

## **Effects of Prohexadione Calcium Application Timing on Peanut (*Arachis hypogaea* L.) Growth and Yield in Mississippi**

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Excessive vegetative growth in peanut (*Arachis hypogaea* L.) can lead to decreased reproductive growth and harvest efficiency. Peanut vegetative growth is often managed with the plant growth regulator, prohexadione calcium. Although application of prohexadione calcium is recommended at 50% and 100% canopy closure, research on the optimal application timing has been minimal. The objective of this research was to evaluate the effect of prohexadione calcium application timing based on percent canopy closure. Experiments occurred at three different on-farm sites across Mississippi. Treatments included applications at 50% and 100% (canopy closure), before 50% and after 100%, 2 applications in 1 week at 100%, before 50% and before 100%, and 3 applications in a week at 100%. A non-treated control was included in all experiments. On all sites, prohexadione calcium applications were made at the manufacture recommendation of 140 g ai ha<sup>-1</sup>. Treatment responses were evaluated based on peanut yield, pod loss, and harvest indices including pod weight, pod count, and dry plant weight. Peanut yield across field sites was evaluated as a percent untreated control.

Average yields by treatment ranged from 6535 to 7000 kg ha<sup>-1</sup>. On average, control treatments had a lower yield than treatments containing prohexadione calcium. Two applications in 1 week at 100% had the most significant effect on yield with an average of 8.9% increase in yield when compared to control treatments. The lowest performing treatments were the before 50% and after 100% and the 3 applications in 1 week at 100% with an average of 1.4% and 0.9% increase in yield when compared to control treatments. Application timing had little effect on pod count and pod loss. The use of prohexadione calcium in the growing season at optimized timings increased peanut yield and decreased vegetative growth, improving harvest efficiency and reduced harvest losses.