VARIETAL TOLERANCE TO DICLOSULAM AND FLUMIOXAZIN IN TEXAS PEANUT

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ABSTRACT

Diclosulam and flumioxazin have been reported to have broad-spectrum broadleaf weed control when applied preemergence (PRE), but some peanut injury has been observed. Peanut injury on the Texas Southern High Plains was first observed following excessive rates of diclosulam (0.048 lb/A). In 1999 injury was also observed at the 0.024 lb ai/a applied PRE, but no injury was apparent by the end of season (Karnei et al. 2000). Due to injury in 2000 from diclosulam, a peanut variety trial was conducted in Gaines County to test peanut varietal tolerance to diclosulam and flumioxazin. In addition, diclosulam application timing was also investigated. Four high oleic peanut lines: Flavor Runner 458, Sunoleic 97R, TX 977006, Georgia Hi O/L and one conventional variety, Tamrun 96, were used in this study.

Treatments were replicated three times in a split-plot design. Plot size was 7 by 30 ft. Diclosulam was applied at two rates, 0.016 and 0.024 lb ai/A, both PRE and postemergence (POST). Flumioxazin was applied PRE at 0.063 and 0.094 lb/A. Peanuts were planted and PRE treatments were applied May 15, while POST treatments were applied June 12. All treatments were applied using a CO_2 backpack sprayer calibrated to deliver 10 GPA. Evaluations were made on PRE treatments 14, 42, and 118 days after treatment (DAT) while POST treatments were evaluated 14, 58 and 90 DAT. Peanut grades and yields were determined at the end of the season.

At 14 DAT diclosulam applied PRE at 0.016 and 0.024 lb ai/A injured peanut 10 to 40% in all varieties except Tamrun 96. At 42 DAT, diclosulam PRE injured Flavor Runner 458 and the Sunoleic 97R 20 to 25% while injury to Georgia Hi O/L from diclosulam at 0.024 lb ai/A was 35 to 45%. At 118 DAT, all injury decreased to < 5% and yield was not affected by diclosulam PRE. Less than 5% peanut injury was observed on all varieties from flumioxazin applied PRE at 14 DAT. No injury was observed at 42 and 118 DAT and yield was not affected by any flumioxazin treatment. At 14 DAT, diclosulam applied POST at both rates injured peanut < 5% in all varieties and no injury was observed 90 DAT. Yield was not affected by diclosulam (POST).

At the South Texas location in Yoakum, no peanut response was observed following any treatment of diclosulam and flumioxazin applied PRE. When flumioxazin was applied PRE at the Rolling Plains location in Motley County, no injury was observed to any variety, at any rate, throughout the growing season and yield was not reduced.

Future studies will be conducted to evaluate diclosulam POST and to examine factors contributing to injury caused by diclosulam and flumioxazin PRE.