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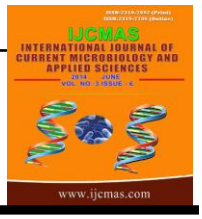

Original Research Article

Comparative Profitability Analysis of Sugarcane Cultivation with its Competing Crop Sequence in Samastipur District of Bihar-Micro Evidence

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A B S T R A C T

The focus of the present study was on comparative Economic evaluation of sugarcane with its competing crops system in Hasanpur block of Samastipur district. A sample size of 120 farmers was selected using random sampling method and data were elicited for the agriculture year 2009-10 through survey methods. It has been found that paddy and wheat was observed to be the main competing crop sequence with sugarcane on an average the cost of cultivation of sugarcane in study area Rs. 82,945.00 was found to be higher by 54.57% than the combined cost of cultivation of paddy and wheat of Rs. 37,675.0/ha on an average the net return of sugarcane, paddy and wheat against cost 'A' it was worked out to be Rs. 37832, Rs. 4646 and Rs. 9200 per hectare respectively. It was also observed that application of manures chemical fertilizer were found to be lower by 27 %, 33.33% and 17.65% and 17.65% than the recommended are items. The lower application of supply problem due to delay payment (3-4 years) of cane price to sugarcane growers, poor credit facilities, increased cost of inputs, as well as less development efforts by these factories. The government, policy makers and institutions would have to come forward with stable solution for sugarcane growers in the state. Therefore, it is advisable to follow the sugarcane farming comprises of paddy and wheat.

K e y w o r d s

Sugarcane; Comparative evaluation; competing crops; Bihar

Introduction

Sugarcane being, major commercial crop of the country, occupies 5.1 m/ha area. India stands first in term of sugarcane acreage in the world. Sugarcane production achieved a record of 361 million tonnes in 2011-12 after which it It is the second important cash crop in India, contributing direct and indirect employment of 45 million famers and large mass of skilled and unskilled workers are engaged in sugarcane cultivation, harvesting and ancillary activities.

Bihar was once reckoned as second largest sugarcane producing state but it has lost its traditional position to perinsular states. In Bihar sugarcane was cultivated in about 2.52 lakh hectare with a production of 143.65 lakh tonnes during 2010-11.

Sugarcane cultivated in almost district of Bihar. Further, West Champaran (46.57%), East Champaran (16.43%) Gopalganj (9.86%), Sitamarhi (5.56%), Muzaffarpur (3.08%), Begusarai (2.50%) and Samastipur (2.26%) are known as major districts which accounted for larger percentage of total area under sugarcane in the state sugarcane has dominated the farming systems in this region for a long time. Therefore to explore the possibility of raising farm production and farm income in this region, there is need to understand the comparative profitability analysis of sugarcane cultivation with its competing crop sequence. The present study was carried out with the following specific objectives include to find out cost of cultivation both the case of sugarcane and competing crops. To work out comparative profit/loss analysis in both the case. And also to study the adoption of recommended packages of practices for sugarcane by the different group of famers.

Materials and Methods

For the present study, Hasanpur block of Samastipur district of Northern Bihar was purposively selected. As it was one of the major sugarcane growing district in the state. Sugarcane was grown as a major field crop by majority of the farmers for selection of households different strata were drawn based on the prevailing farm enterprises.

The house holds of small (< 2ha) medium (2-4 ha) and large (> 4 ha) groups were selected random by for survey and six villages having maximum sugarcane area were selected for making a cluster and 20 farmers were chosen random from each village thus totaling the sample size of 120.

The cost concept (CACP) were used in estimating costs and returns cost concepts: cost A" It includes planting cost, manures and fertilizers, post planting expenses, harvesting and transportation and Interest on working capital etc.

Results and Discussion

Results on cost and returns structure revealed that the total cost of cultivation per hectare was found to be Rs. 82945.00 higher by 54.57 percentage than the combined cost of cultivation of paddy and wheat of Rs. 37675.00 per hectare. Size group wise revealed that cost of cultivation was higher on group – III Rs. 97915 /ha as compared to group – II and group –I farmers Rs. 78188/ha and Rs. 72731/ha respectively (Table –I). This may be attributed to used of more labour by small farmers.

The comparative study of economics of sugarcane and its complting crops (Paddy – Wheat) among the different grops the farmers belonging to group –II and I, farmers owing to be the fact the farmesr belonging to lower land holding size paid more attention forward farming. The cost structure revealed that highest investment incurred on planting, owing to land preparation followed by harvesting, transportation, manure & fertilizers in case of all the groups.

Table.1 Cost structure of sugarcane cultivation Vs other competing crops (Group wise)

(Rs/ha)

Crops	Groups of farmers	Planting cost	Manures and fertilizers	Post planning expenses	Harvesting and transportation	Interest on working	Total cost (Rs.)	Yield (q)
Sugarcane	I	32596 (44.82)	12686 (14.44)	6799 (9.35)	14038 (19.30)	6612 (9.09)	72731 (100)	545
	II	35573 (45.50)	13416 (17.16)	7361 (9.41)	14738	7100 (9.08)	78188 (100)	642
	III	42910 (54.88)	20451 (26.15)	9243 (9.43)	16137 (16.48)	8874 (9.06)	97915 (100)	720
	AV	37026 (44.64)	15518.0 (18.71)	7801 (9.41)	14971 (18.04)	7529 (9.07)	82945.0 (100)	636
Paddy	I	7485 (36.15)	3482 (16.82)	4446 (21.48)	3407 (16.45)	1882 (9.09)	20702 (100)	31
	II	6581 (33.24)	3559 (17.98)	4272 (21.58)	3585 (18.10)	1799 (9.08)	19796 (100)	30
	III	6289 (31.50)	3969 (19.88)	4660 (23.34)	3231 (16.18)	1814 9.08()	19963 (100)	32
	AV	6785 (33.66)	3610 (17.91)	4459 (16.18)	3408 (16.91)	1832 (9.09)	20155 (100)	31
Wheat	I	5439 (31.41)	3459 (19.98)	2107 (12.17)	4736 (27.35)	1574 (9.09)	17315 (100)	29
	II	5678 (32.44)	3332 (19.03)	2381 (13.60)	4522 (25.83)	1591 (9.08)	17504 (100)	32
	III	5235 (29.51)	3356 (18.92)	2715 (15.30)	4823 (27.18)	1613 (9.09)	17742 (100)	31
	AV	5451 (31.11)	3382 (19.30)	2401 (13.70)	14081 (8037)	1593 (9.09)	17520 (100)	31

Note: Figures in parenthesis indicate percentage

Table.2 Land holding size, group wise economics of sugarcane cultivation

Sl. No.	Items	Sugarcane			Paddy			Wheat			Paddy + Wheat		
		Group-I	Group-II	Group-III	Group-I	Group-II	Group-III	Group-I	Group-II	Group-III	Group-I	Group-II	Group-III
1	Cost of cultivation (A)	72731	78188	97915	20702	19796	19963	17315	17504	17742	38017	37300	37705
2	Average yield (q/ha)	545	642	720	31	30	32	29	32	31	60	61	63
3	Gross return (Rs./ha)	103550	121980	136800	24800	24000	25600	28420	31360	30380	53220	55360	55980
4	Net return (Rs./ha)	30819	43792	38885	4098	4204	5637	1105	13856	12638	15203	18060	18275
5	Cost of production (Rs./q)	134.0	122.0	136.0	668.0	659.86	623.84	597.06	547.0	572.32	633.61	611.47	598.49
6	Net return per rupees investment (B:C ratio)	1.42	1.56	1.40	1.20	1.21	1.28	1.64	1.79	1.71	1.40	1.48	1.49

Note: Land holding size group of farmers
Group – I Farmers holding (4 ha and above)
Group – II farmers holding (2-4 ha)
Group – III famers holding (<2 ha)

Table.3 Average comparative economics of sugarcane and completing crops sequences

(Rs./ha)

Sl. No.	Items	Sugarcane (Rs.)	Paddy (Rs.)	Wheat (Rs.)	Paddy + Wheat (Rs.)	Remarks
1	Cost of cultivation (q/ha)	82945 (54.57)	20155	17520	37675	Results placed separately
2	Average yield (Rs.)	636	31	31	62	
3	Gross return (Rs./ha)	120777	24800	30053	54853	
4	Net return (Rs./ha)	37832	4646	9200	13846	
5	Cost of production /q	131	651	572	-	
6	Net return per rupees investment	1.49	1.23	1.71	1.47	

Note: Price cane Rs. 190/q, Paddy grain Rs. 700/q, Paddy straw Rs. 120/q, wheat grain Rs. 800/q, Bhusa Rs. 185/q

Table.4 Practice followed by size group wise sugarcane growers in different sugar factories.

Crop	Groups	Seed	Organic manure FYM(q)	Chemical fertilizer			No. of inter culturing	No of irrigation	Earthing	Propping
				N (Kg/ha)	P_2O_5 (Kg/ha)	K_2O (Kg/ha)				
Sugarcane	I	50.0 (50.60)	-	80.0 (150.0)	60.0 (85.0)	40.0 (60.0)	1	3 (4)	65%	10%
	II	52.0	45.0 (200.0)	100.0 (150.0)	70.0 (85.0)	54.0 (60.0)	1	3 (4)	80%	15%
	III	54.0	240.0 (200.0)	120.0 (150.0)	80.0 (85.0)	15.0 (60.0)	1	3 (4)	90%	20%
	A.V sugarcane	52.0	143.0 (200.0)	100.0 (150.0)	70.0 (85.0)	36.0 (60.0)	1	3	78%	15%
Paddy	I	40.0 (50.0)	-	65.0 (86.0)	35.0 (40.0)	15.0 (20.0)	-	2 (3)		
	II	42.0 (50.0)	90.0	75.0 (86)	45.0 (40.0)	12.0 (20.0)	-	2 (3)		
	III	44.0 (50.00)	125.0	79.0 (86.0)	45.0 (40.0)	20.0 (20.0)	-	2 (3)		
	A.V paddy	42.0 (50.0)	107.5	73.0 (86.0)	41.67 (40.9)	18.33 (20.0)	-	2 (3)		
Wheat	I	100.0 (100.0)	-	80.0 (100.0)	45.0 (85.0)	22.0 (25.0)	-	2 (3)		
	II	110.0 (100.0)	90.0	96.0 (100.0)	55.0 (85.0)	23.0 (25.0)	-	2 (3)		
	III	111.0 (100.0)	120.0	100.00 (100.0)	65.0 85.0	27.0 (25.0)	-	2 (3)		
	A.V wheat	107.0 (100.0)	105.0	92.0 (100.0)	55.0 (85.0)	24.0 (25.0)	-	2 (3)		

Note: Figures in parenthesis indicate recommended schedules

It was also observed that the application of organic manure, N, P_2O_5 and K_2O were found to be lower by 27%, 33.33% 17.65% and 17.67% than the recommended are items. It was also observed that the number of irrigation was found to be lower by 25% than the recommended schedule while earthing was found to be done in 80% of cases, whereas propping of sugarcane was observed to be done in only 20% case.

Thus, on the basis of return per rupees investment among all the size group of farmers as a whole, sugarcane found to be more profitable (1.49) than paddy and wheat together (1.47%) in the study areas. A combination of technology, policy is needed for more improvement in productivity and profitability of crops in the areas as has been suggested by Birthal *et al*. (2006).

In conclusion, it has been observed that paddy and wheat are the dominant crop sequence with sugarcane in the northern plans of Bihar. The study has observed that farmers of the areas follow traditional farming system, which, do not provide low cost technologies like, improved varieties of seed, balanced nutrition deserve due to attention of increase profitability of sugarcane and its competing crops sequence.

The results on costs and returns structures revealed that in the study area under size group wise, group –II was considered as the higher returns per rupee of expenditure (1.56) whereas, per rupees of return followed in case of group-I and group-III was 1.42 and 1.40 respectively. It was also observed that application of organic manure, N, P_2O_5 & K_2O were found to be lower by 27%, 33.30 %, 17.65% and 17.67% than the recommended items. The paper has suggested that to enhance productivity farmers should be motivated through visit to progressive farmers field and should organize field demonstration to use the recommended level of inputs and improved varieties of seed. The Government agencies and policy makers would have to come forward to address the problems and come out with stable solution for sugarcane growers in the state.

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