



Inter gender knowledge of farm families in *Bt* cotton production technology

¹VANITA AND RAJESH DAHIYA

*Department of Extension Education and Communication Management,
CCS Haryana Agricultural University, Hisar - 125 004*

**Email :*

Abstract : Agriculture is the leading sector of Indian economy because more than half of the agriculture is the backbone of Indian economy and then half of the workforce in the country is involved in agriculture. It provides employment and food security to majority of population (56.00 %) of the Indian workforce, and contributes to overall growth of the economy and reduces poverty. Cotton is the most important fibre crop not only of India but of the entire world because of its agricultural as well as industrial importance. Keeping in mind present study was conducted in purposively selected Fatehabad and Sirsa districts of Haryana state. Total 120 farm families from four villages (60 female and 60 male marginal and small farmers) were selected randomly. Inter-gender knowledge was assessed in *Bt* cotton production technology and indices were prepared. Further, study revealed that female participants had medium level of knowledge in production and pre-production activities. Whereas, medium level of knowledge found in production and plant protection aspects and high level of knowledge was observed in marketing aspects. Knowledge index was found highest for marketing and pre-production aspects by male respondents. A significant difference was observed in inter-gender knowledge of female and male respondents in aspects of pre-production, production plant protection and post-harvesting. However, difference in knowledge mean score was found highest for post harvesting (m.s= 6.35) followed by plant protection (m.s = 5.40) and pre-production (m.s= 4.78) respectively.

Keywords: Agriculture, inter-gender, knowledge, knowledge index, participation

Agriculture is the leading sector of Indian economy because more than half of the workforce in the country is involved in agriculture. Cotton is the most important fibre crop not only of India but of the entire world. India also has the distinction of having the largest area under cotton cultivation in the world about (126.07 lakh hectares). It is important cash crop of India. Because of its agricultural as well as industrial importance, it is also called as "White Gold". Separately from the increasing production of synthetic fibre, cotton has maintained its reputation as "King of The Fibre Crops" (Shiv Kumar, 2007). The Indian cotton cultivation has been on the up over the last decade, increasing numbers of farmers are sowing cotton, and the

production and yield have increased significantly. At least some of this growth is due to the introduction of biotech cotton. It was recorded about eight times increase in cotton production with the 229.51 per cent increase in area since its inception (1966 -67 to 2011-2012) . The need for chemical pesticides was reduced by an average of 5 to 8 surprise per season due to use *Bt* cotton (Nandal and Punia, 2011). In Haryana state, five districts *viz*, Sirsa, Hisar, Fatehabad, Jind and Bhiwani account 97 per cent of the area and 98 per cent production of cotton in the state (Zehr, 2010). The profitability of cotton cultivation to a very great extent depends upon insect/pest management and adoption of latest recommended practices. Inter-gender knowledge of farmers

plays an important role in adoption of any new improved agricultural technology because knowledge directly affects the adoption rate.

Keeping all this in mind, the present study was conducted to assess knowledge level of the respondents with the following specific objectives.

Objective/hypothesis of the study

- To assess the inter gender knowledge level in *Bt* cotton production technology

The study is also an attempt in the direction of highlighting the gender wise, knowledge level of marginal and small farmers in *Bt* cotton production technology. The information made through this research will be of great use to planners and policy makers, scientists, extension workers and other stakeholders involved in providing technical knowledge to farm men and women to equip them with the latest technologies and information. The study will also help in identifying the factors associated with knowledge of *Bt* cotton production technology.

The present studies were conducted during the year 2020-2021 in purposively selected Fatehabad and Sirsa districts of Haryana state.

Participants: Total 120 farm families (60 female and 60 male from marginal and small land holding) from four blocks (two from each district) and four villages (one from each block) were selected randomly.

Instruments: Interview schedule, booklet, lectures, demonstration, posters & charts.

Statistical analysis: Frequency, percentage, mean score, weighted mean score, indices & rank. Knowledge and adoption index regarding five operations namely pre production, production, plant protection, post harvesting and marketing of cotton production technology was calculated with the help of following formula:

$$KI = \frac{\text{Summation of obtained knowledge scores}}{\text{Possible maximum obtainable knowledge scores}} \times 100$$

Procedure:

- Random selection of respondents.
- The data were collected through interview schedule.
- The interview was conducted personally with the female and male respondents and pertinent information on all objectives collected thoroughly.

1. Inter gender knowledge level of the respondents regarding *Bt* cotton production technology :

The knowledge statements of *Bt* cotton production technology had been divided into five major aspects *i.e.* pre production, production, plant protection, post harvesting and marketing by covering all aspects of cotton production technology. Data presented in Table 1 revealed that in pre production activities, 60 per cent of the female respondents had medium level of knowledge followed by low (35%) and high (5%) respectively. Whereas most of male respondents (80%) had medium level of knowledge followed by high and low 10 per cent each respectively. In production activities 70 per cent of the female respondents had medium level of knowledge followed by low (25%) and high (5%), respectively. However, 80 per cent of the male respondents had high category of knowledge followed by medium and low (10% each) respectively. Further data in table 1 revealed that in Plant protection half of the female respondents (50%) had low level of knowledge followed by medium (45%) and high (5%), respectively. However, more than half (60%) male respondents had medium level of knowledge followed by low (25%) and high (15%) respectively. In post harvesting operations majority of the female respondents (70%) had medium level knowledge followed by high and low (15% each) respectively. However, 60 per cent male farmers had medium level of knowledge

followed by low (30%) and high (10%), respectively. In marketing operations half of the female respondents (50%) had low level of knowledge and half of the respondents (50%) had medium level of knowledge. However, majority of the male respondents (75%) had medium level of knowledge followed by low (15%) and high 10 per cent, respectively. Singh *et al.*, (2013), Dudi and Meena (2016) and Jeya (2020) also reported the similar pattern for level of knowledge about different practices of cotton cultivation. Jeya (2020) revealed that 45 per cent of the respondents had medium level of knowledge on recommended cotton cultivation practices.

2. Inter gender knowledge index of the respondents in *Bt* cotton production technology : Inter gender knowledge index of the respondents was calculated on the basis of obtained scores. It is evident from the results of Table 2 that highest knowledge index of female respondents was observed for post harvesting (75.75% and rank I) followed by production (65.47% and rank II), pre-production (65% and rank III) respectively. However, highest knowledge index for male respondents was observed for pre production (83.33% and rank I) followed by marketing (80% and rank II), production (71.42% and rank III), respectively. The

Table 1. Inter-gender knowledge level of the respondents in *Bt* cotton production technology n=120

Sr. No	Aspect	Category	Respondent	
			Female (60) f (%)	Male (60) f (%)
1.	Pre production(15)	Low	21 (35.00%)	6 (10.00%)
		Medium	36 (60.00%)	48 (80.00%)
		High	3 (5.00)	6 (10.00%)
2.	Production(14)	Low	15 (25.00%)	6 (10.00%)
		Medium	42 (70.00%)	6 (10.00%)
		High	3 (5.00%)	48 (80.00%)
3.	Plant protection(33)	Low	30 (50.00%)	15 (25.00%)
		Medium	27 (45.00%)	36 (60.00%)
		High	3 (5.00%)	9 (15.00%)
4.	Post harvesting(11)	Low	9 (15.00%)	18 (30.00%)
		Medium	42 (70.00%)	36 (60.00%)
		High	9 (15.00%)	6 (10.00%)
5.	Marketing(5)	Low	30 (50.00%)	9 (15.00%)
		Medium	30 (50.00%)	45 (75.00%)
		High	-	6 (10.00%)

Table 2. Inter-gender knowledge index of the respondents in *Bt* cotton production technology n = 120

Aspect	Knowledge index					
	Female (60)			Male (60)		
	O.S	Per cent	Rank	O.S	Per cent	Rank
Pre-production(15)	590	65.00	III	750	83.33	I
Production(14)	550	65.47	II	756	71.42	III
Plant protection(33)	1100	55.55	IV	1300	65.65	V
Post harvesting(11)	500	75.75	I	465	70.45	IV
Marketing(5)	100	33.33	V	240	80.00	II

O.S = Obtained score % = Percentage

findings of the study are in conformity with the findings of Gupta and Manhas (2014) and Bharti (2021).

3. Difference in inter gender knowledge of the respondents in *Bt* cotton production technology :

To find out the difference between Inter gender knowledge of female and male respondents student 't' test was applied. Data presented in Table 3 indicated that a significant difference was observed in inter gender knowledge of female and male respondents in aspects of pre production, production plant protection and post harvesting. However, difference in knowledge mean score was found highest for post harvesting (m.s= 6.35) followed by plant protection (m.s = 5.40) and pre-production (m.s = 4.78), respectively. All computed 't' values were significant at 0.05 per cent level of significance.

CONCLUSION

In nutshell the study revealed that cotton is one of the important cash crops where both female and male farmers are extensively involved in various activities. The present study concluded that Female respondents had medium level of knowledge irrespective of cotton production aspects and it was found medium level in production (70%), pre production (60%) and plant protection 50 per cent, respectively. Whereas, knowledge level was found in medium to high category by male respondents in pre-production and production activities. The study further depict that inter gender knowledge index was found highest for post harvesting (75.75%) by female respondents whereas it was observed highest for marketing 85.35 per cent and pre-production 83.33 per cent by male respondents.

Table 3. Difference in inter gender knowledge of the respondents in *Bt* cotton production technology n = 120

Aspect	Mean score		Difference	't' value
	Female (60)	Male (60)		
Pre production	15.25	20.03	4.78	7.37*
Production	18.98	21.23	2.25	3.90*
Plant protection	23.01	28.41	5.40	9.09*
Post harvesting	20.55	14.20	6.35	1.88*
Marketing	5.81	7.76	1.95	1.16

*Significant at 0.05 % level of significance

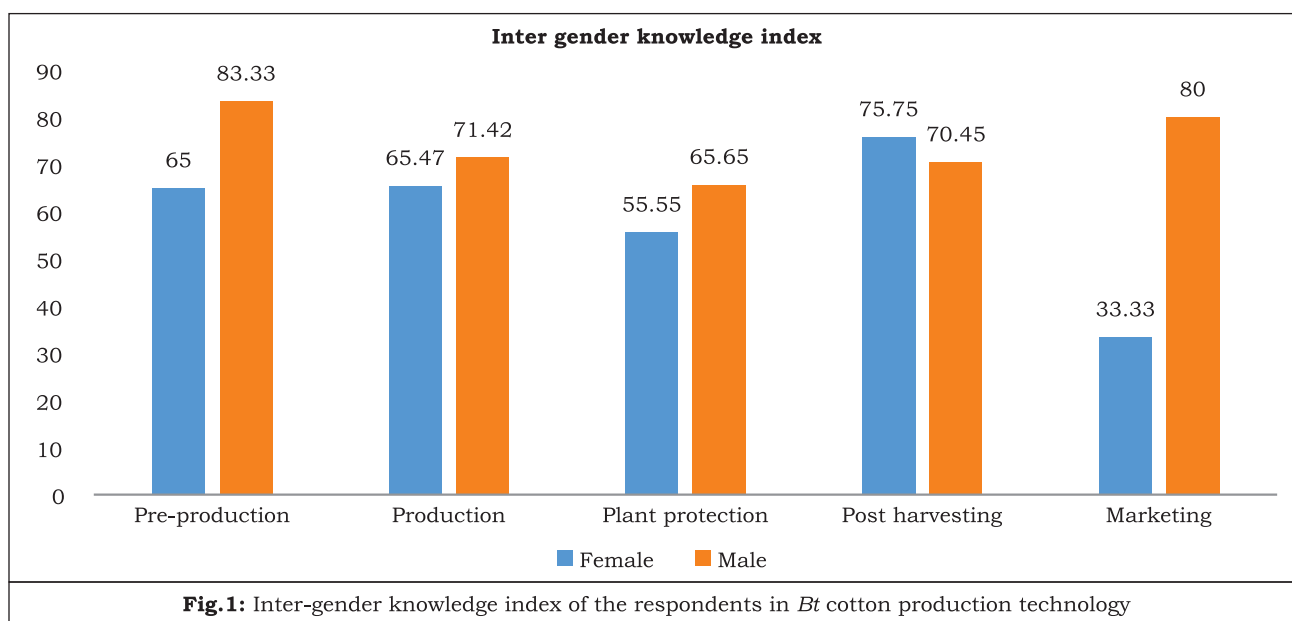


Fig. 1: Inter-gender knowledge index of the respondents in *Bt* cotton production technology

A significant difference was observed in inter gender knowledge of female and male respondents regarding plant protection, pre production, production and post harvesting respectively at 0.05 per cent level of significance.

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