

Performance, benefits and impact of Bt cotton production in Salem, India

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ABSTRACT

An attempt was made to examine the performance, benefits and impact of Bt cotton (var RCHB708Bt XL) production in Salem district of Tamil Nadu, India. This study was done based on the front line demonstrations (FLD) conducted in the 50 cotton growers in Attur block of Salem district. The results of the study show that the adoption of Bt cotton increased the seed cotton yield (average of 50 demonstrations) per hectare to 13 % higher over the local check (TCHB 213). The average number of bolls per plant and average boll weight were 98.0 and 19.42 g, respectively while it was 70.0 and 16.38 g for TCHB 213. Significant and positive correlation ($r=0.98^{**}$) was recorded by the seed cotton yield with the number of bolls and boll weight. The use of Bt cotton reduced the cost of cultivation to 37 % when compared to check. Among the different cultivation practices the reduction in pesticide usage alone contributed to 61 % reduction in cost of cultivation. More importantly, Bt cotton farmers also increased their incomes by reducing their use of pesticides and increased market value of the seed cotton. The average cost benefit ratio obtained by the use of Bt cotton was 1:3.93 which is 50 % higher than the non Bt cotton. Finally, data show that Bt cotton continues to have positive environmental impacts by reducing pesticide use.

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INTRODUCTION

India is the third largest producer of cotton in the world after China and USA accounting for about 14 % of the world cotton production. It has the distinction of having the largest area under cotton cultivation in the world ranging between 8.00 million to 9.00 million hectares and constituting about 26 % of the world area under cotton cultivation. During 2007-08, the area, production and productivity of cotton in India showed 19.83, 56.42 and 30.58 % increase, respectively over 2003-04. According to International cotton Advisory Committee, India's production is expected to increase to 4.9 mt and cotton consumption is expected to be up from 4 million tonne in 2006-07 to 4.2 million tonne in 2007-08. Due to the introduction and popularization of genetically modified cotton varieties and hybrids, the India may produce 300 lakh (30 million) bales in the coming season as against a production of 270 lakh (27 million) bales in 2006-07 (Anonymous, 2008). Further, more area is expected to be covered under Bt cotton seeds in the coming year across all the regions. The area under Bt cotton seed will increase to 50 % of the total acreage in 2008-09 from the current 38 %. Hence, this study was under taken to find out the performance and impact of the adoption of Bt cotton on increasing the economics of the farmers of Salem district (T.N.).

METHODOLOGY

The front line demonstration (FLD) was undertaken during 2007-08 at fifty farmer's field under irrigated condition in Attur block, Salem district of Tamil Nadu, India with the full package of practices. The test crop grown was a cotton Bt variety, RCHB708Bt XL which is an extra long staple cotton and each demonstration was conducted in an area of 0.4 ha. cotton hybrid TCHB 213 was grown as a local check for comparison. The crop was sown at a spacing of 120 x 90 cm and thinning of plants leaving one healthy plant per hill was done on 15 DAS for the easy operation of power weeder and to boost the setting of higher numbers of bolls. Integrated weed management using herbicides and weeders was done. The stem weevil is one of the important pests in this region. So, the combined application of neem cake as basal @ 250 kg/ha, soil application of carbofuran at 30 kg/ha at 20 DAS and soil drenching with chlorpyrifos 2ml/lit at 15, 25 and 35 DAS was done to reduce the stem weevil incidence. Clipping of terminal bud beyond 20th node (90 DAS) was carried out to enhance the symbodial branching and number of bolls. Foliar spray of nutrients at critical stages was done to correct the deficiencies and to improve the cotton yield. Foliar spray of NAA 40 ppm at 45 and 75 DAS also followed to overcome the hormonal imbalance and reduce boll shedding.

Key words :

Bt cotton,
Performance,
Impact, Front line
demonstration

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