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AN ECONOMIC ANALYSIS OF PRODUCTION OF SUGARCANE IN SHAHJAHANPUR DISTRICT OF UTTAR PRADESH

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ABSTRACT: The present study was conducted in Bhawal Khera block in Shahjahanpur district of U.P state. 100 farmers were selected randomly from five villages. Out of 100 farmers 45 small, 33 medium and 22 large farmers were selected from study area .The primary data were collected for the year 2017-2018. To calculate the cost of cultivation, marketable surplus and disposable pattern of sugarcane simple mean and average method was used. The major findings of this study revealed that the average holding size of the sampled household was 1.78 hectares and average illiteracy percentage was 80.88 percent. Overall on an average cropping intensity was found 250 percent. The major crops grown by the farmers were wheat and sugarcane in kharif and vegetables in Rabi season. On an average the total irrigated area of sampled household was found 56.22 percent and the maximum irrigated area comes under tube well 0.52 hectares (59.29 percent).The production performance of sugarcane in overall period (2001-2013) was observed positive and significant growth in state of U.P, Lakhimpur (Kheri) district have also shows the positive growth rate of area and production. On an average cost of cultivation per hectare of sugarcane was found Rs. 67187.02. The value of output on an average was found to be Rs. 124537.34. The yield of sugarcane was observed 469.07 quintal, input-output ratio of sugarcane was observed as 1:1.85. The major constraints of the production were unavailability of good quality of insecticides and pesticides (90.00 percent).

KEYWORDS: Sugarcane, cost and return, input output ratio, production, analysis

Agriculture has got a prime role in Indian economy. Though the share of agriculture in national income has come down, since the inception of planning era in the economy but still it has a substantial share in GDP. The contributory share of agriculture in Gross Domestic Product was 55.4per cent in 1950-51, 52per cent in 1960-61 and is reduced to only 13.9per cent in 2017-18. Growth of agriculture over a period of time remained lower than the growth in non-agriculture sectors and this decelerating trend is cause for concern. India is supposed to be the home of sugarcane and sugar Indians knew the art of making sugar since at least the fourth century. The advent of the modern sugar industry in India dates back only to mid-1930s when a few vacuum pan units were established in the sub-tropical sates of Uttar Pradesh and Bihar.

In India sugar production has risen sharply to more than 361.03 million tones in 2017-18 from 289 million tones in the previous year. The sharp rise is the result of favorable weather conditions and return to cane growers. It is the second largest producer of sugar in the world. Sugar industry in India is well developed with a consumer base of more than billion of people. Sugar industry is the second largest agro processing industry in India. More than 500 thousand peoples are directly employed. Including farmers, and their family member, more than 45 million people of the rural population of India depend on jaggary (gur) industry for their livelihood. Its contribution to the Central and State exchequers is of high order. The Indian sugar industry has been accounting for around 1per cent of GDP of the country in the recent.(Source: FAO India)

Sugar production in India is concentrated in six states namely Maharashtra, Uttar Pradesh, Gujrat, Tamil Nadu, Karnataka and Andhra Pradesh which together account for 85- 90per cent of sugar production in the country. The Indian sugar industry is highly fragmented with over 450 mills and no single player having a market share of over 5per cent. Around 60per cent of the mills are in the cooperative sector, 35per cent in the private and the rest are in public sector. The sugar industry can be broadly classified into two sub-sectors, the organized sector i.e. sugar factories, and the unorganized sector i.e. manufacturers of traditional sweetener like guar and khandsari.

Sugar has an age old association with this country. India is believed to have pioneered production of sugar from sugarcane around the 4th century. In fact, the English world ‘sugar’ is believed to have originated from the Sanskrit world ‘sharkara’. Alexander the Grate soldiers, after their visit to India, is reported to have marveled at the production of honey without the intervention of bees.

Sugar juice is used for making while sugar, brown sugar (khandsari) and jiggery (gur), sugarcane is one of the main crops of earning foreign exchange. The

main byproducts of the sugarcane industry are bagass and molasses. Bagass is mainly used as a fuel. It is also used for the production of compressed fiber board, paper, plastic and furfural. Molasses is used in distilleries for the manufacture of ethyl alcohol, butyl alcohol, citric acid, etc.

India is the largest consumer of sugar in the world with annual consumption of about 22.23 million MT. It also happens to be the second largest producer of sugar, next to Brazil, with production in the year 2017-18 crossing 27.5 million MT. Global production from cane as well is beet is around 1333.2 million MT currently.(Source: FAO India)

RESEARCH METHODOLOGY:

The study was conducted in Shahjahanpur district of Uttar Pradesh which is one of the 75 districts of Uttar Pradesh. Shahjahanpur district comprises of 9 Blocks among that Bhawal Khera blocks were selected for this study. From that Bhawal Khera blocks 5per cent villages viz., Choudera, Bodigaon, Jalalpur, Dilavarpur Bhatkar, Sujatpur were selected. A list of all Sugarcane farmers/respondents is prepared with the help of head of the village pradhan or head of each selected villages in block, there after farmers/respondents is categorized in 3 size groups on the basis of their land holding and then from each village 10per cent farmers were selected randomly from all the different size of farm groups. Data for the study was collected from 100 farmers randomly.

RESULTS AND DISCUSSION:

The study was conducted in Shahjahanpur district of Uttar Pradesh. The necessary data were collected from the sample farmers spread over Bhawal Khera blocks in above mentioned district. The present chapter is going to tell about the results and discussion for various objectives. The chapter is arranged in different sub-sections according to objectives of the study.

Resource use and Cost of cultivation of Papaya crop per hectare in different size of farm groups:

The economic aspects of Papaya such as cost of cultivation, returns per hectare, input and output ratio of small size, medium and large size farm groups were worked out for the presentation of the results.

Table- 1: Resource use and Cost of cultivation of Sugarcane crop per hectare in different size of farm groups

S.No.	Size Groups				Sample average
	Particulars	**Small**	**Medium**	**Large**	
1.	Human labour				
a)	Family labour	8872.68 (16.76)	4580.98 (7.61)	3060.85 (4.48)	5504.83 (13.77)
b)	Hired labour	2030.45 (3.83)	6020.64 (10.09)	9010.6 (13.20)	5687.23 (14.23)
2.	Bullock labour	1003.75 (1.89)	1313.05 (2.18)	1512.67 (2.21)	1276.49 (3.19)
3.	Tractor labour	1977.94(3.73)	3390.62 (5.63)	5036.24 (7.38)	3468.26 (8.67)
4.	Cost of seeds (Stalk)	12000.76(22.67)	13500.89 (22.44)	15000.99 (21.98)	13500.88(33.78)
5.	Manure and fertilizer	7288.65 (13.77)	8133.88 (13.52)	9551.39 (13.99)	8324.64 (20.82)
6.	Irrigation	5261.68 (9.94)	5637.27 (9.37)	6856.95 (10.06)	5918.63 (14.80)
7.	Plant protection	2213.48 (41.18)	2717.54 (4.51)	3012.43 (4.41)	2647.8 (6.65)
8.	Interest on W.C.	2323.18 (4.39)	3288.45 (5.46)	3805.81 (5.57)	3139.1 (7.85)
9.	Depreciation	1076.96 (2.03)	947.72 (1.57)	911.6 (1-33)	978.76 (2.44)
10.	Interest on F.C.	3001.93	2921.70	2874.06	2932.56
11.	Revenue	300 (0.28)	300 (0.49)	300 (0.44)	300 (0.75)
12.	Rental value of owned land	7500 (14.17)	7400 (12.30)	7300 (10.69)	7400 (18.51)
Total		52921.46 (100)	60152.64 (100)	68233.05 (100)	39965.65 (100)

Figures in parenthesis is percentage

The investment in the cultivation of sugarcane was more in the size group first followed by size group second and size group third. The cost of cultivation of sugarcane per hectare in the size group first, second and third were Rs.52921.46, Rs. 60152.64 and Rs. 68233.05, respectively (table- 1).

Item-wise break-up expenses were seeds Rs. 12000.76 Rs. 13500.89 and Rs. 15000.99 in first, second and third size group, which contributed 22.67 percent,

22.44 percent and 21.98percent respectively. The average of the three size group was 13500.88, which contributed 33.78percent to the total expenses. The cost of manure and fertilizer was Rs. 7288.65, Rs. 8133.88 and Rs. 9551.39 in first, second and third size group respectively, which contributed 13.77 percent. 13.52 percent and 13.99 percent, respectively. The sample average of the three size groups was 8324.64 which contributed 20.82 percent to the total cost (Adeoye I. B et.al 2011).

Irrigation charge was Rs. 5261.68, Rs. 5637.27, and Rs. 6856.95 in the first, second and third size group respectively, which contributed 9.94 percent, 9.37 percent and 10.06 percent. The average of the three size group was Rs. 5918.63 which contributed 14.80 percent to the total cost of cultivation. Cost of plant protection was Rs.2213.48, Rs. 2717.54 and Rs. 3012.43 in the first second and third size group respectively, which contributed 4.18 percent, 4.51 and 4.41 percent. The average of these three groups was Rs. 2647.8, which contributed 6.65 percent to the total cost of cultivation (Table- 2).

First size group used hired laborers which were accounted for 16.76 percent against 7.61 percent of family labour and second size group used 4.48 percent hired labor against. 3.83 percent, family labour. In the third size group family labor was 10.09 percent against hired labour which accounted 13, 20 per cent to total cost.

Table- 2: Cost of concept of the sample farmers (Rs. per ha.)

Size **group**	**Cost mA_1**	**Cost A_2**	**Cost B**	**Cost C**
Small	35476.85	35476.85	45978.78	60336.60
Medium	45250.06	45250.06	55571.76	66168.01
Large	54998.24	54998.24	65172.3	75056.46
Sample Average	45241.71	45241.71	55574.28	67187.02

It is clear from the above table the cost C was higher in the size group first followed by second and third respectively. The per hectare cost of cultivation of sugarcane according to the cost concepts have been depicted that the sample average of cost C was Rs. 67187.02 which lowest to all farm size groups (Yadav Ambresh Singhet.al 2019).

Table - 3: Cost and returns in Sugarcane crop per hectare in different size of farm groups

Size Groups	**Main product**			**By-product**						**Gross Income (Rs.)**	**Cost of cultivation (Rs.)**	**Net Income (Rs.)**
	Qnty. (q/ha.)	Rate (Rs./q)	Amount (Rs.)	Green Agola			Dry leaves					
				Qty. (Q/ha.)	Rate (Rs./q)	Amt (Rs.)	Qnty. (Q/ha.)	Rate (Rs./q)	Amt (Rs.)			
Small	435.89	260.00	113331.4	125.08	40.00	5003.2	15.31	50.00	765.5	119100.1	60336.60	58763.5
Medium	460.60	260.00	119756.0	140.31	40.00	5612.4	18.27	50.00	913.5	126282.0	66168.01	60113.99
Large	510.76	260.00	132797.6	162.65	40.00	6506.0	21.08	50.00	1054.0	140349.8	75056.46	65293.34
Average	**469.07**	**260.00**	**121958.2**	**142.68**	**40.00**	**1668.11**	**18.22**	**50.00**	**911.03**	**124537.34**	**67187.02**	**57350.32**

The above table 4.8 shows that the income and yield was found more in size group third followed by group second and first. The table shows that the average gross income of sugarcane was Rs. 124537.34. The average net income from sugarcane was Rs. 57350 (Table - 3).

Measures of farm profit:

Judge the profitability of farming the income measures i.e. net income, family labour income, farm business income and farm investment income have been found suitable.

Table -4: Measures of farm profit of different size groups (Rs./ha)

Farm Size Group	Net Income	Family Labour Income	Farm Business Income
Small	58763.5	67636.18	83623.25
Medium	60113.99	64694.97	81031.94
Large	65293.34	68354.19	85351.56
Sample Average	**57350.32**	**62855.15**	**79295.63**

It is seen in the above table shoes that the group III farmers got higher net income, family labour income and farm investment income, followed by group second and group first, respectively. The highest income in the case of group third might be higher due to the size of holding and better resource management. The per hectare net income, family income, farm investment income and farm business income have been depicted diagrammatically in figure (Table -4).

Input-output ratio:

Input-output relationship is an important device for measuring the efficiency of the farming under different conditions. It represents the ratio between the output received and input incurred. Higher the value of ratio between output and input means greater the income. Input-output ratio was calculated to compare the return per rupees invested per hectare.

Table- 5: Input-output ratio of different size groups (Value Rs/ha)

Farm Size Groups	Cost of cultivation	Output Gross income	Input-Output Ratio
Small	60336.60	119100.1	1:1.97
Medium	66168.01	126282.0	1:1.90
Large	75056.46	140349.8	1:1.86
Average	**67187.02**	**124537.34**	**1:1.91**

It is indicated that the yield and income was found more in case of group third, followed by group second and group first which might be due to less investment in tractor labour and plant protection. The sample average of input-output ratio was 1:1.91(table- 5).

CONCLUSION:

The cost of cultivation of sugarcane seemed to have an inverse relationship with the size of the holdings. The relationship further showed that sugarcane cultivation requires greater proportion of working capital in comparison to the fixed capital. The most important item of expenditure was seen to be human labour, as such, the crop is labour intensive.

REFERENCES:

Adeoye, I. B., Olajide-Taiwo, F. B., Adebisi-Adelani, O., Usman, J. M. and Badmus, M. A. (2011). Economic analysis of Sugarcane based production system in Oyo State, Nigeria. ARPN J. Agric. Biol. Sci., 6 (7): 1990-6145.

Akhilomen, L.O., Bivan, G.M., Rahman, S.A. and Sanni, S.A.(2012). The Profitability

Alagumani, T. (2005). Economic analysis of tissue cultured banana and sucker propogatedbana. Agric. Econ. Res. Rev., 18: 81-89.

Ambresh Singh Yadav, Sujit Kumar, Narendra Kumar, and Hardev Ram.(2019). Pulses Production and Productivity for enhancing formers income. International Journal of current microbiology and sciences. Vol. 8, No.04, 2314-2322.