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Costs and returns of red gram in different farm size groups in Prakasam district, Andhra Pradesh

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Abstract

The present study was conducted in Prakasam district of Andhra Pradesh, from Out of total blocks of Prakasam district one block has been selected purposely on the basis having high total area, production of red gram for current study. Farmers growing red gram is collected from Village Agriculture Assistant (VAA) and selected among them randomly. The farm respondents were classified in to four groups on the basis of area under red gram cultivation in all the selected villages viz. marginal - having the cultivated area less than 1 ha, small - having the cultivated area 1 ha to 2 ha, medium - having the cultivated area 2 ha-4 ha, and large - having the cultivated area 10 ha and above. The study revealed that total cost incurred in cultivation of red gram per hectare. Total cost of cultivation incurred was highest in marginal sized farm with RS 42563.5/- followed by small sized farms i.e., RS 42170.7/-, medium sized farm i.e., RS 40418.5 /- and lowest in RS 39473.9/-. Gross returns per hectare was lowest in marginal and small sized farms with RS 91350/- each followed by medium sized farms with RS 94500 /- and highest in large sized farms with RS 976500 /-. Net returns per hectare was highest in large sized farms with RS 58176.1 /- followed by medium sized farms with RS 54081.5 /-, small sized farms with RS 49179.3 /- and lowest in marginal sized farms with RS 48786.5 /-.

Keywords: Different farm size groups, costs and returns and input-output ratio

Introduction

Pigeon pea is an important legume crop of rainfed agriculture in the semiarid tropics. The Indian subcontinent, eastern Africa and Central America, in that order, are the world's three main pigeon pea-producing regions. Pigeon peas are cultivated in more than 25 tropical and subtropical countries, either as a sole crop or intermixed with cereals, such as sorghum (*Sorghum bicolor*), pearl millet (*Pennisetum glaucum*), or maize (*Zea mays*), or with other legumes, such as peanuts (*Arachis hypogaea*). Being a legume capable of symbiosis with Rhizobia, the bacteria associated with the pigeon pea enrich soils through symbiotic nitrogen fixation.

Pigeon peas are very drought-resistant and can be grown in areas with less than 650 mm annual rainfall. With the maize crop failing three out of five years in drought-prone areas of Kenya, a consortium led by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) aimed to promote the pigeon pea as a drought-resistant, nutritious alternative crop.

Development of India cannot be conceived without the development of villages, where agriculture is the main stay of the people. Indian agriculture is not a business, but a way of life. Agriculture is the main source of livelihood of more than 75 per cent of the population and contributes 50 per cent of the national income. Therefore, the development of agriculture has been given priority in the national planning after independence. Indian agriculture consists of different food crops, horticultural crops, ornamental crops and so on are cultivated in different seasons and in different conditions i.e., dry land and irrigated.

The main food grains which play an important role in Indian economy are cereals, oil seeds and pulses. In India, cereals are used as direct source of food by human beings. Hence, cereals occupy largest area in Indian situation. The important pulse crops in India are Bengal gram, red gram, green gram and black gram which 60 per cent of pulse area is in Rabi and 40 per cent of kharif season. Pulses play an important role in Indian agricultural economy as they are rich sources of proteins and constitute 10 to 15 per cent of India's food grain diet. Major portion of Indian population belongs to vegetarian group and every person on an average is required to consume 70 to 80 gm of pulses per day in order to maintain good health and physique, according to the recommendations of Indian Council of Medical Research.

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Research methodology

The present study was conducted in Prakasam district of Andhra Pradesh, from Out of total blocks of Prakasam district one block has been selected purposely on the basis having high total area, production of red gram for current study. Farmers growing red gram is collected from Village Agriculture Assistant (VAA) and selected among them randomly. The farm respondents were classified in to four groups on the basis of area under red gram cultivation in all the selected villages viz. marginal - having the cultivated area less than 1 ha, small - having the cultivated area 1 ha to 2 ha, medium - having the cultivated area 2 ha-4 ha, and large - having the cultivated area 10 ha and above.

Period of enquiry

The study covers costs and returns in red gram cultivation in different farm size groups in agriculture year 2021-2022.

Research Methodology

Prakasam district was selected purposively for the study because district is specialized in the cultivation of red gram on commercial scale and it is a 1st largest red gram growing district. Block is selected randomly based on highest in area and production of red gram cultivation. Farmers growing red gram is collected from Village Agriculture Assistant (VAA), all together 10 per cent of respondents were selected randomly in all the 4 size farms groups in each selected village. For analyzing the data collected during the study, tabular analysis and financial analysis were employed. The technique of tabular analysis was employed for estimating the cost of cultivation, yield and return structure of red gram. The primary data with respect to input use pattern, economics of production of red gram were collected from the sample respondents by personal interview method with the help of well-structured pre-tested schedule.

Results and Discussion

Table 1: Details about resource use and cost of cultivation for red gram crop per hectare among different size of farm groups.

Sl. No.	Particulars	Size of farm groups				Sample average
		Marginal	Small	Medium	Large	
1.	Hired human labour charges	5200 (12.22)	5200 (12.33)	4400 (10.87)	4200 (10.64)	4750 (11.54)
2.	Bullock labour charges	2400 (5.64)	2400 (5.69)	2400 (5.94)	1800 (4.56)	2250 (5.47)
3.	Machinery labour charges	2500 (5.87)	2500 (5.93)	2500 (6.19)	3000 (7.60)	2625 (6.38)
4.	Cost of seeds	1300 (3.05)	1250 (2.96)	1200 (2.97)	1140 (2.89)	1222.5 (2.97)
5.	Cost of farm yard manures	1800 (4.23)	1800 (4.27)	1750 (4.33)	1750 (4.43)	1775 (4.31)
6.	Cost of chemical fertilizers	2950 (6.93)	2900 (6.88)	2800 (6.93)	2780 (7.04)	2857.5 (6.94)
7.	Cost of irrigation charges	-	-	-	-	-
8.	Cost of plant protection charges	2100 (4.93)	2070 (4.91)	1950 (4.83)	1920 (4.86)	2010 (4.88)
9.	Miscellaneous charges	600 (1.41)	600 (1.42)	600 (1.49)	600 (1.52)	600 (1.46)
10.	Interest on working capital @6%	1131 (2.66)	1123.2 (2.66)	1056 (2.61)	1031.4 (2.61)	1085.4 (2.64)
11.	Depreciation on fixed resources	2400 (5.64)	2350 (5.57)	2200 (5.44)	2100 (5.32)	2262.5 (5.1)
12.	Land revenue paid to government	175 (0.41)	175 (0.42)	175 (0.43)	175 (0.44)	175 (0.43)
13.	Rental value of own land	12500 (29.37)	12500 (29.64)	12500 (30.93)	12500 (31.67)	12500 (30.37)
14.	Interest on fixed capital @10%	1507.5 (3.54)	1502.5 (3.56)	1487.5 (3.68)	1477.5 (43.74)	1493.75 (3.63)
15.	Imputed value of family labour charges	6000 (14.10)	5800 (13.75)	5400 (13.36)	5000 (12.67)	5550 (13.49)
16.	Total cost of cultivation	42563.5 (100)	42170.7 (100)	40418.5 (100)	39473.9 (100)	41156.65 (100)

Note: Figure in parenthesis indicates percentage to the total.

Table 1 revealed that total cost incurred in cultivation of red gram per hectare. Total cost of cultivation incurred was highest in marginal sized farm with RS 42563.5/- followed

by small sized farms i.e., RS 42170.7/-, medium sized farm i.e., RS 40418.5/- and lowest in RS 39473.9/-.

Table 2: Costs and returns in red gram crop per hectare in different farm size groups.

Sl. No.	Particulars	Size of farm groups				Sample average
		Marginal	Small	Medium	Large	
1.	Total cost of cultivation per hectare	42563.5	42170.7	40418.5	39473.9	41156.65
2.	Yield in quintals per hectare	14.5	14.5	15	15.5	14.75
3.	Gross returns per hectare	91350	91350	94500	97650	93712.5
4.	Net returns per hectare	48786.5	49179.3	54081.5	58176.1	52555.85
5.	Cost of production per quintal	2935.41	2908.32	2694.57	2546.7	2797.46
6.	Input-output ratio	1:2.15	1:2.17	1:2.34	1:2.47	1:2.28

Note: Price per quintal of red gram produce is RS.6300.

Table 2 reveals that total costs and return among different farm size groups in red gram cultivation per hectare. Total cost of cultivation was highest in marginal size farms i.e., RS 42563.5/- followed by small sized farms with RS 42170.7/-, medium sized farms with RS 40418.5/- and lowest in large sized farms with RS 39473.9/-.

Gross returns per hectare was lowest in marginal and small sized farms with RS 91350/- each followed by medium sized farms with RS 94500/- and highest in large sized farms with

RS 976500/-.

Net returns per hectare was highest in large sized farms with RS 58176.1/- followed by medium sized farms with RS 54081.5/-, small sized farms with RS 49179.3/- and lowest in marginal sized farms with RS 48786.5/- that makes a sample average of RS 52555.85/-.

Cost of production per quintal was lowest for large sized farms with RS 2546.7/- followed by medium sized farms with RS 2694.57/-, small sized farms with RS 2908.32/- and

highest in marginal sized farms with RS 2935.41 /- that makes a sample average of RS 2797.46 /-

Input- output ratio was highest for large sized farms i.e., 1:2.47, followed by medium sized farms i.e., 1:2.34, small

sized farm i.e., 1:2.17 and lowest for marginal sized farms i.e., 1:2.15 that makes a sample average of input- output ratio of 1:2.15.

Table 3: Cost concepts in red gram crop per hectare in different farm size groups.

Sl. No.	Cost concepts	Size of farm groups				Sample average
		Marginal	Small	Medium	Large	
1.	Cost A1	22556	22368.2	21031	20496.4	21612.9
	Cost A2	22556	22368.2	21031	20496.4	21612.9
2.	Cost B	36563.5	36370.7	35018.5	34473.9	35606.65
3.	Cost C	42563.5	42170.7	40418.5	39473.9	41156.65

Table 3 reveals that cost concepts in red gram crop per hectare in different farm size groups. Cost A, cost B and cost C was highest in marginal sized farms i.e., 22556, 36563.5 and 42563.5 respectively in RS/ha followed by small sized

farms i.e., 22368.2, 36370.7 and 42170.7 in RS/ha, followed by medium sized farms i.e., 21031, 35018.5 and 40418.5 in RS/ha and lowest in large sized farm i.e., 20496.4, 34473.9 and 39473.9 respectively in RS/ha.

Table 4: Measures of farm profitability in red gram crop per hectare in different farm size groups.

Sl. No.	Particulars	Farm size groups				Sample average
		Marginal	Small	Medium	Large	
1.	Gross returns	91350	91350	94500	97650	93712.5
2.	Farm business income	68794	68981.8	52438	73469	72099.6
3.	Farm investment income	62794	63181.8	68069	72153.6	66549.6
4.	Net returns	48786.5	49179.3	54081.5	58176.1	52555.85
5.	Family labour income	6000	5800	5400	5000	5550

Table 4 reveals those measures of farm profitability in red gram crop per hectare in different farm size groups. Gross returns per hectare was highest in large size farms i.e., RS 97650 /- followed by medium size farm i.e., RS 94500 /- and lowest in small and marginal size farms i.e., RS 91350 /- that makes a sample average of gross returns among different farm groups i.e., RS 93712.5 /-.

Farm business income was highest in large size farms i.e., RS 73469 /- followed by medium size farms i.e., RS 52438 /-, small size farms i.e., RS 68981.8 /- and lowest in marginal size farms i.e., RS 68794 /- that makes a sample average of farm business income among different farm groups i.e., RS 72099.6 /-.

Farm investment income was highest in large size farms i.e., RS 71253.6 /- followed by medium size farms i.e., RS 68069 /-, small size farms i.e., RS 63181.8 /- and lowest in marginal size farms i.e., RS 62794 /- that makes a sample average of farm investment income among different farm groups i.e., RS 66549.6 /-.

Net returns were highest in large size farms i.e., RS 58176.1 /- followed by medium size farms i.e., RS 54081.5 /-, small size farms i.e., RS 49179.3 /- and lowest in marginal size farms i.e., RS 48786.5 /- that makes a sample average of net returns among different farms i.e., RS 52555.85 /-.

Family labour income was lowest in large size farms i.e., RS 5000 /- followed by medium size farms i.e., RS 5400 /-, small size farms i.e., RS 5800 /- and highest in marginal size farms i.e., RS 6000 /- that makes a sample average of family labour income among different farm groups i.e., RS 5550 /-.

Conclusion

The study shows that costs and returns in red gram cultivation in different farm size groups in Prakasam district, Andhra Pradesh. The present study revealed that cost of cultivation, gross returns and net returns are relatively higher in large sized farms compared to medium, small and marginal sized farms. So, concluding that cost of cultivation and returns are

more profitable in large sized farms compared to medium, small and marginal sized farms.

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