



Productivity and profitability of Bt/non Bt cotton and French bean intercropping system under rainfed condition

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Abstract : The intercropping of Bt non Bt cotton and french bean was studied to compare grain and vegetable purpose french bean in terms of productivity, profitability under rainfed condition in Northern Transition Zone of Karnataka. French bean was grown for grain and vegetable purpose with Bt and non Bt cotton in 2 row ratios (1:2 and 1:3), 4 sole crops (French bean for grain and vegetable, Bt and non Bt cotton) and Bt/non Bt cotton + soybean (recommended intercropping of this area) were the treatments. Intercropping of Bt cotton + French bean in 1:3 row ratio either for grain or vegetable recorded significantly higher cotton equivalent yield (2545 and 2506 kg/ha, respectively), land equivalent ratio (1.38 and 1.37, respectively), system productivity index (2442 and 2422, respectively) and net returns (Rs. 29624 and 29675/ha) than other row ratios of intercropping and sole crops of Bt/non Bt cotton and french bean. The intercropping of Bt cotton + French bean in 1:3 row ratio for grain recorded significantly higher area time equivalent ratio (1.16), than Bt cotton + french bean for vegetable in the same row ratio (1.09).

Key Words : Intercropping, Row ratio, Production efficiency of the system, Energetics, Energy use efficiency

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INTRODUCTION

In the Northern Transition Zone of Karnataka, cotton (*Gossypium* sp. L.) is predominate crop among the *Kharif* (rainy season) crops. Being wider spaced, cotton provides an opportunity for introducing a short duration pulse crop like French bean as an intercrop in additive series since the rainfall received in the zone is in excess of the single crop need. Though French bean is reported to have better potential than many of the pulses in zone 8 (Ghodake, 2002), not much information is forthcoming for suitability as an intercrop. French bean is also grown as vegetable crop in some pockets of Northern Transition Zone of Karnataka since it fetches good prices in market. Preliminary study (Hugar and Palled, 2008) on vegetable french bean revealed that growing french bean as an intercrop in cotton was profitable. However, little work has been done on appropriate row ratios for intercropping of French bean with cotton and comparison of vegetable and

grain purpose french bean with regard to the productivity and profitability under different cropping systems.

MATERIALS AND METHODS

The experiment was conducted at Main Agricultural Research Station, University of Agricultural Sciences, Dharwad during 2005-06 and 2006-07 under rainfed condition. The geographical co-ordinates of Dharwad are 15° 26' N latitude and 75° 7' E longitude and an altitude of 678 m above mean sea level. It is located in the Northern Transition Zone (Zone-8) of Karnataka. The soil of the experimental site was clayey in nature and having available N, P and K of 211, 13.6 and 270.6 kg/ha, respectively. Organic carbon (%) and pH of the soil were 0.52 per cent and 7.2, respectively. Grain and vegetable purpose French bean was intercropped with Bt and non Bt cotton in row ratios of 1:2 (two rows of French bean were sown at 30 cm spacing between 90 cm rows of cotton) and 1:3

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