

Economics of production of sugarcane in Beed district of Maharashtra state

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ABSTRACT

The study revealed that, at overall level, the net returns at cost 'C' level were Rs. 361467.3, size groupwise analysis showed that it was Rs. 162805.2 in small size farm, Rs. 322353.8 in medium size farm and Rs. 599242.9 in large size farm. The cost benefit ratio at total cost of production was found to be 1.29 in small size farm, 1.24 in medium farm and 1.19 in large farm, whereas, it was 1.20 at overall level. The cost benefit ratio was more than unity in all size groups indicating that sugarcane production is profitable. Constraints faced by sugarcane growers were huge, low price by factory expressed by 100 per cent of growers, higher wages of labour was one of the major problem which was expressed by 94.44 per cent growers and higher rates of fertilizers was expressed by 88.89 per cent of sugarcane growers.

KEY WORDS : Cost, Returns, Profitability, Input utilization

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Sugarcane is an important commercial crop in India. In world Brazil, Mauritius and America are important competitors for India. Maharashtra occupying area of about 9.65 lakh ha and production 86 million metric tonne with the productivity of 89 MT ha⁻¹ (Anonymous, 2013). In Marathwada, the area under sugarcane cultivation was 2.11 lakh ha and the production was 15 million metric ton with productivity of 70.50 MT ha⁻¹ and in Beed district, the area under sugarcane cultivation was 5900 ha and the production was 3.8 million metric ton with productivity of 66 MT ha⁻¹ and (Anonymous, 2012).

Sugar industry is one of the agro based industries which contributes significantly to the growth employment

to several thousands of peoples and indirect employment to several lakh of farmers and agricultural workers in the rural areas who involved in cultivation of sugarcane, harvesting, transport and other services.

METHODOLOGY

The study was based on input output data of 90 sugarcane growers in Beed district of Maharashtra state, for the year 2011-12. Ten villages were purposively selected according to the higher area under sugarcane crop. The data from the sample growers were collected through personal interview with the help of specially developed schedules.

The stratification was carried out with the help of statistical tools, mean and standard deviation in three different size groups of sugarcane field *i.e.* small (below 0.40 ha.), medium (0.40 to 0.80 ha.) and large (above 0.80 ha.). The costs and returns were worked out by using statistical tools *viz.*, means, percentages, ratio etc. The depreciation of far asset was worked out by using formula, Annual depreciation = (Original cost/ Value of assets- Junk value (Rs.)/ Expected working life of the assets (yrs.).

Interest on working capital was charged @ 13 per cent

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on all paid out costs for a period of one year. The rental value of the value of gross produce minus land revenue and cesses. Interest on fixed capital was worked out @ 10 per cent on the present value of assets. The per quintal cost of cultivation was computed by using formula, per quintal cost of cultivation = (Total cost/ cost C (Rs.) /Total output (q).

ANALYSIS AND DISCUSSION

Per hectare physical input and output of sugarcane

production were calculated and are presented in Table 1. Use of hired human labour was 146 man days on small farm followed by 107 man days on medium farm and 72.33 man days on large farm. It inferred that, as farm size increased use of hired human labour also decreased. On the contrary, use of family human labour was found higher as 16.8 man days on small farm while that was 15.93 and 12.53 man days on medium and large farms, respectively. It implied that as farm size increased, use of human labour decreased. On an average, use of bullock labour and machine labour was 1.28

Table 1: Per hectare physical inputs and output of sugarcane production

Particular	Unit	Sugarcane farm			Overall
		Small	Medium	Large	
Input					
Hired human labour	Man/day	72.33	107	146	108.4
Bullock labour	Pair/day	1.13	1.26	1.46	1.28
Machine labour	Per day	3.16	3.63	3.96	3.58
Seed (Sugarcane sets)	Ton	4.14	7.63	12.6	8.14
Nitrogen	Kg	207.5	382.5	636	408.6
Phosphorus	Kg	95.45	175.95	292.1	187.8
Potash	Kg	95.45	175.95	292.1	187.8
Manure	Qt	10.40	15.77	25.10	17.09
Plant protection	Litre	2.50	5.65	10.32	6.15
Irrigation	No	13.40	13.53	13.53	13.47
Family human labour	Man/day	16.80	15.93	12.53	15.00
Output					
Main produce	Ton	94.91	177.95	319.20	197.30
By produce	Ton	4.11	6.67	11.80	7.51

Table 2: Per hectare item wise expenditure in sugarcane production

Particular	Sugarcane farm			
	Small	Medium	Large	Overall
Hired human labour	14466 (30.10)	21400 (29.53)	29200 (26.81)	21688.9 (28.36)
Bullock labour	791 (1.64)	861 (1.18)	1022 (0.93)	891.30 (1.16)
Machine labour	4740 (9.80)	5445 (7.5)	5940 (5.45)	5375 (7.02)
Seed (Sugarcane sets)	8260 (17.18)	15200 (20.97)	25280 (23.21)	16246.6 (21.24)
Fertilizers	3572.3(7.43)	9737.8 (13.43)	10941.1 (10.04)	8083.7 (10.54)
Manure	1040 (2.16)	1570 (2.16)	2510 (2.30)	1706.6 (2.23)
Plant protection	1750 (3.46)	3955 (5.45)	7224 (6.63)	4309.6 (5.63)
Irrigation	2500 (5.20)	2500 (3.45)	2500 (2.29)	2500 (3.26)
Land revenue	2.57 (0.005)	5.59 (0.007)	8.45 (0.008)	5.55 (0.007)
Incidental expenditure	50.50 (0.10)	83.16 (0.11)	110.9 (0.19)	81.50 (0.10)
Interest on working capital	4832.4 (10.05)	7898.4 (10.90)	11015.7 (10.12)	7915.5 (10.35)
Depreciation on capital asset	395 (0.82)	453.7 (0.62)	495 (0.45)	447.9(0.63)
Cost A	42399.7 (88.23)	66109.6 (91.24)	96247.1 (88.38)	68251(89.28)
Rental value of land	1515 (3.15)	2495 (3.44)	9677.8 (8.88)	7235.9 (5.16)
Interest on fixed capital	901.14 (1.87)	665.6 (0.91)	466.20 (0.42)	677.6(1.06)
Cost B	44815.8 (93.26)	69270.2 (95.60)	106391.1 (97.69)	73492.3 (95.51)
Family human labour	3236 (6.73)	3186 (4.39)	2506 (2.30)	7257.3 (4.47)
Cost C	48051.8 (100)	72456.2 (100)	1088977 (100)	76468.3 (100)

pair days and 3.58 per days, respectively. In general use of seed was 8.14 ton, use of fertilizers with respect to nitrogen, phosphorus and potash was also increased with farm size.

At overall level use of nitrogen, phosphorus and potash was 408.66, 187.80, 187.81 kg. Same trend was also observed in case of use of manure. In general, use of manures was 17.09 quintals. It was also evident that, per hectare main produce of sugarcane was highest as 319.2 ton on large farm followed by 177.95 and 94.91 tones on medium and small farms, respectively. On an average, yield of main produce was 197.35 ton. The overall yield of by produce was 7.51 ton in the form of dry fodder increased with increased in the farm size. Above result are conformity with Banwarilal (1989).

Per hectare item wise expenditure in sugarcane production was estimated and is presented in Table 2. The results revealed that, Cost- C was the highest as 108897 on large farm followed by Rs. 72456.2 on medium farm and

Rs. 48051.8 on small farm. At overall level, Cost- C was found to be Rs. 76468.36. It was clear that per hectare cost was more on large farm and less on small farm. In consideration of share of each item of expenditure in total cost, it was observed that, share of hired human labour decreased with the increased in farm size and at overall level it was 28.81 per cent. On the contrary share of family human labour decreased with the increased in farm size and in general it was 4.47 per cent. It was also clear that, share of bullock labour was decreased from small farm to large farm. While share of machine labour was higher on large farm than that of other farms. Thus, proportionate expenditure on use of bullock labour was 1.25 per cent and proportionate expenditure on machine labour was 7.58 per cent overall farm.

It inferred that in sugarcane cultivation proportionate expenditure was higher on mechanization in the study area. It was obvious that rental value of land was found predominant

Table 3: Per hectare cost and returns from sugarcane production (Rs./ha)

Sr. No.	Particulars	Sugarcane farm			Overall
		Small	Medium	Large	
1.	Returns from main produce	208802	391490	702240	434177
2.	Returns from by produce	2055	3320	5900	3758.3
3.	Gross return	210857	394810	96247.1	68252.1
	Cost-A	42399.7	66109.6	96247.1	68252.1
	Cost-B	44815	69270.2	106391.1	73492.3
	Cost-C	48051.8	72456.2	108897.1	76468.3
4.	Per ton cost of production	484.6	388.5	322.67	398.6
5.	Profit per hectare				
	Cost-A	168457.3	328700.4	611892.9	369683.5
	Cost-B	166041.2	325539.8	601748.9	364443.3
	Cost-C	162805.2	322353.8	599242.9	361467.3
	Input- output ratio	1.29	1.24	1.19	1.20

Table 4: Constraints faced by the sugarcane growers

Sr. No.	Constraints	Frequency (n = 90)	Per cent
1.	Low price by sugar factories	90	100
2.	Higher wages of labour	85	94.44
3.	Higher rates of fertilizers	80	88.89
4.	Non-availability of fertilizers in time	75	83.34
5.	Non-availability of credit in time	70	77.78
6.	Non-availability of labour at the time of harvesting	65	72.33
7.	Lack of rainfall and irrigation/ irrigation facilities	60	66.67
8.	Non-availability of transport	50	55.56
9.	Load shedding	35	38.89
10.	Higher seed cost	25	27.77
11.	Problem of sucking pest at early stage	6	6.67

item expenditure because its share was 5.16 per cent. The mention results are conformity with the Patil and Hinge (1996).

The per hectare cost of cultivation for sugarcane plantation and returns fetched are furnished in Table 3. The overall gross returns worked out to be Rs. 437935.6/ha. The size group wise gross returns obtained from cane cultivation revealed that, it was the highest on large sized from Rs. 708140/ha followed by medium Rs. 394810/ha and small sized farm Rs.210857/ha, respectively. This, indicated that, gross returns were negatively related with size of holding with regard to returns at Cost-A, Cost-B and Cost-C at an overall level it worked out to be Rs. 369683.5, Rs. 364443.3, Rs.361467.3 per hectare, respectively. The mention results are conformity with the Rao (2012).

Constraints faced by sugarcane growers were estimated in the form of frequency and percentage and are presented in Table 4. The results revealed that, low price by factory expressed by 100 per cent of sugarcane growers. In next order, higher wages of labour was one of the major problem which was expressed by 94.44 per cent of sugarcane grower. Higher rates of fertilizers was expressed 88.89 per cent of sugarcane growers. Non- availability of credit on time, higher rate of ploughing by tractors and non-availability of roads were some of the major constraints faced by the sugarcane growers.

Conclusion:

The study revealed that, at overall level, the net returns

at cost 'C' level were Rs. 361467.3, size groupwise analysis showed that it was Rs. 162805.2 in small size farm, Rs. 322353.8 in medium size farm and Rs. 599242.9 in large size farm. The cost benefit ratio at total cost of production was found to be 1.29 in small size farm, 1.24 in medium farm and 1.19 in large farm, whereas it was 1.20 at overall level. The cost benefit ratio was more than unity in all size groups indicating that sugarcane production is profitable. Constraints faced by sugarcane growers were huge, low price by factory expressed by 100 per cent of growers, higher wages of labour was one of the major problem which was expressed by 94.44 per cent growers and higher rates of fertilizers was expressed by 88.89 per cent of sugarcane growers.

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