

Research
Paper

Performance of growth attributes and quality parameters of deshi cotton hybrid to different plant spacings and nitrogen levels

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ABSTRACT

A field trial was conducted to study the effect of different plant spacings and nitrogen levels on growth attributes and quality parameters of deshi cotton hybrid during *Kharif*, 2007 on clay soils of Department of Agronomy, Marathwada Agricultural University, Parbhani (M.S.). The 9 treatments comprised of three spacings and three nitrogen levels. The experiment was laid out in factorial randomized block design with three replications. On the basis of results obtained from present investigation the plant spacing (90 x 90 cm) recorded maximum growth attributes values over lowest and highest levels of spacing. Application of 100 kg N/ha significantly gave maximum values of growth attributes over 60 kg N/ha and 80 kg N/ha. The most of the quality parameters didn't significantly differ due to different plant spacing and nitrogen levels except harvest index of the deshi cotton hybrid.

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Key words : Plant spacing , Nitrogen levels, Growth attributes, Quality parameters, Cotton

INTRODUCTION

Cotton is one of the most important commercial crop of India. It sustains the country's cotton textile industry which is the largest segment of organized industries in the country. It has significant contribution in Indian economy by earning more than 30 per cent of foreign exchange to the tune of 10-12 billion from export of cotton yarn, threads, fabrics, apparels and ready made ups etc. Cotton, the kind of apparel fiber since time immemorial has played a vital role in history and civilization of mankind. Commercially cotton is best export earning commodity in the country. The area under cotton in India is 91.32 lakh hectares with production of 270 lakh bales and productivity 503 kg lint per hectare (Anonymous, 2006). Productivity of cotton in India is lagging far behind the world average. *Gossypium arboreum*, species of cotton is most widely distributed in the country. The present *arboreum* species are mostly indeterminate in habit, their plant phenology make it difficult for management including cotton picking. The hybrids have higher yield potential and may produce different phenology which permit better management including cotton picking. Recently some private companies

have developed *arboreum* hybrids but its phenological requirement and nutrient particularly nitrogen is the present need to increase productivity and sustainability of cotton. Considering the above points in view, experiment was conducted to study the response of deshi cotton hybrid to plant densities and nitrogen levels during *Kharif* season of 2007-08.

MATERIALS AND METHODS

The experiment was conducted at the research farm of Department of Agronomy, Marathwada Agricultural University, Parbhani during *Kharif* season of 2007-08. The experiment was laid out in Factorial Randomized Block Design with three replications. There were 9 treatment combinations. The combination of three spacings viz., 90 x 60, 90 x 75 and 90 x 90 cm² and three nitrogen levels viz., 60, 80 and 100 kg/ha were included. The cotton variety MRDC 227 was used. The crop was sown by dibbling with two cotton seeds per hill. The fertilizers were applied as per treatments. Half dose of nitrogen through urea and complete dose of P₂O₅ and K₂O was applied through 'Suphala' as a basal application by ring method at