Peanut Response to Anthem Flex Applied Preemergence, at Cracking, or Postemergence

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Field studies were conducted during the 2017 growing season in south Texas near Yoakum, the High Plains of Texas near Brownfield, and southwestern Oklahoma near Ft. Cobb under weed-free conditions to determine peanut response to the pre-mixture of pyroxasulfone plus carfentrazone (Anthem Flex) applied preemergence (PRE), at cracking (CRACK) or early postemergence (EPOST). The rate of pyroxasulfone plus carfentrazone was 0.07 and 0.14 kg ha^{-1} for PRE and CRACK applications and 0.11 and 0.21 kg ha^{-1} for EPOST applications. Georgia Runner was evaluated at the south Texas location while Gerogia 09B was evaluated at the High Plains location and Florida Fancy was evaluated in southwestern Oklahoma.

Peanut injury with pyroxasulfone plus carfentrazone applied PRE or CRACK manifested itself as plant stunting while EPOST injury consisted of peanut leaf burn and chlorosis. At the south Texas location no stunting was noted with any applications of pyroxasulfone plus carfentrazone and leaf burn with POST applications were less than 20% and became transient over time. At the High Plains location, pyroxasulfone plus carfentrazone at 0.14 kg ha^{-1} applied preemergence (PRE) and at 0.21 kg ha^{-1} applied EPOST resulted in 19 and 13% peanut stunting, respectively when evaluated 7 weeks after planting (WAP). Stunting was still visible 16 WAP with pyroxasulfone plus carfentrazone at 0.14 kg ha^{-1} applied PRE. At the Oklahoma location, pyroxasulfone plus carfentrazone at 0.07 and .014 kg ha^{-1} applied PRE resulted in 18 to 20% peanut stunting when evaluated 3 WAP and stunting was reduced over time.

No yield reduction was observed following any treatment when compared with the untreated control at the south Texas or Oklahoma locations. However, at the High Plains location, pyroxasulfone plus carfentrazone at 0.14 kg ha^{-1} applied at peanut CRACK resulted in a 25% yield reduction from the untreated control. No differences in peanut grade (% SMK+SS) from the untreated control was noted with any Anthem Flex treatment.

In summary, the premix of pyroxasulfone plus carfentrazone at the 1X rate (0.07 kg ha^{-1}) appears to be safe for use in peanut; however, in some instances the 2X rate may cause issues. Additional studies need to be conducted to determine if certain environmental conditions enhance the chance of yield reductions with higher rates of pyroxasulfone plus carfentrazone.