

**RESEARCH PAPER****Profitability of onion seed production in Ahmednagar district of Maharashtra**R. T. Shedge\* and S. N. Patil<sup>1</sup>

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**Abstract :** The present study entitled, 'Profitability of Onion Seed Production in Ahmednagar District of Maharashtra' is based on a sample of 90 onion seed growers drawn from Shrigonda, Nagar and Parner tehsils of Ahmednagar district. Three villages from each tehsil were selected randomly and from six villages, 15 onion seed growers were selected from each village on the basis of the actual area under onion seed. All onion seed growers were categorized into three different groups (five in each group), *i.e.* Category I (below 0.05ha), Category II (0.05 to 0.15 ha) and Category III (0.15 ha and above). Thus, the final sample consisted of 90 onion seed growers. The primary data collected for the agriculture year 2021–22 was analyzed by using mathematical and statistical calculations. At the overall level, the per hectare cost of cultivation of onion seed worked out to be Rs. 549224.68. The cost 'A' was Rs. 265391.85, contributing 48.33 per cent of the cost 'C'. In cost 'A', the major item of cost were bulbs, *i.e.* Rs. 139792.34, contributing 25.45 per cent of the cost 'C'. The expenditure on total hired human labour, bullock labour, machine power, manure and plant protection charges was worked out to Rs. 54466.67, Rs. 1200, Rs. 24000, Rs. 5995.67 and Rs. 1442.25 which accounted for 9.92, 0.22, 4.37, 1.09 and 0.26 per cent of the share in cost 'C', respectively. At the overall level, the per hectare gross return was found to be Rs. 1448098.61 and the B:C ratio at cost 'C' was 2.63. It clearly indicated that onion seed cultivation is a profitable venture.

**Key Words :** Cost, Returns, Profitability, Onion seed

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**INTRODUCTION**

India is the world's largest producer of onions, accounting for nearly 24.99 per cent of global production and 23.61 per cent of global area. The largest onion growing states in India include Maharashtra, Madhya Pradesh, Karnataka, Gujarat, Bihar, etc. Onion is cultivated in a variety of climates, but it requires warm

seasons with few heat or cold fluctuations and little rain. In terms of area and onion production, Maharashtra is leading state in India. In Maharashtra, onions are grown during the *Kharif* and *Rabi* (winter) seasons. The *Rabi* season (summer onion harvest) is advantageous for export. About 50–60 per cent of the state's onion crop is suitable for export. Maharashtra accounts for 48.97 per cent of India's total land area and 43.40 per cent of onion

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production. Average production per hectare in Maharashtra was 14.46 tonnes. Nashik, Ahmednagar, Pune, Solapur, and Satara are the main onion-producing regions of Maharashtra. Among all the significant onion-growing districts in Maharashtra, Nashik comes in first followed by Ahmednagar. Ahmednagar District contributes 174787 hectares of area with 3680964.77 MT of production.

The advancement of new, further developed crop varieties and the prompt supply of high-quality seed to cultivators are now essential for achieving development and subsequent growth in horticulture production and efficiency. The ideal and sufficient seed inventory for farmers is ensured by the financially viable seed businesses and an efficient showcasing framework. Technology advancements have led to the creation of disease-resistant, high-yielding dwarf varieties, which has contributed to an annual increase in seed input. It is necessary to produce and use new hybrid seeds, which necessitates a very close connection between the sale and production of these varieties. Seed is the fundamental unit of crop production, with a greater impact than environmental and cultural factors. India requires approximately 9400 tonnes of onion seed per year to cover an area of 11.73 lakh hectares. The organized sector contributes around 40 per cent of the total seed requirement, and the remaining is met by farmers own seed, often produced without meeting the isolation requirement. The onion seed value chain shows the presence of both unorganized and organized sectors, where the unorganized sector includes seed production by farmers and the organized sector includes the private sector and government agencies involved in seed production. For onion seed production depth knowledge is mandatory for highest possible return at the lowest possible cost. Considering this a study on profitability of onion seed production in Ahmednagar district of Maharashtra was carried out with the objectives such as to estimate profitability of onion seed production along with resource utilization structure of selected onion seed growers and cost and return structure of onion seed production.

## MATERIAL AND METHODS

The sampling technique followed was a multistage sampling procedure adopted for the selection of district, tehsils, villages and onion seed growers. In the first stage, Ahmednagar district was selected for the study because

of its maximum area and production under the onion seed crop in Maharashtra state. In the second stage, three tehsils viz., Shrigonda, Nagar and Parner were selected because of their maximum area and production under the onion seed crop among the fourteen tehsils. In the third stage, from each selected tehsil, two villages were randomly selected. In the fourth stage, 15 onion seed growers were selected from each village on the basis of the actual area under onion seed. All 15 onion seed growers were categorized into three different groups (five in each group), *i.e.* Category I (below 0.05ha), Category II (0.05 to 0.15 ha) and Category III (0.15 ha and above). The primary data required for the study was collected through the personal interview method from onion seed growers, with the help of a well-structured and pretested questionnaire exclusively designed for the study pertains to the year 2021–2022.

### Analytical tools :

#### *Estimation of costs and returns :*

Cost A: Includes the costs associated with hired labour, bullock labour, machinery costs, bulb costs, fertilizer costs, manure costs, irrigation costs, plant protection costs, depreciation and repair costs, land revenue, working capital interest etc.

Cost B: Interest on fixed capital + Rental value of land + Cost 'A'

Cost C: Imputed value of family labour + Cost B.

## RESULTS AND DISCUSSION

The findings of the present study, as well as relevant discussions, have been summarized under the following headings:

### **Per hectare resource utilization structure and output in onion seed production :**

Resource utilization structure of selected onion seed growers is presented in Table 1. Table 1 revealed that per hectare labour utilization was 223.00 days on an overall level. Bullock labour use was 2.00 pair days. The average per hectare usage of machinery was found to be 27.00 hours. The utilization of onion bulbs was 38.41 quintals per hectare. On an average, manure utilization was 2.40 tons per hectare. 125.33 kg N, 64.89 kg P and 41.16 kg K were utilized for 1 ha onion seed production area. Irrigation and plant protection charges were Rs. 1670.53 and Rs.1442.45 per hectare, respectively. It was observed that onion seed growers harvested an average

of 789.39 kg/ha of seed.

### Cost of cultivation of onion seed :

The cost of onion seed cultivation was calculated per hectare, and information on various items of the cost of onion seed cultivation is presented in Table 2. The outcome revealed that cost-C was Rs. 549224.68. The contributions of cost A and cost B to onion seed cultivation were 48.33 per cent and 96.66 per cent, respectively. The cost of bulb was 25.45 per cent of cost 'C' *i.e.*, total cost of cultivation. Because of higher yields and prices of onion seed, the proportionate share of the rental value of land was 43.94 per cent of total cost of cultivation. The proportion of hired human labour in the cost of cultivation was 9.93 per cent. Manure and fertilizer expenditure was Rs. 9252.42, accounting for 1.69 per cent, plant protection cost was Rs. 1442.45 constituting 0.26 per cent, irrigation charges were Rs. 1670.70 constituting 0.31 per cent, interest on working capital was Rs. 14012.99 constituting 2.55 per cent and depreciation on capital assets was Rs. 17810.47

constituting 3.24 per cent of the total cost of cultivation. Total expenditure on labor costs was Rs. 98033.34 which included hired human labor cost Rs. 54466.67, family labor cost Rs. 18366.67, machine labor cost Rs. 24000, and bullock labor cost Rs.1200 contributing 9.92 per cent, 3.34 per cent, 4.37 per cent and 0.22 per cent of the total cost of cultivation of onion seed production, respectively.

### Profitability of onion seed production (Rs./ha) :

The total gross returns per hectare from onion seed cultivation were Rs. 1448098.61. The cost of cultivation, or Cost 'C' per hectare was Rs. 549224.68. Cost A and cost B contributed Rs. 265391.85 and Rs. 530858.01 to the total cost of onion seed cultivation, respectively (Table 3).

The various income measures were calculated with the specific level of cost are also presented in Table 3. The farm business income, calculated as gross returns minus cost A, was Rs. 1182706.78 for onion seed cultivation, while the family labor income, calculated as

**Table 1 : Resource utilization structure of onion seed growers (per ha)**

Sr. No.	Particulars	Size of group			Overall
		Category I	Category II	Category III	
<b>A</b>	<b>Input</b>				
1.	Labour requirement				
	Family human labour (Days/ha)	52.00	49.00	60.00	54.00
	Male	22.00	20.00	26.00	23.00
	Female	30.00	29.00	34.00	31.00
	Hired human labour (Days/ha)	154.00	178.00	174.00	169.00
	Male	42.00	36.00	38.00	39.00
	Female	112.00	142.00	136.00	130.00
	Bullock labour (Pair days/ha)	4.00	1.00	1.00	2.00
	Machine labour (Hrs./ha)	30.00	26.00	24.00	27.00
2.	Onion Bulb (q/ha)	38.19	39.25	37.78	38.41
3.	Manures (Ton/ha)	1.94	2.39	2.86	2.40
4.	Fertilizers (kg/ha)				
	Nitrogen	112.36	123.16	140.48	125.33
	Phosphorous	59.72	65.24	69.72	64.89
	Potassium	33.33	42.88	47.26	41.16
5.	Micronutrient (?/ha)	1663.89	1640.94	1870.86	1725.23
6.	Irrigation charges (?/ha)	1512.50	1653.57	1845.53	1670.53
7.	Plant protection(?/ha)	1425.00	1355.26	1547.08	1442.45
<b>B</b>	<b>Output</b>				
	Yield (kg/ha)	793.06	790.00	785.12	789.39

**Table 2: Cost of cultivation of onion seed (Per ha)**

Sr.No.	Particulars	Size of group							
		Category I		Category II		Category III		Overall	
		Amount (Rs.)	Percentage	Amount (Rs.)	Percentage	Amount (Rs.)	Percentage	Amount (Rs.)	Percentage
1.	Hired human labour								
	Male	16800.00	2.94	14400.00	2.57	15200.00	2.95	15466.67	2.82
	Female	33600.00	5.88	42600.00	7.60	40800.00	7.92	39000.00	7.10
2.	Bullock labour	2400.00	0.42	600.00	0.11	600.00	0.12	1200.00	0.22
3.	Machine labour	27000.00	4.72	23400.00	4.17	21600.00	4.19	24000.00	4.37
4.	Bulb	139729.17	24.44	142418.28	25.39	137229.56	26.64	139792.34	25.45
5.	Manure	4861.11	0.85	5984.51	1.07	7141.39	1.39	5995.67	1.09
6.	Fertilizers								
	Nitrogen	617.99	0.12	677.39	0.12	772.63	0.15	689.34	0.13
	Phosphorus	1075.00	0.19	1174.28	0.21	1254.90	0.24	1168.06	0.21
	Potassium	1133.33	0.20	1457.85	0.26	1606.88	0.31	1399.35	0.26
7.	Micronutrient	1663.89	0.29	1640.94	0.29	1870.86	0.37	1725.23	0.32
8.	Irrigation charges	1513.00	0.26	1653.57	0.29	1845.53	0.36	1670.70	0.31
9.	Plant protection	1425.00	0.25	1355.26	0.24	1547.08	0.30	1442.45	0.26
10.	Total Working capital (1 to 9)	231818.49	40.56	237362.08	42.32	231468.83	44.94	233549.81	42.54
11.	Interest on working capital @6 per cent	13909.11	2.43	14241.72	2.54	13888.13	2.70	14012.99	2.55
12.	Land revenue	18.01	0.00	17.17	0.00	20.56	0.00	18.58	0.00
13.	Depreciation on capital assets	21601.95	3.78	16202.73	2.89	15626.72	3.03	17810.47	3.24
14.	Cost A (Σ item 10 to 13)	267347.56	46.77	267823.70	47.75	261004.24	50.67	265391.85	48.33
15.	Rental value of land (1/6th of gross return) - Land revenue	260475.05	45.56	251247.74	44.79	212270.78	41.21	241331.19	43.94
16.	Interest on fixed capital@10per cent	26049.30	4.56	25126.49	4.48	21229.13	4.12	24134.97	4.39
17.	Cost B (Σ item 14 to 16)	553871.91	96.89	544197.93	97.02	494504.15	96.00	530858.01	96.66
18.	Family Labour								
	Male	8800.00	1.54	8000.00	1.43	10400.00	2.02	9066.67	1.65
	Female	9000.00	1.57	8700.00	1.55	10200.00	1.98	9300.00	1.69
19.	Cost C (Σ item 17 to 18)	571671.91	100.00	560897.93	100.00	515104.15	100.00	549224.68	100.00

**Table 3 : Profitability of onion seed production (Rs./ha)**

Sr. No.	Particulars	Size group			
		Category I	Category II	Category III	Overall
1.	Gross return	1562958.33	1507589.47	1273748.04	1448098.61
2.	Cost A	267347.56	267823.70	261004.24	265391.85
3.	Cost B	553871.91	544197.93	494504.15	530858.01
4.	Cost C	571671.91	560897.93	515104.15	549224.68
5.	Farm business income (Gross return - Cost A)	1295610.77	1239765.77	1012743.80	1182706.78
6.	Family labour income (Gross return - Cost B)	1009086.42	963391.54	779243.89	917240.62
7.	Net profit (Gross return - Cost C)	991286.42	946691.54	758643.89	898873.95
8.	B:C ratio				
	Cost A (Gross return / Cost A )	5.85	5.63	4.88	5.45
	Cost B (Gross return / Cost B )	2.82	2.77	2.58	2.72
	Cost C (Gross return / Cost C )	2.73	2.69	2.47	2.63
9.	Per quintal cost of production (Cost C / Total Yield)	72089.77	70999.74	65618.36	69569.29

gross returns minus cost B, was Rs. 917240.62. The net profit for onion seed cultivation was Rs. 898873.95 (gross return minus cost C). The benefit-cost ratio (gross returns divided by cost C) for onion seed production indicated that onion seed production is profitable venture. The benefit-cost ratio was 2.63.

### Conclusion :

It can be concluded that onion seed cultivation was a profitable and money making enterprise in the study area with B:C ratio of 2.63. The cost of cultivation has been found to be Rs. 549224.68, with cost A and cost B contributing 48.33 per cent and 96.66 per cent, respectively. Because of the higher yield and prices of onion seed, the proportionate share of rental value of land was 43.94 per cent of the total expenditure. The share of hired human labor was 9.92 per cent. In onion seed cultivation, cost-A and cost-B contributed Rs. 265391.85 and Rs. 530858.01, respectively, to cost C. Farm business income was Rs. 1182706.78, family labour income was Rs. 917240.62 and net profit was Rs. 898873.95. The per quintal cost of production of onion seed was Rs. 69569.29. Onion seed production is a profitable crop enterprise.

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