

TITLE:

Weed Control Systems in Peanut with Warrant at Halfway, TX, 2012.

AUTHORS:

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MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Pullman clay loam
Planting Date:	May 1
Variety:	Olin (Spanish Market Type)
Application Dates:	Preemergence, May 2; Postemergence, June 21
Rainfall (Apr to Sep.):	6.16 inches
Digging Date:	October 12
Harvest Date:	October 29

RESULTS AND DISCUSSION:

Prowl H2O (pendimethalin), Valor SX (flumioxazin) and Dual Magnum (*S*-metolachlor) are currently registered for use preemergence (PRE) in peanut. Warrant (acetochlor) is a relatively new encapsulated herbicide labeled for use in soybean and cotton, but is not currently labeled for use in peanut. It is well-documented that the first 4 to 6 weeks after peanut emergence are most important for effective weed control. The objective of this research was to examine peanut response and Palmer amaranth control using these PRE herbicides alone or in a “systems approach” for season-long weed control. Prowl H2O at 32 ounces per acre (oz/A), Valor SX at 3 oz/A, Dual Magnum at 21.3 oz/A, and Warrant at 48 oz/A were applied PRE alone or in a tank-mix combination. In a separate series of treatments, Prowl H2O PRE was followed by (fb) postemergence (POST) applications of Cadre (imazapic) at 4 oz/A (plus crop oil concentrate (COC)), Cobra (lactofen) at 12.5 oz/A (plus COC), Cobra plus Dual Magnum, or Cobra plus Warrant. Olin, a Spanish market type, was planted May 1. Preemergence applications were made on May 2 followed by overhead irrigation to activate preemergence herbicides. Postemergence applications were made on June 21.

On May 28 (4 weeks after planting), Palmer amaranth was controlled 95 to 100% following PRE treatments (Table 1a). Prowl H2O was the only herbicide that when applied alone did not provide complete control of this weed (95%). This was also observed in 2011. On Jun 28 (8 weeks after the PRE treatments and 1 week after the POST treatments), all PRE treatments controlled Palmer amaranth at least 99% except for Prowl H2O, which controlled this weed 70%. Prowl H2O PRE followed by (fb) Cadre POST controlled Palmer amaranth 98%, where Prowl H2O PRE fb Cobra, Prowl H2O + Dual Magnum PRE fb Cobra POST, and Prowl H2O + Warrant PRE fb Cobra POST controlled Palmer amaranth 74 to 76%. Last-season weed control (Aug 2) ranged from 55 to 97%. All PRE treatments except Prowl H2O controlled Palmer amaranth at least 88%. Palmer amaranth control following Prowl H2O and Dual Magnum was 55% and 97%, respectively. Prowl H2O PRE fb Cadre POST controlled this weed 95%. No other PRE fb POST combination controlled Palmer amaranth greater than 80%.

No peanut injury was observed on May 23 (3 weeks after planting) or May 29 (Table 1b). On Jun 13, only Dual Magnum, alone or in combination with Prowl H2O caused slight peanut injury. This

injury, however, did not exceed 3%. Cobra applied POST caused 6% peanut injury on June 28. This injury increased to 14% when Cobra was applied in tank mixture with Dual Magnum. Peanut yield ranged from 2091 to 2597 lb/A, which was not different from the non-treated control (1911 lb/A). Peanut grade ranged from 60 to 66%, which also was not different from the non-treated control (64%). Results from this study suggest that effective PRE and PRE fb POST herbicide combinations are available for use in peanut for effective Palmer amaranth control without any adverse effects on peanut yield or grade. The potential use of Warrant in the future will provide another effective and safe herbicide option in peanut.

Table 1a. Palmer amaranth control as affected by herbicide applications at Halfway, TX, 2012^a.

Treatment	Rate	Prod.	Timing	Palmer amaranth control		
				May 29	Jun 28	Aug 2
	lb ai/A	oz/A		-----%-----		
Non-treated	---	---	---	0	0	0
Prowl H2O	0.95	32	PRE	95	70	55
Valor SX	0.096	3	PRE	100	100	90
Dual Magnum	1.27	21.3	PRE	100	100	97
Warrant	1.13	48	PRE	100	100	88
Prowl H2O + Valor SX	0.95 0.096	32 3	PRE	100	100	91
Prowl H2O + Dual Magnum	0.95 1.27	32 21.3	PRE	100	99	94
Prowl H2O + Warrant	0.95 1.13	32 48	PRE	100	100	91
Prowl H2O fb Cadre + COC	0.95 0.063 + 1%	32 4 + 12.8	PRE POST	100	98	95
Prowl H2O fb Cobra + COC	0.95 0.195 + 1%	32 12.5 + 12.8	PRE POST	100	76	76
Prowl H2O fb Dual Magnum + Cobra + COC	0.95 1.27 + 0.195 + 1%	32 21.3 + 12.5 + 12.8	PRE POST	100	75	80
Prowl H2O fb Warrant + Cobra + COC	0.95 1.13 + 0.195 + 1%	32 48 + 12.5 + 12.8	PRE POST	100	74	76
pValue				0.0001	0.0001	0.0001
LSD _(0.10)				21	5	9

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

Table 1b. Peanut injury, yield, and grade as affected by herbicide applications at Halfway, TX, 2012^a.

Treatment	Rate	Prod.	Timing	Peanut Injury				Yield	Grade
				May 23	May 29	Jun 13	Jun 28		
	lb ai/A	oz/A		-----%-----				lb/A	%
Non-treated	---	---	---	0	0	0	0	1911	64
Prowl H2O	0.95	32	PRE	0	0	0	0	2233	65
Valor SX	0.096	3	PRE	0	0	0	0	2227	63
Dual Magnum	1.27	21.3	PRE	0	0	2.5	0	2347	66
Warrant	1.13	48	PRE	0	0	0	0	2118	66
Prowl H2O + Valor SX	0.95 0.096	32 3	PRE	0	0	0	1.3	2091	66
Prowl H2O + Dual Magnum	0.95 1.27	32 21.3	PRE	0	0	1.3	1.3	2156	66
Prowl H2O + Warrant	0.95 1.13	32 48	PRE	0	0	0	0	2597	65
Prowl H2O fb Cadre + COC	0.95 0.063 + 1%	32 4 + 12.8	PRE POST	0	0	0	2.5	2477	64
Prowl H2O fb Cobra + COC	0.95 0.195 + 1%	32 12.5 + 12.8	PRE POST	0	0	0	6.3	2347	64
Prowl H2O fb Dual Magnum + Cobra + COC	0.95 1.27 + 0.195 + 1%	32 21.3 + 12.5 + 12.8	PRE POST	0	0	0	13.8	2221	64
Prowl H2O fb Warrant + Cobra + COC	0.95 1.13 + 0.195 + 1%	32 48 + 12.5 + 12.8	PRE POST	0	0	0	6.3	2521	60
pValue				1.0000	1.0000	0.0497	0.0001	0.4531	0.3569
LSD _(0.10)				NS	NS	1.3	3.13	NS	NS

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