

Original Research Article

Cost and Return in Black gram cultivation among members of Farmer Producer Organization in Tamil Nadu, India

ABSTRACT

Farmer producer companies normally carry out the activities such as production, harvesting, processing, procurement, grading, handling, marketing, selling, export of primary produce of the members or import of goods or services for their benefit. The present study was conducted in Theni District of Tamil Nadu. Primary as well as secondary data on black gram were collected for this present study. Simple statistical analysis such as arithmetic mean and percentage analysis and Compound growth rate analysis was worked out. Among operational costs, the cost of human labour accounted the highest share (36.03 per cent) in Black gram cultivation. Total cost of cultivation of black gram among the sample farmers of FPO in the study area was Rs. 46477.26/ha. The net return realised from Black gram cultivation was Rs. 21722.74/ha.

Keywords: FPO, Pulses, Compound annual growth rate, Cost and Returns

1. INTRODUCTION

In India, FPOs are mainly promoted by Small Farmers Agri-Business Consortium (SFAC), National Bank for Agriculture and Rural development (NABARD), Line departments of State Government, NGOs and private players. Nearly 7374 FPOs are mobilized across India. The importance of the FPOs is well understood from the fact that the year 2014 was observed as the “Year of FPO” by the Government of India. These FPOs can be formed both at state, cluster, and village levels by forming groups and registered under the Indian Companies Act, 2013 as Farmer Producer Company (FPC). Farmer producer companies normally carry out the activities such as production, harvesting, processing, procurement, grading, handling, marketing, selling, export of primary produce of the members or import of goods or services for their benefit. Farmer producer companies also renders technical services, consultancy services, training education, research and development and all other activities for the promotion of the interests of its members. The Indian government has a target of doubling the farmer's income in seven years, which is presently on an average less than Rs1.0 lakh per annum (INR 96,703 during 2015-16) to close to Rs. 2.50 lakh (INR 2,19,724) by 2022-23 by emphasizing on value addition. Among the different instruments to achieve this goal, promotion of new and scaling up of existing member-based institutions of farmers such as Farmer Producer Organizations (FPOs) has been given focus. It is expected that given the extremely small landholdings in India, promotion of FPOs can lead

to economies of scale and addresses the problems of production and marketing and improve the bargaining power of farmers through backward and forward linkages. Pulses are staple protein food item for India's vegetarian and rural population to ensure nutritional security. Pulses form an integral part of the Indian diet, providing much needed protein to the carbohydrate rich diet to the people. India is the largest producer of pulses in the world. Pulses are an important group of crops in India, which is also responsible for yielding large financial gains by amounting for a large part of the exports. India has exported 296,169.83 MT of pulses to the world for the worth of Rs. 2,116.69 Crores / 284.26 USD Millions during the year 2020-21. Countries such as USA, China, Nepal, United Arab Emirates, Algeria are major export destinations during 2020-21. (APEDA, 2021). The primary objective of this present research paper is to work out cost and returns in black gram cultivation among the sample farmers of selected Farmer Producer Organization in Tamil Nadu.

2. METHODOLOGY

2.1 Study area and Sampling

The present study was conducted in Theni District of Tamil Nadu. Purposive sampling was adopted to select the sample farmers. Primary as well as secondary data on black gram were collected for this present study. Sample farmers were randomly selected from the selected Farmer Producer company in Theni District of Tamil Nadu. The present study aimed at estimation of cost of cultivation of black gram in the study area. Primary data on costs and return on black gram cultivation were collected. Primary data on costs and returns in black gram cultivation were collected from 60 sample farmers of selected FPO. Secondary data on area, production and productivity of black gram in Tamil Nadu were also collected for a period of 1990-91 to 2018-19 for achieving the objectives of the study. Secondary data were collected from various sources like Season and Crop Reports and Tamil Nadu Economic Appraisal.

2.2 Analytical Tools

For the purpose of evaluating the objectives of the study, the following analytical tools were used for analyzing the data to draw meaningful results and conclusions. Simple statistical analysis such as arithmetic mean and percentage analysis were performed to estimate the cost and returns in black gram cultivation. Compound growth rate analysis was worked out to estimate the trends in area, production and productivity of black gram in Tamil Nadu.

2.2.1 Cost of Cultivation

Primary data on farm operations like ploughing, sowing, manures and manuring, weeding, irrigation, harvesting were collected. Cost of cultivation formulae: (Total fixed cost + total variable cost), Net return formulae: Total income - cost of cultivation and cost of production formulae: Total Cost/ Quintal.

2.2.2 Compound growth rate analysis

Growth of any variable indicates its past performance. Growth rate analysis is generally used to find out the trend in a particular variable over a period of time. In this study, compound annual growth rate on area, production and productivity of black gram was estimated using the exponential growth function of the form:

$$Y = ab^t e^{ut} \dots \dots \dots (1)$$

Where,

Y_t : Known as dependent variable.

a : Intercept

b : Regression coefficient = $(1+g)$

t : Number years in 1, 2, ...,n

u_t : Error term for 't' year

Ordinary Least Square (OLS) technique was used to estimate the compound annual growth rate. The value of compound growth rate (g) was expressed in percentage. The formula used to work out the compound annual growth rate given below.

$$g = \{\text{Antilog of } (b)-1\} \times 100.$$

The students't test was to test the significance of the regression coefficient.

3. RESULTS AND DISCUSSION

3.1 Compound Annual growth rate in black gram in Tamil Nadu

Results of the study are presented in the following tables. An analysis was carried out to study the growth of area, production and productivity of Black gram in the study area for the period 1990-91 to 2018-19. Comparative analysis on compound annual growth rate among different decades indicated that there was negative growth rate in area, production and productivity during 1990-91 to 1999-2000. It was indicated that there was positive trend in area and negative tend were noticed in production and productivity during 2000-01 to 2009-10. Even though there was negative trend in area, production and productivity shown positive trend during 2010-11 to 2018-19. The growth in area, production and productivity was 0.53 percent, 3.07 percent and 1.23 percent respectively during 1990-91 to 2018-19. It was inferred from the table that the increasing trend was observed in area, production and productivity of Black gram in Tamil Nadu. (Table-1)

Table 1. Compound Annual growth rate in black gram in Tamil Nadu

Period	Area	Production	Productivity
1990-91 to 1999-2000	-2.78	-3.81	-1.06
2000-01 to 2009-10	1.52	-1.46	-2.92
2010-11 to 2018-19	-3.25	10.75	3.64
1990-91 to 2018-19	0.53	3.07	1.23

3.2 Cost of cultivation of black gram among sample farmers of FPO

The analysis on cost of cultivation of black gram among sample farmers of FPO was presented in the following table.2. Expenses on farm operations like ploughing, sowing, manures and manuring, weeding, irrigation, harvesting was collected and analysed and results were presented here under.

Table 2. Cost of cultivation of black gram among sample farmers of FPO (Rs/ha)

Particulars	Total Cost (Rs./ha)
I. Operational Cost	
Human Labour	16746.00 (36.03)
Machine Power	4125.00 (8.88)
Seed	3400.00 (7.32)
Fertilizers and Manures	4720.00 (10.16)
Plant Protection Charges	872.00 (1.88)
Interest on working capital	3583.56 (7.71)
Total operational cost	33446.56 (71.96)
II. Fixed Cost	
Rental value of Owned Land	7650.00 (16.46)
Land Revenue, Taxes & Cess	15.00 (0.03)
Depreciation on Implements & Farm building	340.00 (0.73)
Interest on fixed capital	800.50 (1.72)
Total Fixed Cost	8805.50 (18.95)
Sub Total (I+II)	42252.06 (90.91)
Managerial cost 10%	4225.20 (9.09)
Total Cost	46477.26 (100.00)

It could be seen from the Table 2 that the value of variable inputs used by the sample farms was Rs. 33446.56/ha, which accounted for 71.96 per cent of the total cost. Among operational costs, the cost of human labour accounted the highest share (36.03 per cent), followed by fertilizer and manures (10.16 per cent), machine labour (8.88 per cent), seeds (7.32 per cent), Interest on working capital (7.71 per cent) machine labour (4.51 per cent), and plant protection chemicals (1.88 per cent). From the Table it could be inferred that fixed cost was Rs. 8805.50 /ha and it formed 18.95 per cent of total cost. Among various components of fixed costs, the cost on rental value of owned land accounted the highest share (16.46 per cent), followed by interest on owned fixed capital (1.72 per cent). Total cost of cultivation of black gram among the sample farmers of FPO in the study area was Rs. 46477.26 /ha. Similar results were obtained by Shyamsundar G., et al., (2019) and Mohiuddin M. et al., (2018).

Table. 3. Return realized in black gram among sample farmers of FPO in Tamil Nadu

Income measures	Amount (Rs/ha)
Total Cost	46477.26
Yield (Qtl/ha)	6.20
Cost of Production (Rs./Qtl)	7496.33
Gross Income realised	68200.00
Net Income realised	21722.74

The average productivity of Black gram among sample farmers was 6.20 q / ha and the cost of production was Rs. 7496.33 / Qtl. The gross return realised from the Black gram cultivation among sample farmers was Rs.68200/ha. The net return realised from Black gram cultivation was Rs. 21722.74/ha(Table. 3). Similar results were obtained by Shyamsundar G.,et al., (2019) and Mohiuddin M. et al., (2018).

4. CONCLUSION

There was positive trend observed in area, production and productivity of Black gram in Tamil Nadu. Cost and returns analysis in black gram among sample farmers of FPO showed that cost of human labour accounted the highest share followed by fertilizer and manures, machine labour and expenditure on seeds. Proper marketing information should also be followed which influenced by providing reasonable price to the farmers to increase the return of this crop. In the study area farmers were not able to get higher return for their crops because of low productivity in black gram cultivation. Production of pulses provides nutritional security population. Hence, more focus should be given for increasing in pulses production. Government procurement for supply through public distribution system would provide adequate marketing support to growers.

REFERENCES

- Shyamsundar G. , Rajesh R. and Parthiban J.J. (2019) Cost and Return of Black gram in Villupuram District of Tamil Nadu an Economic Analysis. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 11, Issue 10, pp.- 8505-8507.
- M. Mohiuddin, N. Akter and R. Khanum (2018) Economics of black gram cultivation and its impact on farmer's livelihood in two selected districts of Bangladesh, SAARC J. Agri., 16(2): 83-96.
- Ahlawat I.P.S., Purushottam Sharma and Ummed Singh, (2016), Production, demand and import of pulses in India, Indian Journal of Agronomy 61 (4th IAC Special issue): S33__S41 (