

Physiological basis of variations in yield of commercial Bt cotton hybrids

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SUMMARY

A field experiment was conducted during 2010-11 under irrigated conditions at Main Agricultural Research Station, Raichur. Twenty two Bt cotton hybrids released by various private firms were evaluated for seed cotton yield and yield parameter along with the quality, physiological and biophysical parameters. Results revealed that Bt cotton hybrids differed significantly with respect to yield, yield components and quality parameters (*viz.*, seed cotton yield, lint yield, no. of bolls per plant, ginning out percentage, fibre strength, 2.5% span length). Physiological parameters (radiation attenuation, SPAD chlorophyll values, SLW and nitrate reductase activity) also recorded the significant differences among the hybrids. Leaf area index (LAI), chlorophyll content and nitrate reductase (NR) enzyme activity was more in the Bt cotton hybrids recorded with the more seed cotton yield. The correlation studies indicated a significant correlations between number of bolls per plant and seed cotton yield ($r=0.23^*$). However, positive correlation ($r=0.567$) was displayed by sympodial branches with seed cotton yield, which showed that seed cotton yield was greatly influenced by sympodial branches. Whereas bolls per plant exhibited strong positive association with seed cotton yield ($r=0.96^{**}$). However, monopodial branches per plant showed non significant association with the seed cotton yield.

Key Words : Chlorophyll, Cotton, LAI, NR, Radiation attenuation, Seed cotton yield

How to cite this article : Rajakumar, Amaregouda, A. and Nidagundi, J.M. (2013). Physiological basis of variations in yield of commercial Bt cotton hybrids. *Internat. J. Plant Sci.*, **8** (2) : 337-342.

Article chronicle : Received : 02.03.2013; Revised : 01.04.2013; Accepted : 02.06.2013

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