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2016

NATIONAL PEANUT BOARD/SOUTHEAST PEANUT
RESEARCH INITIATIVE
QUARTERLY PROGRESS REPORT FOR WORK
DONE UNDER RESEARCH AGREEMENT

Final report for 2016

INSTITUTION: University of Georgia

PROJECT TITLE: Yellow nutsedge control in peanut: Diclosulam

RES. AGR. NO.:

PROJECT LEADER: Grey/Webster

GACCP Budget No.:

EXPIRATION DATE: June 30, 2018

NPB CONTACT: Bob Parker/Maria Mehok

NPB Budget No.:

REPORT OF PROGRESS:

Peanut weed infestation will often vary among states. However, universal weeds to all peanut production areas are the nutsedge species, specifically yellow nutsedge. Yellow nutsedge tubers are similar in size and smoothness to shelled peanut. Extension Specialists from Alabama, Florida, Georgia, Oklahoma, North Carolina, and South Carolina identify nutsedge species as being among the most common and troublesome weeds in peanut. Nutsedges tubers can lead to the greatest mass of foreign material in shelled peanut due to the similarity in size. Yellow nutsedge develops clumps of tubers that can spread and disperse with tillage. Yellow nutsedge can be prolific, producing 208 new shoots covering an area of 10 ft² in 24 weeks from a single planted tuber. In the 1990's, Cadre (imazapic) and Strongarm (diclosulam) were developed and eventually registered, providing control and suppression of nutsedges. For peanut growers, Cadre and Strongarm are used because they provide wide spectrum weed control including broadleaves, grasses, and nutsedges. However, there is an 18-month cotton rotation restriction for cotton with Cadre, while Strongarm has a 18 month rotational restriction for corn. These rotational restriction lead growers to mistakenly believe that applying reduced rates could assist in reducing that rotation restriction. However, the negative effect of growers cutting herbicide rates is reduced weed control and the potential to hasten the development of herbicide resistance in weeds. By reducing rates in fields that are infested with yellow nutsedge, harvested peanut could contain an inordinate quantity of foreign materials. The purpose of this research focused on evaluating the effects of Strongarm on yellow nutsedge growth in terms of tuber number and biomass, and shoot biomass. Other factors evaluated including root biomass and tuber germination.

Strongarm registered field application rate for peanut is 0.45 oz product per acre. When researched as a POST application in yellow nutsedge, there was a 54% reduction in tuber production at 0.225 oz/acre and was not significantly different from the 0.45 oz/acre rate, 57%. Similarly, tuber biomass was reduced to 45% and 48%, respectively. Shoot biomass was reduced by the 0.45 oz/acre rate significantly greater than 0.225 oz/acre. While this may not see relevant, it will assist in reducing the overall tuber production in terms of season long control. This test was maintained for a total of 12 weeks, however the peanut growing season can be as long as 21 weeks long or greater. This would provide yellow nutsedge with more leaves to become further established and promote underground tuber production.

Table 1. Strongarm (diclosulam) POST emergence effects on yellow nutsedge biomass and tuber production – 2016^a.

Strongarm ^b oz/ac	Tuber numbers			Tuber biomass			Shoot biomass		
	#/acre ^c	% reduction		lb/acre	% reduction		lb/acre	% reduction	
0.0	309,934	100	ab	292	100	c	123	100	b
0.028	437,244	141	a	554	190	a	162	132	a
0.056	349,005	113	a	383	131	b	116	95	b
0.113	248,913	80	b	213	73	d	96	78	c
0.225	167,698	54	c	132	45	e	92	75	c
0.45	176,478	57	c	140	48	e	69	56	d
0.90	151,455	49	c	148	51	e	82	67	cd

^aData from microplots (30" wide by 30" tall) filled with sterilized soil and sunk into the ground. Yellow nutsedge tubers were planted in containers in April 2016.

^bStrongarm was applied to established yellow nutsedge on June 10, 2016.

^cConversion of the data to a per acre basis on a 2,000,000 lb/acre furrow slice.