

Peanut Response to Diclosulam in the Texas Peanut Growing Areas

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Diclosulam (Strongarm®) is a soil-applied herbicide that may be applied preplant incorporated, preplant surface, or preemergence (PRE) through cracking (CRACK) in peanuts and is labelled in all peanut growing areas except New Mexico, Oklahoma, and Texas. Although no issues were seen in south Texas, when diclosulam was registered for use in peanut over 15 years ago, serious stunting and yield loss occurred in west Texas in the first year of its use. A major factor involved in this injury was believed to have been a very sensitive peanut variety that was introduced during the launch year.

To determine tolerance of some newer peanut varieties to diclosulam, field studies were conducted during the 2018 through 2020 growing season in south Texas near Yoakum and in the High Plains of Texas near Lubbock in 2018 and Gaines County in 2019 and 2020 under weed-free conditions. Treatments were arranged in a randomized complete block design with a 2 (diclosulam rate) X 2 (application timing) factorial arrangement with 3-4 replications. All plot areas were maintained weed-free using a combination of labeled herbicides and hand-weeding. Data collected included peanut stunting (30 and 90 DAP), yield, and grade. All data were subjected to ANOVA and means separated using Fisher's Protected LSD Test ($P < 0.05$) when appropriate. In south Texas, Georgia M-13 was planted in 2018 and Georgia 09B was planted in 2019 and 2020 while in the High Plains Georgia 09B was planted all three years. Diclosulam at 0.026 (1X) and 0.053 (2X) kg ai ha⁻¹ was applied PRE and CRACK.

No injury (stunting) was noted at Yoakum in any year or at the Lubbock location in 2018 when furrow irrigation was used; however, in 2019 and 2020 when overhead irrigation was used, a diclosulam rate by application timing effect was seen at the Gaines County locations. Stunting increased as diclosulam rate increased and diclosulam applied PRE caused greater injury than the CRACK application. With respect to yield, no diclosulam treatment by application timing interaction was seen at Yoakum in any year or at the Lubbock location in 2018 or Gaines County location in 2020 with yield and grade not different from the untreated check. In 2019 at Gaines County and Yoakum, peanut yield and grade, respectively, decreased as diclosulam rate increased with application timing having no effect on yield or grade.

Based on these results, diclosulam at the 1X rate is safe to use on Georgia M-13 or Georgia 09B peanut in Texas. However, if for some reason a higher than labelled rate is accidentally applied, the chance of peanut injury does exist.