

# Improving Weed Control in Peanuts with Preemergence Herbicides

J. Armstrong  
Plant and Soil Sciences

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- Preemergence (PRE) herbicides are valuable and necessary to improve control of many weeds, including grass weeds, Palmer amaranth, yellow nutsedge and morningglory species in Oklahoma peanut production.
- Many of the PRE herbicides evaluated in this trial provided good to excellent early-season weed control at four weeks after planting (WAP).
- However, no single herbicide will be effective on all weeds, It is necessary to choose the appropriate combination of herbicides to maximize control of early season weeds present in each individual field.

## Introduction

Weed control continues to be a challenge for peanut production in Oklahoma. Several PRE herbicides are available for use at planting or as lay-by treatments with early postemergence (POST) treatments to improve early season weed control. PRE herbicides also are useful for controlling weeds that have developed resistance to other PRE and POST herbicides, such as Acetolactate synthase-resistant (ALS) pigweed species.

## Materials and Methods

To evaluate the various PRE herbicide options available for peanut production in Oklahoma, a field trial was conducted at the OSU Caddo Research Station near Fort Cobb during the 2011 growing season. Tamspan 90 was planted May 19 at 80 lbs/A. PRE treatments were applied immediately after planting and

were incorporated with a rainfall the evening after application. Each treatment was replicated four times and visual estimates of crop injury and weed control were collected by comparing herbicide treatments to the untreated control at multiple times during the growing season. Weed control was evaluated on a scale of 0 to 99 percent, where 0 represented no weed control and 99 percent represented complete control. In this report, weed control data collected four WAP is presented.

## Results and Discussion

At four WAP, crop injury in the form of peanut plant stunting and stand loss ranged from 0 to 23 percent for the commercially available PRE herbicides evaluated in this trial (Table 10). The relatively high levels of crop injury may

have been due to the large amount of rainfall received the evening after planting and PRE herbicide application, causing some of the herbicides to be moved into the soil closer to the seed. However, by eight WAP, the crop had outgrown this early season injury and continued normal growth and development.

### Weed Control

Many of the PRE herbicides evaluated provided good to excellent control of the most prevalent weeds in this trial (Table 10). For large crabgrass control, the most effective treatments were those that included Dual Magnum® or Outlook®. Prowl® H<sub>2</sub>O provided good control, but its effectiveness was most likely reduced by the large amount of rainfall received after application. The most effective treatments for PRE control of yellow nutsedge were Dual Magnum® and Outlook® and combinations that included these herbicides. Excellent control of Palmer amaranth and morningglory was achieved with most of the PRE herbicides

and combinations evaluated in this trial, including Valor® SX and Pursuit® when used with Dual Magnum® or Outlook®. Despite having some activity on all weeds evaluated, Valor® SX should not be used by itself as a PRE treatment. The weed control data from this trial clearly indicates the need to choose the appropriate herbicide or combination of herbicides to sufficiently control the weeds present in each individual field.

In addition to the currently available PRE herbicide options, a yet-to-be released herbicide was also evaluated. Zidua®, a new PRE herbicide that will be sold by BASF initially for use in corn and soybean, contains pyroxasulfone as its active ingredient. Pyroxasulfone belongs to the same herbicide mode of action as Dual Magnum® and Outlook® and is very effective on a wide range of weed species. Based on these properties, it also is of interest for use in peanut. In this trial, a PRE application of Zidua® provided excellent control of annual grass weeds and Palmer amaranth (≥98

**Table 10. Visual estimates of crop injury and weed control at four weeks after planting (WAP) for various preemergence (PRE) herbicides for use in peanut production in Oklahoma. Treatments were applied May 19 immediately after planting. Data with an asterisk (\*) indicate the treatments with the statistically highest levels of crop injury or weed control.**

Treatment	Timing	Rate (per A)	% crop injury and weed control				
			injury	large crabgrass	yellow nutsedge	Palmer amaranth	morning-glory
Valor® SX	PRE	2 oz	1	61	48	96*	84
Dual Magnum®	PRE	1.33 pt	11	90*	92*	99*	96*
Prowl® H <sub>2</sub> O	PRE	2 pt	0	79	54	80	99*
Outlook®	PRE	1 pt	21	97*	90*	97*	79
Valor® SX + Dual Magnum®	PRE	2 oz + 1.33 pt	20	98*	89*	99*	99*
Valor® SX + Prowl® H <sub>2</sub> O	PRE	2 oz + 2 pt	1	81*	48	97*	95*
Valor® SX + Dual Magnum® + Prowl® H <sub>2</sub> O	PRE	2 oz + 0.8 pt + 1.5 pt	10	92*	93*	99*	95*
Valor® SX + Outlook®	PRE	2 oz + 1 pt	15	96*	83*	99*	92*
Dual Magnum® + Pursuit®	PRE	0.8 pt + 1.44 fl oz	13	92*	95*	98*	90*
Prowl® H <sub>2</sub> O + Pursuit®	PRE	2 pt + 1.44 fl oz	4	97*	66	96*	90*
Zidua® <sup>a</sup>	PRE	2 oz	46*	98*	66	99*	88*
Untreated			0	0	0	0	0
LSD <sup>b</sup> (5%)			9	19	24	9	13

<sup>a</sup> Zidua is not currently labeled for use in Oklahoma peanut production.

<sup>b</sup> LSD = least significant difference at the 5 percent significant level.

percent control). Zidua® also provided 88 percent control of morningglory. Despite the positive aspects for weed control, crop injury was very high (44 percent at four WAP and 25 percent at eight WAP). However, in another trial, a POST lay-by

application of Zidua® did not cause crop injury. Zidua® is not currently available for use in Oklahoma, but registration is expected sometime in 2012 for use in corn and soybean.