



STUDIES ON COST AND RETURN STRUCTURE OF BANANA ON SAMPLE FARM

Rameshwar Kumar^{1*} and Toran Lal Nishad²

¹Department of Agril. Economics and Farm Management, College of Agriculture, Rewa, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (M.P.), India.

²Department of Extension Education, College of Agriculture Rewa, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (M.P.), India.

Abstract

The production of fruits in Chhattisgarh, banana ranks first. The total area and production of banana fruits in Chhattisgarh was 22082 ha. and 533257 metric tonnes (Anonymous, 2014-15). It is cultivated in almost all the districts in state. The major Banana growing district Raipur, Bilaspur, Durg, Mahasamund, Balod, Bemetara Raigarh. Banana production plays an important role in Chhattisgarh state. The total area under Banana in Durg district was 1650 ha. and 47850 metric tonnes production, respectively (2014-15). It was found that the average size of land holding in small size group was 1.47 and 3.72 ha medium and 7.31 ha in large size group, respectively. The overall percentage of irrigated area was found to be significantly higher 96.02 percent to the total cultivated area. Overall cropping pattern in study area was still dominated by rice, banana followed by maize, vegetable was the next preference. The intensity of cropping was higher in small size group (298 %) followed by medium and large size group. The employment of human labour showed reverse relation with the size of farm but employment of hired human labour showed a scale relation with the size of farm. Bullock labour utilization was higher in small size and tend to decline as per increase of size. Fertilizer application was higher in small size and tends to decline as per increase of farm size because, use of intensive cultivation. The operational cost comprised human labour to fertilizer inputs known as cost A_1/A_2 showed a significant increase with the size of farm. The same was observed in the case of cost B_1 , Cost B_2 but in the case of Cost C_1 there was no considerable difference in size farm though slightly higher in small size group. The same was happened in the case of cost C_2 . The cost C_3 was slightly higher in large size followed by other size farms. The net return over cost C_3 (total cost) observed higher in small size followed by medium and large size farm in banana. The productivity of banana was higher in small size group followed by medium and large size group. The average production was 543 q/ha. and gross income receive per ha. higher in small size group (392000 Rs/ha) and lower in large size group. And also found net income higher in small size group (192992 Rs/ha) followed by medium and large (180225.35 and 170378.93 Rs/ha). The benefit cost ratio found higher in small size group (1.96) followed by medium and large (1.89 and 1.84). Cost and margin of various agencies in the marketing of banana in Channel-I. The share of producer in consumer's paid price was maximum as approaching nearly 94%.

Key words : Banana, cost & return, human labour.

Introduction

Banana ("Apple of Paradise") is one of the oldest fruits known to mankind and also a rich source of energy (104 cal/100gram). Banana (*Musa acuminata*) is the second most important fruit crop in India next to mango. India is second largest producer of fruit in the world and Banana ranks first in production and third in area among fruit crop. It accounts for 13 per cent of the total area and 33 per cent of the production of fruit. The production of fruits in Chhattisgarh, Banana ranks first. The total area and production of Banana fruits in Chhattisgarh was

22082 ha. and 533257 metric tonnes (Anonymous, 2014-15). It is cultivated in almost all the districts in state. The major Banana growing districts are Raipur, Bilaspur, Durg, Mahasamund, Balod, Bemetara Raigarh. The total area under Banana in Durg district was 1650 ha. and 47850 metric tonnes production, respectively (2014-15). Looking to the above facts, it is essential to conduct a study, which could say something about profitability and marketing of Banana in the Durg district of Chhattisgarh state. It is expected from this study to find-out the cost & return, marketing cost and margins achieved by the

banana growers. This study will also analyze the various constraints faced by the Banana growers in the production and marketing of Banana. Keeping these points in view, the proposal investigation entitled “An economic evaluation of production and marketing of Banana in Durg District of Chhattisgarh”.

Materials and Methods

Durg block of Durg district was purposively chosen as the study area because, it has the larger area under banana cultivation in the district. A multistage simple random sampling technique (SRS) was adopted to select the block, villages and the respondents, market and different functionaries involved in banana marketing in Durg district. The details of the sampling techniques at various stages are given as under: A list of all the development blocks of district Durg was prepared out of these blocks, one developing block, namely Durg was selected purposively, which had the highest area and production of banana cultivation. Cost items the items of cost of cultivation cover both paid out cost (out of pocket expenses cash + kind) and the imputed costs.

Cost concepts

Cost concepts commonly used in various farm management studies were followed in this present study. Costs are generated following certain cost concepts. These cost concepts and the items of costs included each concept are given below :

Cost A1 : Total variable cost or all paid out cost.

Cost A2 : Cost A1 + rent paid for leased in land.

Cost B1 : Cost A2 + interest on value of owned fixed capital assets (excluding land)

Cost B2 : Cost B1 + rental value of owned land (net of land revenue).

Cost C1 : Cost B1 + imputed value of family labour.

Cost C2 : Cost B2 + imputed value of family labour.

Cost C3 : Cost C2 + 10 percent of cost C2 to account for managerial input of the farmer.

Cost C3 is more comprehensive and represents the total cost of cultivation. It is very important when farming is considered to be strictly commercial preposition.

Results and Discussion

Input wise cost of cultivation of banana crop per hectare

The operational cost known as cost A_1/A_2 accounted for Rs. 96811.35 (48.64% to total cost) in small size followed by Rs. 104176.5 (51.75%) in medium size, and Rs. 108510 (53.61% of the total cost) in large farm size.

Cost B_1 a sum of cost A_1 and interest on fixed capital amounted for Rs.6771.53 in small size, Rs. 6617.13 in medium and Rs. 6538.7 in large size group (table 1). The same trend was also observed in the case of cost B_2 . The cost C_1 and C_2 was found maximum in large size farm (Rs. 121848.7 and Rs. 183973.7) and minimum in small size (Rs.115582.88 and Rs. 1180916.21) and medium size farm (Rs.119393.63 and Rs.182976.96), respectively. Cost C_3 known as total cost per hectare accounted for Rs. 199007.83, 201274.65 and 202371.07 small medium and large size groups, respectively. On the basis of foregoing discussion the major component of cost C_3 (total) and operational cost known as A_1/A_2 of large farm maximum and when size of farm increase to decrease the total cost as per size of farm and the same thing happened in B_1 and B_2 . Cost C_1 was higher in large size group due to lack of management of labour. Almost the same trend was there in the case of cost C_2 . Cost A_1/A_2 was higher in large followed by medium and small size group due to involvement of more human labour, machine power, plant protection, irrigation charge associated with depreciation, repairs and interest incurred on various inputs used in this process.

Cost and returns of banana production

The productivity of banana in term of yield per hectare was small size group 560 q/ha followed by 545 q/ha and 525 q/ha in medium and large size farm, respectively.

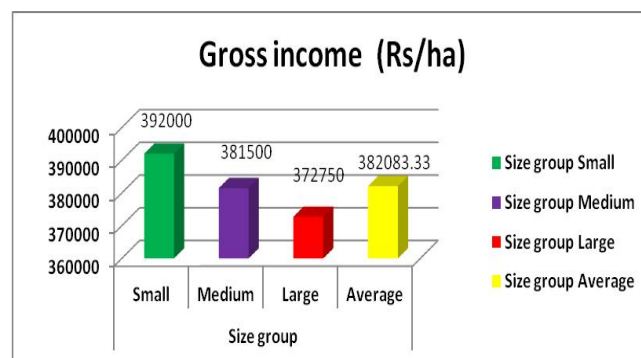


Fig. 1 : Returns of banana production based on cost concepts of different size farm.

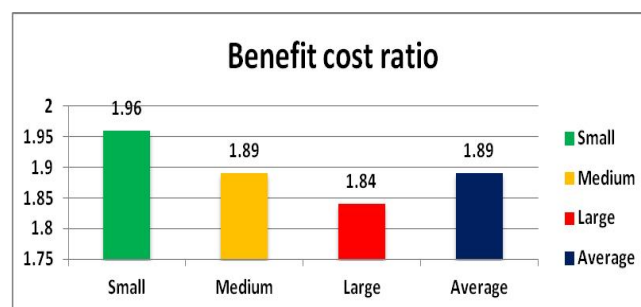


Fig. 2 : Benefit cost ratio of banana production of different size farm.

Table 1 : Input-wise cost of cultivation per hectare of banana for different size farms size farms.

S. no.	Cost item	Small	Medium	Large	Average
A	Labour cost				
1	Value of family labour	12000	6800	6800	9133.33
2	Value of hired human labour	9600	15200	18000	14266.66
3	Value of family bullock labour (H + O)	750	650	550	650
4	Value of family machine labour (H+ O)	6500	7500	8000	7333.33
5	Other variable cost	25000	18000	13500	18833.33
	Sub total	53580	49950	46850	50216.66
B	Material Cost				
1	Value of Seeds	42000	42000	42000	42000
2	Value of fertilizer & manure	22297	22120	22260	22225.66
4	Irrigation charges	6000	6400	6450	6283.33
	Sub total	70297	70520	70710	70509
C	In-direct cost				
1	Taxes, land revenue	12	12	12	12
2	Depreciation	2370	2576	3250	2732
3	Interest on working capital	4532.35	4868.5	5038	4812.95
4	Rental value of own land	65333.33	65583.33	62125	63680.54
5	Interest on fixed capital	6771.53	6617.13	6538.7	6642.45
	Sub total	79019.21	77656.96	76963.7	77879.95
	Grant total	203166.21	198126.96	194523.7	198605.62

Table 2 : Cost and returns of banana production based on cost concepts of different size farms.

S. no.	Cost	Size group			
		Small	Medium	Large	Average
1	Cost A ₁ (A ₂)	96811.35	104176.5	108510	103165.95
2	Cost B ₁	103582.88	110793.63	115048.7	109808.40
3	Cost B ₂	168916.21	174376.96	177173.7	173488.95
4	Cost C ₁	115582.88	119393.63	121848.7	118941.73
5	Cost C ₂	180916.21	182976.96	183973.7	182622.29
6	Cost C ₃	199007.83	201274.65	202371.07	200884.51

Returns of banana production based on different size group

Particulars	Size group			
	Small	Medium	Large	Average
Main product (q/ha)	560	545	525	543.33
Price of per quintal	700	700	710	703.33
Gross income (Rs/ha)	392000	381500	372750	382083.33
Net income	192992.67	180225.35	170378.93	181198.98
Benefit cost ratio	1.96	1.89	1.84	1.89

Gross income a sum of yield multiplied by unit price of banana had also denoted in the same pattern as followed in productivity. In small size group the obtained gross income was Rs. 392000, medium size group the gross income was Rs.381500 in medium size and Rs. 372750 minimum in large size. The average productivity and gross return of study area of banana was recorded 543.33 q/ha and Rs. 382083.33 respectively. On the basis of various costs as observe in input wise cost Table as per their cost concept net return per hectare recorded in the order of Rs. 192992.67 for small size Rs. 180225.35 in

medium size and Rs. 170378.93 in large size. Similarly, net return over cost B₁ was in the order of Rs. 288417, 270706 and Rs. 257701 in small, medium and large group. Net return over cost B₂ in small, medium and large size group was Rs. 223083, Rs. 207123 and Rs. 195576, respectively. The net return over cost C₁ was Rs. 276417, Rs. 262106 and Rs. 250901 in small, medium and large size groups, respectively. In case of the net return over. Cost C₂, it was Rs. 211083 in small size group, Rs.198523 in medium size and Rs.188776 in large size group. The net return over cost C₃ known as net farm income

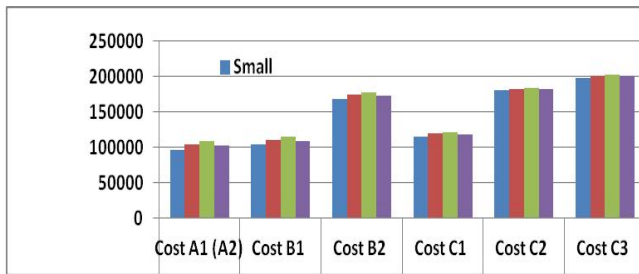


Fig. 3 : Cost of banana production based on cost concepts of different size farms.

determines the profitability status of crop recorded Rs. 192993 in small size, Rs. 180226 in medium size and Rs. 170378 in large size group. Per quintal cost of production of banana was Rs. 355 in the case of small size group, Rs. 369 in medium and Rs. 385 in large size group. The benefit cost ratio was higher in the case of small size group 1:1.96 (maximum) followed by 1:1.89 in medium and 1:1.84 in large size group (minimum) (table 2).

To study cost & return structure of banana on sample farm

Studied cost and return structure of banana on sample farm. On the basis of Inputs use in physical units for banana cultivation per hectare was found that small size farm invested more, on human labour, bullock labour and fertilizer. Higher allocation on human labour was a result of sufficient availability of family labour and less in medium and large. The present finding gets support from the study of Irfana Noor *et al.* (2015) also reported Economic Efficiency of banana production. Amutha and Rathi (2015) similar finding as present study reported. On the basis of foregoing discussion the major component of cost C_3 (total cost) and operational cost known as A_1/A_2 of large farm was maximum and when size of farm increase to decrease the total cost as per size of farm and the same thing happened in B_1 and B_2 . Cost C_1 was higher in large size group due to lack of management of labour. Almost the same trend was there in the case of cost C_2 . Cost A_1/A_2 was higher in large followed by medium and small size group due to involvement of more human labour, machine power, plant protection, irrigation charge associated with depreciation, repairs and interest incurred on various inputs used in this process. Net return over cost A_1/A_2 and net return over cost C_3 was comparatively higher in small size farm. Reverse to that, production cost per quintal was minimum in small size farm followed by medium and large size group. The additional bonus point gone in the favours of small size group was higher benefit cost ratio in medium size farm indicate that inspire of financial crisis and other constraints this category of farm organized and managed its farm

operation effectively compared to large size farms in the cultivation of banana crop. Involvement of higher human labour in this category indicates that under the situation of zero opportunity cost of family labour was appreciably utilized in this category with this intension that in cash payment term it required nothing except food and shelter which was a fixed liability of banana growers. Which is in conformity with the present findings. Finding of Dhurandher (2010) also support the present findings. The average benefit cost ratio was found that 1.89 the present finding gets supported from the study of Mishra *et al.* (2000).

Conclusion

The list of results obtained in this research study concludes that the investment on human labour manures followed by fertilizer and irrigation should highly be considered. Factors having higher elasticity of production value would be looked after carefully and increase their input level for securing a higher return. To minimize the cost of cultivation of banana crop in small size farm cost involved on human labour use to be decreased but this avenue is opened for larger size farms. Improved variety seeds provide higher productivity and return, therefore, to be used as per capacity of the growers.

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