



## Technological gap in adoption of cotton production technology

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### ABSTRACT

The study was conducted in the Vadodara district of Gujarat, a well-known district for the cotton cultivation in state. The study has focused on technological gap in adoption of cotton production technology. A sample of 120 farmers of 12 villages was selected by random sampling and their responses were analyzed with relevant tools. Study revealed that majority (61.66 per cent) of respondent cotton growers had medium technological gap in cotton cultivation, followed by low (17.51 per cent) and high (20.83 per cent) technological gap in cotton cultivation.

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### INTRODUCTION

Cotton is one of the most important cash crops grown by the farmers of our country. Gujarat is one of the major cotton producing states of the nation, which covers about 22829 hundred ha area with 76101 hundred million tones productions. Cotton is cultivated as major commercial crop, in almost all the districts of Gujarat state. Amongst this, Vadodara, Surendranagar, Ahmadabad, Bhavnagar, Bharuch, Kheda, Surat, Rajkot, Junagadh and Kutch districts are the major cotton producing districts (Anonymous, 2008).

Main cotton research station, Surat has recommended various cotton production technologies and are being communicated to the cotton growers through various extension agencies like transfer of technology centres of SAUs, State Department of Agriculture and Non-Government of Organizations. However, it is observed that there is a wide gap in adoption of technologies. Personal, social, economic and psychological factors of the farmers influence for non-adoption of farm technology. Looking to the importance and urgency of the problem the study was undertaken with the objective: to identify the technological gap in adoption of cotton production technology among the cotton growers.

### METHODOLOGY

Vadodara district was purposively selected for the study because it has the maximum area under cotton cultivation. Dabhoi and Karjan Talukas were selected purposively for study because it is the productivity potential region of cotton crop that have maximum area under cotton cultivation due to assured irrigation facility and favourable soil and climate condition. Six villages from each Taluka having the maximum area under cotton cultivation were selected randomly. A proportionate random sampling technique was followed for selection of respondents. There after 10 per cent farmers of each village were selected randomly in such a manner that there would be proportionate to total size of farmers in respective selected villages. Thus total 120 cotton growing farmers were selected as respondents from twelve villages of two Taluka. The technological gap index in each of the selected practices was calculated by the formula developed by Dubey *et al.* (1981). In light of the objectives, pre-tested well-structured interview schedule was prepared in Gujarati version. Required information was collected through personal interview technique. Collected information was analyzed with appropriate statistical tools like percentage,

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mean score, standard deviation and coefficient of correlation.

**OBSERVATION AND ANALYSIS**

The technological gap refers to the difference between technology recommended by the scientists and technology adopted by the farmers. It was felt that agricultural technology is not generally adopted by the farmers completely in all respects. As a result, technological gap appears and poor yield is obtained. Keeping this in view, the technological gap has been studied. The practice wise technological gap in adoption of different component of cotton production technology among the cotton growers are summarized in Table 1.

On the basis of mean score, wide technological gap in cotton cultivation was observed, disease management having mean score 2.8 followed by fertilizer management (2.34), pest management (2.28), weed control (2.18), spacing and seed rate (2.06), irrigation management (1.55) and land preparation, improved variety and time of sowing (1.30).

**Technological gap for and preparation, improved variety and time of sowing:**

Land preparation, selection of variety and time of sowing are the basic requirements on which the yield of cotton mainly depends.

Table 1 and indicates that great majority (85.00 per cent) of the respondent cotton growers had low level of technological gap in land preparation, selection of variety and time of sowing, whereas 15.00 per cent of them had high level of technological gap in land preparation, selection of variety and time of sowing. Reasons for low technological gap might be due to wide experience of respondents in cotton cultivation as a result they understood the importance of land preparation and timely sowing and improved seeds in cotton production. High gap might be observed in case of improved variety due to higher cost

of seeds and it may be particularly to small and marginal farmers.

**Technological gap for spacing and seed rate:**

Table 1 indicates that more than three fourth (79.17 per cent) of the respondent cotton growers had low level of technological gap regarding spacing and seed rate; followed by high (13.33 per cent) and low (7.50 per cent). High gap might be due to lack of recommendation of spacing and seed rate.

**Weed control:**

Table 1 indicates that majority (66.67 per cent) of the respondent cotton growers had medium level of technological gap regarding in weed control followed by high (25.83 per cent) and low (7.50 per cent), respectively. Because of wide experience in cotton cultivation farmers know very well that weeds reduce the cotton yield drastically therefore they control the weeds timely either by manually or by herbicidal methods of weed control. This may be probable reason for low technological gap in case of weed management. High technological gap might be due to shortage of labours at the critical time of manual weeding and high charges of labours.

**Irrigation management:**

Table 1 indicates that more than half (55.83 per cent) of the respondent cotton growers had medium level of technological gap in irrigation management in cotton cultivation, whereas 44.17 per cent of them had low level of technological gap in irrigation management in cotton cultivation and none of them was found in high category. Low or medium gap in this case may be due to limited irrigation sources or irregular and insufficient of electricity supply for irrigation or high cost of fuel.

**Pest management:**

Table 1 indicates that slightly more than half (50.83

Table 1 : Practice wise technological gap in different components of cotton production technology							
Sr. No.	Practices	Degree of technological gap			Total score	Mean score	Rank
		Low	Medium	High			
1.	Land preparation, improved variety and time of sowing	102 (85.00)	00 (00.00)	18 (15.00)	156	1.30	VII
2.	Spacing and seed rate	09 (7.50)	95 (79.17)	16 (13.33)	247	2.06	V
3.	Fertilizer management	22 (18.33)	35 (29.17)	63 (52.5)	281	2.34	II
4.	Weed control	09 (7.50)	80 (66.67)	31 (25.83)	262	2.18	IV
5.	Irrigation management	53 (44.17)	67 (55.83)	00 (00.00)	187	1.55	VI
6.	Pest management	27 (22.50)	32 (26.67)	61 (50.83)	274	2.28	III
7.	Disease management	00 (00.00)	24 (20.00)	96 (80.00)	336	2.8	I

N.B: Figures in parentheses indicate the percentage

per cent) of the respondent cotton growers had high level of technological gap regarding pest management in cotton cultivation, whereas 26.67 per cent and 22.50 per cent of them had medium and low level of technological gap regarding pest management in cotton cultivation, respectively. Lack of knowledge about the recommendations of pest control, high cost of pesticides, non-availability of required pesticides in local market and non-availability of own plant protection equipment may be possible reasons for wider technological gap in pest management.

**Disease management:**

Table 1 indicates that majority (80.00 per cent) of the cotton growers had high level of technological gap regarding disease management in cotton cultivation; remaining 20.00 per cent of them had medium level of technological gap in disease management in cotton cultivation. Lack of knowledge about identification of diseases, recommendations of their control measures, high cost of chemicals, non-availability of fungicides in local market and non-availability of own equipment for spraying pesticides or fungicide might be possible reasons for this situation.

**Overall technological gap:**

On the basis of score obtained by the cotton growers, they were grouped in to three categories viz., low, medium and high technological gap. The data regarding this aspect are presented in Table 2.

**Table 2: Distribution of the respondents according to their overall technological gap (n = 120)**

Sr. No.	Overall technological gap	Number	Per cent
1.	Low (less than 30.96)	21	17.51
2.	Medium (in between 30.96 to 40.88)	74	61.66
3.	High (Above 40.88)	25	20.83
Total		120	100.00

Mean = 35.92

S. D. = 4.96

The data in Table 2 clearly indicate that majority (61.66 per cent) of respondent cotton growers had medium technological gap in cotton cultivation, followed by low (17.51 per cent) and high (20.83 per cent) technological gap in cotton cultivation, respectively.

The possible reasons for this might be that the farmers could not get the message of improved recommended

package of practices in time in acceptable form. Further, farmers might have tried their best to use and adopt the cotton cultivation but some constraints might have hindered them to do so, and hence technological gap might have observed.

**Conclusion:**

It can be concluded from this study that majority (61.66 per cent) of respondent cotton growers had medium technological gap in cotton cultivation, followed by low (17.51 per cent) and high (20.83 per cent) technological gap in cotton cultivation, respectively. And wide technological gap in cotton cultivation was observed in disease management having mean score 2.8 followed by fertilizer management (2.34), pest management (2.28), Weed control (2.18), spacing and seed rate (2.06), irrigation management (1.55) and land preparation, Improved variety and time of sowing (1.30). More efforts should be made by the extension agencies to establish in-depth extension contact with the farmers. Field demonstration, farmer’s day, crop campaign etc., should be organized at village level for this purpose. Training institutes in the district should concentrate their efforts in training particularly in the area of pest and disease management and fertilizer management in cotton cultivation technology, since cotton is a major cash crop grown in the area.

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