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TECHNOLOGICAL GAP ANALYSIS OF COTTON GROWERS

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Abstract
In Perambalur district, cotton is cultivated predominantly as a rainfed crop during kharif season (July- August). The area under cotton was 20,383 ha during the year 2015-2016. Cotton cultivation under rainfed condition is really a risky venture. Keeping in view, this study was conducted to analyse the technological gap of cotton cultivation technologies and constraints faced by the cotton growers. Majority of the respondents had had low level followed by medium level of technological gap.

Introduction

Cotton is one of the vital commercial fiber crops, playing prominent role in the national and international economy due to its high commercial value, it is also popularly known as 'White Gold'. In India, it is one of the important cash and commercial crops valued for its fiber and vegetable oil. It is a source for earning the valuable foreign exchange by providing employment to millions of people and hence plays a significant role in national economy. The diverse products obtained from cotton include textile raw material, cotton seed is a major source of vegetable oil and cotton cake as a rich source of high quality protein for livestock feed. Cotton is primarily grown as fiber crop. It is harvested as 'seed cotton', which is then 'ginned' to separate the seed and lint. The long 'lint' fibers are further processed by spinning to produce yarn that is knitted or woven into fabrics.

Tamil Nadu is having cotton area just under 1.42 lakh hectares with a production of 5.00 lakh bales, and the productivity was 599 kg/ha during the year 2015-2016. In Tamil Nadu, some of the cotton revivalism was possibly due to the technology mission on cotton, an initiative of the central government aimed at improving its productivity and the Cotton Corporate of India (CCI), Integrated cotton cultivation programme an euphemism for the promotion of contract farming by mills. Cotton has attracted many farmers in Tamil Nadu. A large number of farmers are cultivating cotton on account of higher returns. The cultivation of cotton has increased the profitability and net income of farmers.

In Perambalur district, cotton is cultivated predominantly as a rainfed crop during kharif season (July- August). The area under cotton was 20,383 ha during the year 2015-2016.Cotton cultivation under rainfed condition is really a risky venture. The farmers are afraid of adopting new technologies because of their poor economic base, unassured rainfall, erratic changes in climate, unexpected natural calamities, severe pests and diseases etc., In addition, the farmers experienced numerous bio-physical, technological, economical and institutional constraints in the production and marketing of cotton.

It is noticed by reviewing the research report and finding reported in the research journals that the package of practices as adopted by the farmers are somewhat different from what is recommended by the scientists for optimum production. In India, enough research on cotton production technology has been generated in agricultural universities and research institutes but the target adopters of the technology have not been able to adopt it to desired level. There always exists a gap between recommended technologies and their adoption by the ultimate users of the technology.

Research Methodology

The study was taken-up in Perambalur district of Tamil Nadu. Out of the four blocks in Perambalur district, Veppur block was selected based on the maximum area under cotton cultivation. The details of number of respondents selected from each of the selected villages are given in Table-1.

Table-1. Villagewise distribution of selected respondents

S.No.	Name of the block	Name of the villages	Total number of cotton growers	Total number of selected respondents
1.	Veppur	Olaippadi	196	26
		Paravai	181	24
		Puduvettakudi	152	20
		Varagur	134	18
		Kilaperambalur	125	17
		Thungapuram	114	15
Total			**902**	**120**

A sample size of 120 cotton cultivating farmers was selected by using proportionate random sampling technique. The statistical tools namely percentage analysis method and cumulative frequency method were employed. The required data were collected by personal interview utilising a well structured and pre-tested interview schedule. The collected data were tabulated and analysised using appropriate statistical tools.

Technological gap has been defined as the proportion of gap in the adoption of practices recommended and it is expressed in percentage (Ray *et al.* 1995). In the present study technological gap was operationalised on the division in adoption of 19 recommended cotton cultivation practices by the farmers and expressed in percentage.

The technological gap of a particular practice expressed in percentage was:

$$\text{Mean technological gap} = \frac{\text{Standard score - Actual score}}{\text{Standard score}} \times 100$$

Finding and Discussion

Overall technological gap of the respondents

Table-2. Distribution of the respondents according to their overall technological gap on recommended cotton technologies

(n=120)

S. No.	Category	Number	Per cent
1.	Low	60	50.00
2.	Medium	38	31.67
3.	High	22	18.33
Total		**120**	**100.00**

It could be observed from Table-2, that half of the respondents (50.00 per cent) had low level of technological gap on the recommended cotton cultivation practices followed by medium (31.67 per cent) and high (18.33 per cent) levels of technological gap respectively. It might be due to the respondents accepted most of the technologies and more faith about state department of agriculture for recommending cotton technologies. These finding is in line with the findings of Waman *et al* (2011) who observed that most of the respondents fell under low level of technological gap of recommended technologies in his study.

Practice wise technological gap of recommended cotton cultivation technologies

In order to have better understanding of variation in the overall extent of technological gap of recommended technologies in cotton, practicewise extent of technological gap was analyzed and the results are presented in Table-3.

Practice wise technological gap of recommended cottontechnologies

(n=120)

S. No.	Technologies	Mean technological gap
1.	Land preparation	16.66
2.	Spacing	12.50
3.	Varieties	5.00
4.	Season	4.16
5.	Seed rate	8.33
6.	Seed treatment	37.50
7.	Sowing of seeds	00.00
8.	Gap filling	8.33
9.	Thinning	5.83
10.	Weed management	25.00
11.	Fertilizer application	54.16
12.	Micro-nutrient application	47.50
13.	Foliar application	42.50

14.	Bio-fertilizer application	17.50
15.	Topping practices	29.16
16.	Plant growth regulator application	22.50
17.	Irrigation management	66.66
18.	Plant protection measures	35.83
19.	Harvesting	5.00
Mean		**23.37**

It is obvious from table-3, that out of nineteen technologies studied for assessing the technological gap on recommended technologies in cotton, the technologies found to be less gap were viz., season (4.16 per cent), varieties (5.00 per cent), harvesting (5.00 per cent), thinning (5.88 per cent), gap filling (8.33 per cent), seed rate (8.33 per cent), spacing (12.50 per cent), land preparation (16.66 per cent), bio-fertilizer application (17.50 per cent) and plant growth regulator application (22.50 per cent). Most of these technologies were important and traditionally followed technologies by the respondents. These technologies were easy to understand and less difficult to adopted by the farmer. Further, these technologies improved production efficiency.

The next group of technologies that were perceived as high technological gap by the respondents were weed management (25.00 per cent), topping practices (29.16 per cent), plant protection measures (35.83 per cent), seed treatment (37.50 per cent), foliar application (42.50 per cent), micro-nutrient application (47.50 per cent), fertilizer application (54.16 per cent) and irrigation management (66.66 per cent). Hence, it may be inferred that most of the technologies were not technically feasible and were not suitable for involvement of farmer of its features of high cost and less energy saving technologies.

Summary and Conclusion

Keeping in view, this study was conducted to analyse the technological gap of cotton cultivation technologies and constraints faced by the cotton growers. Half of the respondents had low level followed by medium level of technological gap on recommended cotton cultivation practices.

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