Introduction

In India, cotton is grown under diverse agro-climatic conditions and contributes nearly 65 per cent of total raw material needs of the textile industry. It plays a major role in India's economy, both in terms of providing employment directly or indirectly to about 60 million people and in production of wealth and earning foreign exchange for the country to the tune of ₹60,000 crores (Anon.,2011a). It is being cultivated in 70 countries of the world with a total coverage of 32.30 million hectare (Anon., 2011b). Area wise, India ranks first in global scenario (about 33% of the world cotton area). However, in production it ranks second next to China. In India, it was cultivated on an area of 11.16 m ha with a production of 31.20 million bales of seed cotton during 2010-11. Its average productivity in India was 494 kg lint/ha, which was low as compared to world average of 725 kg lint/ha (Anon., 2011a). Maharashtra, Gujarat, Andhra Pradesh, Madhya Pradesh, Punjab, Haryana, Karnataka, Rajasthan and Tamil Nadu are the important cotton growing states in India. In Karnataka, the present cotton growing situation is showing improvement after release of Bt cotton and is grown on an area of 3.95 lakh hectare with a production of 9.0 lakh bales of seed cotton with a productivity of 387 kg lint/ha. The increase in productivity from 229 kg lint/ha in 1996 to 387 kg lint/ha in 2010 was mainly due to cultivation of Bt cotton (Anon., 2011a). In the recent past, leaf reddening has been a major problem in Bt cotton growing areas of northern Karnataka. Cotton cultivators have been approaching scientists and extension agencies for leaf reddening resistant genotypes. In this context, the present investigation was planned and executed during khurif seasons of 2007 and 2008 to evaluate performance of Bt and non-Bt cotton genotypes under leaf reddening malady situation.

Material and methods

The field experiment was laid out in a randomized complete block design with three replications on vertisol at Main Agricultural Research Station (MARS), University of Agricultural Sciences (UAS), Dharwad during the rained seasons of 2007 and 2008 to assess the performance of Bt and non-Bt cotton genotypes under leaf reddening situation. The experiment consisted of ten treatments (cotton hybrids) viz., T1-Bunny (BG I) Bt, T2-Bunny non-Bt, T3-RCH-368 (BG I) Bt, T4-RCH-368 non-Bt, T5-JK Durga (BG I) Bt, T6-JK Durga non-Bt, T7-Neeraja (BG II) Bt, T8-Neeraja non-Bt, T9-DCH-32 non-Bt hybrid and T10-Sahana non-Bt variety were sown at 90 cm x 60 cm spacing. Results indicated that, Neeraja (BG II) Bt produced significantly higher seed cotton yield (2483 kg/ha) as compared to the other genotypes. The yield levels of Bt and non-Bt cotton genotypes under study were in the range between 2483 kg/ha and 1131 kg/ha. The lowest seed cotton yield was observed in RCH-368 non-Bt (1131 kg/ha). Mean red leaf index at 90 DAS was 1.32 and it increased to 1.77 at 120 DAS among the genotypes. At 120 DAS, check Sahana non-Bt variety recorded significantly higher red leaf index (2.12) and it was at par with RCH-368 (BG I) Bt (1.97) and JK Durga (BG I) Bt (1.92). Between Bt and non-Bt genotypes, Bt genotypes recorded significantly higher red leaf index(1.82) as compared to non-Bt genotypes (1.63). Amongst Bt genotypes, Neeraja (BG II) Bt recorded significantly lower red leaf index(1.58) than others.

Key Words: Bollgard-I, Bollgard-II, Bt cotton, Leaf reddening, Red leaf index

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Performance of Bt and non-Bt cotton genotypes under leaf reddening malady situation*

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**Abstract**

A field experiment was laid out in a randomized complete block design with three replications on vertisol at Main Agricultural Research Station (MARS), University of Agricultural Sciences (UAS), Dharwad during the rained seasons of 2007 and 2008 to assess the performance of Bt and non-Bt cotton genotypes under leaf reddening situation. The performance of Bt and non-Bt cotton genotypes under leaf reddening malady situation. In this context, the present investigation was planned and executed during khurif seasons of 2007 and 2008 to evaluate performance of Bt and non-Bt cotton genotypes under leaf reddening malady situation.