



A study on yield gap in cotton cultivation

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ABSTRACT

An attempt was made to study the yield gap in cotton in Perambalur district of Tamil Nadu state. Three hundred respondents were selected based on the proportionate random sampling method. A well structured and pre-tested interview schedule was administered for the collection of relevant data. The results revealed that 42.00 per cent of cotton growers had medium level of yield gap. The socio-economic and psychological characteristics namely, education, area under cotton cultivation, information source utilization, risk orientation, innovativeness and economic motivation were found to have positive association with yield gap.

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INTRODUCTION

Cotton is the most vital crop of commerce, popularly known as 'white gold'. Cotton accounts for nearly 44 per cent of the world's fibre and supplies 10 per cent of the world's edible oil. Even though India ranks first in cotton area in the world, it has third position in production after China and the United Nation due to lower productivity. Hybrids give almost twice the yield of varieties and better quality, especially long and extra long staples. The production and productivity of cotton enhanced due to this hybrid revolution, however, India's productivity (440 kg lint/ha) is still far below the world average of 682 kg lint/ha (Khadi, 2006).

The adoption of a new technology often results in a tendency of variability in the production. Before releasing a variety to the farmers for adoption, it is tested under different agro-climatic conditions at research stations through trials and demonstrations. However, yield levels realised by the farmers tend to be considerably lower than those recorded at the research stations and demonstration plots, leaving a considerable untapped yield potential (Gaddi *et al.*, 2002). Keeping the above in

mind, the study was attempted with the following objectives: to estimate the potential yield and actual yield in cotton and to identify the yield gap at the level of farmers holding and to study the socio-economic and psychological profile of the cotton growers on their yields gap.

METHODOLOGY

For the present study, yield gap was defined as the difference between the highest yield recorded at the selected villages and actual yield obtained by the respondents and expressed as percentage of the total.

The study was taken up in Perambalur district of Tamil Nadu because it was one of the potential districts for cotton cultivation especially under rainfed conditions. Based on the maximum area under cotton, six villages were selected. From the six villages, 300 cotton growers were selected as a sample size by proportionate random sampling. The data were collected from the respondents with the help of a well structured and pre-tested interview schedule.

Key words :

Yield gap,
Potential yield,
Actual yield,
Cotton growers

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RESULTS AND DISCUSSION

The results of the study have been discussed under the following headings:

Yield gap:

The results of yield gap and distribution of respondents according to the yield gap are furnished in Table 1 and 2.

It could be seen from the Table 1 that the mean

Sr. No.	Name of the selected village	Highest yield recorded (potential yield) kg/ha	Average actual yield recorded kg/ha	Yield gap
1.	V.R.S.S Puram	3163	2413	750
2.	Pandagapadi	3188	2400	788
3.	Sathanur	3163	2165	998
4.	Siruganpur	3150	2150	1000
5.	Olappadi	3175	2125	1050
6.	Paravai	3163	2138	1025
	Mean	3167	2232	935

Sr. No.	Category	Number of respondents	Per cent
1.	Low	99	33.00
2.	Medium	125	42.00
3.	High	76	25.00
	Mean	300	100.00

highest yield was 3167 kg/ha, and the mean actual yield was 2232 kg/ha. The mean yield gap was 935 kg/ha. The reason for the yield gap may be due to non-adoption of certain recommended technologies and also various constraints experienced by the cotton growers.

It could be observed from the Table 2, that majority of the respondents (42.00 per cent) had medium level of yield gap followed by low (33.00 per cent) and high (25.00 per cent) levels of yield gap. The reason for medium level of yield gap was due to medium level of knowledge and extent of adoption of the recommended technologies by the cotton growers.

Socio-economic and psychological profile of the cotton growers on their yield gap:

As per the results presented in Table 3, five variables viz., education, area under cotton cultivation, information source utilization, risk orientation and economic motivation were found to have positive and significant association with yield gap at one per cent level of probability and innovativeness was found to have positive and significant association with yield gap at five per cent level of probability.

Regarding multiple regression analysis, out of the 16 independent variables, three variables namely, farm size, information source utilization and risk orientation were found to have significant and positive contribution at one per cent level of probability and the variable farming experience was found to have significant and positive

Variables	Correlation 'r'	Regression co-efficient	Standard error	't' value
1. Age	0.104NS	1.053	0.701	1.502
2. Educational status	0.152**	-0.149	0.615	0.242
3. Occupation	-0.025	-0.305	0.433	-0.704
4. Farm size	0.048	0.741	0.225	3.285**
5. Area under cotton cultivation	0.182**	-0.001	0.166	0.006
6. Farming experience	0.023	0.383	0.226	1.698*
7. Annual income	0.061	-0.142	0.147	0.962
8. Socio-economic status	0.086	-0.010	0.055	0.181
9. Social participation	-0.024	-0.215	0.267	-0.803
10. Contact with extension agency	0.048	0.135	0.152	0.888
11. Information source utilization	0.368**	0.351	0.152	2.367**
12. Innovativeness	0.149*	0.013	0.448	0.029
13. Risk orientation	0.372**	0.874	0.443	1.973**
14. Scientific orientation	0.067	0.406	0.475	0.853
15. Economic motivation	0.245**	0.153	0.232	0.654
16. Decision making	0.085	0.036	0.637	-0.978

$R^2 = 0.597$ $F = 15.624$

* and ** indicate significance of values at $P=0.05$ and 0.01 , respectively

contribution at five per cent level of probability.

It could be inferred from the results that one unit increase in the farm size, farming experience, information source utilization, and risk orientation would decrease the yield gap by 3.285 kg, 1.698 kg, 2.367kg and 1.973 kg respectively keeping the other variables constant.

Conclusion:

Majority of the cotton growers (42.00%) had medium level of yield gap. Among the sixteen socio-personal and psychological characteristics taken up for the study education, area under cotton cultivation, innovativeness, information source utilization, risk orientation and economic motivation were directly associated with yield gap.

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