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Study on social dynamics of cotton production in Karnataka state

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ABSTRACT: India is the third largest producer of cotton in the world. Area under cotton is around 9.50 million ha contributing about 29 per cent in world share. Leasing of land was observed only in case of seasonal irrigated lands *i.e.,* 0.44 ha. Whereas, land taken on lease was observed in irrigated land. The average land taken on lease was 2.52 ha. It is clear from the results that more migration is observed in case of males (22%) compared to whole family migration (4%) in case of small farmers. Whereas, only 10 per cent of the big farmers migrated and only two families have migrated. Only seasonal migration is observed in the study area because of distress condition like drought and crop failure. Market driven mono cropping has damaged the fertility of the soil and created ecological imbalances.

Key words: Cropping pattern, drought, ecological imbalances, seasonal migration

Cotton is an important commercial crop playing a key role in economic and social affairs of the world. Cotton (*Gossypium* spp), 'White Gold' or the 'King of Fibres' is closely linked to human civilization itself. Archeologists have discovered cotton fibres of more than 4000 years old in coastal Peru and at Mohenjodaro in the Indus valley. In India, cotton industry ranks first in the agro based industry and engages about 4 to 5 million people.

India is the third largest producer of cotton in the world with production of around 3.95 million MT. Area under cotton is around 9.50 million hectares contributing about 29 per cent in world share. Despite having the largest area under cotton in the world, India ranks third in world output of cotton due to its low average yield of 415 kgs against a world average of 723 kg/ha. Karnataka is one of the nine major cotton growing states in the country. Off late the yield levels in cotton crop is decreasing and affected drastically due to various reasons, such as drought, crop failure, price fluctuation, severe attack of pest and diseases. The cotton growers were under severe loss and were debt trap. In this context, an investigation is undertaken in distress areas (highly suicide areas) of north Karnataka to study the social dynamics of cotton production.

MATERIALS AND METHODS

Selection of the study area and sampling frame: Keeping in view objectives of the investigation purposive sampling has been adopted for the selection of districts and taluks and villages based on the criteria of highest area under cotton cultivation and more number of farmers' suicides in the area.

From each district, two taluks were selected *viz.,* from Haveri district, Haveri and Shiggoan taluks and from Bellary district, Bellary and Siraguppa taluks were selected for the investigation. From each taluk, 5 villages were selected. From each village, 10 farmers were selected, 100 farmers each from selected district were selected at random, in view of spread of cotton growers in different villages. Thus, the total sample size constituted for the study was 200 respondents.

Research design: Exploratory design of social research was used for the study.

Collection of data: Data was collected from the respondents through personal interview with the help of structured interview schedule. In addition, the secondary sources were utilized to obtain some other relevant data.

Analysis of data: The collected data was tabulated, scored and analyzed by applying appropriate statistical methods *viz.,* frequency, percentage, mean, standard deviation were applied.

The data with respect to all the objectives of the study were analysed for two categories of respondents *i.e.,* farmer having <2 ha and (small farmers) and farmers having 2 to 4 ha of land (big farmers).

RESULTS AND DISCUSSION

Social dynamics of cotton production: Social dynamics is the ability of the society to react to inner and outer changes and deals with its regulation mechanisms. In the present study, social dynamics of cotton production in distress area (suicide prone) is studied. The sub-dimensions considered were land holding pattern, cropping pattern, input use and expenditure behaviour, labour process, migration, gender issues, decision making process and strategic behaviour.

Land holding pattern: The results on distribution of respondents on land holding pattern clearly indicated that average rainfed land owned by the respondent was 0.60 ha, irrigated land (seasonal) was 1.88 ha and annual irrigated land was 0.40 ha. Leasing of land was observed only in case of seasonal irrigated lands *i.e.,* 0.44 ha. Whereas, land taken on lease was observed in irrigated land. The average land taken on lease was 2.52 ha (Table 1).

Cropping pattern: Main crop of the study area is cotton. The important crops grown during kharif season were cotton, paddy, chilli, maize and jowar, *Bt* cotton was grown in an area of 1.31 ha average with production of 16.17 quintals. The production was 12.35/q ha. Average rate received by the farmers was Rs 2289.50/q. With regard to non *Bt* cotton, the area was 0.12 ha with production of 1.11 q/ha.

In *rabi* season, the crops grown were paddy, wheat, safflower, jowar. Paddy stands first with respect to production and productivity, 53.81 q and 51.25 q/ha, respectively (Table 2).

Input use and expenditure behavior: This dimension is quantified by in depth analysis of various sub dimensions *viz.,* input infrastructure, credit infrastructure, information infrastructure, transport infrastructure and post-harvest infrastructure. The results of Table 3 indicate the availability of inputs.

The inputs *viz.,* good quality seeds fertilizer sprayer dusters and farm machines were adequately available. Some of the inputs such as labour weedicides insecticides, credit and electricity were inadequately available.

With respect to credit infrastructure, cooperative society and money lenders were

Table 1. Land holding pattern of the respondents under study

Sl. No.	Type of Land	Total owned land (ha) (Average)	Own land (ha) (Average)		Average land on lease (ha)
			Self cultivating	Lease to others	
1	Rainfed	0.60	1.00	-	0.50
2	Irrigated seasonal)	1.88	1.42	0.44	1.52
3	Irrigated (Annual)	0.40	0.02	-	0.50
	Total	**2.88**	**2.44**	**0.44**	**2.52**

Table 2. Cropping pattern of the respondents under study

Sl. No.	Crop sown	Variety	Average area (ha)			Total production (q)	Productivity (kg/ ha)	Av. rate received Rs/q	Total income (Rs)
			Irrigated	Rainfed	**Total**				
A.	***Kharif***								
1.	*Bt* cotton	Brahma	1.10	0.21	**1.31**	16.17	1235	2289.50	37040.68
2	Non *Bt* cotton	Brahma	0.12	-	**0.12**	1.11	929	2310.00	2575.18
3	Paddy	BPT	0.72	-	**0.72**	39.60	5500	570.60	22595.76
4	Chilli	Guntur	0.50	-	**0.50**	6.60	1320	3150.00	20790
5	Maize	Vijay	0.23	-	**0.23**	4.60	2000	600.00	2760
	Jowar								
	Other								
B.	***Rabi***								
1.	Paddy	BPT	1.05	-	**1.05**	53.81	5125	645.00	34709.06
2	Wheat	Local	-	0.14	**0.14**	1.54	1100	900.00	1386.00
3	Safflower	KBSH 1		0.78	**0.78**	5.85	750	1850.00	10822.50
4	Jowar	M35 1	-	0.91	**0.91**	9.19	1010	800.00	7352.80
5	Other								

adequately available whereas nationalized banks and land development banks were inadequate available.

With respect to information infrastructure, radio, TV mobile post office, schools were adequately available. Some of the inputs such as phone and computer were not available to the respondents.

Availability of transport infrastructure indicated *pucca* roads, government/ST Bus and private vehicle were adequately available.

Among post harvest infrastructure, godowns/warehouses, cold storage and good market system were not available and only 10 respondents said good market system was adequately available.

Inadequate use of some of the inputs indicates the contribution towards negative social dynamics. Especially, post harvest infrastructure inputs are not available in the study area which contributes a lot of distress condition, which results in lower yield and to standard of living and indebtedness.

Labour process: The persual of the data in Table 4 indicates labour availability and cost in the study area. Both family labour (131 Nos.) and hired labour (188 Nos.) availability was inadequate. Labour cost was too high was indicated by 121 cotton growers and 79 respondents told that labour cost was affordable.

Migration: It is clear from the results that more migration is observed in case of males (22%) compared to whole family migration (4%) in case of small farmers. Whereas, only 10 per cent of the big farmers migrated and only two families have migrated. Only seasonal migration is observed in the study area because of distress condition like drought and crop failure (Table 5).

Gender issues: The results depicted in Table 6 revealed that the gender issues such as equal treatment to male and female (110 ´ 105), equal rearing in male and female child, no restriction to women to talk freely with others were strongly agreed by the cotton growers. This certainly indicates the importance given to women folk for their empowerment.

Level of gender focus : The data in Table 7 depicts the distribution of respondents

Table 3. Input use and expenditure behaviour of the respondents under study

Sl. No.	Facilities	Respondents (%)		
		Ade-quate	In-adequate	Not available
A.	**Input infrastructure**			
1.	Good quality seed	99.00	1.00	-
2	Fertilizers	97.5	2.5	-
3	Biofertilizers	43.5	56.5	-
4	Insecticides	24	76	-
5	Weedicides	25	75	-
6	Labours	21	79	-
7	Farm implements	46	54	-
8	Farm machinery	60.5	39.5	-
9	Sprayer and Dusters	70	30	-
10	Irrigation	33	67	-
11	Credit	34	66	-
12	Electricity for operation	15.5	84.5	-
13	Watershed development	13	87	-
B.	**Credit infrastructure**			
1	Co operative society	58	36.5	5.5
2	Land development bank	15.5	67.5	17.0
3	Nationalized bank	9.0	72.5	7.5
4	Money lender	93.5	3.5	-
C.	**Information infrastructure**			
1	Post office	93.5	1.5	5.0
2	Schools	57.0	43.0	-
3	Radio	97.5	2.5	-
4	Television	90.0	10.0	-
5	Library	50.0	41.0	9.0
6	Head quarter (V.E.W.)	24.0	51.0	25.0
7	PHC	5.0	10.0	85.0
8	News papers	25.0	25.0	50.0
9	Shetkari mandal	-	-	-
10	Computer (Internet)		10.0	90.0
11	Telephone	70.0	17.5	7.5
12	Mobile phone	90.0	5.0	5.0
D.	**Transport infrastructure**			
1	Pacca Road	0.0	10.0	90.0
2	Govt. Buses	70.0	17.5	7.5
3	Private vehicles	90.0	5.0	5.0
E.	**Post harvest infrastructure**			
1	Gowdowns/ Ware houses	-	5.0	95.0
2	Cold storage	-	-	100.0
3	Rural Agro based industries	-	-	-
4	Good market system	5.0	5.0	90.0

Table 4. Labour process of the respondents under study

Sl. No.	Particular	Number of respondents		
		Adequate	In-adequate	Not available
1	**Availability of labour**			
A	Family labour	33.0	65.5	1.5
B	Hired labour	6.0	94.0	0.0
C	Shared basis	2.5	5.0	92.5
2	**Labour cost**	Too high	Affordable	Low
	Response	60.5	39.5	0.0

according to the level of gender focus. Fourty per cent of the small farmers were in low gender category followed by high gender category (33%). Whereas, with respect to big farmers, 39 per cent of the respondents were belongs to high gender focus category.

Decision making process: The results revealed that almost all the respondents involved family member in decision making with respect to purchase of land purchase of house, construction of well. Self decision making was

Table 5. Migration made by the respondents under study

Migration Issues	Land less than 2 ha		Land 2 - 4 ha	
	Number	(%)	Number	(%)
Family Members				
Only males migrated	22	22	10	10
Whole family migrated	4	4	2	2
Occupation				
Labour	15	15	-	-
Caste occupation	-	-	-	-
Period of migration				
For a fortnight	-	-	-	-
For a month	-	-	-	-
For a season	22	22	10	10
Income received through migration				
Less than Rs. 5000	12	12	8	8
Rs. 5001 to Rs. 10000	14	14	4	4
Rs. 10001 to Rs. 15000	-	-	-	-
More than Rs. 15000	-	-	-	-

Table 6. Gender issues at the respondents under study

Gender Issues	Number of respondents	
	Agree	Disagree
Equal treatment	55.0	45.0
No partiality for education	55.5	44.5
Equal rearing	54.5	45.5
Equal involvement in family decision	45.0	55.0
Giving respect	44.5	55.5
Free access to avail freedom	32.5	67.5
No restriction to talk with others	53.5	46.5

observed in inputs for crop cultivation and household requirements (Table 8).

Strategic behaviour: Some of the statements indicating strategic behaviour such as collecting the information before taking decision, I fully aware of the consequences of my decision were strongly agreed by the cotton growers (Table 9).

Table 7. Level of gender focus by the respondents under study

Gender focus	Land less than 2 ha		Land 2 - 4 ha	
	Number	(%)	Number	(%)
Low (up to 33.33)	40	40	24	24
Medium (33.34 to 66.66)	27	27	27	27
High (66.67 and above)	33	33	39	39
Total	**100**	**100.00**	**100**	**100.00**

Mean :1.46SD : 0.45Mean : 1.50SD : 0.39

Table 8. Decision making process at the respondents under study

Sl. No.	Decisions	Number of respondents			
		My self	Involving family members	Neighbours	Relatives
1	Purchase of land	-	98.5	1.5	-
2	Purchase of house	-	97.5	2.5	-
3	Recreational instruments	11.5	86.5	2.0	-
4	Household requirements	55.0	43.0	-	2.0
5	Inputs for crop cultivation	63.0	37.0	-	-
6	Obtaining bank loans	43.0	57.0	-	-
7	Construction of well	2.5	91.0	5.0	1.5
8	Creating other irrigation sources	6.0	87.0	5.5	1.5
9	Others (specify)	-	7.5	-	92.5

Table 9. Itemwise strategic behaviour by the respondents under study

Sl. No.	Strategic Behaviour	Number of respondents				
		SA	A	UD	DA	SDA
1	I collect information before taking any decision	46.0	49.5	4.5	-	-
2	I fully aware about the consequences of my decisions	36.5	59.0	4.5	-	-
3	I consults others for major activities in the farming	26.5	66.0	7.5	-	-
4	I never afraid to involve myself in new risky jobs	7.5	58.0	30.0	4.5	-
5	I borne risk if I am confident over success	6.5	31.5	32.5	29.5	-
6	Whenever one get minimum income, one can invest even in the uncertain business	2.0	10.0	48.0	40.0	-
7	I don't bother about less income if the business is at low risk	2.0	14.0	36.5	48.5	0.5

Table 10. Levels of strategic behaviour by the respondents under study

Strategic behaviour	Land less than 2 ha		Land 2 - 4 ha	
	Number	(%)	Number	(%)
Low (upto 33.33)	41	41	39	39
Medium (33.34 to 66.66)	17	17	21	21
High (66.67 and above)	42	42	40	40
Total	**100**	**100**	**100**	**100**

Mean : 3.62SD : 0.46Mean : 3.56SD : 0.49

Levels of strategic behaviour of land holdings: The data in Table 10 depicts the distribution of respondents according to their levels of strategic behaviour. Fourty two per cent of small farmers were in high strategic behaviour category, whereas 40 per cent of big farmers were belongs to high strategic behaviour category.

CONCLUSION

It is clear from the results that more migration is observed in case of males (22%) compared to whole family migration (4%) in case of small farmers. Whereas, only 10 per cent of the big male farmers migrated. Only seasonal migration is observed in the study area because of distress condition like drought and crop failure. The gender issues such as equal treatment to male and female (110 ´ 105), equal rearing in male and female child (109 Nos.), no restriction to women to talk freely with others were strongly agreed by the cotton growers. This certainly indicates the importance given to women folk for their empowerment. Almost all the respondents involved family member in decision making with respect to purchase of land and purchase of house, construction of well. Self decision making was observed in inputs for crop cultivation and household requirements. Market driven mono cropping has damaged the fertility of the soil and created ecological imbalances. All these factors along with the usual social pressure have made many small and marginal farmers to throw up their hands. This process is intensifying during the last decade under the regime of liberalization and globalization.

REFERENCES

Anonymous, 2005. *"Karnataka at Glance- 2005-2006"*, Directorate of Economics and Statistics, Bangalore, pp 35-42

Anonymous, 2001. *"Report on Causes of Suicides in the State"* Submitted by the Department of Agricultural Marketing and Co-operation, University of Agricultural Sciences, Bangalore, pp 18-23

Anonymous, 2002. *"Farmers suicides in Karnataka, A Scientific Analysis"* (Veeresh Report of the Expert committee for study of Farmers' suicides), Government of Karnataka, Bangalore, pp 48-52

Deshpande, R.S and Nagesh Prabhu. 2005. Farmers' distress proof beyond question, *EPW*, **40** : 4663-65.

Deshpande, R.S. 2002. Suicide by farmers in Karnataka: Agrerian Distress and possible Alleviatory steps, *EPW*, **37**: 2601-10

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