Prohexadione Calcium Effect on Yield, Kernel Size, and Peanut Maturity-Second Year

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In peanut (*Arachis hypogaea* L.) production, prohexadione calcium (PC) is largely used to control vine growth for guided digging. Whether PC may affect plant physiological and agronomic characteristics is inconclusive. Early results in 2022 at the Tidewater AREC using four virginia-type cultivars, 'Bailey II', 'Emery', 'N.C. 20', 'Sullivan', and 'Walton' showed that yield was not significantly affected by PC, but seed weight was reduced (*P=0.0784)*. In particular for the large-seeded Emery, PC produced a significant (*P=0.0369*) reduction in 100-seed weight. The test was repeated in 2023, when 7.25 oz/A of PC as Apogee with 16 oz UAN and crop oil were applied at vine touching and 14 days after the first application. Applications were performed on 5-row strips randomly selected to receive or not PC within two-acre large fields planted with the individual cultivars. In each field, 4 strips, the length of the entire field (over 100 feet long) received and 4 did not the growth regulator. At 120, 127, 134, 141, 149, and 162 days after planting (DAP) approximately 2-200 pod samples were collected in each strip and maturity was determined via the pod mesocarp color method. Pod maturity index (PMI) was calculated as the ratio of orange, brown, and black pods from all pods. At the physiological maturity (162 DAP), yield and 100-seed weight were recorded. At any of the sampling time, PC-treated pods were not significantly different for maturity from the non-treated pods. Consistent with the results from 2022 trial, yield was significantly (*P<0.0001*) affected by cultivar and field (each cultivar was planted in a different field), but it was not significantly affected by the PC application. Unlike last year, however, the cultivar × PC interaction was significant (P=0.0283) showing that PC did not significantly change yield for Emery (6438 lb./A with *vs*. 6415 lb./A without PC), Sullivan (6393 lb./A with *vs.* 6073 lb./A without PC, Walton (5703 lb./A with *vs*. 6074 lb./A without PC), and N.C. 20 (3405 lb./A with *vs.* 3100 lb./A without PC), but it increased yield significantly for Bailey II (5911 lb./A with *vs*. 5005 lb./A without PC).