

TITLE:

Peanut Varietal Tolerance to Herbicides Applied Preemergence at AG-CARES, Lamesa, TX, 2011.

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MATERIALS AND METHODS:

Plot Size:	2 rows by 40 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 25
Varieties:	Flavorrunner 458, Tamrun OL01, Tamrun OL02, Tamrun OL07
Application Date:	Preemergence, April 26
Rainfall (Apr to Sep):	1.49 inches
Irrigation (Apr to Sep):	17.71 inches

RESULTS AND DISCUSSION:

New crop varieties are released each year with greater yield potential, improved drought tolerance and quality, and improved plant protection capabilities. However, new crop varieties may also be released with differential tolerance to herbicides. Previous research has shown that peanut market types and varieties within a market type may have differential herbicide tolerance. The objective of this research was to examine peanut response to Dual Magnum (*S*-metolachlor) and Warrant (acetochlor) when applied preemergence (PRE). Warrant, an encapsulated herbicide for weed control in soybean and cotton, is not currently labeled for use in peanut. Dual Magnum rates used in this study were 10.7, 21.3, and 42.7 oz/A (0.5X, 1X, and 2X the recommended labeled rate in peanut), whereas Warrant rates were 24, 48, and 96 oz/A (also 0.5X, 1X, and 2X the recommended labeled rate in cotton or soybean). Peanut varieties Flavorrunner 458, Tamrun OL01, Tamrun OL02, and Tamrun OL07 were planted April 25 and herbicides were applied on April 26 followed by 0.5 inches of overhead irrigation on April 27 (within 24 hours of application).

A herbicide by variety interaction was observed for peanut injury on May 24 (4 weeks after treatment); therefore, all varieties by herbicide combinations are listed individually. No herbicide by variety interaction was observed on Jun 21, Jul 19, and Sep 29; therefore, herbicide treatments may be pooled within variety to compare differential varietal tolerance, and varieties may be pooled within herbicides to compare differential herbicide injury. On May 24, the 2X rate of Warrant and 1X rate of Dual Magnum injured Flavorrunner 458 and OL02, but injury did not exceed 3% (Table 1a). Dual Magnum at 2X caused 2 to 10% injury, and injury was most severe in OL01 (5%) and OL02 (10%). On Jun 21 (8 weeks after treatment), when pooled over peanut varieties, injury was observed following the 2X rate of Dual Magnum (6%), and this injury decreased to 3% on Jul 19 (Table 1b). No peanut injury was observed late season (Sep 29). Peanuts were dug on Oct 21 and very poor kernel development was observed due to the unprecedented heat and drought experienced in 2011; therefore, plots were not thrashed. It appears that no differential varietal tolerance was observed following normal use rates of Dual Magnum and Warrant, but additional studies will be conducted in 2012.

Table 1a. Peanut injury by variety as affected by herbicide and rate at AG-CARES, Lamesa, TX, 2011<sup>a</sup>.

Variety	Treatment	Timing	Prod.	Rate	<u>Peanut Injury</u>
			oz/A	lb ai/A	May 24 %
Flavorrunner 458	Non-treated	---	---	---	0
Tamrun OL01	Non-treated	---	---	---	0
Tamrun OL02	Non-treated	---	---	---	0
Tamrun OL07	Non-treated	---	---	---	0
Flavorrunner 458	Warrant	PRE	24	0.56	0
Tamrun OL01	Warrant	PRE	24	0.56	0
Tamrun OL02	Warrant	PRE	24	0.56	0
Tamrun OL07	Warrant	PRE	24	0.56	0
Flavorrunner 458	Warrant	PRE	48	1.13	0
Tamrun OL01	Warrant	PRE	48	1.13	0
Tamrun OL02	Warrant	PRE	48	1.13	0
Tamrun OL07	Warrant	PRE	48	1.13	0
Flavorrunner 458	Warrant	PRE	96	2.25	2
Tamrun OL01	Warrant	PRE	96	2.25	0
Tamrun OL02	Warrant	PRE	96	2.25	3
Tamrun OL07	Warrant	PRE	96	2.25	0
Flavorrunner 458	Dual Magnum	PRE	10.7	0.635	0
Tamrun OL01	Dual Magnum	PRE	10.7	0.635	0
Tamrun OL02	Dual Magnum	PRE	10.7	0.635	0
Tamrun OL07	Dual Magnum	PRE	10.7	0.635	0
Flavorrunner 458	Dual Magnum	PRE	21.3	1.27	2
Tamrun OL01	Dual Magnum	PRE	21.3	1.27	0
Tamrun OL02	Dual Magnum	PRE	21.3	1.27	3
Tamrun OL07	Dual Magnum	PRE	21.3	1.27	0
Flavorrunner 458	Dual Magnum	PRE	42.7	2.54	2
Tamrun OL01	Dual Magnum	PRE	42.7	2.54	5
Tamrun OL02	Dual Magnum	PRE	42.7	2.54	10
Tamrun OL07	Dual Magnum	PRE	42.7	2.54	2
pValue					0.0022
LSD <sub>(0.10)</sub>					2

<sup>a</sup>Abbreviations: PRE, preemergence

Table 1b. Peanut injury by herbicide and rate when pooled over variety at AG-CARES, Lamesa, TX, 2011<sup>a</sup>.

Treatment	Timing	Prod.	Rate	<u>Peanut Injury</u>		
				Jun 21	Jul 19	Sep 29
		oz/A	lb ai/A	-----%-----		
Non-treated	---	---	---	0	0	0
Warrant	PRE	24	0.56	0	0	0
Warrant	PRE	48	1.13	0	0	0
Warrant	PRE	96	2.25	0	1	0
Dual Magnum	PRE	10.7	0.635	0	0	0
Dual Magnum	PRE	21.3	1.27	0	0	0
Dual Magnum	PRE	42.7	2.54	6	3	0
pValue				0.0001	0.0001	1.0000
LSD <sub>(0.10)</sub>				1	1	NS

<sup>a</sup>Abbreviations: PRE, preemergence