

TITLE:

Weed Control Systems in Peanut with Warrant at Halfway, TX, 2011.

AUTHORS:

Peter Dotray, Lyndell Gilbert, Professor, Technician II  
Texas AgriLife Research and Extension Service, Lubbock

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, June 29
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:

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 Apr 27. Preemergence applications were made on Apr 28 followed by 0.8 inches of overhead irrigation on Apr 29 (within 24 hours of application).

On Jun 10 (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 control Palmer amaranth 100%. On Jul 27 (13 weeks after the PRE treatments), Dual Magnum applied alone and Dual Magnum + Prowl H2O controlled Palmer amaranth at least 95%. This is a very long period of time to expect our PRE herbicides to maintain effective weed control. Prowl H2O, Valor SX, and Warrant applied alone controlled this weed 30%, 62%, and 78%, respectively. At this same observation date (Jul 27), which was 4 weeks after the POST treatments were applied, all “systems” controlled Palmer amaranth at least 80%. Prowl H2O fb Cadre and Prowl H2O fb Dual Magnum + Cobra controlled Palmer amaranth at least 94%. On Sep 23, only Dual Magnum PRE (83%), Prowl H2O + Dual Magnum PRE (87%), and Prowl H2O + Warrant PRE (82%) controlled Palmer amaranth at least 80%.

No peanut injury was observed on May 25 (4 weeks after planting) (Table 1b). On Jun 10 (6 weeks

Table 1a. Palmer amaranth control as affected by herbicide applications at Halfway, TX, 2011<sup>a</sup>.

Treatment	Rate	Prod.	Timing	Palmer amaranth control		
				Jun 10	Jul 27	Sep 23
	lb ai/A	oz/A		-----%-----		
Non-treated	---	---	---	0	0	0
Prowl H2O	0.95	32	PRE	98	30	7
Valor SX	0.096	3	PRE	100	62	18
Dual Magnum	1.27	21.3	PRE	100	95	83
Warrant	1.13	48	PRE	100	78	50
Prowl H2O + Valor SX	0.95 0.096	32 3	PRE	100	77	35
Prowl H2O + Dual Magnum	0.95 1.27	32 21.3	PRE	97	98	87
Prowl H2O + Warrant	0.95 1.13	32 48	PRE	100	93	82
Prowl H2O fb Cadre + COC	0.95 0.063 + 1%	32 4 + 12.8	PRE POST	100	96	75
Prowl H2O fb Cobra + COC	0.95 0.195 + 1%	32 12.5 + 12.8	PRE POST	95	82	52
Prowl H2O fb Dual Magnum + Cobra + COC	0.95 1.27 + 0.195 + 1%	32 21.3 + 12.5 + 12.8	PRE POST	100	94	60
Prowl H2O fb Warrant + Cobra + COC	0.95 1.13 + 0.195 + 1%	32 48 + 12.5 + 12.8	PRE POST	98	80	45
pValue				0.0001	0.0001	0.0001
LSD <sub>(0.10)</sub>				5	13	19

<sup>a</sup>Abbreviations: COC, crop oil concentrate; fb, followed by; POST, postemergence; PRE, preemergence after planting), Dual Magnum or Warrant applied alone or in combination with Prowl H2O injured peanut 2 to 5%. We have seen chloroacetamide herbicides cause this kind of peanut stunt in other experiments. On Jul 27, 4 weeks after POST treatments were applied, only Cadre caused slight peanut injury (2%), but no peanut injury was observed late-season (Sep 23). Peanut yield ranged from 1346 to 1770 lb/A and was not different from the non-treated control (928 lb/A). Peanut grade ranged from 49 to 54 and was not different from the non-treated control (51). Results from this study suggest that effective PRE and PRE fb POST treatments are available for use in peanut for effective Palmer amaranth control without any adverse effects on peanut yield or grade.

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

Treatment	Rate	Prod.	Timing	Peanut Injury				Yield	Grade
				May 25	Jun 10	Jul 27	Sep 23		
	lb ai/A	oz/A		-----%-----				lb/A	%
Non-treated	---	---	---	0	0	0	0	928	51
Prowl H2O	0.95	32	PRE	0	0	0	0	1399	51
Valor SX	0.096	3	PRE	0	0	0	0	1770	54
Dual Magnum	1.27	21.3	PRE	0	3	0	0	1403	50
Warrant	1.13	48	PRE	0	2	0	0	1634	52
Prowl H2O + Valor SX	0.95 0.096	32 3	PRE	0	0	0	0	1421	52
Prowl H2O + Dual Magnum	0.95 1.27	32 21.3	PRE	0	2	0	0	1770	52
Prowl H2O + Warrant	0.95 1.13	32 48	PRE	0	5	0	0	1624	51
Prowl H2O fb Cadre + COC	0.95 0.063 + 1%	32 4 + 12.8	PRE POST	0	0	2	0	1590	53
Prowl H2O fb Cobra + COC	0.95 0.195 + 1%	32 12.5 + 12.8	PRE POST	0	0	0	0	1453	50
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	0	1346	49
Prowl H2O fb Warrant + Cobra + COC	0.95 1.13 + 0.195 + 1%	32 48 + 12.5 + 12.8	PRE POST	0	0	0	0	1608	53
pValue				1.0000	0.0013	0.4767	1.0000	0.8953	0.8498
LSD <sub>(0.10)</sub>				NS	2	NS	NS	NS	NS

<sup>a</sup>Abbreviations: COC, crop oil concentrate; fb, followed by; POST, postemergence; PRE, preemergence