Journal DOI: 10.36713/epra0412 ISSN: 2277–7741
International Journal of
Asian Economic Light (JAEL) – Peer Reviewed Journal
SJIF Impact Factor : 7.32 Volume: 10 | Issue: 6 | November 2022

PULSES CULTIVATION IN PRAKASAM DISTRICT WITH REFERENCE TO GREEN GRAM CULTIVATION - An Economic Analysis

Dr. K.Obulesu[1], Venkata Subbaiah Sunkari[2]
[1]*Assistant Professor, Department of Economics, Acharya Nagarjuna University, Ongole Campus, Ongole.*
[2]*Research scholar, Department of Economics, Acharya Nagarjuna University, Guntur.*

ABSTRACT
The present study analyzes the economy of Green Gram cultivation in Prakasam district of Andhra Pradesh. The study examines the labour utilization and the input-output structure of pulses production and it analyzes the cost and returns structure of farmers in the pulses cultivation. The findings and inferences drawn from the present study will help the farming community, agricultural authorities and the academic community to gain insights into the economic aspects of Green Gram cultivation in the study area. The output from the present study will be helpful for the future researchers to relay on some solid empirical foundations with regard to the Green Gram cultivation in the study area.
KEY WORDS: ***Green Gram, Cost and return components, Prakasam district.***

1. INTRODUCTION

Agriculture plays a vital role in the Indian economy both in terms of providing employment and contribution to Gross Domestic Product. The agriculture in the nation has exhibited an tremendous growth over the last few decades despite price shocks and weather barriers. The output from the agriculture has registered a tremendous growth. Across the globe, India has the distinctive position of being the first in the world with regard to the production of maize, pulses and jute, second in rice, sugar cane, wheat, fruits and vegetables. Pulses occupy the significant place in the Indian agricultural scenario.

In India, pulses are grown over an area of 2.38 crore hectares with the total production of 1.86 crore tones. The average yield of pulses in India is about 735 Kg/ hectare. There is every need for the nation to additionally produce 40-50 lakh tons of pulses for meeting the domestic requirement and we can witness that the production patterns of pulses is continuously changing as per the requisite circumstances.

The major pulses producing states in India are Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh, Andhra Pradesh and Karnataka. These six states account for 79 percent of area and 80 percent of production of pulses in India. These pulses crops can be grown in kharif and rabi seasons in India and cultivated in marginal lands under rainfed conditions. Only 15 percent of area under pulses has assured irrigation. Among these six major pulses producing states in India, the productivity per hectare vary significantly from one state to another state.

In Andhra Pradesh the area under pulses cultivation is 13, 73,544 hectares in 2015-16 which accounted for 23.62 per cent in total food crops area, whereas the same in 2020-21 is 10,42,300 hectares which accounted for 20.03 per cent of total food crops area. Under the National Food Security Mission (NFSM) pulses being implemented in all the 13 districts of the state. An amount of Rs. 2378.04 lakhs was spent under NFSM- pulses up to 2020.

The production performance of the pulses is of critical importance in order to improve the efficient use of resources. The net returns obtained per unit and the cost production would determine the profitability of the pulses production. The profitability of any enterprise depend upon the effective and efficient use of the existing resources in the process of production. The present study is a humble attempt in this regard and it attempts to analyze the

Journal DOI: 10.36713/epra0412 ISSN: 2277–7741
International Journal of
Asian Economic Light (JAEL) – Peer Reviewed Journal
SJIF Impact Factor : 7.32 Volume: 10 | Issue: 6 | November 2022

economics of pulses cultivation under the paper title, " Pulses Cultivation in Prakasam District With Reference To Green Gram Cultivation - An Economic Analysis

2. PULSES CULTIVATION IN PRAKASAM DISTRICT

Pulses cultivation in Prakasam district has witnessed a boom this fiscal, as the productivity and cultivation area exceeded the target multi-fold. While the productivity increased from 550 kg per hectare last fiscal to 800 kg per hectare this financial year, the cultivation area of pulses was 1.12 lakh hectares.

Accelerated pulses production programme (A3P) has been launched in the district under the aegis of National Food Security Mission (NFSM Pulses 2020–21), a Centrally-sponsored scheme. To increase the yield of pulses, the Department of Agriculture has worked out strategies to implement the programme at pamidipadu village which is located at Korisapadu Mandal in Prakasam District.

Pulses, which normally grow in Rabi season, is a major crop in Prakasam district and 1.12 lakh hectares including all blocks were covered during 2020–21. In the current fiscal, a target of 1.85 lakh hectares was fixed under pulse production programme.

3. REVIEW OF LITERATURE

David Groenfeldt (2021) in his study stated that paddy cultivation forms the basis of traditional Southeast Asian societies and the livelihoods of the people who comprise those societies. Historically speaking, paddy cultivation has always (at least for several millennia) been multi-functional – providing not only the raw material for subsistence and trade, but also serving as the central focus for family and community life as well as spiritual and religious expression. While times have certainly changed, this paper suggests that the multi-functional nature of paddy cultivation continues to be important, and that our concept of rural "livelihood" should incorporate these cultural dimensions.

Davidson and Martin (2021) in their study, "The Relationship between Yields on Farm and in Experiments Station" was observed to vary according to the cultivation season. During good years, the yield at experiment station was found to increase more rapidly than the yield on farm within the same district. This was mainly because the farmers were more interested in measuring their profit by limiting their input investments, while the experimenters only aimed at measuring yield and had no cost restraints.

Kumar et al., (2020) in their study on "Technical Efficiency of Rice Farms under Irrigated Conditions of North West Himalayan Region – A Non-Parametric Approach" stated that small and scattered land holdings and limited land use is also the main feature of hill agriculture. Therefore, the food produced is not sufficient to sustain for the whole year. These biophysical and socioeconomic constraints result in low technical efficiency as well as discourage farmers to bear the risk. In this context increasing technical efficiency assumes significance. Improving efficiency levels under these conditions is a big challenge for farmers in the NWH region. Rice being the most important staple food in NWH region, improvement in efficiency levels is one of the major means of sustaining their staple food production and thereby ensuring food security.

Mokheyi (2020) in his study estimated the yield gap ratios in rice production during kharif season in the year 1975-76 the deserved farmers technical competence to be high when the gap ratio was low and vice versa. High yield gap was reported in states like Bihar and Orissa. This was attributed to the fact that while the demonstration plots were situated in irrigated areas, rice at the farmer was generally produced under rainfed conditions.

Ansari and Ismail (2019) in their investigations were conducted at the farms of Uttar Pradesh Bhumi Sudhar Nigam at Shivri, Lucknow during the Kharif season in 1998-99 to assess the impact of organic amendment vermicompost in comparison to chemical fertilisers on paddy (variety-Sarju- 52) in sodic soil and in relation to soil fertility, yield parameters and economics.

Suresh and Keshava Reddy (2019) in their study on "Resource-use efficiency of Paddy Cultivation in Peechi Command Area of Thrissur District of Kerala: An Economic Analysis" undertaken in the Peechi Command Area of Thrissur district in the Kerala state, has examined the resource productivity and allocate as well as the technical efficiency of paddy production. The study has used the primary data collected from 71 rice farmers of the command area using the stratified random sampling. Education of the farmer and supplementary irrigation provided during the water-stress days have been identified as the factors which could enhance the technical efficiency. The study has called for an equitable distribution of canal water and enhanced extension services for resource management in the area.

Journal DOI: 10.36713/epra0412 ISSN: 2277–7741
International Journal of
Asian Economic Light (JAEL) – Peer Reviewed Journal
SJIF Impact Factor : 7.32 Volume: 10 | Issue: 6 | November 2022

Bassvaraja et al.(2018), in their research notes stated that the quantitative analysis of agricultural production systems has become an important step in the formulation of agricultural policy. A number of empirical studies have attempted to investigate producer responsiveness to product and input price changes, to estimate economies of scale, to assess the relative efficiency, and to measure the impact of technological change. In particular, there has been a considerable amount of theoretical and applied econometric research on the measurement of the impact of technological change. As knowledge of new and more efficient methods of production (cultivation in agriculture) become available, technology changes.

Shivamurthy et al. (2017), in their study stated that rice growing situations prevailing in different regions of India largely determine the system of rice cultivation. The two principle systems of cultivation in Karnataka are dry and wet. The dry system of cultivation is mainly confined to tracks which depend on rains only. Upland rice, which is predominantly cultivated in the arid and semi- arid zones, has noticed a gradual decline in its area and quantum of production in the recent years. The factors attributing to this decline are lack of suitable high yielding varieties and drought resistant varieties, decline in the relative profitability of rice cultivation and shifting from food crops to cash crops etc.,. The present study was conducted to identify the constraints faced by farmers cultivating rain fed paddy in Eastern Dry Zone of Karnataka.

4. OBJECTIVES OF THE STUDY

1. To examine the labour utilization and input – output structure of pulses production in the study area.
2. To analyze the cost and return structure of farmers in the pulses cultivation.

5. HYPOTHESIS OF THE STUDY

1. There exists no significant difference between the input- output structure of farmers cultivating Green gram pulses.

6. METHODOLOGY OF THE STUDY

The present study applies Descriptive Research Design. The present research study utilizes both primary and secondary data sources. Primary data was collected through interview schedule method with the aid of a structured questionnaire. The Secondary data was collected by referring to Magazines, Journals, Reports from Directorate of Economics and Statistics, Government of Andhra Pradesh, Reports from Directorate of Agriculture, Government of Andhra Pradesh.

In order to draw the required data from the identified sample respondents, Prakasam district of Andhra Pradesh was selected as the sampling area. Prakasam district ranks the first place in the state with regard to the production of pulses and certain commercial crops. This district is the top producer of pulses across the state and hence it was selected as the sampling area. The sampling technique applied for the present study was Proportionate Random sampling technique. The present research study proposes to restrict the pulses cultivating farmers into two categories namely small farmers and large farmers. The farmers cultivating less than five acres of land were grouped as small farmers and farmers cultivating more than five acres were grouped as large farmers. As the Prakasam district produces various types of pulses , only **Green gram** is benchmarked as the sampling category for the present study. The total sample size for the present research work is 100. The sample respondent comprises two categories 50 small farmers and 50 large farmers.

Dimensions / Variables for the Study

The following dimensions were considered by the researcher for conducting the present research study:

i. Labour utilization and Input-Output structure
ii. Cost and Returns structure

Statistical Tools

In order to draw meaningful inferences from the collected data the following statistical tools were applied. The collected data was reduced to the form of tables on which statistical tools like Mean scores, Standard Deviation and Z test were applied.

Journal DOI: 10.36713/epra0412 ISSN: 2277–7741
International Journal of
Asian Economic Light (JAEL) – Peer Reviewed Journal
SJIF Impact Factor : 7.32 Volume: 10 | Issue: 6 | November 2022

7. DATA ANALYSIS AND INTERPRETATION

TABLE 1

Input-output structure per acre for large and small farmers cultivating Green Gram of pulses

SI. No.	Particulars	Green Gram (GG)		
		Large Farmers	Small Farmers	Z-test
1	Human Labour (in mandays)	13.52	13.22	1.36
2	Bullock labour (in pairs)	2.16	2.74	1.45
3	Fertilizers (in Rs)	1372.14	1310.18	3.22*
4	Pesticides (in Rs)	704.38	688.56	4.18*
5	Seeds (in Rs.)	508.15	514.68	1.12
6	Yield (in kg)	727.18	734.41	4.86*
7	Sample size	104	96	-

Source : Computed

The table no 1 shows that the total yield in the green gram cultivation was found to be 727.18 Kgs in the case of large farmers and it was 734.41 Kgs in the case of small farmers category. The amount of human labour requirement was 13.52 mandays for large farmers and it was found to be 13.22 mandays for small farmers. The fertilizers cost was found to be Rs.1372.14 for large farmers and it was found to be Rs.1310.18 for small farmers.

The z-test result shows that the compute z-value is higher than the table value at 0.05 level of significance and it was found significant. Hence, the proposed null hypothesis stands rejected. Thus it can be inferred that there exists a significant difference between the input- output structure of farmers cultivating Green gram pulses.

COST AND RETURNS STRUCTURE

TABLE 2

The per acre average cost and returns structure of large and small farmers cultivating green gram

SI. No.	Cost Component	Large Farmers	Small Farmers	Overall Farmers
1.	Cost A (Human labour, Bullock labour , Fertilizer and Pesticides cost, seed cost, manure cost, mechanical power and interest on working capital)	11166.78	10855.26	11011.02
2.	Rent	2154.16	2162.82	2158.49
3.	Interest as fixed capital (excluding land cost) land revenue, less and taxes, depreciation of implements and machinery	661.82	698.34	680.08
	Total – Cost C (total)	13982.76	13716.42	13849.59
	Yield per acre in kg	737.18	757.42	747.31
	Gross Returns (Rs.)	48415.64	48912.16	48663.91
	Net Returns (Rs.)	34432.24	35195.74	34813.99

Source : Computed

The table no 2 shows the per acre average cost and returns structure of large and small farmers cultivating green gram and green gram pulses . The table shows that with regard to the green gram cultivation the operational cost of cultivation for the large farmers was found to be Rs.11166.78 and it was found to be Rs. 10855.26 in the case of small farmers category. The yield per acre was found to be 737.18 Kgs for large farmers and it was found to be 757.42 kgs in the case of small farmers.

Journal DOI: 10.36713/epra0412 ISSN: 2277–7741
International Journal of
Asian Economic Light (JAEL) – Peer Reviewed Journal
SJIF Impact Factor : 7.32 Volume: 10 | Issue: 6 | November 2022

TABLE 3
Per acre percentage cost of various cost components to total cost of green gram

Sl. No.	Cost Component	Large Farmers	Small Farmers	Overall Farmers
1.	Cost A (Human labour, Bullock labour , Fertilizer and Pesticides cost, seed cost, manure cost, mechanical power and interest on working capital)	79.86	79.14	79.51
2.	Rent	15.41	15.75	15.58
3.	Interest as fixed capital (excluding land cost) land revenue, less and taxes, depreciation of implements and machinery	4.73	5.11	4.91
	Cost C (Total)	100.00	100.00	100.00

Source : Computed

The table no 3 shows the pre acre percentage cost of various cost components to total cost of green gram. It shows that with regard to the large farmers category, the total production cost (Cost A) was found to be 79.86 percent of the total cost (cost C) and the rent cost component was found to be 15.41 and the aspects of interest as fixed capital component were found to be 4.73 percent of the total production cost.

The table further shows that with regard to the small farmers category, the total production cost (Cost A) was found to be 79.14 percent of the total cost (cost C) and the rent cost component was found to be 15.75 and the aspects of interest as fixed capital component were found to be 5.11 percent of the total production cost.

TABLE 4
Economics of cultivating pulses in large and small farmers cultivating green gram

SI. No.	Particulars	Large Farmers	Small Farmers
1.	Gross return (Rs.)	48415.64	48912.16
2.	Total operating cost (Cost A) (Rs.)	11166.78	10855.26
3.	Net return over cost A (Rs.)	37248.86	38056.91
4.	Total production cost (Cost C) (Rs.)	13982.76	13716.42
5.	Net return over cost (Cost C) (Rs.)	34432.24	35195.74
6.	Cost of production per kg. (Cost A) (Rs.)	15.14	14.33
7.	Cost of production per kg. (Cost C) (Rs.)	18.96	18.11
8.	Input-Output Ratio (Gross return/Cost A)	4.33	4.51
9.	Input-Output Ratio (Gross return/Cost C)	3.47	3.56
10.	Cost–Benefit Ratio (Net return over Cost C / Total production Cost C)	2.46	2.57

Source : Computed

The table no 4 shows the economics of cultivating pulses for large and small farmers cultivating green gram. It shows that with regard to the large farmers cultivating green gram, the input-output ratios in terms of operational cost and total cost were found to be 4.33 and 3.47 respectively. The cost benefit ratio was found to be 2.46 in the case of large farmers cultivating green gram.

The table further shows that with regard to the small farmers cultivating green gram, the input-output ratios in terms of operational cost and total cost were found to be 4.51 and 3.56 respectively. The cost benefit ratio was found to be 2.57 in the case of small farmers cultivating green gram.

The result depicts that the cultivation by small farmers cultivating green gram of pulses was more beneficial in terms of both yield and profit per acre. The result further denotes that the total production cost for large farmers

Journal DOI: 10.36713/epra0412 ISSN: 2277–7741
International Journal of
Asian Economic Light (JAEL) – Peer Reviewed Journal
SJIF Impact Factor : 7.32 Volume: 10 | Issue: 6 | November 2022

category was higher and it indicates that there is a serious requirement for a more intensive care in case of inputs in the cultivation of green gram pulses.

8. CONCLUSION

The study reveals that there exists a significant difference between the input- output structure of farmers cultivating Green gram pulses. This study analyzes the utilization of labour and input-output structure in terms of gross returns , total operating costs and total production costs. The cost and returns structure of both large and small farmers cultivating green gram. The study concludes that the pulses cultivation in the study area is promoting agricultural employment for the local people.

9. REFERENCES

1. *Ansari A. A. and s. A. Ismail, "Paddy Cultivation In Sodic Soil Through Vermitech", International Journal of Sustainable Crop Production, Vol.3(5) August 2019.*
2. *Basavaraja, H, Mahajanashetti S.B. and P. Sivanagaraju, "Technological Change in Paddy Production: A Comparative Analysis of Traditional and SRI Methods of Cultivation", Indian Journal of Agricultural Economics, Research Notes, Vol.63, No.4, October-December 2018.*
3. *David Groenfeldt, "Appreciating the Hidden Values of Paddy Cultivation Towards a New Policy Framework for Agriculture", INWEPF/SY/2021*
4. *Davidson B.R. and B.R. Martin, "The Relationship between Yields on Farms and in Experiments", Australian Journal of Agricultural Economics, Vol.9, No.2, December 2021.*
5. *Kumar, L.R. Srinivas K. and S.R.K. Singh, "Technical Efficiency of Rice Farms under Irrigated Conditions of North West Himalayan Region- A Non-Parametric Approach", Indian Journal of Agricultural Economics, Vol.60, No3, July-September, 2020.*
6. *Mokheyi, K.K. Gap Analysis-An Effective Production Increase Concept in Rice, Summary of a Lecture Delivered at the State Leaven Training Meeting on Rice, held at Purila Department of Agriculture West Bengal, India July, 2020.*
7. *Shivamurthy, M. Ramakrishna Rao, L. Shailaja Hittalamani and M. T. Lakshminarayan, "Constraints of Farmers Cultivating Rainfed Paddy in Eastern Dry Zone of Kamataka", Mysore Journal of AgriculturalScience, Vol42(1),2017*
8. *Suresh A. and T.R. Keshava Reddy, "Resource-use efficiency of Paddy Cultivation in Peechi Command Area of Thrissur District of Kerala: An Economic Analysis", Agricultural Economics Research Review, Vol. 19, January-June, 2019.*