

The Effects on Peanut Seed Germination Using Plant Growth Regulators Under Different Temperatures

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Peanut (*Arachis hypogaea* L) sown in early spring (late April to early May) can have poor stand establishment and seedling development due to variability in soil temperature at that time of year. Peanut needs at least 20 C for three consecutive days to ensure adequate germination. One available strategy to help growers achieve proper germination is the use of plant growth regulators. Plant growth regulators (PGR's) are natural or synthetic compounds that regulate plant growth, affecting the hormonal balance by inducing or blocking hormone receptors. To evaluate the effects of plant growth regulators on peanut germination, gibberellic acid (GA3) and indolebutyric acid (IAA) + cytokinin were tested on peanut cultivar GA-06G. Five different doses (0, 1/2D, D, 2D, 4D) of each product were evaluated across six temperatures (17, 19, 22, 24, 27, and 29 C) on a thermogradient table. Seed were placed in Petri dishes with ten seeds each, with three replications. The experimental design was a complete randomized block with three factorial treatment structure (temperature x PGR's X doses). Starting one day after trial initiation, germinated seeds with radicle protrusion of at least 2 mm were counted daily, and this continued for up to 7 days. The data was submitted to ANOVA, evaluating: germination percentage (G%), coefficient of velocity of germination (CVG%), time to 50% of germination (T_{50} /day), mean germination rate (MGR/day), and mean germination time (MGT/day). Overall, in the three-way interaction for the G%, CVG, T_{50} , MGR, and MGT, no differences were observed. Solely for temperature, as expected, differences in the number of seeds germinated were observed.