

## Influence of intercropping unconventional green manures on weed control, yield attributing characters and yield of Hybrid Cotton

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### SUMMARY

Field experiments were conducted in summer 2003 and winter 2003-04 to find out the effect of intercropping unconventional green manures on weed control and yield of Hybrid Cotton. Two unconventional green manures crops viz., marigold and sesamum and one known green manure, sunnhemp were experimented. These three green manures as intercrops were raised in single and double rows incorporated in the interspace of hybrid cotton TCHB 213 on 30 and 40 DAS. In all, 13 treatments, which include sole cotton, were imposed and studied in two seasons. One objective of the study is to find out the effect of intercropping greenmanures at different row ratios and timing of incorporation on the weed incidence of cotton. Intercropping green manures achieved 75 to 80 per cent weed reduction (weed density) on 20 DAS as compared to sole cotton. Weed suppression was relatively more due to marigold intercropping. The weed control efficiency due to marigold intercropping was higher than sunnhemp and sesamum during both summer and winter seasons. Intercropping with marigold in two rows in between cotton rows and incorporating it on 30 DAS had contributed ultimately more kapas and lint yield of cotton securing higher yield advantage in both summer and winter crops. The practice (intercropping green manures) thus assumes a right component in integrated weed management for cotton.

Key words : Unconventional green manure, Intercropping, Weed smothering, Yield, Cotton

Cotton (*Gossypium* spp.), considered as “King of Fibre” and “White Gold”, is one of the most important commercial crops grown in as much as 80 countries in the world occupying 33 m. ha. In the year 2000-01, cotton has been cultivated in our country over an area of 9 m. ha with a production of 145 lakh bales. The productivity has been arrived at 276 kg ha<sup>-1</sup> (Mayee *et al.*, 2002), which is very low as compared to the world average of 550 kg ha<sup>-1</sup> (Gopaldaswamy *et al.*, 2000). In view of low productivity in our country, the yield enhancing practices in cotton have to be strengthened. Hybrid cotton in general has more potential than varieties. It is mostly grown under irrigation with high level of management to exploit the hybrid vigour.

Cotton being a slow growing crop to start with can facilitate intercropping. Cotton and pests are synonymous and therefore an intercrop conferring pesticidal, manorial and weed control effects at one go can be a better choice. Unconventional green manures such as marigold noted for nematode control, sesamum known for root exudation may have more than one effect besides weed control. In this paper, their effect as compared to an established green manure, sunnhemp on weed control is presented at different row ratios and timing of greenmanures incorporation. Their ultimate effect on the yield attributing characters and yield of cotton is also studied

and presented herein

### MATERIALS AND METHODS

Field experiments were carried out at Agricultural Research Station, Bhavanisagar during the year 2003 to 2004 in order to find out the weed control effect of unconventional green manures as intercrops on the associate hybrid cotton. The soil of the experimental fields was well drained sandy clay loam of Irugur series. The fertility status of the soil in both the fields was low, medium and high in available N, P and K respectively. Four cropping systems viz, sole cotton, cotton + marigold, cotton + sesamum and cotton + sunnhemp were tested (Factor A) in single and double rows (Factor B) Incorporating them on 30 and 40 DAS (Factor C). The treatments were laid out in a factorial randomized block design replicated thrice. Sesamum and sunnhemp were solid rows in the interspace i.e., 60 cm in between two cotton rows for single row spacing. For two rows, they were sown at 40cm interval in the interspace. In a similar way, marigold seedlings were planted keeping 10 cm intra row spacing, cotton was earthed up simultaneously at the respective incorporation timings.

Nitrogen as urea (46 per cent), phosphorus as super phosphate (16 per cent P<sub>2</sub>O<sub>5</sub>) and potassium as muriate of potash (60 per cent K<sub>2</sub>O) were applied at the rate of

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