P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating (2025): 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 10; October 2025; Page No. 80-83

Received: 09-07-2025
Accepted: 11-08-2025

Indexed Journal
Peer Reviewed Journal

Break even analysis of nursery enterprise in Sindhudurg district

[1]SC Jadhav, [2]DB Malave, [3]SR Torane, [4]Dr. PJ Kshirsagar, [5]Dr. JR Kadam and [6]Dr. YR Parulekar

[1]M.Sc. Scholar, Department of Agricultural Economics, DBSKKV, Dapoli, Maharashtra, India

[2]Associate Professor, Department of Agricultural Economics, DBSKKV, Dapoli, Maharashtra, India

[3]Professor & Head, Department of Agricultural Economics, DBSKKV, Dapoli, Maharashtra, India

[4]Professor (CAS), Department of Agricultural Economics, DBSKKV, Dapoli, Maharashtra, India

[5]Ex. Professor Department of Agricultural Economics, College of Agriculture, Dapoli, Maharashtra, India

[6]Vegetable Specialist, Vegetable Improvement Scheme, Central Experimental Station, Wakawali, Maharashtra, India

DOI: https://www.doi.org/10.33545/26180723.2025.v8.i10b.2506

Corresponding Author: SC Jadhav

Abstract

The study focuses on the "Break even analysis of nursery enterprises in the Sindhudurg district of the Konkan region". A sample of 30 nursery owners was surveyed, revealing that 24 (77.42%) nurseries were owned by individual farmers, with the majority (12) being operational for 10–20 years. The total per farm cost was Rs. 23.31 lakh, while the gross returns stood at Rs. 54.80 lakh, resulting in a net profit of Rs. 31.49 lakh. Mango grafts provided the highest net returns (Rs. 14.48 lakh), followed by cashew and coconut. Among crops, fruits like cashew and coconut recorded higher benefit-cost ratios (2.47 and 1.96), indicating profitability. Spices like nutmeg and black pepper also performed well, while flower crops such as hibiscus and rose showed lower profit margins. Break-even point analysis revealed that nurseries must sell at least 9,370 grafts/seedlings to recover total investment. The study highlights nursery enterprises as viable income-generating options for rural youth.

Keywords: Nursery enterprise, cost, returns and profitability, break even point.

1. Introduction

The Konkan region has made significant head way in horticultural production due to availability of production technologies and new crop varieties. The area under mango and cashew, which are foreign exchange earning crops has been increased by 8-9 times during the last two decades. The area under horticultural fruit crops before 1970 was just 32000 ha which increased by manifold and is now 4.25 lakh ha. The production of these major horticultural crops is also increased by 2-3 times. This has become possible due to varieties and large-scale availability of elite planting material of fruits crop to the tune of 20-21 lakh grafts/saplings every year. This has strengthened the economy of the region. Due to availability of the easy, rapid and low-cost propagation techniques in horticultural fruit and spice crops and training of youths have revolutionized horticultural nursery activities in the Konkan region. As a result, a large number of nurseries have been developed and are producing grafts of horticultural crops in big way. This has no doubt increased the employment opportunities to the youths but also strengthened the economy of the Konkan region.

2. Materials and Methodology

Sindhudurg districts were purposively selected for this study. From this district, three tahsils were selected purposively based on the maximum number of nurseries in study area. From each selected tahsil total thirteen villages were randomly selected. Consequently, the final sample consists of one districts, three tahsils, thirteen villages and a total of 30 Nursery owner were selected. The primary data collected pertained to the agricultural year 2023-24.

To fulfil the stated objectives, the primary data were tabulated and analyzed using appropriate statistical and economic tools. The collected data were analyzed and interpreted by simple tabulation, averages, percentages, etc. Breakeven point analysis is a financial calculation used to determine the point at which equals total cost, resulting in neither profit nor loss.

$$BEP=F/(P-V)$$

Where,
BEP = Break even point
F = Fixed cost in Rs. Per farm
P = Price per graft
V = Variable cost per farm

3. Results and Discussion

Table 1: Information regarding year of establishment and ownership of nursery enterprises: (N= 30)

Sr.no.	Particulars	No. of respondents
1	**Ownership**	
	a) Individual farmer	24 (77.42)
	c) Agril. Universities	02 (9.68)
	d) Govt. nursery	04 (12.90)
	Total	30 (100.00)
2	**Year of establishment**	
	a) 1-10 years old	11 (36.67)
	b) 10-20 years old	12 (40.00)
	c) above 20 years old	07 (23.33)
	Total	30 (100.00)

(Figures in parentheses indicate percentage to total)

Table 1 shows as regards to ownership it was found that more than three forth 24 (77.42%) of nurseries were owned by individual farmer. Two nurseries (9.68%) belonging to agriculture university DBSKKV, Dapoli and four nursery (12.90%) were belong to government of Maharashtra out of total 30 nursery enterprises selected for study. The year of establishment was 11 (36.67%) nursery had 1 -10 years old and remaining 12 (40.00%) nursery were 10 to 20 years old. Indicate that the demand of grafts in nurseries were increasing in the districts.

4. Per farm cost and returns from nursery enterprises

Information regarding per farm cost and returns from nursery enterprises is given table 2. The per farm total cost incurred for the preparation of grafts and seedlings amounted to Rs.23,31,318. Among the crops, Mango accounted for the highest cost share of the total cost at Rs.7,23,094 (31.01%), followed by Cashew Rs.6,49,349 (27.85%), Coconut Rs.4,00,148 (17.16%)
respectively. On the lower end, Hibiscus (0.57%), Rose (0.86%), and Plumeria (1.12%) had the least cost contributions in total cost of nursery. The gross returns from all crops summed up to Rs.54,79,996, with mango again leading the chart at Rs.21,71,400 (39.62%), showing strong market demand followed by Cashew Rs.10,90,480 (19.89%) and Coconut Rs.8,18,111 (14.92%). Flower crops like Rose and Hibiscus had much smaller gross returns of Rs.36,500 (0.66%) and Rs.45,000 (0.82%) respectively. The net profit across all crops was Rs.31,48,677, with Mango delivering the highest net profit of Rs.14,48,306 (45.99%). This was followed by Arecanut at Rs.4,64,786 (14.78%), Cashew at Rs.4,41,131 (14.01%), and Coconut at Rs. 4,17,964 (13.27%). Other profitable crops include Kokum Rs.1,21,679 (3.86%), Black Pepper Rs.1,05,966 (3.36%), and Nutmeg Rs.86,266 (2.73%). The flower crops (Hibiscus, Rose, and Plumeria) showed low total profits, contributing between 0.46 per cent to 1.00 per cent of total per profit of nursery, Mango had a total cost of Rs.40 and a profit of Rs.60 per graft, making the profitable at scale. In spices nursery, the Nutmeg, Kokum, and Black Pepper showed high per unit profits of Rs.51, Rs.42, and Rs.42 respectively, indicating excellent efficiency and suitability for limited resource cultivation. Arecanut also proved efficient with a low cost of Rs.21 and a profit of Rs. 38 per seedling. In contrast, flowers like Plumeria, Rose, and Hibiscus, though low-cost (Rs.14–22 per unit), offered limited per-unit profits of Rs.27–35. Coconut had the highest cost per seedlings at Rs.97 but still yielded Rs.53 profit per unit.

In summary, Mango is the best option for large-scale, high returns. However, crops like Nutmeg, Kokum, and Black pepper offer superior returns per rupee invested, making them ideal for high-efficiency or small-scale production. Flower crops, although low-cost, have limited profitability. These insights can guide crop selection based on available resources, scale of operation, and target profitability.

Table 2: Per farm cost &returns of nursery enterprise:

Sr no	Name of crop	Total Cost	Gross Returns	Net Profit	Per Graft/ seedling Total Cost	Average Sale Price per Graft/ seedling	Net Profit Per Graft/ seedling
1	Mango	723094 (31.01)	2171400 (39.62)	1448306 (45.99)	40	100	60
2	Cashew	649349 (27.85)	1090480 (19.89)	441131 (14.01)	47	80	32
3	Coconut	400148 (17.16)	818111 (14.92)	417964 (13.27)	97	151	53
4	Areaca nut	268574 (11.52)	733360 (13.38)	464786 (14.78)	21	60	38
5	Kokum	111441 (4.78)	233120 (4.25)	121679 (3.86)	38	80	42
6	Black pepper	69034 (2.96)	175000 (3.19)	105966 (3.36)	27	70	42
7	Nutmeg	49734 (2.13)	136000 (2.48)	86266 (2.73)	29	80	51
8	Hibiscus	13438 (0.57)	45000 (0.82)	31562 (1.00)	14	50	35
9	Plumeria	26317 (1.12)	41024 (0.74)	14708 (0.46)	22	50	27
10	Rose	20255 (0.86)	36500 (0.66)	16242 (0.51)	18	50	31
	Total	2331318 (100.00)	5479996 (100.00)	3148677 (100.00)			

(Figures on parentheses indicate percentage to total)

5. Per farm profitability of nursery enterprises

Information regarding per farm profitability of nursery enterprises is given table 3. The table 3 clearly indicates profitable outcomes across fruits, spices, and flower nursery. Among fruits, mango grafts showed the highest net returns at total cost level, amounting to Rs.14,48,350, followed by cashew grafts (Rs.4,40,981) and coconut (Rs.4,17,980). Cashew again stood out with the highest net profit, while crops like arecanut and black pepper also yielded more returns. per nursery farm Among flowers, hibiscus and golden plumeria generated net profits of Rs.31,726 and Rs. 24,036 respectively, whereas rose earned Rs13,951. In terms of the benefit-cost ratio (BCR), rose recorded the highest at 2.62, indicating its excellent profitability relative to the investment. Cashew grafts also showed a very strong BCR of 2.47, making it the most economically efficient nursery enterprises.

Table 3: Per farm Profitability of nursery enterprise (Value in Rupees)

Sr.no.	Particulars	Fruits					Spices		Flowers			Total
		Mango	Cashew	Coconut	Arecanut	Kokum	Black Pepper	Nutmeg	Hibiscus	Golden plumeria	Rose	
1	Cost											
	a) Variable cost	543248	416825	314660	213303	75912	57683	41449	9680	20798	15478	1709035
	b) Fixed cost	179802	232674	85471	55227	35529	11404	8284	3594	5519	4777	622283
	Total Cost	723050	649499	400131	268530	111441	69087	49734	13274	26317	20255	2331318
	Gross returns	2171400	1090480	818111	733360	233120	175000	136000	45000	41024	36500	5479996
2	Net returns at											
	a) Variable cost	1628152	673655	503451	520057	157208	117317	94551	35320	20226	21022	3770960
	b) Total cost	1448350	440981	417980	464830	121679	105913	86266	31726	14708	16245	3148677
3	Benefit- cost Ratio	1.50	2.47	1.96	1.58	1.92	1.65	1.58	1.42	2.79	2.25	1.74

6. Break even point

The break-even analysis is the level at which total revenue equals to total cost. A break-even analysis is a financial apparatus which helps to determine at what stage the project or business will be profitable. In other words, it's a financial calculation for determining the number of products a company should sell to cover its costs. Information regarding break even quantity is given table 4. The table 4 indicates the break-even quantity for different horticultural nursery enterprises, which indicates the minimum number of units (grafts or seedlings) that need to be sold to recover production costs.

Break-even point analysis helps to determine the minimum number of units that must be sold to cover all fixed and variable costs. It is a crucial indicator of the financial health and sustainability of a nursery business. The fixed cost of the nursery farm was Rs. 622283, and the variable cost was Rs. 1709035. During the study period, the nursery sold a total of 56783 grafts, generating a gross return Rs. 5479996. By dividing the gross return by the total number of grafts sold, the selling price per graft was found to be Rs. 96.51, while the variable cost per graft was Rs. 30.10. Thus, the break-even quantity was calculated to be grafts. This means that the nursery must sell at least 9370 grafts to cover its total costs. Any sales beyond this quantity contribute to the profit of the enterprise. Since the actual number of grafts sold was 56783, which is significantly higher than the break-even level, it indicates that the nursery enterprise was operating well within a profitable zone. This emphasizes the economic viability and potential for income generation from nursery activities when managed efficiently.

Table 4: Break even point Analysis

Sr.no.	Particulars	Number/price
1	Fixed cost	622283
2	Variable cost	1709035
3	Total grafts/seedlings sold	56783
4	Gross returns	5479996
5	Selling price per graft/seedling	96.51
6	Variable cost per graft/ seedling	30.10
	Break even point (BEP)	9370

7. Conclusion

Establishment and ownership of nursery enterprises showed that out of the 30 nurseries studied the majority of the nursery (77.42%) were individually owned by farmers and remaining two (9.68%) were operated by agricultural university, specifically DBSKKV, Dapoli, while four (12.90%) were managed by the Government of Maharashtra. In terms of establishment, 11 nurseries (36.67%) had been operating for 1 to 10 years, while 12 nurseries (40.00%) had been established for 10 to 20 years. Overall, the demand for grafts from nurseries in the district had been steadily rising. Nursery enterprises across all crops were profitable, with mango graft nursery having net returns Rs. 1448350 followed by cashew Rs. 440981and coconut Rs. 417980 having the highest net returns. Among different grafts and seedlings prepared benefit cost ratio. per farm in nursery like fruits Cashew, Coconut, kokum was 2.47, 1.96, 1.92 respectively indicating profitablity of different nursery. In spices nursery the B:C ratio was 1.65 in black pepper, 1.58 nutmeg showing profitable nursery enterprise and in flowers golden Plumeria having B:C ratio was 2.79 more profit. From the break even point analysis it was concluded that the nursery farm should sell at least 9370 grafts/ seedlings to cover its total investment in the nursery and from here nursery enterprise will start getting its profits.

References

1. Daffal AM, Abdalla IF, Abdalla HS. Evaluation of some orchards management practices under River Nile State, Sudan. Int J Agric Innov Res. 2015;3:1-5.
2. Das G, Das S. Plant nursery business: A new way of entrepreneurship in the district of South 24 Parganas, West Bengal. Int J Multidiscip Res. 2021;11(9):1-6.
3. Das R. Socioeconomic study of private plant nursery owners in Udaipur, Rajasthan. Maharana Pratap Univ Agric Technol, Udaipur; 2012.
4. Haque MA, Miah MM, Rashid. An economic study of plant nursery business in Gazipur and Jessore districts of Bangladesh. Bangladesh J Agric Res. 2007;32(3):375-85.
5. Iroabuchi JN, Odii MA, Emenyonu CA, Gbolagun CA, Onyeke AO, Esogwa AC. Productivity and profitability of citrus nursery operation in Abia State, Nigeria. Dep Agric Econ, Fed Univ Technol, Owerri, Imo State, Nigeria. 2022;4:1-8.
6. Kumari MAS, Kansuntisukmongkol K. Plant diversity in home gardens and its contribution to household economy in suburban areas in Sri Lanka. Environ Nat Resour J. 2009;7(2):1-11.
7. Larinde SL, Santus R. Assessment of small scale private plant nursery enterprise in Port Harcourt, Rivers State. Glob J Biosci Biotechnol. 2014;3(3):301-11.
8. Mamun A, Rahman A, Afrooz N. A socio-economic analysis of plant nursery business in Bangladesh. Agriculturists. 2018;16(2):102-14.
9. Mhatre PS. Economic evaluation of private horticulture

nurseries in Ratnagiri district. Rahuri (MS): MPKV; 2011.
10. Palve SA. Entrepreneurial behaviour of the nursery owners in and around Pune city. Rahuri (MS): MPKV; 2003.
11. Patil KR, Adivappar N, Chinnappa B, Manjunatha GR. Economic analysis of commercial tomato nurseries. J Agric Econ Res. 2017;5(2):45-52.
12. Perkins GR. The economics of ornamental nursery management. Proc Fla State Hort Soc. 1974;86:411-5.
13. Shendge PN. Analysis of constraints faced by commercial floriculture nursery in Kadiyam of Andhra Pradesh: Suggestions to overcome them. Environ Pharmacol Life Sci. 1991;2(1):20-5.
14. Shukla R. An economic study of plant nursery business in Udaipur, Rajasthan. J Prog Agric. 2010;1(1):48-51.
15. Shwetanjali, Tevari P, Suresh K, Beeraladinni D, Kammar S. Economic analysis of horticulture nursery enterprises in Koppal district of Karnataka. J Farm Sci. 2023;36(2):189-94.
16. Sudha M. Economics of nursery management. Floric Today. 2003 Feb;21-4.
17. Thakare AK. Entrepreneurial behaviour of floriculturists. Akola (MS): Dr PDKV; 2013. (Unpublished M.Sc. thesis).
18. Yadav RK, Kalia P, Choudhary H, Husain Z, Brihama D. Economic feasibility and profitability of carnation cultivation under protected condition. Int J Sci Nat. 2014;5(2):283-6.
19. Yeknni OT, Oguntade MI. Training needs of women vegetable farmers in Akinyele Local Government Area of Oyo State, Nigeria. Trop Agric Res Ext. 2015;17(1):10-5.