

Impact Factor-8.632 (SJIF)

ISSN-2278-9308

B.Aadhar

Single Blind Peer-Reviewed & Refereed Indexed

Multidisciplinary International Research Journal

March- 2024

ISSUE No - (CDLXIII) 463

75th Years of Indian Economy: Achievements and Challenges



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- Scientific Journal Impact Factor (SJIF)
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23	Economics Of Moong (Green Gram) Farming In Dry Land Of Solapur District Dr. Yogesh Balbhim Mane	105
24	Human Rights for Working Women Dr. Vishal Vasant Kurane	112
25	Sustainable development Goals and Challenges Mr. Ananda Shivaji Bachate	116
26	Viksit Bharat@2047 Dr. Dadasaheb Balasaheb Mane	120
27	Higher Professional Education And Role Of Human Capital In Economic Growth - A Flux Trend On Modern Education Mr. Udaykumar J. Inamdar	122
28	India's Agricultural Foreign Trade in Post-Reform Period Dr. Dayanand P. Gawade	125
29	A Study of Personal Stress and Self Concept among working and non working women in Ichalkaranji city. Dr. Anil Balaso Balugade	133
30	Climate Change Impact On Agriculture In Maharashtra Dr. P. S. Kamble , Dr. Amol C. Kamble ,Samruddhi P. Vadgavkar, Priyanka D. Tarapurkar,	136
31	A review ofan Indian Economy after Independence Prof. V. P. Katti	144
32	New Horizons : National Education Policy 2020 Dr. Mrs. Sunita S. Rathod	145
33	Forest- Based food Security Strategies in western Maharashtra P.S. Kamble¹, AtulDake², Pravanti Udgirkar²	149
34	जागतिक व भारतीय अर्थव्यवस्थेमध्ये डिजिटल पेमेंट प्रणालीचे (UPI) महत्व Unified Payments Interface डॉ.प्रसाद पांडुरंग दावणे	155
35	आदिवासी जमातींची सामाजिक, सांस्कृतिक आणि आर्थिक पार्श्वभूमी डॉ. दीपककुमार वळवी	162
36	भारतीय अर्थव्यवस्थेसमोरील आव्हाने व उपाय डॉ. ढास डी. के.	166
37	भारताच्या चलनाचे विमुद्रीकरण प्रा.एल. के. पवार	170
38	भारतीय रेल्वे क्षेत्रात थेट विदेशी गुंतवणुकीची गरज डॉ. हणमंत शहाजी सावंत	174
39	भारतातील वैद्यकीय पर्यटन: परकीय चलनाला चालना देणारा उद्योग डॉ. सुरेश वसंत शिखरे	178
40	भारतीय अर्थव्यवस्था:आव्हाने आणि संधी डॉ. डी. आर. धेडे	191
41	वस्तू आणि सेवा कर : नजीकच्या काळातील आव्हाने व समस्या चिंतन नागेश पोतदार	196
42	भारतातील वित्तीय समावेशन प्रा. सौ. एन. एस. पाटील	199
43	हवामान बदलाचा कृषी क्षेत्रावरील परिणाम ज्योती आप्पासाहेब माळी	203
44	विकसित भारत @ 2047 आर. बी. पाटील	207
45	भारतातील विदेशी प्रत्यक्ष गुंतवणूक आणि सद्यस्थिती : एक संक्षिप्त आढावा 211	

Economics Of Moong (Green Gram) Farming In Dry Land Of Solapur District

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Abstract:-

The present study was carried out in all the tehsils in Solapur district to study cost of cultivation, prices and profitability of Green Gram (Moong) production. The study was based on the primary data of 50 Green Gram (Moong) cultivators. The average per acre cost of cultivation of Green Gram (Moong) was estimated to Rs. 13658 and per quintal cost was estimated to Rs. 4970. Amongst the different items of cost, human labour cost and machine labour cost was the major components of variable cost. Rental value of owned land is the major component of cost in case of fixed costs. The average production of Green Gram (Moong) was 2.75 quintal per acre. The minimum support price for Green Gram (Moong) crop was Rs. 7050. The gross return obtained from Green Gram (Moong) crop was Rs. 12696 and Net Return was Rs. (-962) it means that Green Gram (Moong) growers have suffer the loss. The benefit-cost ratio of Kharif Green Gram (Moong) in sample area was 0.93. It means that farmers have invested 1 rupee in Green Gram (Moong) production but they suffer 0.7 paise net loss (burden) per rupee.

Keywords: Cost, Prices, Profitability, Gross Return, Net Return, Cost Benefit Ratio, Area, Production, Productivity.

1. INTRODUCTION:

Green gram is commonly known as Moong. Green gram is one of the main pulse crop in India. Green gram has been cultivated in India since ancient times. India is the major producer of green gram in the world and grown in almost all the States. Green gram is originated in India and Central Asia and grown in these regions since prehistoric times. It is a drought tolerant crop which is cultivated in low rainfall. India, Pakistan, Bangladesh, Sri Lanka, Thailand, Laos, Cambodia, Vietnam, Indonesia, Malaysia, south China and Formosa and know Africa and U.S.A are the major Green Gram cultivating countries. The important green gram growing States in India is Orissa, Maharashtra, Andhra Pradesh, Madhya Pradesh, Gujarat, Rajasthan and Bihar. Green gram is a protein rich staple food. It contains about 25% protein, which is almost three times that of cereals. It supplies protein requirement of vegetarian population of the country. It is consumed in the form of split pulse as well as whole pulse, which is an essential supplement of cereal based diet. It is also a good source of Riboflavin, Thiamine and Vitamin C. It is the most important Pulse crop in India. Green gram is also used as green manure crop. Green gram can be used as feed for cattle.

Green gram crops Kharif crop grown in the months of June to July and harvested between October and November. Duration of green gram crop was 100 days. Total Estimated area under green gram crop was 4851.70 thousand hectares, estimated production was 2647.72 thousand tonnes and productivity was 546 kg per hectare. In Maharashtra total area under Green Gram crop was 425.69 thousand hectares, production was 176.54 thousand tonnes and productivity was 415 kg per hectare. In Solapur district total area under Green Gram crop was 86.96 hundred hectares, production was 49.17 hundred tonnes and productivity was 600kg. per hectare. Solapur district is also one of the Green Gram producing districts in Maharashtra. In all the tehsils of Solapur district Green gram was cultivated. The present investigation was attempted to study cost of cultivation of Green Gram production, prices for green gram Production, profitability of green gram production and cost benefit ratio of green gram production in the study area.

2. OBJECTIVES OF THE STUDY:

The main objective of study is to study the economics of Green Gram (Moong) with reference to dry land in Solapur district and specific objectives of the present study are as follows-

1. To analyse the cost of Green Gram (Moong) Production in the area under study.
2. To study the prices for Green Gram (Moong) Production in area under study.
3. To study the profitability of Green Gram (Moong) Production in the area under study.
4. To estimate the benefit cost ratio of Green Gram (Moong) production in study area.



3. HYPOTHESIS:

1. Green Gram (Moong) crop is not profitable.

4. RESEARCH METHODOLOGY:

For the study undertaken researcher has used the multistage sampling. For the selection of sample farmers researcher has used the purposive sampling method. For selection of farmers researcher has selected non-irrigated land farmers purposefully and quota sampling method is used to select the Green Gram (Moong) crop farmer. Therefore, the researcher has used the purposive quota sampling method because there is no exact data of non-irrigated Green Gram (Moong) in Solapur district. The study was conducted in Solapur district as whole. From Solapur district all 11 tahsil.ePandharpur, Mangalweda, Malshiras, Madha, Karmala, Akkalkot, Barshi, Mohol, Sangola, Solapur North & Solapur South having maximum area under Green Gram (Moong) cultivation were selected. The study was based on primary data for the year 2020-21. Thus for present study 50 Kharif Green Gram (Moong) growers were selected as per the quota sampling method. These 50 respondents were selected from each tehsil. Data collection was made by preparing separate questionnaire/ interview schedule for Green Gram (Moong) producer.

5. RESULT AND DISCUSSION:

5.1. Estimated Cost of Cultivation & Total Cost of Green Gram (Moong) in Solapur District

Table 1

Estimated Cost of Cultivation & Total Cost of Moong (Green Gram) in Solapur District

(₹ Per Acre)

Sr. No.	Elements of cost	Average Cost	Percentage
1	Human Labour- Hired	852	6.24
2	Human Labour- Family	3251	23.80
3	Bullock Labour - Hired	541	3.96
4	Bullock Labour - Owned	0	0.00
5	Machine Labour - Hired	1669	12.22
6	Machine Labour - Owned	0	0.00
7	Seeds	713	5.22
8	Fertilizer	896	6.56
9	Manure	266	1.95
10	Insecticides	516	3.78
11	Irrigation (Water + Electricity Charges)	72	0.53
12	Crop Insurance	23	0.17
13	Interest on Working Capital	255	1.87
14	Miscellaneous	3	0.02
I)	Operational Cost (1 to 14)	9057	66.31
15	Rental Value of Owned Land	3204	23.46
16	Rent Paid on Leased land	0	0.00
17	Land Revenue, Cesses & Taxes	46	0.34
18	Depreciation of Farm Builds & Implements	130	0.95
19	Interest on Fixed Capital	936	6.86
II)	Fixed Cost (15 to 19)	4317	31.61
III)	Total Cost of Cultivation (I + II)	13374	97.92
20	Packaging cost	66	0.48
21	Transportation Cost	179	1.31
22	Sales Expenses in Market Committee	40	0.29
IV)	Selling and Distribution Cost (20 to 22)	284	2.08
	Total Cost / Cost of Sales (III + IV)	13658	100.00

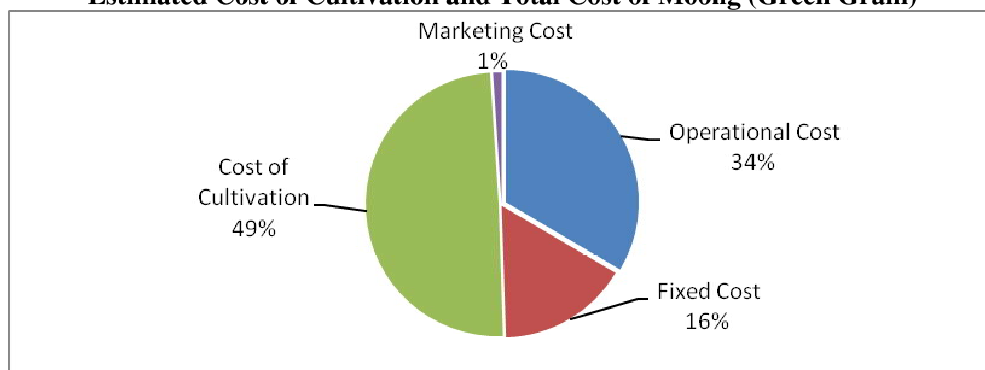
(Source: Field Survey)

Variable Cost/ Operational Cost of Moong (Green Gram)-

In Moong production human labour cost is the major variable cost. Hired Human labour cost incurred was ₹ 852 (6.24%) per acre, and family labour cost incurred was ₹ 3251 (23.80%) per acre. Family labour cost is more as compared to hired human labour cost. Hired Bullock labour cost incurred

was ₹ 541(3.96%) per acre and there is no owned bullock labour cost because the farmers have not owned the bullock labour. Hired machine labour cost incurred was ₹ 1669 (12.22%) per acre and there is no owned machine labour cost because the farmers have not owned the machine labour. Seeds cost incurred was ₹ 713 (5.22%) per acre for Moong production. Fertilizer cost incurred was ₹ 896 (6.56%) per acre. In case of Moong production manure cost incurred was ₹ 266 (1.95%) per acre. Insecticides cost incurred was ₹ 516 (3.78%) per acre. Irrigation cost incurred was ₹ 72 (0.53%) per acre which includes water and electricity charges. In Moong production crop insurance cost incurred was ₹ 23 (0.17%) per acre. Interest on Working capital cost incurred was ₹ 255 (1.87%) per acre and miscellaneous cost incurred was ₹ 3 (0.02%) per acre in the sample study area. The average total operational or variable cost incurred was ₹ 9057 (66.31%). So from the variable cost analysis it was observed that human labour cost and machine labour cost is the major components of operational or variable cost. Cost of miscellaneous, crop insurance and irrigation is very less in case of Moong production.

Figure 4.14
Estimated Cost of Cultivation and Total Cost of Moong (Green Gram)



Fixed Cost of Moong (Green Gram) -

In the case of Moong production rental value of owned land is the major component of fixed cost. Rental value of owned land cost incurred was ₹ 3204 (23.46%) per acre in sample study area. There is no cost of rent paid on leased land because in sample area no any farmer was taken land on lease. Land revenue, cesses and taxes cost incurred was ₹ 46 (0.34%) per acre. Depreciation of farm builds and implements cost incurred was ₹ 130 (0.95%) per acre. Interest on fixed capital cost incurred was ₹ 936 (6.86%) per acre. The average total fixed cost of Moong cultivation incurred was ₹ 4317 (31.61%). So from the analysis of fixed cost it was observed that rental value of owned land is the major component of cost in case of fixed costs. It was also observed that there is no cost of rent paid on leased in land because all the selected farmers was their own land. Land revenue, cesses and taxes cost is very less in fixed costs.

Total Cost of Cultivation of Moong (Green Gram) -

The average Total cost of cultivation of Moong per acre was ₹ 13374 (97.92%). Out of total cost of cultivation operational cost was ₹ 9057 (66.31%) and fixed cost was ₹ 4317 (31.61%).

Selling and Distribution Cost of Moong (Green Gram) -

This table shows the marketing cost of per acre Moong production. The packaging cost was incurred ₹ 66 (0.48%) per acre in drought area of Solapur district. Majority of the Moong farmers sale their production at local markets (block and district market) the transportation cost from farm to local market was ₹ 179 (1.31%) per acre. The average sales expenses in market committee (portage, weigh & other cost) incurred was ₹ 40 (0.29) per acre. The total average selling and distribution cost of Moong was ₹ 284 (2.08%).

Total Cost /Cost of sales of Moong (Green Gram)-

In Moong farming, per acre total cost or cost of sales incurred was (total cost of cultivation + total marketing cost) ₹ 13658. The share of variable cost in total cost or cost sales was ₹ 9057 (66.31%), fixed cost is ₹ 4317 (31.61%) and selling and distribution cost was ₹ 284 (2.08 %). From this table it was observed that per acre cost of Moong production was ₹ 13658.

**5.2. Estimated Cost of Production and Total Cost of Green Gram (Moong) in Solapur District:
Table 2**

**Estimated Cost of Production and Total Cost of Green Gram (Moong) in Solapur District
(₹Per Quintal)**

Sr. No	Elements of cost	Average Cost	Percentage
1	Human Labour- Hired	310	6.24
2	Human Labour- Family	1183	23.80
3	Bullock Labour - Hired	197	3.96
4	Bullock Labour - Owned	0	0.00
5	Machine Labour - Hired	607	12.22
6	Machine Labour - Owned	0	0.00
7	Seeds	260	5.22
8	Fertilizer	326	6.56
9	Manure	97	1.95
10	Insecticides	188	3.78
11	Irrigation (Water + Electricity Charges)	26	0.53
12	Crop Insurance	8	0.17
13	Interest on Working Capital	93	1.87
14	Miscellaneous	1	0.02
I)	Operational Cost (1 to 14)	3296	66.31
15	Rental Value of Owned Land	1166	23.46
16	Rent Paid on Leased land	0	0.00
17	Land Revenue, Cesses & Taxes	17	0.34
18	Depreciation of Farm Builds & Implements	47	0.95
19	Interest on Fixed Capital	341	6.86
II)	Fixed Cost (15 to 19)	1571	31.61
III)	Total Cost of Cultivation (I + II)	4867	97.92
20	Packaging cost	24	0.48
21	Transportation Cost	65	1.31
22	Sales Expenses in Market Committee	14	0.29
IV)	Selling and Distribution Cost (20 to 22)	103	2.08
	Total Cost / Cost of Sales (III + IV)	4970	100.00

(Source: Field Survey)

Figure 4.42

Estimated Cost of Production and Total Cost of Moong (Green Gram)





Variable Cost/ Operational Cost of Moong (Green Gram)-

In Moong production human labour cost is the major variable cost. Hired Human labour cost incurred was ₹ 310 (6.24%) per quintal, and family labour cost incurred was ₹ 1183 (23.80%) per quintal. Family labour cost is more as compared to hired human labour cost. Hired Bullock labour cost incurred was ₹ 197 (3.96%) per quintal and there is no owned bullock labour cost. Hired machine labour cost incurred was ₹ 607 (12.22%) per quintal and there is no owned machine labour cost incurred due to farmers have not owned machines. Seeds cost incurred was ₹ 260 (5.22%) per quintal for Moong production. Fertilizer cost incurred was ₹ 326 (6.56%) per quintal. In case of Moong production manure cost incurred was ₹ 97 (1.95%) per quintal. Insecticide’s cost incurred was ₹ 188 (3.78%) per quintal. Irrigation cost incurred was ₹ 26 (0.53%) per quintal which includes water and electricity charges. In Moong production crop insurance cost incurred was ₹ 8 (0.17%) per quintal. Interest on Working capital cost incurred was ₹ 93 (1.87%) per quintal and miscellaneous cost incurred was ₹ 1 (0.02%) per quintal in the sample study area. The average total operational or variable cost incurred was ₹ 3296 (66.31%). So, from the variable cost analysis it was observed that human labour cost (30.04%) and machine labour cost (12.22%) was the major components of operational or variable cost. Cost of miscellaneous (0.02%) crop insurance (0.17%) and irrigation (0.53%) was very less in case of Moong production.

Fixed Cost of Moong (Green Gram)-

In the case of Moong production rental value of owned land is the major component of fixed cost. Rental value of owned land cost incurred was ₹ 1166 (23.46%) per quintal in sample study area. There is no cost of rent paid on leased land because in sample area no any farmer was taken land on lease. Land revenue, cesses and taxes cost incurred was ₹ 17 (0.34%) per quintal. Depreciation of farm builds and implements cost incurred was ₹ 47 (0.95%) per quintal. Interest on fixed capital cost incurred was ₹ 341 (6.86%) per quintal. The average total fixed cost of Moong cultivation incurred was ₹ 1571 (31.61%). So, from the analysis of fixed cost, it was observed that rental value of owned land (23.46%) was the major component of cost in case of fixed costs. It was also observed that there is no cost of rent paid on leased in land because all the selected farmers have their own land. Land revenue, cesses and taxes cost (0.34%) was very less in fixed costs.

Total Cost of Cultivation of Moong (Green Gram)-

The average total cost of cultivation of Moong was ₹ 4867 per quintal which was 97.92% of total cost or cost of sales. Out of total cost of cultivation operational cost was ₹ 3296 (66.31%) and fixed cost was ₹ 1571 (31.61%).

Selling and Distribution Cost of Moong (Green Gram)-

This table shows the selling and distribution cost of per quintal Moong production. The packaging cost incurred was ₹ 24 (0.48%) per quintal in draught area of Solapur district. Majority of the Moong farmers sale their production at local markets (block and district market) the transportation cost from farm to local market was ₹ 65 (1.31%) per quintal. The average sales expenses in market committee (portage, weigh & other cost) incurred was ₹ 14 (0.29%) per quintal. Total selling and distribution cost of Moong was worked out to be ₹ 103 (2.08%) per quintal in the study area of Solapur district.

Total Cost /Cost of sales of Moong (Green Gram)-

In Moong farming, the average total cost or cost of sales is (total cost of cultivation + total selling and distribution cost) ₹ 4970. The share of variable cost in total cost or cost sales was 3296 (66.31%), fixed cost was ₹ 1571 (31.61%) and selling and distribution cost was ₹ 103 (2.08 %). From this table it was observed that per quintal cost of Moong production was ₹ 4970.

5.3. Gross Returns, Net Return and Benefit-Cost Ratio of Green Gram (Moong):

Table 3
Gross Returns, Net Return and Benefit-Cost Ratio of Green Gram (Moong)
(₹ Per Acre)

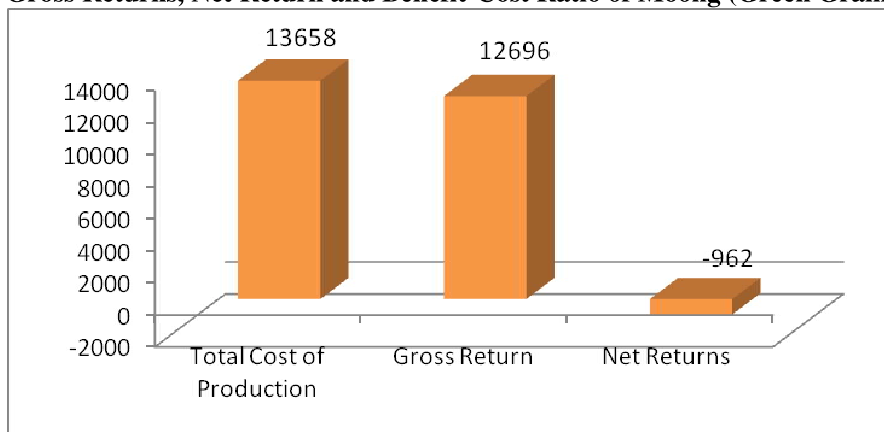
Sr. No	Factor	Details	Returns
1	Gross Return	A) Own Consumption (in quintal)	0.12
		Price (in Rs.)	6100
		Gross Return (output* price)	732

		B) Production Sold (in quintal)	2.63
		Price (in Rs.)	4549
		Gross Return (output* price)	11964
		C) Total Production A+B (in quintal)	2.75
		Gross Return (output* price) A+B	12696
2	Net Return	Total Cost of Production	13658
		Gross Return	12696
		Net Returns (gross return- total cost)	-962
3	Benefit-Cost Ratio	Gross Return / Total Cost	0.93

(Source: Compiled by Researcher)

Figure 4.53

Gross Returns, Net Return and Benefit-Cost Ratio of Moong (Green Gram)



In case of Moong farming, productivity of non- irrigated Moong is 2.75 quintal per acre and farmers get averagely ₹ 4549 price per quintal at local market. Out of total production own consumption of Moong is 0.12 quintal per acre and production sold is 2.63 quintal per acre. Gross return of Green Gram is ₹ 12696 per acre out of which ₹ 11964 (94.23%) is from sell of Moong production and ₹ 732 (5.77%) is from own consumption of Moong by farmers. During the filed survey it was observed that farmer keep some Moong production for own consumption but in very less quantity. Net return of Moong production is ₹ (-) 962. It means that Moong growers have a burden (loss) of ₹ 962 per acre. The benefit-cost ratio of non-irrigated Moong in sample area is 0.93. It means that farmers have invested rupee 1 in Moong production but they bear 0.07 paise net loss per rupee.

6. HYPOTHESIS TESTING:

Researcher has formulated the hypotheses on the profitability of Green Gram (Moong) in area under study. This hypothesis is-

Green Gram (Moong) Crop is not profitable.

To study the hypothesis Green Gram (Moong)Crop is not profitable, Researcher was used the one sample t-test to test the hypothesis and taken test value = 0.

Table 4

Profitability of Green Gram (Moong) Crop

Variable	N	Mean	SD	SE Mean	Test value = 0		
					95% Lower Bound	T	P
Green Gram (Moong)	50	-1652	9014	1275	-3789	-1.3	0.899

The above testing of hypothesis reveals that p value of Green Gram (Moong) crops is greater than the level of significance i.e. 0.05 hence it is concluded that the null hypothesis i.e. Green Gram (Moong) Crop is not profitable is accepted and the study reject the alternative hypothesis i.e. Green Gram (Moong) Crop is profitable. It concludes that Green Gram (Moong) is not profitable in the area under study.

**7. CONCLUSION:**

In Green Gram (Moong) cultivation, per acre average total cost or cost of sales was ₹ 13658. The share of variable cost in total cost or cost sales was ₹ 9057 (66.31%), fixed cost was ₹ 4317 (31.61%) and selling and distribution cost was ₹ 284 (2.08 %). In Green Gram (Moong) farming, per quintal average total cost or cost of sales was ₹ 4970. The share of variable cost in total cost or cost sales was 3296 (66.31%), fixed cost was ₹ 1571 (31.61%) and selling and distribution cost was ₹ 103 (2.08 %). Productivity of Kharif Green Gram (Moong) is 2.75 quintal per acre and farmers get averagely ₹ 4549 price per quintal at local market. Gross return of Green Gram (Moong) is ₹ 12696 per acre out of which ₹ 11964 (94.23%) is from sell of Green Gram (Moong) production and ₹ 732 (5.77%) is from own consumption of Green Gram (Moong) by farmers. Net return of Green Gram (Moong) production is ₹ -962. It means that Green Gram (Moong) growers have a loss (burden) of ₹ 962. The benefit-cost ratio of non-irrigated Green Gram (Moong) in sample area is 0.93. It means that farmers have invested rupee 1 in Green Gram (Moong) production but they suffer 0.07 paise net loss per rupee. The minimum support price for Green Gram (Moong) crop was Rs. 7050 it was not sufficient to cover the cost of production. So it was suggested to government to increase the MSP of Green Gram (Moong) crop and it was also suggested to take all the costs into consideration while declaring MSP. It was suggested to farmers to increase the productivity of Green Gram (Moong) crops in area under study by using the high yield variety programme means varieties of improved seeds, enhanced application of the fertilizers and extended use of pesticides etc. because productivity of Green Gram (Moong) crop was low in the area under study.

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