affected by herbicide applications at Halfway, TX, 2011^a.

Treatment	Rate	Prod.	Timing	Palmer amaranth control		
				Jun 10	Jul 18	Sep 23
	lb ai/A	oz/A		-----%-----		
Non-treated	---	---	---	0	0	0
Valor SX	0.096	3	PRE	100	63	52
Valor SX	0.096	3	PRE	100	63	62
Cobra + COC	0.2 + 1%	12.8 + 12.8	POST			
Dual Magnum	1.27	21.3	PRE	100	79	80
Dual Magnum	1.27	21.3	PRE	100	89	87
Cobra + COC	0.2 + 1%	12.8 + 12.8	POST			
Warrant	1.13	48	PRE	100	80	70
Warant	1.13	48	PRE	100	72	70
Cobra + COC	0.2 + 1%	12.8 + 12.8	POST			
pValue				1.0000	0.0013	0.0029
LSD _(0.10)				NS	26	28

^aAbbreviations: COC, crop oil concentrate; POST, postemergence; PRE, preemergence

Table 1b. Peanut injury, yield, and grade as affected by herbicide applications at Halfway, TX, 2011^a.

Treatment	Rate	Prod.	Timing	Peanut Injury				Yield	Grade
				May 25	Jun 10	Jul 18	Sep 23		
	lb ai/A	oz/A		-----%-----				lb/A	%
Non-treated	---	---	---	0	0	0	0	1414	55
Valor SX	0.096	3	PRE	0	0	12	8	1921	52
Valor SX	0.096	3	PRE	0	2	0	0	1754	54
Cobra + COC	0.2 + 1%	12.8 + 12.8	POST						
Dual Magnum	1.27	21.3	PRE	0	2	10	5	1708	55
Dual Magnum	1.27	21.3	PRE	0	2	3	3	1222	53
Cobra + COC	0.2 + 1%	12.8 + 12.8	POST						
Warrant	1.13	48	PRE	0	2	2	0	1787	54
Warant	1.13	48	PRE	0	0	0	0	1383	53
Cobra + COC	0.2 + 1%	12.8 + 12.8	POST						
pValue				1.0000	0.7969	0.1463	0.1379	0.7049	0.8682
LSD _(0.10)				NS	NS	NS	NS	NS	NS

^aAbbreviations: COC, crop oil concentrate; POST, postemergence; PRE, preemergence