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# Study on Different Cotton (*Gossypium hirsutum* L.) Genotypes

Suitable for High Density Planting

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(Asha Rani, M)

## ABSTRACT

### STUDY ON DIFFERENT COTTON (*Gossypium hirsutum L.*) GENOTYPES SUITABLE FOR HIGH DENSITY PLANTING

By

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Field experiments were conducted during *winter* irrigated season of 2013-14 and 2014-15 at South Indian Textile Mill Association Farm, (SIMA) Udumalpet with the objectives to investigate the different cotton (*Gossypium hirsutum L.*) genotypes suitable for high density planting and to find out the influence of different spacings (high density) on the yield and economics of cotton.

The experiment was laid out in a split plot design replicated thrice. Three genotypes *viz.*, genotype SHS 102, genotype SHS 374, genotype SHS-2-4 and one variety Anjali were fitted in the main plot and four spacings *viz.*, 45 x 15 cm (Very high density), 45 x 20 cm, 60 x 15 cm (High density) and 60 x 20 cm (Medium high density) respectively were tried in the sub plot.

Observations on growth parameters such as plant height, number of leaves, LAI, DMP, root length and root dry weight and physiological characters *viz.*, CGR and Chlorophyll; yield attributes *viz.*, monopodia, sympodia, number of fruiting points, number of bolls per plant, boll setting percent, boll weight and seed cotton yield respectively were recorded. Nutrient uptake by cotton and quality parameters of cotton was also estimated. Weed and pest dynamics were recorded and soil available NPK status



were estimated. Economic returns such as gross return, net return and B:C ratio were computed.

During both the crop seasons, all the growth parameters and physiological attributes were better with the genotype SHS 102 and genotype SHS 374.

Among the different spacings tested, 45 x 15 cm spacing recorded better growth parameters in the early stages alone but at later stages, 60 x 15 cm spacing recorded better growth parameters, physiological attributes, yield attributing characters and nutrient uptake.

Among the cotton genotypes, genotype SHS 102 and genotype SHS 374 recorded higher yield attributing characters and seed cotton yield.

The plant spacing of 60 x 15 cm favourably increased the yield attributes and seed cotton yield irrespective of all the cotton genotypes.

With regard to the treatment combinations, the genotype SHS 102 and 374 registered better growth components and seed cotton yield at a plant spacing of 60 x 15 cm and both were comparable with each other during both the years of study.

There was no significant incidence of american boll worm and spotted boll worm in both the years of experiments. With respect to plant spacings, 60 x 15 cm recorded lower locule damage.

Marked increase in NPK uptake by cotton was observed under genotype SHS 102 followed by genotype SHS 374. The plant spacing of 60 x 15 cm recorded higher NPK uptake followed by 60 x 20 cm. The post-harvest nutrient status was higher with the variety Anjali. Among the spacings tested, 45 x 15 cm spacing registered higher post harvest soil nutrient status.

Economic parameters *viz.*, net returns and BCR were higher with the treatment combination of genotype SHS 102 with the spacing 60 x 15 cm followed by the treatment combination genotype SHS 374 at spacing of 60 x 15 cm.

From the study, it was concluded that cotton genotype SHS 102 at the spacing 60 x 15 cm has recorded better growth and yield parameters, higher seed cotton yield and economic returns followed by genotype SHS 374 at a spacing of 60 x 15 cm.