

Weed Control

1985 Nutsedge Control Trials

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Where purple or yellow nutsedge has become established, Arizona growers have recognized these weeds as serious economic pests. There are few options available to growers for control of these perennial weeds. As a consequence, there has been a steady increase in the number and intensity of fields infested with nutsedge in Arizona.

These reports on nutsedge control include experimental trials with butylate (Sutan +) and vernolate (Surpass). Neither of these herbicides are presently registered for use in cotton. However, their effectiveness for control of both purple and yellow nutsedge encouraged us to look once again at these materials for use in cotton or as treatments during a fallow period.

While some of these trials appear to be encouraging, other trials indicate the potential for serious crop injury. Until the efficacy and crop safety of these materials has been better defined and registration for their use in cotton has been obtained, butylate and vernolate should not be considered for use in cotton.

Preplant Purple Nutsedge Control in Cotton Phillips Farm - Goodyear

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The objective of this test was to evaluate three rates of butylate (Sutan +) applied preplant incorporated to cotton for evaluation of its safety to the crop and its effectiveness for control of purple nutsedge, Cyperus rotundus.

Methods

Herbicides were applied to the soil, full coverage, using a compressed air sprayer in 35 gpa water on March 19, 1985. The

herbicides were immediately disked in 2 to 4 inches deep. The field was bedded up, planted on 38 inch rows to Delta Pine 90, upland cotton and furrow irrigated, every other row to a stand on April 10. Plot size was 4 beds wide, 40 feet long, replicated 4 times in a latin square design. The soil type was a sandy loam. The soil and irrigation water was not tested but was said to be relatively saline by the grower. The previous crop was cotton. The herbicide applied by the grower previously to the field, was pendimethalin (Prowl) at 0.75 lb/A. It was also disked-in prior to bedding.

Observations of purple nutsedge control and cotton tolerance to butylate were made throughout the season. Because of the relatively light infestation of purple nutsedge, stems per plot were counted on April 18 and May 14, after cultivation. Permanent observation sights for stand evaluation were identified in each replication, 1 row, 20 feet long. Stand counts were made April 18, cotton cotyledon leaf stage May 1, cotton 2 true leaves stage and May 14 cotton 5 leaf.

Cotton Injury

All rates of butylate stunted the cotton by May 1 when the cotton had 2 true leaves (Table 1). By May 14 when the cotton had 5 leaves, more injury had occurred. Cotton stands were reduced 67% by May 14 from butylate at 6.0 lb/A. Butylate at 2.0 and 4.0 lb/A reduced stands only slightly and cotton was stunted less severely then at the higher application rate. This level of stunting persisted through May at all treatment rates.

By June, the cotton appeared normal with butylate at 2.0 and 4.0 lb/A, however the cotton remained less thrifty in appearance from the highest butylate application rate throughout the season. While yields were not obtained, it appeared that they were reduced with butylate at 6.0/A.

Purple Nutsedge Control

The scattered infestation of nutsedge was controlled effectively with all rates of butylate (Table 2). The May 14, evaluation following cultivation indicated that most of the weeds in the treated area were in the furrow. After May 14, frequent Cultivation and limited weed infestation prevented further weed control evaluations.

In this test:

1. Cotton injury was severe with butylate at 6.0 lb/A. Stand loss and cotton stunting was less severe with the lower rates of butylate and probably acceptable at the 2.0 lb/A rate. Relatively high levels of salt in the water and soil may have contributed to the injury.
2. Purple nutsedge was controlled with all rates of butylate, following cultivation.

Table 1. The Effect of 3 Rates of Butylate Applied Preplant Upon Cotton Stands April 18, May 1 and May 14

<u>Treatment</u>	<u>lb/A</u>	<u>April 18</u>		<u>May 1</u>		<u>May 14</u>	
		<u>Plants/ 20 ft.</u>	<u>% Stunt</u>	<u>Plants/ 20 ft.</u>	<u>% Stunt</u>	<u>Plants/ 20 ft.</u>	<u>% Stunt</u>
Butylate	2.0	72	0	73	10	63	11
Butylate	4.0	67	0	69	27	66	33
Butylate	6.0	67	0	60	57	40	77
Untreated		66	0	69	0	69	0

Table 2. Number of Purple Nutsedge Stem per Plot from 3 Rates of Butylate Applied Preplant

<u>Treatment</u>	<u>lb/A</u>	<u>April 18</u>	<u>May 14</u>
		<u>Stems/plot</u>	<u>Stems/plot</u>
Butylate	2.0	7	0
Butylate	4.0	4	0
Butylate	6.0	3	0
Untreated		51	14