



E-ISSN: 2618-0618
P-ISSN: 2618-060X
© Agronomy
www.agronomyjournals.com
2024; 7(9): 463-466
Received: 05-07-2024
Accepted: 15-08-2024

Vaishnavi Lakhe
PG Scholar, Agricultural
Economics and Statistics Section,
College of Agriculture, Nagpur,
Maharashtra, India

SN Suryawanshi
Assistant Professor, Agricultural
Economics and Statistics Section,
College of Agriculture, Nagpur,
Maharashtra, India

MS More
Assistant Professor, Agricultural
Economics and Statistics Section,
College of Agriculture, Nagpur,
Maharashtra, India

NT Bagde
Assistant Professor and Head,
Agricultural Economics and
Statistics Section, College of
Agriculture, Nagpur,
Maharashtra, India

Urvashi Walke
PG Scholar, Agricultural
Economics and Statistics Section,
College of Agriculture, Nagpur,
Maharashtra, India

Vaibhav Khandre
PG Scholar, Agricultural
Economics and Statistics Section,
College of Agriculture, Nagpur,
Maharashtra, India

Corresponding Author:
Vaishnavi Lakhe
PG Scholar, Agricultural
Economics and Statistics Section,
College of Agriculture, Nagpur,
Maharashtra, India

International Journal of Research in Agronomy

An economic evaluation of Nanaji Deshmukh Krushi Sanjivani Prakalpa (PoCRA) for gram cultivation in Wardha district

Vaishnavi Lakhe, SN Suryawanshi, MS More, NT Bagde, Urvashi Walke and Vaibhav Khandre

DOI: <https://doi.org/10.33545/2618060X.2024.v7.i9f.1582>

Abstract

The present study entitled, “An economic evaluation of Nanaji Deshmukh Krushi Sanjivani Prakalpa (PoCRA) for gram cultivation in Wardha district”. The study was undertaken to examine the impact of PoCRA on gram cultivation. For the present study, 60 PoCRA beneficiary and 60 non-beneficiary farmers were selected from Wardha and Deoli tehsils of Wardha district. The primary data was collected from the selected farmers by survey method and pretested schedule. To estimate the cost and returns of gram standard cost concepts i.e., cost ‘A’, cost ‘B’ and cost ‘C’ was used and to identify the constraints faced by PoCRA beneficiary farmers frequency analysis and percentile method was used. It is revealed from the study that Cost ‘C’ of gram for beneficiary and non-beneficiary farmer was Rs 72047.79 and Rs 73756.58 per ha, respectively. Average gross returns of gram for beneficiary and non-beneficiary was Rs 108770.54 and Rs. 98621.71, respectively. The output-input ratio at cost ‘C’ of gram of beneficiary and non-beneficiary was 1.51 and 1.34, respectively. It shows that the beneficiary farmers were more profitable than non-beneficiary farmers. However, major constraints faced by PoCRA beneficiaries were delay in getting PoCRA benefits, irregular instalments of subsidy, lack of awareness about climate resilience, etc.

Keywords: Beneficiary, non-beneficiary, PoCRA, standard cost concepts, output-input ratio

Introduction

Gram commonly known as chickpea (*Cicer arietinum*) is an important pulse crop belong to family *leguminosae* and native to South West Asia. In India, gram ranks 5th among food grain crops, it is the most important pulse crop. It is used for human consumption as well as feeding to animals. Gram is a highly nutritious pulse crop with low digestible carbohydrates (40–60 percent), protein (15–22 percent), essential fats (4 - 8 percent), and a range of minerals and vitamins. Gram is a good source of important vitamins such as riboflavin, niacin, thiamin, folate and the vitamin A precursor of β -carotene. In gram saponin content is high and its inclusion in human diet lowers the plasma cholesterol and reduce the risk of heart disease. Gram also helps in fixing atmospheric nitrogen and contributes to build up organic matter.

India is the largest producer of gram in the world. In India gram occupies an area of 104.74 lakh ha for the year 2023-24. According to Ministry of agriculture and Farmer’s welfare, Government of India, third advance estimates of production of food grains for 2023-24 production of gram in India is 115.76 lakh tonnes for the year 2023-24. (<https://desagri.gov.in>).

In Maharashtra state area under gram is 2668.76 thousand hectares, with production 2860.05 thousand tonnes and productivity is 1072 kg/ha during the year 2023-24. In Wardha district area under gram is 870.68 hundred hectares with production 1084.45 hundred tonnes and productivity is 1245.53 kg/ha during the year 2023-24. (Third advance estimates of area, production & productivity of principal crops during 2023-24 in M.S., <https://krishi.maharashtra.gov.in>)

Objectives

1. To work out the cost and returns of gram cultivated by beneficiary and non-beneficiary farmers.

2. To identify the constraints faced by beneficiaries during implementation of PoCRA.

Materials and methods

The present study was undertaken in Wardha district of Vidarbha region. For the present study multistage random sampling method was used. Out of eight tehsils of Wardha district two tehsils namely Wardha and Deoli tehsil were selected randomly. From each tehsil 3 villages were selected. From each selected village 10 beneficiary and 10 non-beneficiary farmers were selected. Thus total 60 beneficiary and 60 non-beneficiary farmers were selected. The primary data was obtained from selected farmers by survey method and pretested schedule for the year 2023-24 and information was collected on input utilization, cost and returns of the beneficiary and non-beneficiary farmers and the constraints faced by beneficiaries during implementation of PoCRA and other relevant information is also collected. The standard cost concept i.e. cost 'A', cost 'B' and cost 'C' were used in present analysis. The analytical part of the research was mainly confined to:

Estimation of per hectare Cost 'A', Cost 'B' and Cost 'C'.
Per hectare net returns at Cost 'A', Cost 'B' and Cost 'C'

$$\text{Output-input ratio} = \frac{\text{Gross Income}}{\text{Respective cost}}$$

For identification of constraints faced by the beneficiary farmers frequency analysis and percentile method was used.

Results and Discussion

Per hectare cost of cultivation of beneficiary and non-beneficiary farmers of gram

The per hectare cost of cultivation of gram grown by the selected farmers is presented in Table 1. It is revealed that per hectare cost of cultivation of gram for beneficiary farmers was Rs. 72047.79. Among the different items of expenditure machine charges accounted 15.59 percent share to the total cost while the share of rental value land is 25.06 percent to the total cost. hired labour accounted for 12.70 percent and family labour accounted for 7.42 percent of the total cost. Seed expenditure accounted for 10.21 percent of total cost. Manures and fertilizers together accounted for about 7.03 percent of the total cost. Bullock labour accounted for 4.79 percent of the total cost.

In case of non-beneficiary farmer per hectare cost of cultivation of gram was Rs. 73756.58. Important items of expenditure as per their share to total cost were rental value of land (22.19 percent), machine labour (15.46 percent), hired human labour (12.92 percent), Seed (9.95 percent), bullock labour (5.15 percent) and manures and fertilizers (7.26 percent).

The per ha cost of cultivation of non-beneficiary farmers was 2.37 percent higher than beneficiary farmers. This was obviously due to PoCRA beneficiary farmers follow good agriculture practices, avoid unnecessary use of fertilizers, curtail use of insecticide and pesticide, use proper no. of irrigations and adopt micro-irrigation practices.

Beneficiary farmers, on an average obtained yield of 19.52 quintals per hectare, while non-beneficiary farmers obtained 17.96 quintals per hectare. Thus, beneficiary farmers obtained about 1.56 quintals higher yield per hectare than the non-beneficiary farmers.

Table 1: The per hectare cost of cultivation of beneficiary and non-beneficiary farmers

Sr. No.	Particulars		Unit	Beneficiary			Non-beneficiary		
				Input per ha.	Total cost per ha	Percent to total cost C	Input per ha.	Total cost per ha	Percent to total cost C
1	Hired human labour	Male	Days	12.83	4622.91	6.42	12.19	4281.98	5.81
		Female	Days	16.14	4529.37	6.29	18.24	5249.65	7.12
		Sub- total	Days	28.97	9152.77	12.70	30.43	9531.64	12.92
2	Bullock labour	Hired	Pair Days	3.79	2695.56	3.74	4.12	2893.23	3.92
		Owned	Pair Days	1.12	754.55	1.05	1.33	904.11	1.23
		Sub- total	Days	4.91	3450.11	4.79	5.45	3797.34	5.15
3	Machine charges	Hired	hours	12.23	11230.08	15.59	12.39	11403.38	15.46
4	Seed		Kg.	86.38	7357.85	10.21	88.95	7337.49	9.95
5	Manures		Qtls.	4.86	1713.68	2.38	4.48	1627.54	2.21
6	Fertilizers	N	Kg.	26.32	901.99	1.25	29.37	977.43	1.33
		P	Kg.	49.37	2286.32	3.17	52.50	2557.80	3.47
		K	Kg.	5.49	165.36	0.23	6.42	195.62	0.27
		Sub- total			3353.67	4.65		3730.85	5.06
7	Irrigation Charges		Rs.		2911.59	4.04		3440.50	4.66
8	Incidental charges		Rs.		698.28	0.97		989.72	1.34
9	Plant protections		Rs.		1991.15	2.76		2980.10	4.04
10	Repairing charges		Rs.		789.91	1.10		811.50	1.10
11	Working capital (1 to 10)		Rs.		42648.60	59.19		45650.05	61.89
12	Depreciation cost		Rs.		2378.92	3.30		2342.18	3.18
13	Land revenue cess and other taxes		Rs.		72.38	0.10		70.32 (0.10)	0.10
14	Int. on working capital @ 6 percent/num		Rs.		852.97	1.18		913.00	1.24
15	COST "A"		Rs.		45952.87	63.78		48975.55	66.40
16	Rental value of land		Rs.		18056.04	25.06		16366.63	22.19
17	Int. on fixed capital @ 10 %		Rs.		2692.24	3.74		2648.30	3.59
18	COST "B"		Rs.		66701.15	92.58		67990.49	92.18
19	Family labour charges	Male	Days	8.53	3073.53	4.27	9.17	3253.52	4.41
		Female	Days	8.10	2273.10	3.15	8.73	2512.58	3.41
		Sub-total	Days	16.63	5346.63	7.42	17.90	5766.10	7.82
20	COST"C"		Rs.		72047.79	100.00		73756.58	100
21	Yield per hectare	Main produce	Qtls.	19.56	107211.29		17.96	97273.34	
		By produce	Qtls.	6.23	1559.24		5.43	1348.38	
22	Gross value of produce		Rs.		108770.54			98621.71	
23	Per Qtl. cost of production at cost ‘C’		Rs.		3603.71			4031.64	

Per hectare cost and returns of beneficiary and non-beneficiary farmers of gram

Table 2 revealed that gross returns from gram production for beneficiary farmers was Rs 108770.54 which is higher than non-beneficiary farmers having gross returns Rs 98621.71. This was obviously due to higher per hectare yield of gram on beneficiary farms. The per hectare net returns was obtained by beneficiary

and non-beneficiary farmers at cost C was Rs. 36722.75 and Rs 24865.13, respectively.

The output- input ratio at cost 'C' shows that beneficiary farmers (1.51) were more profitable than the non-beneficiary farmers (1.33). Similar results were reported by (Gondhali *et al.*, 2017)^[3] as the output-input ratio of gram crop was 1.66.

Table 2: Per hectare cost and returns of beneficiary and non-beneficiary farmers of gram

Sr. No.	Particulars		Beneficiary	Non-beneficiary
1	Yield (Qtls)	Main produce	19.56	17.96
		By produce	6.23	5.43
2	Price (Rs /qtl)	Main produce	5481.15	5416.11
		By Produce	250.28	248.32
3	Value of main produce		108770.54	97273.34
4	Value of by produce		1559.24	1348.38
	Total gross returns (Rs)		108770.54	98621.71
5	Cost of cultivation at			
a)	Cost 'A'		45952.87	48975.55
b)	Cost 'B'		66701.15	67990.49
c)	Cost 'C'		72047.79	73756.58
6	Net returns at			
a)	Cost 'A'		62817.67	49646.16
b)	Cost 'B'		42069.38	30631.23
c)	Cost 'C'		36722.75	24865.13
7	Output-input ratio at			
a)	Cost 'A'		2.37	2.01
b)	Cost 'B'		1.63	1.45
c)	Cost 'C'		1.51	1.34

Constraints faced by PoCRA beneficiaries

The selected PoCRA beneficiaries were interviewed for the constraints they are facing while implementing PoCRA. The information regarding the important problems faced by the farmers is presented in Table 3. It was observed from the Table 3 that delay in getting PoCRA benefits was found to be the major constraint with 85.00 percent farmers followed by irregular instalments of subsidy with 80.00 percent farmers, lack of awareness about climate resilience with 78.33 percent

farmers, high cost of suggested PoCRA technologies with 71.66 percent farmers, lack of effective advisory system on climate change with 65.00 percent farmers, lack of knowledge about new technologies with 61.67 percent farmers, unavailability of short duration and drought tolerant crop varieties with 58.33 percent farmers, resistance to change the conventional practices with 48.33 percent farmers, labour migration with 35.00 percent farmers.

Table 3: Constraints faced by PoCRA beneficiaries

Sr. No.	Constraints	No. of farmers	Percent to total	Rank
1	Delay in getting PoCRA benefits.	51	85.00	I
2	Irregular instalments of subsidy	48	80.00	II
3	Lack of awareness about climate resilience	47	78.33	III
4	High cost of suggested PoCRA technologies	43	71.66	IV
5.	Lack of effective advisory system on climate change	39	65.00	V
6	Lack of knowledge about new technologies	37	61.67	VI
7	Unavailability of short duration and drought tolerant crop varieties	35	58.33	VII
8	Resistance to change the conventional practices	29	48.33	VIII
9	Labour migration	21	35.00	IX

Conclusion

1. Per hectare total cost of cultivation i.e. cost 'C' of gram for non-beneficiary farmers was Rs. 73756.58 which was 2.37 percent higher than beneficiary farmers i.e. Rs 72047.79.
2. Beneficiary farmers obtained about 1.56 quintals higher yield per hectare than the non-beneficiary farmers.
3. The net returns obtained by beneficiary farmers at cost 'C' was Rs. 36722.75 is higher than non-beneficiary farmers (Rs 24865.13).
4. The output-input ratio at cost 'C' was found highest (1.51) in beneficiary farmers, as compared to non-beneficiary farmers (1.33). It shows that the beneficiary farmers were more profitable than non-beneficiary farmers.

5. Major constraints faced by PoCRA beneficiary farmers were delay in getting PoCRA benefits followed by irregular instalment of subsidy, lack of awareness about climate resilience, lack of knowledge about new technologies, high cost of suggested PoCRA technologies, etc.

References

1. Anonymous. Ministry of Agriculture and Farmers Welfare, Government of India, third advance estimates of production of foodgrains for 2023-24. Available from: <https://desagri.gov.in>. 2024.
2. Anonymous. Third advance estimates of area, production and productivity of principal crops during 2023-24 in M.S.

- Available from: <https://krishi.maharashtra.gov.in>. 2024.
3. Gondhali RS, Ulemale DH, Sarap SM. Economic analysis of gram in Amravati district. *Int Res J Agric Stat.* 2017;8(1):31-36.
 4. Kumari M. Socio-economic assessment of chickpea growers in Bihar, India. *Int J Agric Sci Res.* 2015;5(4):21-28.
 5. Sharma S, Pandey S, Verma A. An analysis of cost and return of chickpea cultivation in Chhattisgarh. *Asian J Agric Ext Econ Sociol.* 2023;41(9):353-361.
 6. Shende SS, Ahire RD, Kadam RP. An in-depth analysis of constraints and suggestions experienced by Maharashtra Project on Climate Resilient Agriculture (PoCRA) project beneficiaries. *Int J Stat Appl Math.* 2023;8(6):1361-1363.
 7. Singh R, Singh GP, Raghuvanshi T, Singh V, Singh R, Singh AK. A study on the cost and returns of major pulse (gram, pea and pigeon pea) production on different size groups of farms in Azamgarh district of Eastern Uttar Pradesh, India. *Int J Curr Microbiol App Sci.* 2018;7:307-318.