Determining the Effect of Prohexadione Calcium Growth Regulator on the Growth and Yield of Peanuts (*Arachis hypogaea*) in Mississippi

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The use of prohexadione calcium growth regulator has become a common practice among Mississippi peanut producers. Prohexadione calcium decreases vegetative growth, which in turn, increases reproductive growth, or pod yield. Experiments were conducted in three locations across the state of Mississippi, testing varied rates of prohexadione calcium on the yield of peanut. Prohexadione calcium was applied at .5x rate twice, .75x rate twice, 1x rate twice, and a split application of .5x rate first followed by a 1x rate application of prohexadione calcium at the second timing on separate plots in the same field at three separate locations. Vine density was measured roughly one month after the second application of growth regulator. Plots were harvested, and yields were analyzed by treatment and compared to each other. An untreated check treatment was also included, which was subject to no growth regulator application, but was still subject to a pass through by the application tractor to eliminate that variable.

Statistical analysis proved that the use of prohexadione calcium growth regulator improved yields when compared to an untreated check. The application rates of .5x twice and .5x followed by 1x showed a significant yield increase when compared to other treatments. Every treatment outside of the untreated check showed a yield increase when compared with the untreated check.

Results concluded that the use of prohexadione calcium growth regulator can be a vital tool to increase peanut yield. Applying growth regulator can cause a decrease in vegetative growth while also increasing reproductive growth, and therefore, yield.