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Growth, Yield Parameters And Yield Of Cotton Cultivars (*Gossypium Hirsutum L.*) As Influenced By Different Fertilizer Levels Under Irrigated Condition In The Coastal Region Of Karaikal

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ABSTRACT

Field experiments were conducted at Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal to evaluate the relative performance of seven *Gossypium hirsutum* cotton varieties under different fertilizer levels under summer irrigated condition from February to July during 2002 and 2003. The results of pooled mean of two experiments revealed that the plant height of cotton cultivars differed significantly. However, the cultivars did not vary significantly in respect of dry matter production (DMP) on 120 DAS. The yield components such as the number of sympodia, number of bolls per plant and boll weight significantly differed among the cotton cultivars. The seedcotton yield also differed significantly among the cotton cultivars. The variety MCU 7 registered the highest seedcotton yield (1712 kg/ha^{-1}) which was on par with that of ADT 1 (1631 kg/ha^{-1}) and SVPR 3 (1518 kg/ha^{-1}). The lowest seedcotton yield was recorded by SVPR 2 (1318 kg/ha^{-1}). The performance of other cultivars (MCU 12, SVPR 2, LRA 5166 and Anjali) were intermediate. Application of 80:40:40 kg NPK/ ha^{-1} increased the plant height, DMP, yield components and seed cotton yield followed by 60:30:30 kg NPK ha^{-1} and unfertilized control. The seed cotton yield was 1626 kg ha^{-1} at 80:40:40 kg NPK/ha^{-1} and it was on par with that of 60:30:30 kg NPK/ha^{-1} (1566 kg/ha^{-1}). The lowest seed cotton yield was recorded at unfertilized control (1231 kg/ha^{-1}).

Key words: Seedcotton, Coastal, Fertilizers, Cultivars

INTRODUCTION

Cotton is an important commercial crop playing a significant role in Indian economy, both in terms of providing employment (to about 60 million people) and production of wealth. Cotton is cultivated in 8-8.5 m./ha with a production of 150-160 lakh bales. However, the stagnation observed in the productivity of cotton at 300-350 kg lint/ ha^{-1} in India calls for concerted efforts. Maintaining optimum nutrition is critical for growing a healthy crop and in achieving high yield and quality. The nutritional needs of cotton cultivars vary depending on soil conditions. Besides water and pest management, nutrient management is one of the most critical aspects of cotton production. Fertilizer application is vital for maximizing the seed cotton yield. The yield potential of cotton cultivars can be exploited to the maximum when their nutrient needs are fully met with. Moreover, selection of the best suitable varieties for a particular locality is of greater significance in maximizing the cotton production. Hence, an attempt was made to evaluate the relative performance of seven *Gossypium hirsutum* cotton varieties of varying crop durations in respect of seedcotton yield at different levels of fertilizers under irrigated condition during summer season in the coastal region of Karaikal.

MATERIALS AND METHODS

Field experiments were conducted at Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal (Latitude 10'55^{o} N and Longititude 79' 52^{o} E) to evaluate the relative performance of seven American cotton varieties (MCU 7, MCU 12, SVPR 2, SVPR 3, LRA 5166, Anjali and ADT 1) under three fertilizer levels (unfertilized control, 60:30:30 and 80:40:40 kg NPK/ ha^{-1}). The treatments were replicated thrice in a split plot design. The experiments were conducted from February to July during 2002 and 2003 under irrigated condition. The soil type of both the experimental fields were clay loam (*Ustic Quartipsamments*). The Ec and pH of the soil were 0.56 dSm^{-1} and pH of 6.84, respectively in 2002 and 0.51 and 6.91, respectively in 2003. The soil was low in available nitrogen (151 kg/ha^{-1} in 2002 and 168 kg/ha^{-1} in 2003), medium in available phosphorus (11.7 kg/ha^{-1} in 2002 and 12.5 kg/ha^{-1} in 2003) and available potassium (158 kg/ha^{-1} in 2002 and 196 kg/ha^{-1} in 2003) with medium status of organic carbon (0.63 % in 2002 and 0.67 % in 2003).

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