

YELLOW NUTSEDGE (*Cyperus esculentus* L.) MANAGEMENT WITH DICLOSULAM AND METOLACHLOR COMBINATIONS IN TEXAS HIGH PLAINS PEANUT. B.L. PORTER, P.A. DOTRAY, J.W. KEELING, and T.A. BAUGHMAN; Texas Tech University, Texas Agricultural Experiment Station, Lubbock, and Texas Cooperative Extension, Vernon.

ABSTRACT

Yellow nutsedge (*Cyperus esculentus* L.) infests numerous acres on the Texas Southern High Plains. Metolachlor has been used to control yellow nutsedge in peanut for several years. Due to concern about potential injury from preplant incorporated and preemergence applications, many growers apply metolachlor early postemergence. Experiments were conducted in 1999 and 2000 to evaluate yellow nutsedge control with diclosulam applied PRE at four rates (0, 0.008, 0.016, and 0.024 pounds (active ingredient) per acre), metolachlor applied postemergence (POST) at four rates (0, 0.5, 1.0, and 1.3 pounds per acre), and combinations of these herbicides. Florunner peanut was planted in 2000 in a producer's field near Denver City, TX, and FlavorRunner 458 peanut was planted in a producer's field near Seminole TX in 2001 in areas heavily infested with yellow nutsedge. Applications were made using a tractor mounted compressed air sprayer that delivered 10 gallons per acre at 24 psi. Yellow nutsedge control and peanut injury was evaluated 31, 53 and 71 days after planting (DAP) in 2000 and 40, 55, and 69 DAP in 2001. Yellow nutsedge densities were counted at season's end and plots were harvested with a plot combine. Data was subjected to an analysis of variance with partitioning appropriate for a factorial arrangement. Means were separated using Fisher's Protected LSD at $\alpha = 0.05$.

Diclosulam at 0.008, 0.016, and 0.024 lbs/A PRE controlled yellow nutsedge 47%, 62%, and 78% (71 DAP) in 2000. Metolachlor at 0.5, 1.0, and 1.3 lbs/A POST controlled yellow nutsedge 15%, 38%, and 52% (71 DAP). A diclosulam by metolachlor interaction was observed 71 DAP. When diclosulam was applied at 0.008 lbs/A PRE, additional applications of metolachlor POST did not provide acceptable yellow nutsedge control 71 DAP. When diclosulam was applied at 0.016 lbs/A PRE, metolachlor at 1.3 lbs/A POST improved yellow nutsedge control to 88%. This control was better than metolachlor at 0.5 or 1.0 lbs/A POST, and equivalent to diclosulam 0.024 lbs/A PRE with any rate of metolachlor POST. When diclosulam was applied at 0.024 lbs/A PRE, all metolachlor POST rates provided equivalent control of yellow nutsedge (85 to 88%). End of season yellow nutsedge density was similar across herbicide combinations, with plots averaging from 0.4 to 2.5 yellow nutsedge plants per foot². Untreated plots averaged 17.9 plants per foot². Metolachlor POST did not injure peanut. Diclosulam at 0.008 lbs/A injured peanut 4% 31 DAP, but no injury was observed 53 DAP in 2000. Diclosulam at 0.016 lbs/A injured peanut 11% at 31 DAP, but injury decreased to 4% at 71 DAP. Similar injury was observed from diclosulam at 0.024 lbs/A (16% at 31 DAP and 6% at 71 DAP). No injury was observed at harvest, and neither grade nor yield was affected by any herbicide treatment. Yields averaged 1,532 lbs/A.

Diclosulam at all rates controlled yellow nutsedge greater than 90% 40 and 55 DAP in 2001, but control dropped to less than 75% 69 DAP. Metolachlor at 1.0 and 1.3 lbs/A controlled yellow nutsedge greater than 75% 55 and 69 DAP. A diclosulam by metolachlor interactions was observed 69 DAP. All herbicide combinations provided acceptable control of yellow nutsedge. When diclosulam was applied at 0.008 lbs/A, metolachlor at 1.3 lbs/A controlled yellow nutsedge 95%. This control was similar to the yellow nutsedge control provided by the highest herbicide-rate combinations. When metolachlor was applied at 1.3 lbs/A, all rates of diclosulam controlled yellow nutsedge more effectively than metolachlor at 0.5 lbs/A. End of season yellow nutsedge density was similar across herbicide combinations, with plots averaging from 0.2 to 1.6 yellow nutsedge plants per foot². Untreated plots averaged 6.8 plants per foot². Metolachlor POST did not injure peanut. Diclosulam at 0.008 lbs/A did not injure peanut in 2001. Diclosulam at 0.016 lbs/A injured peanut 4% (40 DAP), and injury persisted at 69 DAP. Similar injury was observed from diclosulam at 0.024 lbs/A (12% at 40 DAP and 12% at 69 DAP). No injury was observed at harvest, and neither grade nor yield was affected by any herbicide treatment. Yields averaged 4,857 lbs/A.