



AN ECONOMICS OF PRODUCTION OF SWEET POTATO IN BASTAR PLATEAU OF CHHATTISGARH

Neha Lakra*, A. K. Gauraha, M. R. Chandrakar, K. N. S. Banafar

*Department of Agricultural Economics, IGKV, Raipur-492001 (C.G.) India

Abstract

The study aims to examine the economics of Sweet potato production at different size of farms in Bastar and Kanker district of Bastar Plateau of Chhattisgarh state. The survey for this purpose was conducted in three blocks of each Bastar and Kanker district of Chhattisgarh. Primary data were collected from 300 farmers, five villages from each block was selected through personal interview method with the help of pre-structured schedule for the year 2016-17. Study revealed that the average cost of cultivation of Sweet potato was estimated to be Rs. 52709.49 per hectare. The average yield was observed to be 88.83 quintals per hectare. Highest yield was found at large farms *i.e.* 92.47 quintals per hectare across the different farms. The gross return from Sweet potato was observed as Rs. 139433.79 per hectare. The average cost of production was calculated as Rs. 593.37 per quintal. The average net income per hectare was observed to be Rs. 86724.30. Highest net income was observed at large farms *i.e.* Rs. 94068.27 per hectare. The input- output ratio was observed 1: 2.64.

Key Words: Cost of Cultivation, Economics of Production and Cost Concept.

Introduction

Sweet potato (*Ipomoea batatas*) occupies 0.14 million hectares with an annual production of 1.7 million tonnes. Sweet potato is largely grown in Orissa, West Bengal, Bihar and Eastern Uttar Pradesh (S. Edison, 2005). The productivity of sweet potato in India is 8 tonnes per hectare as compared to at 15-18 tonnes per hectare in China and Japan which account for 85 per cent of the world production. The worldwide demand for cassava and other minor roots and tubers is projected to increased by 49 per cent and for sweet potatoes and yams by 30 per cent. The cultivated sweet potato (*Ipomoea batatas* L.) and the wild species closely related to it belong to the family Convolvulaceae, genus *Ipomoea*, subgenus *Eriospermum*, section *Eriospermum* (formerly *Batatas*) and series *Batatas* (Austin and Huaman, 1996).

Materials and Method

Chhattisgarh state consists of three well known Agro-climatic zones *i.e.* Northern hills, Chhattisgarh Plains and Bastar Plateau. The study was conducted in Bastar Plateau of Chhattisgarh, out of seven districts in Bastar

Plateau, Bastar and Kanker districts was selected on the basis of larger area under tuber crops. Three blocks from each district was considered randomly on the basis of highest area under tuber crop cultivation. Out of selected 6 blocks from each Bastar and Kanker districts, 50 respondents from each of the blocks was taken for the present study. In all a sample of 300 tuber growers was considered for the present study.

Analytical Tools

Suitable analytical tools were adopted. The cost of cultivation, costs and returns of colocasia crop has been estimated through standard cost concepts given by the CACP.

Results and Discussion

(a) Cost of cultivation of Sweet potato at different size groups of farms

Cost of cultivation of Sweet potato at different size groups of farms is given in table 1 It can be seen that on an average per hectare cost of cultivation of Sweet potato was estimated as Rs. 52709.49 which varied from Rs. 50822.83 per hectare at marginal farms to Rs. 52888.75 per hectare at large farms respectively. The share of

*Author for correspondence : E-mail : neha.lakra207@gmail.com

Table 1: Cost of Cultivation of Sweet potato at different size groups of farms (Rs/ha.)

S. No	Particulars	Marginal	Small	Medium	Large	Overall
1.	Family human labour	11545.16 (22.72)	10699.26 (20.15)	8195.22 (15.46)	6825.63 (12.91)	8797.15 (16.69)
2.	Hired human labour	6346.44 (12.49)	7410.54 (13.96)	9919.43 (18.75)	10965.07 (20.73)	9182.65 (17.42)
3.	Total human labour	17891.60 (35.20)	18109.80 (34.12)	18114.65 (34.18)	17790.70 (33.64)	17979.78 (34.11)
4.	Bullock power	2067.24 (4.07)	1867.68 (3.52)	1052.36 (1.99)	0.0	1041.32 (1.98)
5.	Machine power	325.12 (0.64)	578.23 (1.09)	1490.15 (2.81)	2684.28 (5.68)	1504.29 (2.85)
6.	Seed cost	17265.10 (32.97)	18835.40 (35.49)	18197.45 (34.33)	17822.43 (33.70)	18116.77 (34.37)
7.	Manure/ Fertilizer cost	752.63 (1.48)	782.36 (1.47)	871.12 (1.64)	877.32 (1.66)	836.03 (1.59)
8.	Plant protection cost	445.23 (0.88)	520.23 (0.98)	554.60 (1.05)	625.24 (1.18)	555.21 (1.05)
9.	Irrigation charges	450.20 (0.89)	556.47 (1.05)	650.36 (1.23)	792.99 (1.50)	648.10 (1.23)
10.	Transportation charges	380.54 (0.75)	412.45 (0.78)	445.23 (0.84)	578.97 (1.09)	472.43 (0.90)
11.	Interest on working capital	578.66 (1.14)	609.94 (1.15)	605.64 (1.14)	602.58 (1.14)	602.31 (1.14)
A.	Total variable cost	40156.32 (79.01)	42272.56 (79.64)	41981.56 (79.20)	41774.51 (78.99)	41756.23 (79.22)
12.	Rental value of land	10000.00 (19.68)	10000.00 (18.84)	10000.00 (18.87)	10000.00 (18.91)	10000.00 (18.97)
13.	Land revenue	12.00 (0.02)	12.00 (0.02)	12.00 (0.02)	12.00 (0.02)	12.00 (0.02)
14.	Depreciation cost	244.26 (0.48)	280.24 (0.53)	395.51 (0.75)	430.54 (0.81)	359.05 (0.68)
15.	Interest on Fixed capital	410.25 (0.81)	511.68 (0.96)	616.30 (1.16)	671.70 (1.27)	582.21 (1.10)
B.	Total fixed cost	10666.51 (20.99)	10803.92 (20.36)	11023.81 (20.80)	11114.24 (21.01)	10953.26 (20.78)
C.	Gross Cost (A+B)	50822.83 (100.00)	53076.48 (100.00)	53005.37 (100.00)	52888.75 (100.00)	52709.49 (100.00)

Note: Figures in the parenthesis are percentage to total cost of cultivation of sweet potato.

major cost on the cultivation of Sweet potato was observed of seed cost. The average per hectare seed cost was estimated as Rs. 18116.77 per hectare which varied from Rs. 17265.10 per hectare at marginal farms to Rs. 17822.43 per hectare at large farms respectively. The next major cost was observed as human labour (both family and hired labour) which was estimated about per cent Rs. 17979.78 per hectare of the total cost of cultivation on which contribution of family human labour and hired human labour was observed 16.69 per cent and 17.42

per cent respectively. The average cost of machine was estimated as Rs. 1504.29 per hectare which varied from Rs. 325.12 per hectare at marginal farms to Rs. 2684.28 per hectare at large farms respectively and average cost of manure/fertilizer was estimated as Rs. 836.03 per hectare which varied from Rs. 752.63 per hectare at marginal farms to Rs. 877.32 per hectare at large farms respectively.

Economics and production of Sweet potato at sample farms

Economics and production of Sweet potato at sample farms is given in table 2. The average cost was to be estimated as Rs. 52709.49 per hectare which varied from Rs. 50822.83 per hectare at marginal farms to Rs. 52888.75 per hectare at large farms. Overall on an average yield was observed 88.83 quintals per hectare. The gross return was varied from Rs. 130972.96 per hectare at marginal farms to Rs. 146957.02 per hectare at large farms. On an average the Net income was Rs. 86724.30 per hectare. On an average Family labour income was Rs. 104704.08 and Farm business income was Rs. 9399.46. The average per quintal cost of production was estimated as Rs. 593.37. On an average Input-Output Ratio was 1: 2.64 which varies from 1: 2.58 at marginal farms to 1: 2.77 at large farms.

(b) Cost and returns on the basis of cost concept of Sweet potato

The cost and returns on the basis of cost concept in the production of Sweet potato have been presented in Table. 3. Overall on an average Cost-A1, Cost-A2, Cost-B1, Cost-B2, Cost-C1, Cost-C2 and Cost-C3 were worked out to Rs. 33330.13, Rs. 33330.13, Rs. 33912.34, Rs. 43912.34, Rs. 42709.49, Rs. 52709.49 and Rs. 57980.44 per hectare respectively on the sampled farms. On an average net income over Cost-A1, Cost-A2, Cost-B1, Cost-B2, Cost-C1, Cost-C2 and Cost-C3 were calculated to be Rs. 106103.66, Rs. 106103.66, Rs. 105521.45, Rs. 95521.45, Rs. 96724.30, Rs. 86724.30 and Rs. 81453.35 respectively.

Table 2: Economics of Sweet potato at sample farms

S. No	Particulars	Marginal	Small	Medium	Large	Overall
1.	Cost of Cultivation (Rs/ha)	50822.83	53076.48	53005.37	52888.75	52709.49
2.	Yield (qtl/ha)	85.84	86.30	88.25	92.47	88.83
3.	Gross returns (Rs/ha)	130972.96	134465.76	139128.77	146957.02	139433.79
4.	Net income (Rs/ha)	80150.13	81389.28	86123.40	94068.27	86724.30
5.	Family labour income	91695.29	92088.54	104238.05	111858.97	104704.08
6.	Farm Business income	12123.82	11309.20	8800.86	7428.21	9399.46
7.	Cost of Production (Rs/qtl)	592.06	615.02	600.63	571.96	593.37
8.	Input-Output ratio	1:2.58	1:2.53	1:2.62	1:2.77	1:2.64

Table 3: Break-up of total cost, cost concept wise income over different cost of Sweet Potato (Rs./ha).

S. No	Particulars	Marginal	Small	Medium	Large	Overall
A. Break-up of cost						
	a. Cost A1	28867.42	31865.54	34193.85	35391.42	33330.13
	b. Cost A2	28867.42	31865.54	34193.85	35391.42	33330.13
	c. Cost B1	29277.67	32377.22	34810.15	36063.12	33912.34
	d. Cost B2	39277.67	42377.22	44810.15	46063.12	43912.34
	e. Cost C1	40822.83	43076.48	43005.37	42888.75	42709.49
	f. Cost C2	50822.83	53076.48	53005.37	52888.75	52709.49
	g. Cost C3	55905.11	58384.13	58305.91	58177.63	57980.44
B. Net Income over different cost						
	a. Income over cost A1	102105.54	102600.22	104934.92	111565.60	106103.66
	b. Income over cost A2	102105.54	102600.22	104934.92	111565.60	106103.66
	c. Income over cost B1	101695.29	102088.54	104318.62	110893.90	105521.45
	d. Income over cost B2	91695.29	92088.54	94318.62	100893.90	95521.45
	e. Income over cost C1	90150.13	91389.28	96123.40	104068.27	96724.30
	f. Income over cost C2	80150.13	81389.28	86123.40	94068.27	86724.30
	g. Income over cost C3	75067.85	76081.63	80822.86	88779.39	81453.35

Conclusion and Suggestions

The study concludes that farmers spent average of Rs. 52709.49 to produce the Sweet potato in one hectare of land. Average yield of

Sweet potato was estimated 88.83 quintal per hectare. The trend of yield variation was not observed very much at different size groups of farms in the study area. The Net income was Rs. 86724.30 per hectare and per quintal cost of production was estimated as Rs. 593.37. The input-output ratio was observed 1: 2.64. It was suggested that Sweet potato is the important crop of the area. Arrangement should be made by facilitating to increase the production of Sweet potato. Proper package of practices should be developed to increase the profitability of farmers in the study area. This will encourage the farmers to grow it at large scale in the area which will help the farmers to receive better prices of the crops.

References

- Ahmad, I.M., S.A. Makama and G.A. Babagana (2016). Sweet Potato in Nigeria: Trends and Socio-Economic Characteristics of Farmers in Selected Local Government Area of Kano State. *Indian Journal of Economics and Development*, **12(2)**: 223-228.
- Kassali, R. (2011). Economics of Sweet Potato Production. *International Journal of Vegetable Science*, **17**:313-321.
- Mutai, B.K., E.N. Agunda, A.S. Muluvi, L.K. Kibet and M.C. Maina (2013). Determinants of smallholder sweet potato farmers' participation in different market options: The case of Vihiga County, Kenya. *Journal of Development and Agricultural Economics*, **5(8)**: 314-320.
- Salam, S.R. and K.N.S. Banafar (2005). Production and marketing of tuber crops in Baster districts of Chhattisgarh. M.Sc.(Ag.) Thesis, Indira Gandhi Agricultural University, Raipur (C.G) p.115-116.
- Solomon, T.F., S.A. Solomon and G.N. Emmanuel (2013). Profitability analysis of small holder root and tuber crop production among root and tuber expansion programme farmers in Plateau state, Nigeria. *Pelagia Research Library Advances in Applied Science Research*, **4(3)**:1-4.