

## Weed Control and Peanut Response to Fluridone.

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Weed efficacy studies were conducted during the 2018 growing season in the High Plains of Texas near Lubbock while peanut tolerance studies were conducted near Lubbock and in south Texas near Yoakum under weed-free conditions with fluridone to determine weed efficacy and peanut tolerance. In the weed efficacy study, preemergence (PRE) applications of fluridone at 0.17 kg ha<sup>-1</sup> was compared with S-metolachlor at 1.07 kg ha<sup>-1</sup> either alone or followed by imazapic applied postemergence (POST). Another treatment included fluridone applied PRE followed by an early POST (EPOST) application of imazapic followed by a late POST (LPOST) application of lactofen plus 2,4-DB. Georgia 09B was planted in this study. In the peanut tolerance studies (under weed-free conditions), fluridone was applied PRE at 0.084 (1/2X), 0.17 (1X), and 0.34 (2X) kg ai ha<sup>-1</sup>. Georgia 09B was evaluated at the Lubbock location while Georgia M-13 was evaluated at the Yoakum location.

When evaluated 42 days after the PRE application (14 days after EPOST application) Palmer amaranth (*Amaranthus palmeri*) control with fluridone and S-metolachlor alone was 55 and 61%, respectively while treatments which included EPOST applications of imazapic provided at least 95% control. At 98 days after PRE application (56 days after LPOST application), fluridone alone provided 11% Palmer amaranth control while S-metolachlor alone controlled this weed 45%. The addition of imazapic applied EPOST to either fluridone or S-metolachlor improved Palmer amaranth control to 68 and 83%, respectively while the addition of a LPOST application of lactofen plus 2,4-DB to fluridone (PRE) followed by imazapic (EPOST) improved control to 95%. Peanut injury varied from 4 to 8% with all PRE herbicide treatments when evaluated prior to the EPOST application. Peanut yields reflect the effect of weeds on peanut growth and development as the untreated check yielded 1432 kg ha<sup>-1</sup>, fluridone alone yielded 1722 kg ha<sup>-1</sup> while S-metolachlor alone or any treatment which included a POST herbicide application yielded 2180 to 2551 kg ha<sup>-1</sup>.

In the peanut tolerance study at Lubbock, when evaluated 28 days after PRE application, injury from fluridone was 6, 11, and 16% with the 1/2X, 1X, and 2X rates, respectively. At the 98 days after PRE application, none of the fluridone rates resulted in any injury. Peanut yields and grades from the fluridone treatments were not different from the untreated check. At the Yoakum location, no peanut injury was noted with any fluridone rates. As at the Lubbock location, no difference in peanut yield or grade was observed.

In summary, fluridone when used in a systems approach, can give a grower another option to control Palmer amaranth with soil-applied herbicides; however, it is not a stand alone herbicide and will need the addition of POST herbicides to provide season-long weed control. Additional work is needed to determine peanut safety when using fluridone.