

## **Peanut Response and Weed Control Following Norflurazon Applied Preemergence and At-Crack**

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Texas is the second largest peanut growing state in the nation. In 2019, Texas produced 496 million pounds on 165,000 acres worth nearly \$145 million. Weeds pose a threat to peanut yields across the state. Norflurazon, a carotenoid biosynthesis inhibiting herbicide which was first labelled for use in peanuts in 2001, is effective at controlling broadleaf and grass weeds. Current weed management practices in peanut include the use of flumioxazin and diclosulam, WSSA Group 14 and 2 herbicides, respectively. Norflurazon is a Weed Science Society of America (WSSA) Group 12 herbicide and currently the only herbicide in its class labelled for use in peanut. If integrated as a component of a season-long weed management program, it could diversify peanut herbicide systems and help slow the spread of weeds resistant to Group 2 and 14 herbicides.

In 2019, field experiments were conducted at Seminole and Yoakum, Texas to determine the response of GA09-B runner peanut to norflurazon applied preemergence (PRE) or at-crack (AC) as well as to determine the efficacy of norflurazon applied preplant incorporated (PPI) or PRE. Peanut variety response experiments at Seminole and Yoakum included norflurazon at 0.5 or 1.0 lb ai/acre applied PRE or AC. At Seminole, peanut injury following norflurazon at 1.0 lb ai/acre applied either AC or PRE was greatest (13.5 and 18%, respectively) thirty days after planting (DAP). At Yoakum, herbicide injury following norflurazon AC was greatest fourteen DAP (28%) at the 1.0 lb ai/acre rate while injury following norflurazon PRE never exceeded 1%. At both locations, no peanut injury was observed sixty DAP and peanut yield was similar to the nontreated, weed-free control.

In a weed control experiment at Yoakum, treatments included norflurazon at 0.5 or 1.0 lb ai/acre applied either PPI or PRE, norflurazon at either 0.5 or 1.0 lb ai/acre + pendimethalin at 1.0 lb ai/acre PRE, ethalfluralin at 0.75 lb ai/acre PPI followed by (fb) norflurazon at either 0.5 or 1.0 lb ai/acre PRE, and pendimethalin at 1.0 lb ai/acre + S-metolachlor at 1.25 lb ai/acre PRE. Norflurazon alone was up to 40% more effective at controlling Texas millet [*Urochloa texana* (Buckl.)] when applied PRE rather than PPI. The greatest season-long Texas millet control was achieved using ethalfluralin PPI fb norflurazon PRE. Treatments including pendimethalin or ethalfluralin were more effective at controlling smellmelon (*Cucumis melo*, L.) than norflurazon alone. Palmer amaranth (*Amaranthus palmeri* S. Wats.) was controlled >90% when norflurazon was applied PRE alone and best (>97%) when norflurazon was used in combination with either pendimethalin or ethalfluralin. When used at the labelled rate of 0.5 lb ai/acre, norflurazon has the potential to be an effective component of a season-long weed management program in peanut production with no adverse effects on yield.