

Effect of two stand population and two fertilization levels on seed cotton yield and its components in three cotton cultivars (*Gossypium hirsutum* L.) in the savanna of Jusepin

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Abstract

The present work had as objective to determine the effect of two distances between plants (DBP) (0.15 and 0.25 m) and two fertilization levels (FL) (250 and 500 kg of 12-24-12/ha) on the seed cotton yield and its components in three cotton cultivars [Deltapine Acala 90 (DPA90), Cabuyare (CAB) and Deltapine 16 (DP16)] in the savanna of Jusepin, Monagas state. The experiment was carried out in an Ultisol soil with pH 4.7; low levels of organic matter, P, K and Cu, medium levels of Ca, Mg and Mn y no-Al, high levels of Fe and Zn y texture FAa, soil's sample depth was 25 cm. A three factor randomized complete block design was used. A three-row block of each experimental unit was planted in rows 5 m long and 0.8 m apart. Urea was applied at 18 days after sowing at 150 kg/ha. There were not significant differences for any variation source for: boll weight (9.37 g) and seeds/boll (28.3 seeds). There were significant differences for the interaction Cultivars*DBP for: bolls/plant: DPA90 plants were more prolific at 0.25 m, while CAB and DP16 plants were more prolific at 0.15 m. There were significant differences for the three factor interaction (cultivars*DBP*FL) for: seed cotton weight/plant (SCWP): at 250 kg 12-24-12/ha, DPA90 sowed at 0.25 m had a bigger SCWP that the rest of the five treatments, while at 500 kg/ha, this treatment only overcame the treatment of CAB sowed at 0.15 m. There were only significant differences for number of harvested plants/plot (NHPP) at DBP factor, there was a greater NHPP at 0.15 m. Two covariance analysis were made for seed cotton yield /ha (SCYH) in function of NHPP at each DBP: for 0.15-m DBP, there were only significant differences for FL, the greater SCYH (1498.6 kg/ha) was obtained with the higher fertilizer dose, while 0.25-m DBP, there were only differences for cultivars: The greater SCYH corresponded to DPA90 with 1550.7 kg/ha. These results suggest: a) for high stands (83,333 plants/ha), any of three cotton cultivars could be sowed, applying a higher amount of fertilizer (500 kg of 12-24-12/ha), while for low stands (50,000 plants/ha) cultivar Deltapine Acala 90 should be sowed instead of Deltapine 16 and Cabuyare, no matter the fertilization level.

Kew words: Cotton cultivars, *Gossypium hirsutum*, stand population, NPK fertilization, Savanna

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