



Research Paper

# Comparative economics of banana on orchard farm and agrarian farm in Goa state

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**ABSTRACT :** Investigation was carried out during the year 2014-15. In all 48 banana growers were randomly selected from sixteen villages of two tehsils in South-Goa district of Goa State. Cross sectional data were collected from banana growers with the help of pretested schedule by personal interview method. Data were related to banana output and inputs like machine labour, manure, fertilizers, irrigation and family human labour as resources. Cost concepts technique was fitted to the data. The result revealed that, use of hired human labour was 83.57 mandays on orchard farm followed by that of 77.25 mandays on agrarian farm. Total expenditure in terms of cost-C was Rs. 92327.79 on orchard farm while that was Rs. 91660.75 on agrarian farm. Proportionate expenditure of rental value of land was 35.14 per cent on orchard farm and 34.36 per cent on agrarian farm. Regarding returns, gross return was Rs. 194752.86 on orchard farm and Rs. 189062.50 on agrarian farm. Net profit was Rs. 102425.07 on orchard farm while that was Rs. 97401.75 on agrarian farm. Output- input ratio was 2.11 on orchard farm and 2.06 on agrarian farm. Output- input ratio found to be more on orchard farm. It inferred that banana production was more profitable enterprise on orchard farm as compared to agrarian farm in Goa state.

**KEY WORDS :** Banana, Orchard farm, Agrarian farm, Per hectare, Cost-C, Returns, Net profit

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## INTRODUCTION :

Banana, an antique fruit crop of the world is known as 'Apple' of the paradise and botanically named as *Musa paradisiaca*. It is the cheapest and plentiful fruit. This fruit is the food of sages since ancient time. It is the most important world traded tropical fruit. Banana was introduced to East Africa even before Christ and to the Mediterranean region about 650 AD. The largest acreage of banana is in Africa where they are considered as a starchy food. India is the largest producer of banana in the world. Even though India is the largest producer, 'India' share is negligible in the export market. Total area in

India is about 0.77 million hectare with an annual production of about 26.6 million tones and productivity of 34.54 kg/ha Anonymous (2015).

The plant along with its bunch is used extensively in all auspicious occasions such as weddings, festivals and for worship. Fruits are used for table and culinary purposes. Central core of the pseudostem and male bud are good for making delicious cuisines. Several processed products like chips, banana fig, soft drinks, wine, vinegar, jam and confectionaries are made from the fruit. Banana leaf is considered as 'biological plate' for serving dishes especially in South India. Starch is manufactured from the pseudostem (8.25 to 8.5 %). Banana fibre from

pseudostem is utilized for making attractive carry bags and it is a potential source of pulp. The sheaths and leaves are used for making crude ropes and wrapping material. The plant parts can be used as a cattle feed Anonymous (2004).

## MATERIALS AND METHODS :

### Sampling design :

Orchard farm consisted with more than 65 per cent area under orchard crops and remaining area is under seasonal crops, annual crops and dairy as well as other farm enterprises. On the contrary, agrarian farm consisted with more than 65 per cent area under seasonal crops, annual crops and remaining area is under orchard crops and dairy as well as other farm enterprises. Multistage sampling design was adopted for selection of district, tehsils, villages and orchard farms Kanhore (2008). In the first stage, the South- Goa district was purposively selected because of mostly existence of orchard farmings. In the second stage, Sanguem and Quepem tehsils were selected on the basis of higher area under orchard farms. In the third stage, eight villages were selected from the each of tehsils on the basis of higher area under orchard farms. From Sanguem tehsil villages were selected namely Bhati, Cotarli, Kale, Netravali, Rivona, Uguem, Vadem and Xeldem while from Quepem tehsil villages were selected namely Avadem, Balli, Barlem, Dhadem,

Malkarne, Mirabag, Pirla and Quitol. In the fourth stage, from each village, the separate list of orchard farmers along with their holding sizes were obtained. From each of the lists, three orchard farmers were randomly selected from each of the villages. In this way, from sixteen villages, 48 farmers were selected for the present study.

The techniques like tabular analysis, arithmetic mean, cost concepts of Cost-A, Cost-B and Cost-C and ratio were used to analyze the data.

## RESULTS AND DATA ANALYSIS :

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

### Per hectare physical inputs of banana on orchard farm and agrarian farm :

Per hectare physical inputs and outputs of banana on orchard farm and agrarian farm were calculated and are presented in Table 1. Results showed that use of hired human labour was 83.57 mandays on orchard farm followed by that of 77.25 mandays on agrarian farm because of higher infestation of weeds. On the contrary, use of bullock labour and machine labour was 5.43 pairdays and 10.21 hours on orchard farm and 8.00 pairdays and 11.88 machine hours on agrarian farm. Use of seed was 972.21 kg and 960.38 kg on orchard farm

**Table 1 : Per hectare physical inputs and outputs of banana on orchard farm and agrarian farm**

Sr. No.	Particular	Physical unit	Orchard farm	Agrarian farm
<b>Input</b>				
1.	Hired human labour	Manday	83.57	77.25
2.	Bullock labour	Pairday	5.43	8.00
3.	Machine labour	Hour	10.21	11.88
4.	Seed	Kg	972.21	960.38
5.	Manure	Q	17.86	17.50
6.	Fertilizer			
	N	Kg	140.36	134.88
	P	Kg	80.50	75.38
	K	Kg	77.86	70.50
7.	Plant protection	L	0.00	0.00
8.	Irrigation	m <sup>3</sup>	6569.93	5960.75
9.	Family human labour	Manday	25.29	22.63
<b>Output</b>				
10.	Main produce (fruit)	Q	215.36	209.63
11.	By produce (rhizome)	Q	2339.86	2176.25

and agrarian farm, respectively. Use of chemical fertilizer with respect to nitrogen, phosphorus and potash was 140.36 kg, 80.50 kg and 77.86 kg on orchard farm, respectively. About 134.88 kg of nitrogen, 75.38 kg of phosphorus and 70.50 kg of potash were used on agrarian farm. There was no use of plant protection on both the farms. Further, use of irrigation was 6569.93 cubic meters on orchard farm and 5960.75 cubic meters on agrarian farm Rohile *et al.* (2006). About output, main produce was 215.36 quintals on orchard farm while it was 209.63 quintals on agrarian farm. Similarly, production of byproduce was 2339.86 quintals on orchard farm and 2176.25 quintals on agrarian farm. The byproduce in the form of rhizome was having considerable importance on both the farms.

### Per hectare costs and returns of banana :

Per hectare costs and returns of banana on orchard farm and agrarian farm were calculated and are presented in Table 2. Total of expenditure in terms of cost-C was Rs. 92327.79 on orchard farm while that was Rs. 91660.75 on agrarian farm. Proportionate expenditure of rental value of land was 35.14 per cent on orchard farm and 34.36 per cent on agrarian farm Nagargoje (2000). Further results revealed that, share of hired human labour was 16.29 per cent followed by irrigation (11.67%) on orchard farm. Similarly, share of hired human labour was 15.17 per cent followed by that of irrigation (12.68%) on agrarian farm. Regarding returns, gross return was Rs. 194752.86 on orchard farm and Rs. 189062.50 on agrarian farm. Net profit was Rs.

**Table 2 : Per hectare costs and returns of banana on orchard farm and agrarian farm**

Sr. No.	Particular	Orchard farm		Agrarian farm	
		Amount (Rs./ha)	Per cent	Amount (Rs./ha)	Per cent
<b>Cost</b>					
1.	Hired human labour	15042.86	16.29	13905.00	15.17
2.	Bullock labour	2008.57	2.18	2960.00	3.23
3.	Machine labour	4749.64	5.14	5521.88	6.02
4.	Seed	4861.07	5.27	4801.88	5.24
5.	Manure	2232.14	2.42	2187.50	2.39
6.	Fertilizers				
	N	1890.61	2.05	1816.77	1.98
	P	3521.88	3.81	3297.66	3.60
	K	2205.69	2.39	1997.27	2.18
7.	Plant protection	0.00	0.00	0.00	0.00
8.	Irrigation	10774.68	11.67	11623.46	12.68
9.	Land revenue	15.00	0.02	17.00	0.02
10.	Incidental charges	188.79	0.20	140.50	0.15
11.	Interest on working capital	6411.28	6.94	6516.30	7.11
12.	Depreciation on capital assets	681.14	0.74	623.63	0.68
13.	Cost-A ( 1-12)	54583.35	59.12	55408.83	60.45
14.	Rental value of land	32443.81	35.14	31493.42	34.36
15.	Interest on fixed capital	749.21	0.81	686.00	0.75
16.	Cost-B ( 13-15)	87776.37	95.07	87588.25	95.56
17.	Family human labour	4551.42	4.93	4072.50	4.44
18.	Cost-C ( 16-17)	92327.79	100.00	91660.75	100.00
<b>Return</b>					
19.	Main produce	183053.57	93.99	178181.25	94.24
20.	By produce	11699.29	6.01	10881.25	5.76
21.	Gross returns	194752.86	100.00	189062.50	100.00
22.	Net profit	102425.07	-	97401.75	-
23.	Output-input ratio	2.11	-	2.06	-

102425.07 on orchard farm while that was Rs. 97401.75 on agrarian farm. Output-input ratio was 2.11 on orchard farm and 2.06 on agrarian farm. Thus, banana cultivation was profitable venture on both the farms. Results are conformity with results obtained by Umamaheshwari and Velmuragan (2010).

### Conclusion :

Use of seed was higher on orchard farm as compare to agrarian farm because on orchard farm sowing was done at broad spacing, More (1999). Main produce was more with 215.36 quintals on orchard farm while it was 209.63 on agrarian farm. Similarly, production of by produce was 2339.86 quintals on orchard farm and 2176.25 quintals on agrarian farm which implied that by produce in the form of rhizome was having considerable importance on both the farms. Net profit was Rs. 102425.07 on orchard farm while that was Rs. 97401.75 on agrarian farm. Thus, banana cultivation was profitable on orchard farm as compared to agrarian farm.

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