

TITLE:

Peanut Tolerance to Prowl and Sonalan Applied Preemergence and Incorporated by Irrigation at AG-CARES, Lamesa, TX in 2003.

AUTHORS:

Peter Dotray, Wayne Keeling, John Everitt, Marty McCormick, Associate Professor, Professor, Research Associate, Graduate Research Assistant

MATERIALS AND METHODS:

Plot Size:	4 rows by 30 feet, 3 replications
Soil Type:	Amarillo fine sandy loam
Planting Date:	April 28, 2003
Variety:	Flavor Runner 458
Application Dates:	Preemergence application on April 28, 2003
Initial irrigation:	0.75-inch on April 28, 2003
Rainfall in-season:	11.2 inches
Irrigation in-season:	14.95 inches
Digging Date:	October 17, 2003
Harvest Date:	October 24, 2003

RESULTS AND DISCUSSION:

Prowl (pendimethalin) and Sonalan (ethalfluralin) are two dinitroaniline herbicides registered for use in peanuts. These herbicides control annual grasses and small-seeded broadleaf weeds such as carelessness (Palmer amaranth), tumbleweed (Russian thistle) and kochia. Herbicide performance has been shown to be dependent on several factors including rate and the incorporation method. Recent interest in conservation tillage raises questions about rates and methods of incorporation when using the dinitroaniline herbicides. In cotton, Prowl and Treflan (trifluralin) may be surface applied followed by water incorporation or they may be used in chemigation. In peanuts, there is an interest to use Prowl and Sonalan in a similar manner. Peanut tolerance to dinitroaniline herbicides mechanically incorporated has been studied in the past; however, no information exists regarding peanut tolerance to these herbicides when applied preemergence and incorporated by irrigation. The objective of this research was to examine peanut tolerance to Prowl and Sonalan at 2, 3, and 4 pints and incorporated immediately with 0.75-inches of irrigation water. All plots were kept weed-free to insure that any visual injury or yield reduction could be attributed to the herbicide treatment and not weed competition.

No visual peanut injury or canopy width reductions were observed throughout the growing season following Prowl or Sonalan applied at any rate when compared to the untreated check. Plots treated with Prowl or Sonalan produced 4041 to 4809 lb/A and were not reduced when compared to the untreated check, which yielded 4011 lb/A. These results suggest that peanuts are tolerant to Prowl and Sonalan when applied preemergence and incorporated by irrigation. Based on previous work in cotton, weed control using irrigation as the method of incorporation may not be as effective as mechanical incorporation; however, irrigation may be the only method of herbicide incorporation in conservation tillage systems. According to the current label, Sonalan cannot be chemigated and information on the label suggests mechanical incorporation only. On the Prowl label, chemigation and surface applications followed by 0.5 to 0.75-inches of water are suggested.

Table 1. Peanut injury and yield as affected by Prowl and Sonalan applied preemergence and activated by 0.75-inch of irrigation immediately after application.

Treatment	Rate (lb ai/A)	Rate (prod./A)	Peanut Injury (%)				Canopy Width (in.)		Yield (lb/A)
			May 29	Jun 23	Jul 21	Oct 1	May 29	Jun 23	
Non-treated	---	---	0	0	0	0	11	24	4011
Prowl 3.3 EC	0.825	2 pints	0	0	0	0	11	25	4374
Prowl 3.3 EC	1.24	3 pints	0	0	0	0	11	24	4599
Prowl 3.3 EC	1.65	4 pints	0	0	0	0	11	23	4270
Sonalan 3 EC	0.75	2 pints	0	0	0	0	11	25	4266
Sonalan 3 EC	1.125	3 pints	0	0	0	0	11	24	4041
Sonalan 3 EC	1.5	4 pints	0	0	0	0	11	25	4809
CV									8.92
LSD _(0.05)			NS	NS	NS	NS	NS	NS	NS