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Knowledge and attitude of women on cotton production in Hisar

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Abstract : India is the largest producer of cotton globally. It is a crop that holds significant importance for the Indian economy and the livelihood of the Indian cotton farmers. After agriculture, the cotton textiles sector employs the second largest number of people in the nation. It also supports the livelihoods of an estimated 6.5 million cotton growers and has a sizable export market. Moreover, majorly women are strongly involved in smallholder cotton cultivation and the role of women in cotton is at picking stage mainly. The awareness and knowledge required making cotton production inclusive for women farmers and as co farmers is the need of the hour. Cotton is grown mainly in Hisar, Sirsa, Fatehabad, Jind and Bhiwani districts in Haryana. The study was an attempt to get the response regarding knowledge and attitude of respondents towards cotton production in Dhansu village of Hisar district, Haryana. A total of 30 respondents were selected by using random sampling technique. Education of respondents indicated that 63.33 per cent respondents were primary educated. The study revealed that 50 per cent respondents had high knowledge on cotton production.

Keywords: Attitude, cotton, cotton pickers, knowledge, production

Majority of the cotton production comes from ten major cotton growing states, which are grouped into three diverse agro ecological zones, as under:- i) Northern zone - Punjab, Haryana and Rajasthan ii) Central zone - Gujarat, Maharashtra and Madhya Pradesh iii) Southern zone - Telangana, Andhra Pradesh, Karnataka and Tamilnadu. Cotton has a very important role as a cash crop which also provides raw materials to the textile industries in India (Kranthi and Stone, 2020). In India, more than 11.7 million hectares of cotton are grown, compared to 31.2 million hectares worldwide. In India, the cotton sector supports the livelihoods of around 60 million people. The entire amount of cotton produced in India in 2021–2022 was 34.1 million bales (bales of 170 kg each). India exported cotton to more than 159 nations worldwide in 2021–2022. Between April 2021 and February 2022, India's top cotton importers were Bangladesh, China, and Vietnam. The three countries together accounted for 60 per cent of all exports from India. The export of cotton and cotton yarn from India has continued despite the COVID 19 outbreak which stated by India Brand Equity Foundation (Nov, 2022). The majority of the cotton farmed in the state is grown in irrigated areas in districts like Fatehabad, Bhiwani, Jind, and Sirsa, which together produce 94 per cent of the cotton used in clothing.

Currently, the production, marketing, processing, and export of cotton provide a living for close to 60 million people in India. Cotton is, thus, an important fiber and cash crop in India, contributing significantly to both agricultural livelihoods and the industrial economy of the country. On the other hand, in cotton cultivation women are a key stakeholder as they comprise the largest percentage of the workforce. In India, women cotton farmers perform 90 per cent of the picking and 70 per cent of the seeding labour, according to the International Trade Centre (2021). Women farmers have a direct impact on the quantity and quality of cotton produced due to the importance of the production related duties that they conduct.

The quality of cotton is dependent on how it's planted, grown and harvested. Improper

harvesting or incorrect post harvesting storage can decrease the value of the cotton, making it unusable or unsuitable for dyeing. The availability and desirability of each grade is a major pricing factor on the demand side. Women are heavily involved in the labour intensive work of sowing, weeding and harvesting, and when men migrate away for other work, they carry on farming while also taking care of a household and providing for their family. Women are a crucial but frequently ignored in global cotton production. In many growing communities, women were actively involved in performing activities like sowing, weeding, picking and harvesting that determine the quantity, quality, and sustain ability of cotton farming. Men are seen as the farmers because they play a more visible part in crop management and financial activities including taking the crop to market and buying seeds from nearby merchants. However, the majority of the daily labour, such as seedling, flowering, watering, and crop picking, is actually done by women. Due to patriarchal traditions in India's rural communities, women are not only a minority of the small holders they frequently aren't allowed to participate in the training that their male counterparts do. Women in the workforce frequently work for no pay and with limited rights. Due to the prevalent cultural belief that land is passed down through the sons, men continue to hold complete ownership of agricultural land. It is uncommon for women to own land, even in India, despite recent changes in the legislation that favour women. As per a study conducted by IDH and Sattva in Maharashtra in 2018; 88.0 per cent of stubble picking, 89 per cent of sowing, 84 per cent of weeding, 74 per cent of fertilizer application and 94 per cent of the picking are done by women. These tasks are typically done manually which makes them highly drudgery prone. Keeping all these facts in view the study has been designed to explore gender quality in cotton production and knowledge and attitude of respondents towards cotton production.

The study was conducted in Dhansu village of Hisar district. Thirty women were selected randomly who were involved in cotton production. Primary data were collected through interviews and questionnaires, as well as secondary data from published literature. This study has been intended to investigate majorly knowledge, attitude and specific aspects of cotton production, such as the cropping pattern, natural calamities and sources of irrigation or pest management strategies.

The data in Table 1. described the personal profile of the respondents including age, caste, family type and family size.

Table1: Personal profile of the respondents

Sr. No.	Variables and categories	Frequency	Percentage
1.	**Age(Years)**	**n=30**	
	20 – 39	16	53.3
	40– 59 years	14	46.7
	Above 60	-	
2.	**Caste**		
	Scheduled Caste/ Scheduled Tribe	2	6.7
	BC/OBC	18	60.0
	General	10	33.3
3.	**Family type**		
	Nuclear family	8	26.7
	Joint family	22	73.3

It was revealed from the data that majority of the respondents 53.3 per cent belonged to the age group of 20 - 39 years of age whereas 46.7 per cent belonged to the age group of 40 – 59 years.

Caste: Majority of the respondents 60 per cent belonged to backward class/other backward class whereas 33.33 per cent of respondents belonged to general and only 6.7 per cent belonged to scheduled caste respectively. Similar study was reported by Rani (2016), Geeta (2010) and Yadav (2013) who disclosed that most of the respondents belonged to younger age group and OBC.

Family type: Data indicated that majority 73.3 per cent of the respondent's belonged to Joint families while 26.7 per cent of the respondents belonged to nuclear family. Similar results were reported by Ruwali (2019) who reported that the traditional form of family in India is joint type and due to industrialization, urbanization and modernization the family structure is changing from joint to nuclear.

Table 2. described the Socio economic profile of the respondents.

It was corroborated from the data that 63.3 per cent respondents were up to primary educated followed by 23.3 per cent were educated up to secondary whereas 13.3 per cent were illiterate.

Occupation: Cent per cent of the respondents had farming as their main occupation.

Land holding: Majority of the respondents 76.7 per cent had land holding between 1-2 hectare and 23.3 per cent had land holding between 2- 4 hectare.

Cropping pattern: Majority of the

Table 2: Socio-economic profile of respondent n=30

Sr. No.	Variables and categories		Frequency	Percentage
1.	**Educational Status**			
	Illiterate		4	13.3
	Primary education		19	63.3
	Secondary education		7	23.3
2.	**Occupation**			
	Farming		30	100.0
3.	**Land holding**			
	Small	1.00 – 2.00 hectare	23	76.7
	Medium	2.00- 4.00 hectare	7	23.3
	Large	>4.00 hectare	-	-
4.	**Cropping pattern**			
	Monoculture		15	50.0
	Crop rotation with (bajra/Guar/moong)		15	50.0
5.	**Varieties grown**			
	Bt Cotton		20	66.7
	Desi cotton		10	33.3
6.	**Natural Calamities faced during last three year**			
	Extreme temperature		13	43.3
	Untimely rainfall		16	53.3
7.	**Sources of irrigation**			
	Canal		10	33.3
	Tube well		20	66.7
	Rainfed		-	-

Table 3: Major decision making done by respondents for cotton management n=30

Categories	Male		Female		Both equally		Mostly men with some support from women	
	f	(%)	f	(%)	f	(%)	f	(%)
Agriculture related activities	17	56.7	1	3.3	12	40.0	-	
Access to resources	18	60.0	3	10.0	7	23.3	2	6.7
Community level decision (involvement in village or community meetings, discussions on resource management)	21	70.0	5	16.7	4	13.3		
Marketing	26	86.7	1	3.3	2	6.7	1	3.3
Storage	6	20.0	-	-	16	53.3	8	26.7
Property	15	50.0	8	26.7	7	23.3	-	-
Purchasing power	27	90.0	-	-	3	10.0	-	-

respondents 50 per cent had monoculture pattern whereas 50 per cent of respondents had crop rotation with (*bajra*/ *Guar*/ *moong*) pattern.

Varieties grown: Majority of the respondents 66.7 per cent grow *Bt* cotton and rest 33.3 per cent of the respondents grow Desi cotton.

The data in Table 3. indicated the major decision making for cotton management. The findings showed that 90 per cent of males and 10 per cent of females had the power of purchasing followed by 86.7 per cent of males, 6.7 per cent both equally, 3.3 per cent females and mostly men with some support from women took decision regarding marketing of cotton crop. On the other hand 70 per cent of males, 16.7 per cent of females and 13.3 per cent both equally took community level decisions (involvement in village or community meetings, discussions on resource management), whereas 60 per cent of males, 23.3 per cent both equally, 10 per cent of females and rest 6.7 per cent mostly men with some support from women took decision regarding access to resources.

Furthermore data revealed about the agriculture related activities, majority 56.7 per cent of males, 40 per cent both equally and 3.3 per cent of females took decision regarding agriculture related activities, property decisions were made by 50 per cent of males, 26.7 per cent of females and 23.3 per cent of both equally. As far as the storage of cotton crop was concerned decision was taken majorly by 20.0 per cent of males, 53.3 per cent both equally and 26.7 per cent mostly men with some support from women.

Natural calamities faced during last three years: Majority 43.3 per cent of the

Table 4: Communication profile of the respondent

	Information Source Utilization	Frequencyn = 30	Percentage
a)	**Mass media exposure***		
	Low(5 - 7)	16	53.3
	Medium(8 - 10)	11	36.7
	High(11 - 13)	3	10.0
b)	**Usage of Digital Technology****		
	Low(4 - 6)	5	16.7
	Medium(7 - 9)	21	70.0
	High(10 - 12)	4	13.3

*Mass Media exposure (Radio, TV viewing, Films, News paper, Leaflets/pamphlets/handouts)
**Usage of Digital technology (Whats App, Face book, YouTube, Telegram)

respondents faced extreme temperature during last three years followed by 53.3 per cent of the respondents faced untimely rainfall. Zhao *et al.*, (2005) found that cotton plants exposed to a 36/28°C day/night growth temperature regime retained approximately 70 per cent fewer bolls than plants grown under a 30/22°C day/night temperature regime.

Sources of irrigation: Majority 66.7 per cent of the respondents used tube well as source of irrigation whereas 33.3 per cent of the respondents used canal as source of irrigation.

Table 4. revealed about the mass media exposure that majority of the respondents 53.3 per cent had low utilization which was followed by 36.7 per cent had medium utilization and only 10.0 per cent had high utilization.

Data regarding media usage indicated that 70 per cent respondents had medium level media usage of digital technology followed by 16.7 per cent had low usage and 13.3 per cent of respondents had high level usage of digital technology (Whats app, Face book, YouTube in the form of watching movies, shopping and sharing messages). The findings were also supported by Mishra *et al.*, (2022) who revealed that majority of farmers 69 per cent belonged to medium category with respect to overall social media use.

a) Risk proneness

Table 5 revealed that in village Dhansu, majority 93.3 per cent of the respondents agreed that the market risk is very high in terms of prices and price fluctuation followed by 43.3 per cent of the respondents agreed that a farmer should prefer to take more of a chance on generating a large profit than to settle for a smaller but riskier profit and farmers taking the risk to switch to commercial agriculture is worth it and 40 per cent of the respondents accepted that a farmer who is more risk-tolerant than the average farmer typically has better financial results.

On the other hand, data found from the disagreement that majority 60 per cent of the respondents disapproved that that a farmer who is more risk-tolerant than the average farmer typically has better financial results followed by 56.7 per cent of the respondents disagreed with a

Table 5: Psychological profile of respondents n=30

	Agree	%	Disagree	%	
	i) Risk proneness	f	A (%)	f	D (%)
1.	A farmer should prefer to take more of a chance on generating a large profit than to settle for a smaller but riskier profit	13	43.3	17	56.7
2.	A farmer who is more risk-tolerant than the average farmer typically has better financial results	12	40.0	18	60.0
3.	Market risk is very high in terms of prices and price fluctuation	28	93.3	2	6.7
4.	Farmers taking the risk to switch to commercial agriculture is worth it	13	43.3	17	56.7
	ii) Achievement motivation				
1.	A farmer shouldn't be reluctant to adopt novel techniques	21	70.0	9	30.0
2.	A most successful farmer is the one who is persistent	17	56.6	13	43.4
3.	A farmer should be adaptable	14	46.7	16	53.3
4.	A farmer should be self-assured and motivated to succeed	21	70.0	9	30.0
5.	A farmer should feel pride in productivity	26	86.7	4	13.3
	iii) Aspiration of farmers				
1.	Low cost input	29	96.7	1	3.3
2.	Loan	6	20.0	24	80.0
3.	Subsidies	30	100.0	-	-
4.	Incentives for loss	30	100.0	-	-
5.	Timely information	30	100.0	-	-

farmer should prefer to take more of a chance on generating a large profit than to settle for a smaller but riskier profit and farmers taking the risk to switch to commercial agriculture is worth it and only 6.7 per cent of the respondents disagreed with market risk is very high in terms of prices and price fluctuation.

b) Achievement motivation

Data found from achievement motivation, majority 86.7 per cent of the respondents had high achievement motivation in terms of a farmer should feel pride in productivity followed by a farmer shouldn't be reluctant to adopt novel techniques & a farmer should be self-assured and motivated to succeed with 70 per cent, a most successful farmer is the one who is persistent with 56.6 per cent and rest 46.7 per cent respondents had achievement motivation in terms of a farmer should be adaptable.

Furthermore data also found that from the disagreement in achievement motivation that majority 53.3 per cent of the respondents disapproved that a farmer should be adaptable followed by a most successful farmer is the one who is persistent with 43.4 per cent, a farmer shouldn't be reluctant to adopt novel techniques & a farmer should be self-assured and motivated to succeed with 30 per cent and 13.3 per cent of the respondents condemned that a farmer should feel pride in productivity.

c) Aspirations of the farmer

Data indicated that majority of the respondents 100 per cent had high aspirations with related to subsidies, incentives for loss & timely information followed by low cost input with 96.7 and loan with 20.

Further data elucidated that 80 per cent of respondents disapproved with loan and only 3.3 per cent of the respondents disagreed with low cost input.

i) *Procurement of subsidies/loan for agriculture*

Table 6. highlighted that majority of the respondents 63.3 per cent were procuring subsidies/loans for agricultural equipment followed by 56.7 per cent of the respondents were procuring loans for inputs (Urea, DAP) and power.

Further data illuminated that majority 43.3 per cent of the respondents were not procuring subsidies/loans for inputs (Urea, DAP) and power followed by 36.7 per cent of the respondents were not procuring loans for agricultural equipment.

ii) *Availability of infrastructural facility for storage*

Data depicted that majority of the respondents 66.7 per cent stored their produce at home followed by 30 per cent of respondents stored their produce at mandi.

Furthermore data expounded about the disagreement of availability of infrastructural facility for storage that majority 70 per cent of the respondents were not stored their produce at mandi followed by 33.3 per cent of the respondents

Table 6: Pertaining subsidies/loans and infrastructural facility for storage by respondents

		Agree	(%)	Disagree	(%)
i.	**Procurement of subsidies/loans for agriculture**	f	A%	f	D%
1.	Inputs (Urea, DAP)	17	56.7	13	43.3
2.	Agricultural equipment	19	63.3	11	36.7
3.	Power (Tube well, solar subsidy)	17	56.7	13	43.3
ii.	**Availability of infrastructural facility for storage**				
1.	Home	20	66.7	10	33.3
2.	Mandi	9	30.0	21	70.0
3.	Broken sheds	-	-		

Table 7: Training/Awareness Programmes on Cotton Production n = 30

		Yes	(%)	No	(%)
1.	Training on cotton production	-	-	30	100.0

Table 8: Knowledge of respondents on cotton production n=30

S. No.	Statements	Correct		Incorrect		TWS	INDEX	RANK
		f	(%)	f	(%)			
1.	The best period to sow first fortnight of April to end of May	21	70.0	9	30.0	51	85.0	V
2.	Selection process for seeds (high yielding or disease resistant)	19	63.3	10	33.3	48	80.0	VII
3.	Plants should be spaced 45/60 cm apart	25	83.3	5	16.7	55	91.7	III
4.	Line to line spacing should be minimum 67.7/100 cm	23	76.7	7	23.3	53	88.3	IV
5.	The attack of pest in the area *i.e.* whitefly	6	20.0	24	80.0	36	60.0	IX
6.	For pest management, chemical measures should be used.	19	63.3	11	36.7	49	81.7	VI
7.	Use of bio pesticides *i.e.* Neem based products	28	6.7	2	6.7	58	96.7	I
8.	Time to pick cotton should be between 150 and 170 days	25	83.3	5	16.7	55	91.7	III
9.	Picking needs to be done more frequently	19	63.3	11	36.7	49	81.7	VI
10.	Stopped irrigation after the opening of one-third of bolls	15	50.0	15	50.0	45	75.0	VIII
11.	Do you know about the cotton picking bag	26	86.7	4	13.3	56	93.3	II

Overall knowledge of respondents on cotton production

	Categories	Frequency	(%)
1.	Low (13 - 15)	3	10.0
2.	Medium (16 - 17)	11	36.7
3.	High (18 - 20)	15	50.0

were not stored their produce at home.

Table 7. revealed that cent per cent of the respondents were not attend training/awareness programmes on cotton production

Table 8. revealed about the overall knowledge of respondents which highlighted that majority 50 per cent respondents had high knowledge on cotton production whereas 36.7 per cent respondents had medium knowledge on cotton production followed by 10 per cent respondents had low knowledge on cotton production.

The Table 9. shows the attitude of women regarding cotton production. The attitude was taken on three point continuum with range as agree, neutral and disagree attitude. It was found that regarding the attitude, respondents had positive attitude (Rank =1, WMS = 3) for women should participate in deciding purchase of property, about education, marriage of children, followed by (Rank = 2, WMS = 2.93) for women should take part in making decisions about how to handle the household's finances whereas (Rank=3, WMS = 2.73) for women are not interested in mechanization of cotton harvest as they will not get regular cash and also school, near hospital will remain open during cotton season, (Rank=4 WMS = 2.7) for women are capable of handling the production costs of cotton,(Rank=5, WMS = 2.53) for women should take part in selecting the seeds to plant, (Rank=6, WMS = 2.5) for women can harvest cotton, but they cannot carry it to markets, (Rank = 7, WMS = 2.23) for women are capable of handling the

Table 9: Attitude of the respondents regarding cotton production n=30

S. No.	Statements	Agree	Neutral	Disagree	TMS	WMS	Rank
1.	Women can harvest cotton, but they cannot carry it to markets	21	3	6	75	2.5	VI
2.	Men can clean the house and provide meals	4	11	15	49	1.6	VIII
3.	Women are capable of handling the production costs of cotton	16	5	9	67	2.23	VII
4.	Women should take part in selecting the seeds to plant	25	3	2	83	2.7	IV
5.	Women are not able to deciding the quantity of fertilizer to use and when to use it in cotton	22	1	7	75	1.5	IX
6.	Women can operate the tractor or bullock wagon, if necessary	2	4	24	38	1.26	X
7.	Women cannot decide quantity of insecticide to use in cotton	21	3	6	45	1.5	IX
8.	Women should take part in making decisions about how to handle the household's finances	29	-	1	88	2.93	II
9.	Only men should take up sales and marketing for cotton	22	2	6	76	2.53	V
10.	Women should participate in decide purchase of property, about education, marriage of children	30	-	-	90	3.0	I
11.	Women are not interested in mechanization of cotton harvest as they will not get regular cash and also school, near hospital will remain open during cotton season	22	8	-	82	2.73	III

production costs of cotton, whereas respondents had neutral attitude (Rank = 8, WMS = 1.6) for man can clean the house and provide meals, (Rank = 9, WMS = 1.5) for women are not able to decide the quantity of fertilizer to use and when to use it in cotton and women cannot decide quantity of insecticide to use in cotton, (Rank=10, WMS = 1. 26) for women can operate the tractor or bullock wagon, if necessary and none of the respondents disagreed for any statement.

CONCLUSION

From study, it can be deduced that most of the respondents belonged to the age group of 20-39 years, female respondents, backward class, joint family, educated up to primary level, low mass media exposure, marginal farmers, not member of any organization and with no extension contacts. Majority of the respondents had high knowledge level. In overall, it has found that first rank is given to the best use of bio-pesticides i.e. Neem based products followed by second rank is given to know about the cotton picking bag which index value is (96.7 and 93.3). Using any type of precautionary measure during cotton picking is very less in the study area. This could be due to low literacy, lack of awareness & training. Also the government or extension department may provide protective masks/clothing/cotton picking bag at highly subsidized prices, doing so it would reduce health problems of cotton picker.

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