



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2023; SP-12(12): 1273-1275  
© 2023 TPI  
[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 07-09-2023  
Accepted: 11-10-2023

#### PM Metkari

PG Student, Department of  
Agril Economics & Statistics,  
Mahatma Phule Krishi  
Vidyapeeth Rahuri,  
Maharashtra, India

#### TV Bhadre

PG Student, Department of  
Agril Economics & Statistics,  
Mahatma Phule Krishi  
Vidyapeeth Rahuri,  
Maharashtra, India

#### SB Khilare

PG Student, Department of  
Agril Economics & Statistics,  
Mahatma Phule Krishi  
Vidyapeeth Rahuri,  
Maharashtra, India

#### PK Bante

PG Student, Department of  
Agril Economics & Statistics,  
Shri Shivaji Agriculture College,  
Amravati, Maharashtra, India

#### KA Mahadik

PG Student, Department of  
Agril Economics & Statistics,  
Shri Shivaji Agriculture College,  
Amravati, Maharashtra, India

#### Corresponding Author:

#### PM Metkari

PG Student, Department of  
Agril Economics & Statistics,  
Mahatma Phule Krishi  
Vidyapeeth Rahuri,  
Maharashtra, India

## Economics of financial feasibility of vegetable nursery activity in Solapur district of Maharashtra

PM Metkari, TV Bhadre, SB Khilare, PK Bante and KA Mahadik

#### Abstract

The nursery business also having some disadvantage such as initial cost is so high that poor people are not able to make it easily. It needs efficient and technical knowledge in the permanent nursery. Transportation cost is high. Sometime source of water is not available for making an ideal nursery. Nursery business is a remunerative but requires sizeable amount of capital investment. The result revealed that, the net present value of group I was ₹ 12,84,289.18 and ₹ 11,40,141.29, group II was ₹ 23,56,482.65 and ₹ 21,20,489.88, group III ₹ 11465849.58 and ₹ 10558595.65 at 12 percent and at 14 percent respectively. The internal rate of return was 29.81 percent, 31.97 percent and 37.27 percent for group I, group II and Group III respectively. The estimated payback period for group I was 3.1 years, for group II, was 2.2 and for group III was 1.5 years. The estimated break-even quantity of seedlings was found that for chilli, tomato and brinjal was 75816.80, 92469.10 and 87579.40, respectively.

**Keywords:** Nursery, vegetables, economics

#### Introduction

Nursery is one of the highly commercial venture in horticulture sector. Nursery is a place of raising or handling of vegetable seedlings until they are ready for planting. Nursery provide favourable growth condition *i.e.* germination as well as growth. To boost the production of horticultural crops, the Central Government provided subsidies to both public and private sector nurseries for plantation of new orchards and rejuvenation of old orchards as well as for the establishment of nursery.

In India, agriculture sector contributes 16.5 percent in GDP in 2018-19 and also provide more than 50 percent employment to the people. In 2020-21 total horticulture area is 27.17 million hectares as compared to 26.46 million hectares in 2019-20. Total horticulture production in 2020-21 is 326.58 million tonnes as compared to 320.77 million tonnes in 2019-20 which shown as increase in production by about 1.8 percent. Total horticulture production in 2019-20 is estimated to be 3.13 percent higher than 2018-19. Increase in vegetables, fruits, flowers, aromatics and medicinal plants, while decrease in plantation crops and spices, over previous year. The production of vegetables in 2019-20 is estimated to be 188.91 million tonnes, compared to 183.17 million tonnes in 2018-19. In 2020-21 vegetable production increase about 193.61 million tonnes as compared to 188.91 million tonnes in 2019-20. Increase is mainly due to increased production of onion, tomato, okra, peas, and potato *etc.* In 2019-20 fruit production is 102.03 million tonnes compared to 97.97 million tonnes in 2018-19. Vegetable production is more than the fruit production in 2019-20. In 2018, Uttar Pradesh ranked first in production of vegetables in India with 15.4 percent share while West Bengal ranked second with 15 percent of its share. In India 191.77 million tons of vegetables are produce in 2019-20.

#### Materials and Method

The present investigation on Economic of vegetable nurseries in Solapur district of Maharashtra depict the study of economic of financial feasibility of vegetable nursery. The primary data was collected for the year 2019-20 regarding the capital investment and costs and return by survey method through personal interview with nurseries owners. 15 nurseries were selected purposively for the study. The selected nurseries were further classified into three different groups on the basis of their turnover (in ₹ Lakh) *viz.*, group I (1to 3 lakh), group II (3.1 to 5 lakh) and group III (above 5.1 lakh). Thus, 5 nurseries were selected from each group.

The data was further analysed and financial feasibility was estimated with the help of statistical tools. With the help of various financial indicators i.e. NPV, IRR, BEQ and PBP analysis. The findings of the study limited only with respect to nursery activity of Solapur district. The research of this study will be useful to nursery entrepreneurs to know whether their nursery business in profit or not.

**Results and Discussion Financial Analysis**

The financial analysis has great importance to various accounting users or various matters of the unit. Estimated net present value and IRR for nursery in group-wise. The information about the net present value is the difference between the present value of cash inflows and the present value of cash out flows. The information regarding net present value is presented in Table 1, 2, and 3.....

The IRR is the discount rate that equates a project's initial cost with the sum of its discounted future cash flows. In other words, the IRR is the discount rate which would reduce the NPV of a project to zero. 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 profitability. The pay back period of nursery estimated in Table 4. Payback period is the time between the starting time of the project and the time of the when the initial investment is recovered in the form of yearly benefits. The breakeven analysis of seedlings was estimated and presented in Table 5.

**Net present value**

$$NPV = \frac{P_1}{[1+i]^1} + \frac{P_2}{[1+i]^2} + \dots + \frac{P_n}{[1+i]^n} + c$$

Where,

P = Net cash flow

i = Discount rate

t = Time period

c = Initial cost of investment

$$IRR = \text{Discount Rate} + \frac{\text{Difference between two discount rate}}{\text{Difference between NPW At two discount rates}} \times \left\{ \begin{array}{l} \text{NPW at lower discount rate} \\ \text{Difference between NPW At two discount rates} \end{array} \right\}$$

**Payback Period**

$$PBP = \frac{I}{C}$$

Where,

I = Initial investment

C = Yearly net cash income

**Break even analysis**

$$BEQ = \frac{TFC}{P - VC}$$

Where,

BEQ = Break even quantity (Number of seedlings)

TFC = Total fixed cost (₹)

P = Price per seedling (₹)

VC = Variable cost per seedling (₹)

**Table 1:** Estimation of net present value and IRR for Group I

Sr. No.	Cash Inflow	Cash Outflow	Net cashflow	Discounted net flow @ 12%	Discounted net flow @ 14%
1.	0	374005.64	-374005.64	-209443.15	-194108.92
2.	1337457.58	383005.64	954451.93	534493.08	495360.55
3.	1359457.58	393005.64	966451.93	541213.08	501588.55
4.	1381457.58	403005.64	978451.93	547933.08	507816.55
5.	1403457.58	413005.64	990451.93	554653.08	514044.55
			NPV	1284289.18	1140141.29

**Table 2:** Estimation of net present value and IRR for Group II

Sr. No.	Cash inflow	Cash Outflow	Net cashflow	Discounted net flow @12%	Discounted net flow @ 14%
1.	0	544290.67	-544290.678	-304802.77	-282486.86
2.	2110343.64	553290.67	1557052.96	871949.65	808110.48
3.	2132343.64	563290.67	1569052.96	878669.65	814338.48
4.	2154343.64	573290.67	1581052.96	885389.65	820566.48
5.	2176343.64	583290.67	1593052.96	892109.65	826794.48
			NPV	2356482.65	2120489.88

**Table 3:** Estimation of net present value and IRR for Group III

Sr. No.	Cash Inflow	Cash Outflow	Net Cashflow	Discounted net flow @12%	Discounted net flow @ 14%
1.	0	787179.43	-787179.43	-440820.48	-408546.12
2.	16265026.10	812179.43	15452846.67	8653594.13	8020027.42
3.	3303005.22	822179.43	2480825.78	1389262.44	1287548.58
4.	3333005.22	852179.43	2480825.78	1389262.44	1287548.58
5.	3363005.22	862179.43	2500825.78	1400462.44	1297928.58
			NPV	11465849.58	10558595.65

**Table 4:** The internal rate of return and payback period

Particulars	Group I	Group II	Group III
IRR (%)	29.81	31.97	37.27
Payback period (year)	3.1	2.2	1.5

**Table 5:** Average break-even quantity of seedlings produced by the nursery owners

Sr. No.	Particulars	Chilli	Tomato	Brinjal
1.	Break even quantity	75816.80	92469.10	87579.40

### Conclusion

The present study is based upon the relevant data collected by nursery owners through personal interview from the annual reports of the unit and personal interviews of the officials of the unit for the year 2019-20. The results found that, the net present value @ 12% discounted rate in the case of group I categories of nursery owners was ₹ 12,84,289.18 and @ 14% net present value was ₹ 11,40,141.29 and internal rate of return was 29.81 percent. In the case of group II, net present value @12% discount rate was ₹ 23,56,482.65 and @ 14% discounted rate is ₹ 21,20,489.88. and internal rate of return was 31.97 percent. In the case of group III, net present value @ 12% discount rate was ₹11465849.58 and @14% discounted rate net present value was ₹ 10558595.65 and internal rate of returns for group III was 37.27 percent. The net present value at 12 percent discounted rate and at 14 percent were positive which indicates that hydroponics unit is economically viable. The internal rate of returns which indicates a higher average earning power money invested in the nursery enterprise and profitable position of the nursery owners. Results found that, the estimated payback period for group I was 3.1 years, it means the owners of the nursery will recover all his initial investment which he has done during its establishment year within 3 years and 1 month. For group II, estimated payback period was 2.2 years, it means the owners of the nursery will recover all his initial investment which he has done during its establishment year within 2 years and 2 months. Similarly, estimated payback period for group III was 1.5 years, which indicates that the owners of the nursery will recover all his initial investment which he has done during its establishment year within 1 year and 5 months. The estimated break-even quantity of seedlings was found that for chilli, tomato and brinjal was 75816.80, 92469.10 and 87579.40, respectively. In other words, it is a financial calculation for determining the number of seedlings a nursery should sell to cover its costs. Number of actual seedlings produced was much more than estimated break-even quantity. This indicated that all the nurseries were running in profit.

### Acknowledgement

Authors are thankful to Head of Department, Agricultural Economics, Post Graduate Institute, MPKV, Rahuri for providing the necessary facilities for research work.

### References

1. Ashok N, Ravi Y, Lingamurthy KR, Kumar RB, Anupama G. A study on seedling demand and economic analysis of chilli nurseries in Karnataka. *J Crop Weed*. 2019;15(2):120-125.
2. Ashok N, Ravi Y, Raveesha S, Yeledhalli RA. Economic analysis of brinjal seedling nursery enterprise in Karnataka. *Indian J Agric Econ*. 2020;75(3):337-346.
3. Linganagouda, Mahajanashetti SB. Economic analysis of vegetable seedling production under Hi-tech and field

condition at University of Agriculture Sciences, Dharwad - 58005, Karnataka, India. Year; c2016.

4. Murthy DS, Prabhakar BS, Hebbar SS, Srinivas V, Prabhakar M. Economic feasibility of vegetables production under polyhouse: A case study of Capsicum and Tomato. *J Hortic Sci*. 2009;4(2):148-152.
5. Mhatre PS. Economic evaluation of private horticulture nurseries in Ratnagiri district [dissertation]. Rahuri, Maharashtra: MPKV; c2011.
6. Sengar SH, Kothari S. Economic evaluation of greenhouse for cultivation of rose nursery. *Afr J Agric Res*. 2008;3(6):435-439.