

Comparative Economics of Major Cash Crops in Western Odisha the Evidence from Village Level Study

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Received: 2.08.2017 | Revised: 25.08.2017 | Accepted: 1.09.2017

ABSTRACT

Cotton is a part of our daily lives from the time, we dry our faces on a soft cotton towel in the morning till we slide between fresh cotton sheets at night. It has hundreds of uses. Cotton is vital textile raw material, has an important role in the industry and trade of both, own country and the world with various areas for usage. This paper focuses on the growth economics of cotton cultivation in western Odisha. Due to lack of technological interventions inputs were under utilized by the farmers in the study area. Hence, there is no single farmer found to use the recommended doses of inputs. Such imbalance nutrient use lead to loss of nutrient, improper growth and reduced the yield level as compared to the potential. Thus it is use uneconomic to use imbalance nutrients. The inputs used for the cotton was below the recommendation. In the economic point of view farmers should allocate their more land resources in the cultivation of cotton than Sugarcane in study area.

Key words: Economics, Cotton, Sugarcane, Major cash crops

INTRODUCTION

The performance agricultural sector influences the growth of Indian economy. Agriculture has been a way of life and continues to be the single most important livelihood of the masses. As far cash crops are concerned, cotton and sugarcane production are estimated to be a record 36.59 million tonnes bales and 350.02 million tonnes respectively in 2013-14 crop year. Sugarcane is the main sugar producing crop that contributes nearly 78.2%

to the total sugar pool at global level. It is the prime source of sugar in India, also the holding the prominent position as the commercial cash crops. It occupies 3.5% of the total cropped area in the country. Sugarcane can be grown in wide range of climates from warm tropical south to foot hills of Himalayas. Heavy soils with good drainage are preferred for sugarcane cultivation, though it grows well on medium and light textured soils with assured irrigation.

Cite this article: Rout, R.K., Behera, S., Das, L.K., Ranasingh, N., Behera, S. and Das, T., Comparative Economics of Major Cash Crops in Western Odisha the Evidence from Village Level Study, *Int. J. Pure App. Biosci.* 5(5): 1401-1405 (2017). doi: <http://dx.doi.org/10.18782/2320-7051.5810>

Cotton as king of fibres, usually referred as white gold and one of the important commercial crops, plays vital role in economic, political and social affairs of the world. Its natural fibres are the most important raw materials for “comfort Clothing” production. Cotton is the major cash crop of India accounts for 65% of the fibre used in the textile industries. The organized sector of Indian textile industry constitutes the largest single industrial segment in the country in terms of annual value of output and labour employed both directly & indirectly. Cotton, a semi-xerophyte, is grown in tropical & subtropical conditions.

MATERIALS AND METHODS

The study is based on primary data which is collected the sample growers by cost accounting method with help of specially designed schedules under Odisha state. The multi-stage stratified random sampling technique was adopted in the study. In the first stage two blocks namely Dharmagarh and Kalampur were selected randomly, in the second stage, 8 villages were randomly selected at the rate of 4 villages per block. This constituted 5 per cent of the total number of villages of two selected blocks. In the final stage, list of cotton and sugarcane farmers was prepared separately for both types of sample villages and 10 farm households from each of the 8 sample villages were selected randomly. Thus the sample size was 80 farm holdings. These borrower cultivators were further classified into four categories according to

their size of operational holdings. This names of the sample block and villages were furnished in Table-A

Table – A Name of the Sample Villages Blockwise

Darmagarh Block		Kalampur Block	
1.	Nandagaon	1.	Kalampur
2.	Tarapur	2.	Kadalichuan
3.	Malpada	3.	Bargaon
4.	Badabasuli	4.	Rajpur

Based on operational size of the holdings, the sample farmers were categorized in to marginal (< 1.00 ha.), small (1 to 2 ha.), medium (2 to 4 ha.) and large farmer (4 ha. and above). In all, the study covered 20 marginal, 29 small, 21, medium and 10 large farmers in both the regions. The primary data for year 2014-15 were considered for the study. The gaps in the use of levels of various inputs and outputs have been worked out. The use levels of various inputs and outputs obtained in the cultivation were estimated by simple tabular method of analysis with the help of means, averages and percentages.

RESULTS AND DISCUSSIONS

An analysis of basic characteristics of the sample farms is considered to be of significance as it provides relevant background information against which the analysis is to be attempted. The detailed structures of the sample farms according to farm size groups have been discussed.

Table 1: Size of Holding

Distribution of holding in different size groups of sample farms of blocks				
Size groups	Dharmagarh (Region-I)		Kalampur (Region-II)	
	Total No. of sample farms	Average size of operational holding (ha.).	Total No. of sample farms	Average size of operational holding (ha.).
I (below 1.00 ha)	9	0.96	11	0.93
II (1.01 to 2.00 ha)	14	1.68	15	1.74
III (2.01 to 4.00 ha.)	11	3.05	10	2.86
IV (4.00 and above)	6	7.15	4	7.08
Pooled	40	3.21	40	3.15

The average size of holding was estimated to 3.21 ha. for Dharmagarh (Region –I) and 3.15 ha. in Kalampur Block (Region-II) of the sample district. The operational size of holding of marginal, small, medium and large farmers are found to be 0.96, 1.68, 3.05 and 7.08 ha. as against 0.93, 1.74, 2.86 and 7.08 ha. respectively.

Table 2: Type of Ownership of Land

Distribution of own and leased in land in different size groups of sample farms (in hectares)												
Size groups	Dharmagarh (Region-I)						Kalampur (Region-II)					
	Avg. size operational holding		Own land		Leased in land		Avg. size of operational holding		Own land		Leased in land	
	(hectres)	(%)	(hectres)	(%)	(hectres)	(%)	(hectres)	(%)	(hectres)	(%)	(hectres)	(%)
I	0.96	100	0.81	84.38	0.15	15.63	0.93	100	0.76	81.72	0.17	18.28
II	1.68	100	1.46	86.90	0.22	13.10	1.74	100	1.48	85.06	0.26	14.94
III	3.05	100	2.94	96.39	0.11	3.61	2.86	100	2.63	91.96	0.23	8.04
IV	7.15	100	6.92	96.78	0.23	3.22	7.08	100	6.74	95.20	0.34	4.80
Pooled	3.21	100	3.03	94.47	0.18	5.53	3.15	100	2.90	92.07	0.25	7.93

(Figures in parenthesis are percentages)

Information relating to the land ownership are given in **Table 2**. It may be noted from the table that more than three-fourth of their total operational holdings accounted for owned land while the remaining were by way of leased in land on a share cropping basis. This clearly indicates that there is negligible extent of tenancy among the farmers in the area under study. On an average, the percentage of owned and leased in land worked out to 94.47 and 5.53 per cent in Dharmagarh as compared to 92.07 per cent and 7.93 per cent in Kalampur Block. And between size groups, the proportion of leased in land increased with

decrease in size of holding. This was mainly due to the fact that the marginal and small farmers were interested to make their units viable by making labour investments in their farms.

Extent of irrigation

Information relating to the area under irrigation are given in **Table 3**. Irrigation plays an important role in agricultural production. The nature of cropping pattern followed by the farms in a particular area largely depends upon the availability of irrigation facilities. The following table shows the extent of irrigation in different farm size groups.

Table 3: Distribution of area under irrigation in different size groups of sample farms

Size groups	Dharmagarh (Region-I)			Kalampur (Region-II)		
	Average size of operation holding (in ha)	Area under irrigation		Average size of operation holding (ha)	Area under irrigation	
		(in ha)	(In %)		(in ha)	(In %)
I	0.96	0.71	73.96	0.93	0.78	83.87
II	1.68	1.19	70.83	1.74	1.41	81.03
III	3.05	2.22	72.79	2.86	2.36	82.52
IV	7.15	5.43	75.94	7.08	5.69	80.37
Pooled	3.21	2.39	74.38	3.15	2.56	81.21

In case of Region-I, the average irrigated area for all farm size groups pooled together was 2.39 hectares and its proportion to total operated area was 74.38 per cent. And between size groups this proportion varied between 70.83 to 75.94 per cent. In case of Region-II, the average irrigated area for all farm size groups pooled together was 2.56 ha. And its proportion to total operated area was 81.21 per cent. And between size groups this proportion varied between 80.37 per cent to

83.87 per cent. The small and marginal farmers in the regions-I and marginal and medium farmers in the region-II seem to enjoy better irrigation facilities as compared to others farm size groups in the area under study.

Per hectare resources use: The quantities of various inputs used directly affect the cost of cultivation and therefore, utilization of inputs such as human labour, bullock labour seeds, manures, fertilizers etc. have studied in per

hectare physically and monetary terms, In order to get an idea as to whether there is any difference in inputs used in cultivation of major cash crops. The information regarding per hectare resources use is presented in **Table-4**.

Human labour: It can be seen from table that in sugarcane, the use human labour was

223.85 days per hectare, comprising 110.45 days in case of cotton.

Bullock labour: The per hectare use of bullock labour was highest in cotton than sugarcane in study area **Machine power:** The per hectare utilization of machine power was observed more (i.e 8.12 hrs) in case of sugarcane

Table 4: Per Hectare Resources Use Levels Of Major Cash Crops

Sl. No.	Particulars	Cotton	Sugarcane
1	Total Human labour(in days)	110.45	223.85
2	Bullock power (in pair days)	7.6	7.05
3	Machine power in hrs	7.48	8.12
4	Seed (in Kg)	1.86	562.59
5	Manures (Qtls)	8.14	7.52
6	Fertilizers (in Kg)		
	N	68.48	212.38
	P	39.58	98.54
	K	50.12	72.27

Manure:

The use of manure was 8.14 & 7.52 quintals per hectare in case of cotton and sugarcane respectively. The use of manure was not observed to be sufficient in all crops. The use of manure was found less in sugarcane.

Fertilizers:

In the case of sugarcane, the per hectare use of chemical fertilizers i.e. Nitrogen, Phosphorus and Potash was 212.38, 98.54 and 72.27 Kgs respectively. Whereas the per hectare use of N, P & K in case of cotton was 68.48Kg, 39.58 Kg

and 50.12 Kg respectively The per hectare use of nitrogen was found more in Sugarcane i.e. 212.38 kg.

Per hectare resource use gap in major cereals

The agricultural university and institutions recommended the input use for higher production of the crops. This differs from the actual use of inputs by the farmers. The per hectare resource use gap in different type of kharif cereals is presented in **Table – 5**

Table 5: Per Hectare Resources Use Gaps for Major Cash Crops

Sl. No.	Resources use	Recommended	Actual	Gap	%Gap
Cotton					
1	Seed(Kg)	10	10.45	-0.45	-4.50
2	Manures (Qtls)	50	38.82	11.18	22.36
3	Nitrogen (Kg)	80	68.48	11.52	14.40
4	Phosphorus(kg)	40	39.58	0.42	1.05
5	Potash (Kg)	40	50.12	-10.12	-25.30
6	Output(Kg)	1500	1205.15	294.85	19.66
Sugarcane					
1	Seed(Kg)	7400	7428.42	-28.42	-28.42
2	Manures (Qtls)	100	70.67	29.33	11.73
3	Nitrogen (Kg)	250	212.38	37.62	37.62
4	Phosphorus(kg)	100	98.54	1.46	2.43
5	Potash (Kg)	60	72.27	-12.27	-1.53
6	Output(Qtl.)	800	445.67	354.33	44.29

It is seen from the table that chemical fertilizers use was less than the recommended doses except potash in Sugarcane. The use of potash is not recommended by the universities till the use of potash was observed on the farmers field so this is the double loss on farmers side. The other inputs were under utilized by the farmers in the study area. Hence, there is no single farmer found to use the recommended doses of inputs. Such imbalance nutrient use lead to loss of nutrient, improper growth and reduced the yield level as compared to the potential. Thus it is use uneconomic to use imbalance nutrients.

Per hectare costs and returns

From the Table-6, per hectare gross income received was Rs.98047.40 and Rs. 45187.50 for Sugarcane and cotton respectively. The per hectare profit at cost 'C' was the highest (Rs, 40178.70) in case Sugarcane followed by cotton (Rs. 21441.34). The benefit cost ratio at cost 'C' was highest in case of cotton (1.90) followed by Sugarcane (1.69). The benefit cost ratio in both cash crops were observed more than one unity which indicates the cultivation of cashcrops is economical viable under study area.

Table 6: PER Hectare Costs, Returns, Gross Incom and B.C- Ratio For Major Cash Crops

Sl. No.	Particulars	Units	Cotton	Sugarcane
1	Total cost			
	a)Cost- A	Rs	20262.54	47926.66
	b)Cost-B	Rs.	22481.34	51253.21
	c)Cost-C	Rs.	23746.16	57868.70
2	Profit at			
	a)Cost- A	Rs.	24924.96	50120.74
	b)Cost-B	Rs.	22706.16	46794.19
	c)Cost-C	Rs.	21441.34	40178.70
3	Production	Qtls.	12.05	445.67
4	Gross income	Rs.	45187.50	98047.40
5	B:C-ratio at			
	a)Cost- A		2.23	2.05
	b)Cost-B		2.01	1.91
	c)Cost-C		1.90	1.69

CONCLUSION

The inputs used for the cotton was below the recommendation. In the economic point of view farmers should allocate their more land resources in the cultivation of cotton than Sugarcane in study area.

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