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RESEARCH ARTICLE :

Studies on economic evaluation and nutrient uptake of Bt and non Bt cotton cultivars as influenced by varied plant densities and nitrogen levels

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SUMMARY : A field experiment was conducted during 2015-16 and 2016-17 at Agricultural Research Institute, Rajendranagar,Hyderabad to assess the performance of two cotton cultivars Bt (MRC 7201 BGII) and non-Bt (WGCV-48) in response to plant densities (P_1: 18,518 plants ha^{-1}, P_2: 55,555 plants ha^{-1} and P_3:1,48,148 plants ha^{-1}) and nitrogen fertilization (120, 150 and 180 kg N ha^{-1}).During 2015 and 2016, among the two cultivars (V_1: MRC 7201 BG II, V_2: WGCV-48), MRC 7201 BG II cultivarseed cotton yield (3497, 2866 kg ha^{-1}), gross returns (1,36,396 and 1,14,629 Rs. ha^{-1}), net returns (87226, 65514 Rs. ha^{-1}) and B:C ratio (2.9, 2.5) over V_2: WGCV-48 cultivar. Among the plant densities,the highest gross returns (1,29,427 and 1,09,045 Rs. ha^{-1}),net returns (88,146 and 68,208 Rs. ha^{-1}) and B: C ratio (3.1 and 2.7) were observed with P_2: 60 cm x30 cm (55,555 plants ha^{-1}) and was followed byP_3: 45 cm x15 cm (1,48,148 plants ha^{-1}) and P_1: 90 cm x60 cm (18,518 plants ha^{-1}). Effect of nitrogen levels did not exert any influence on gross returns, net returns and B: C ratio. In 2015 and 2016, maximum totalnitrogen uptake (kg ha^{-1}) as observed in MRC 7201 BGII cultivar at square initiation (7.1, 7.0 kg ha^{-1}), flower initiation (55.5, 34.5kg ha^{-1}), boll development (104.2, 112.5kg ha^{-1}) and first picking (161.3, 124.7kg ha^{-1}) and significantly superior to WGCV-48 cultivar.Among the plant densities, the highest nitrogen uptake was observed in P_3: 45 cm x 15 cm (1,48,148 plants ha^{-1}) at square initiation (13.5, 13.4 kg ha^{-1}), flower initiation (80.3, 46.4 kg ha^{-1}), boll development (146.0, 154.8 kg ha^{-1}) and first picking (190.5, 181.2 kg ha^{-1}) and significantly superior to P_2: 60 cm x 30 cm (55,555 plants ha^{-1}) and P_1: 90 cm x 60 cm (18,518 plants ha^{-1}).

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