

## COST, RETURNS AND PROFITABILITY IN ORGANIC AND INORGANIC SOYBEAN PRODUCTION IN WARDHA DISTRICT (M. S.)

Dhupe S. B. \*, S. H. Kamble, R. D. Shelke, P.B. Dongare

Department of Agricultural Economics,  
College of Agriculture, Latur, Maharashtra, India.

shrutidhupe42@gmail.com

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**Abstract**

The present study was designed to measure input use cost, returns and profitability in organic and inorganic soybean production in Wardha district of Maharashtra. In present study the sample of 60 organic soybean growers and 60 inorganic soybean growers thus, total 120 soybean growers were selected during the agricultural year 2020-21. The per hectare cost of cultivation of organic soybean and inorganic soybean at overall level worked out to be ₹ 110371.98 and ₹ 94710.7, respectively. In case of organic soybean, the share of cost A and cost B was 66.31 per cent and 97.88 per cent, respectively. While in inorganic soybean, the share of cost A and cost B was 74.69 per cent and 97.78 per cent, respectively. The per hectare net profit in organic and inorganic soybean production was ₹ 73034.01 and ₹ 17366.68, respectively. The cost per quintal of organic and inorganic soybean were worked out to be ₹ 5953.81 and ₹ 4860.05, respectively. The output input ratio of organic and inorganic soybean was 1.66 and 1.18, respectively.

**Key words:** Soybean, organic, inorganic, cost, returns, profitability, output input ratio.

**Introduction**

Soybean (*Glycine max* L) is the world's natural source of protein. It is grown well in sub-tropical and tropical regions. India ranks 1<sup>st</sup> in terms of the overall number of producers and 8<sup>th</sup> in terms of the world's organic agricultural area as of the year 2020. In 2016, Sikkim became the 1<sup>st</sup> state in the world to be entirely organic. 4.34 Mha of India's total land area are recognized under the National Programme for Organic Production as of March 31, 2021. In India, 3.50 Mt (2020–21) of certified organic products were produced. 0.8 Mt worth of exports were made in total between (2020–21). Around INR 707849.52 million was realized from the export of organic foods. 0.89 Mt worth of exports were made in total between 2020 and 2021. Around INR 707849.52 million was realized from the export of organic foods. As of September 17, 2021, India's acreage planted with soy beans for the 2021–22 growing season was 121.76 lakh ha, up from 121.20 lakh ha in the 2020–21 growing season. With 55.84 lakh ha, Madhya Pradesh led the states, followed by Maharashtra (46.01 lakh ha), Rajasthan, and (10.62 lakh ha), Karnataka (3.82 lakh ha), Gujarat (2.24 lakh ha), and Telangana (1.51 lakh ha). Madhya Pradesh, Maharashtra, Rajasthan, Karnataka, Andhra Pradesh, Chhattisgarh, and Gujarat are the principal soybean-producing states in India. With Maharashtra, 4.124012 Mha of land are planted in soybeans, producing 4.82 Mt at a productivity of 1170.13 kg/ha in 2019–20. The major soybean growing districts in Maharashtra are Nagpur, Wardha, Satara, Amravati, Chandrapur, Buldhana, Parbhani and Latur. In 2019–20, the Wardha district will cover 0.113028 Mha, produce 0.1474.10 Mt, and produce 1304.19 kg/ha. In the Vidarbha area, soybean is gradually replacing crops like cotton, sorghum, pigeon pea, etc. The growing demand for soybeans as a substitute crop has been one of the most important economic motivations for moving land from these crops to its production and price trends for the soy crop.

**Materials and methods**

In Wardha district the cultivation of organic and inorganic soybean is more in Hinganghat and Samudrapur tehsils of the district. Therefore,

**Table 1: Per hectare physical input and output of organic and inorganic soybean cultivation.**

Sr. No.	Particulars	Unit	Organic	Inorganic
<b>INPUT</b>				
1	<b>Hired human labour</b>			
	Male	man day	31.18	34.48
	female	man day	58.48	48.62
2	<b>Family human labour</b>			
	Male	man day	6.56	6.24
	Female	man day	2.98	2.39
3	Bullock labour	pair day	5.56	3.89
4	Machine labour	hrs	22.71	22.01

these two tehsils were purposively selected for the present study and from these two tehsils 60 respondents who cultivated organic soybean and 60 respondents who cultivated inorganic soybean, thus, total 120 respondents were randomly selected from six villages.

To estimate costs, returns and profitability in organic and inorganic soybean cultivation standard cost concept viz. Cost A, cost B and Cost C were used. Also, various measures of farm inputs were estimated along with output-input ratio.

**Results and Discussion****1. Per hectare physical input and output of organic and inorganic soybean cultivation.**

The data on utilization of physical inputs were estimated on per hectare basis and presented in Table 1. It can be observed from the Table that for cultivation of organic soybean hired male and hired female labour required were 31.18 and 58.48 man days, respectively. Similarly, 6.56 and 2.98 man days of family male and family female labour were utilized for one hectare area. The requirement of bullock labour, machine labour, seed, manure and plant protection viz. rhizobium, rhizobium + PSB, dashparni ark, NSKE were 2.98 pair days, 22.71 hours, 74.32 kg, 7.18 tones, 0.94 kg, 0.19 lit. 9.99 lit., respectively. Also, 18.16 quintals of main produce and 0.90 quintals of by produce were harvested from one hectare area of organic soybean.

Similarly, in inorganic soybean cultivation, per hectare requirement of hired male labour, hired female labour, family male labour, family female labour, bullock labour and machine labour were 34.48 man days, 48.62 man days, 6.24 man days, 2.39 man days, 3.89 pair days and 22.01 hours, respectively were estimated. Similarly, per hectare requirement of seed, manure, plant protection (pesticide & fungicide) for inorganic soybean cultivation were 71.99 kg, 2.56 tonnes, 0.94 lit and 0.14 lit, respectively were utilized. Similarly, in fertilizers quantity of N, P and K were 26.35 kg, 54.33 kg and 47.10 kg, respectively were utilized. And 18.87 quintals of main produce and 1.25 quintals of by produce were harvested from one hectare area of inorganic soybean.

**2. Per hectare cost of cultivation of organic and inorganic soybean cultivation.**

Sr. No.	Particulars	Unit	Organic	Inorganic
5	Seed	kg	74.32	71.99
6	Manures	t	7.18	2.56
7	Fertilizers			
	N	kg	-	26.35
	P	kg	-	54.33
	K	kg	-	47.10
8	Plant protection			
	Pesticide	lit	-	0.94
	Fungicide	lit	-	0.14
	Rhizobium	kg	0.94	-
	Rhizobium + PSB	lit	0.19	-
	Dashparni ark	-	2.51	-
	NSKE	-	9.99	-
<b>OUTPUT</b>				
9	Main produce	q	18.16	18.87
10	By produce	q	0.90	1.25

Per hectare cost of cultivation of organic and inorganic soybean is calculated and presented in Table 2. It could be inferred from Table 2, the total cost of cultivation for organic soybean was estimated to ₹110371.98 out of which the rental value was found to be highest 27.66 per cent followed by machine labour 14.40 per cent and hired male labour 10.13 per cent. The cost of depreciation on capital assets, dashparni ark and family male labour was accounted 7.64 per cent, 0.80 per cent and 1.65 per cent, respectively.

In case of inorganic soybean total cost of cultivation was estimated to ₹ 94710.7 out of which the rental value was found to be maximum 19.69 per cent followed by machine labour 16.27 per cent and hired male labour 12.74 per cent. The cost of depreciation on capital assets, family male labour and potassium were accounted 6.91 per cent, 1.78 per cent and 1.15 per cent respectively.

It could be concluded from Table 2, the total cost incurred from organic soybean was more by ₹ 15661.28 than that of inorganic soybean production.

**Organic and inorganic soybean production.**

Per hectare profitability of organic and inorganic soybean production were analyzed and presented in Table 3. Also, Table 3 indicated that

**Table 3. Per hectare profitability of organic and inorganic soybean production.**

Sr. No.	Particulars	Organic Amount (₹)	Inorganic Amount (₹)
1.	Returns from a main produce	181155.29	109075.76
2.	Returns from a by produce	2250.70	3001.62
	<b>Gross return (1+2)</b>	<b>183405.99</b>	<b>112077.38</b>
3.	Cost - A	73184.06	70744.09
4.	Cost - B	108032.41	92612.21
5.	Cost - C	110371.98	94710.7
6.	Farm business income	110221.93	41333.29
7.	Family labour income	75373.58	19465.17
8.	Net profit	73034.01	17366.68
9.	Output Input ratio	1.66	1.18
10	Per quintal cost of production	5953.81	4860.05

**Conclusion:**

The total labour and inputs required for inorganic soybean growers was less as compare to organic soybean growers. The per hectare cost of cultivation of inorganic soybean growers was higher than organic soybean growers and the returns from main produce of organic growers was more than inorganic soybean growers, the returns from by produce of inorganic growers was more than organic soybean growers. It also concluded that the organic soybean growers were more profitable than inorganic soybean growers.

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