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RESEARCH PAPER

An Economic Analysis of Production, Disposal pattern and Major Constraints in Pigeon Pea Cultivation of Chhattisgarh

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ABSTRACT

The study an economic analysis of production, disposal pattern and major constraints in pigeon pea cultivation of Chhattisgarh is an attempt to analyze the on ground condition of cultivation and disposal pattern of the pigeon pea cultivation. A multistage sampling technique was applied for the collection of primary data for the year 2016-17. The data was collected from 240 respondents by the help of well structured pre-tested interview scheduled. The study explained that the overall farm size was 2.13 hact. The overall cost of cultivation of pigeon pea was found ₹ 16712.70 from which variable cost contributed 58.32 percent and fixed cost contributed 41.68 percent to the total Pigeon pea cultivation in Chhattisgarh faces several challenges that hinder its profitability and adoption in the state. The most critical constraints was inadequate access to credit facilities ranked first (96.67 %) among all the constraints included here followed by lack of awareness about government Schemes (95.42 %). Other constraints are high cost of inputs (94.58 %). The study reveals an overall net return of ₹ 6074.90 per hact underscoring the need of subsidizing inputs and targeted extension services. The marketable surplus in pigeon pea at overall was 2.23 qt/farm. It was also found that the pigeon pea growers were left with relatively small marketable surplus to dispose-off the produce from which 0.99 q/farm (41.14%) is disposed off to the whole seller. Suggestions were establishment of cooperative and regulated societies dedicated to the marketing and trade of pigeon pea can empower farmers and ensure fair pricing. Moreover, setting up local processing mills in the study area can help stabilize market prices, reduce post-harvest losses, and generate additional income opportunities for the farming community.

HIGHLIGHTS

- Four districts of Chhattisgarh state from all the three agro-climatic zones were selected with high acreage of pigean pea crop in 2015-16.
- To identify the cost and return incurred in the cultivation of pigeon pea crop the standard cost concepts given by the CACP was used
- Garrett's Ranking method was used to identify constrains and factors influencing to the production and marketing of pigeon pea growers.

Keywords: Production and Marketing, Constraints in Pigeon Pea, Pulses, Marketing and Disposal Pattern

For India's predominantly vegetarian population, pulses serve as the most vital source of protein. Recognizing this, both the central and state governments have launched several initiatives and schemes to promote the cultivation of pulses, with the aim of increasing both area and production. These efforts have shown promising outcomes. For instance, during the 2017–18 crop year, India's total pulse production reached a record 23.95 million tonnes, an increase of 0.82 million tonnes over the previous year (23.13 million tonnes). Additionally,

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this production was 5.10 million tonnes higher than the five-year average, indicating significant progress in pulse cultivation.

Among various pulse crops, Pigeon pea (*Cajanus cajan*) holds a place of strategic importance. Known for its resilience and nutritional value, pigeon pea is the fifth most important pulse crop globally (M.E. Emefiene *et al.*). In India, it contributes substantially to the total pulse output. Out of 16.47 million tonnes of total pulse production, pigeon pea accounted for 2.90 million tonnes, cultivated over an area of 4.01 million hectares, with a productivity level of 725 kg/ha—the highest ever recorded during the 2014–15 season (GOI 2014-15). In Chhattisgarh, however, the situation is less encouraging. During 2015–16, the area under pigeon pea cultivation stood at 56.109 thousand hectares, with a total production of 30.601 thousand tonnes (Directorate of Agriculture, Chhattisgarh 2015-16). The average productivity was relatively low, at 470 kg/ha, reflecting the need for targeted interventions in production practices and support systems.

Looking to the above fact, it becomes essential to conduct a comprehensive study to assess the status and challenges in pigeon pea cultivation in Chhattisgarh. The study will aim to generate actionable insights that can help in strengthening the pulse sector in the region. The specific objectives of the study were given below:

1. To study the cost and returns in Pigeon pea cultivation.
2. To find out the marketing and disposal pattern of Pigeon pea crop
3. To identify the constraints in production and marketing of Pigeon pea and suggest some suitable measures to overcome them.

METHODOLOGY

Selection of study area and respondents

A multi-stage sampling design has been adopted for the ultimate selection of pigeon pea growers. All of three zones were selected purposely for the study. From Chhattisgarh Plain zone two districts namely Bemetara and Rajnandgaon, one district Jashpur from Northern Hills zone and one district Kanker from Bastar Plateau zone were selected purposively. From each district two blocks, from Bemetara district, Bemetara and Saja, from Rajnandgaon district, Khairagarh and Chhuikhadan, from Jaspur district, Pharsabahar and Patthalgaon and from Kanker district two blocks namely Antagarh and Bhanupratappur, were selected. Two villages from each block total number of sixteen villages have been selected randomly. All the district and blocks were selected on the basis of highest growing area of pigeon pea crop,

Twenty percent pulses growers of all categories from each village i.e. marginal (0-1 ha) small (1-2 ha.), medium (2-4 ha.) and large farmer (above 4 ha.) (Minimum 15 respondents from each of the selected village) from each of the selected village were considered to collect the required information.

Analytical Framework

The collected data were compiled and tabular analysis was made to work out the different parameters, such as cost concepts, business analysis, Per-hectare gross returns and net returns of pigeon pea were also worked out. The tabular presentation technique was followed to study the economic characteristics of different size groups of sample farmers such as size of land holding, cropping pattern, costs and returns in pulses, expressed by the farmers and for analyzing the data elicited through opinion survey from the sample farmers. The data were compared and contrasted with the help of averages.

Analytical Procedure

Cost of cultivation:

The costs and returns of pigeon pea cultivation were estimate through standard cost concepts given by the CACP.

Cost A_1: Consist of all the variable costs

Cost A_2= Cost A_1+ Rent paid for Leased in Land.

Cost B_1 = Cost A_1+ Interest on value of Owned Capital assets (excluding land)

Cost B_2 = Cost B_1 + rental value of owned land

Cost C_1= Cost B_1+ Imputed value of Family Labour.

Cost C_2 = Cost B_2+ Imputed value of Family labour.

Cost C_3 = Cost C_2 + 10 percent of cost C_2 as managerial cost

Source: Commission for Agricultural Costs and

Prices Department of Agriculture and Cooperation Ministry of Agriculture Govt. of India New Delhi 2011.

Evaluation of Output

Farm produce is evaluated at the actual price received by the farmers. Unsold produce is evaluated at the price fixed by government of Chhattisgarh state.

Income analysis

Income analysis was made by using the following income parameters:

1. Farm business income = Gross income – Cost 'A_1/A_2'
2. Family labour income = Gross income – Cost 'B_2'
3. Net income = Gross income – Cost 'C_2'
4. Farm investment income = Net income + Rental value of land + Interest on owned fixed capital

Returns

Returns were noted in physical quantities i.e. in quintals and the monetary values were calculated by taking into consideration their average market price.

Marketable surplus

$$MS = P - (C + W)$$

Where,

MS = Marketable Surplus

P = Total Production

C = Family Consumption

W = Quantity use for Wage

Constraints in production and marketing of major pulses

The constraints were measured by the Garrett Ranking method. The following formula is used to change the order of factors into ranks.

$$\text{Per cent Position} = \frac{100\left(R_{ij} - 0.50\right)}{N_j}$$

Where,

R_{ij} = Rank given for the i^{th} reason by j^{th} respondent

N_j = Number of factors ranked by j^{th} respondent

The per cent position is obtained and it is converted into scores using Garrett's Ranking table.

RESULTS AND DISCUSSION

General profile of the respondent

Total number of sample households was 240, from which 88, 62, 54 and 36 for marginal farmer, small farmer, medium farmer and large farmer respectively. The overall average size of holding in hectare was 2.13; overall family size was 5.7. Overall illiteracy percent was 32.34 with minimum at medium farmer (27.49) to maximum at marginal farmer (35.60). It was presupposed that the reason behind this condition has the lower socio-economical status of the corresponded farmer of the study area. It was also calibrated that the population of overall children (Up to 15 year) were the major age group (39.04) in the study area.

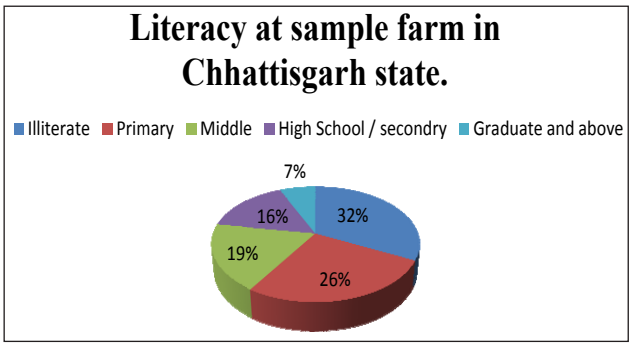

Fig. 1: Education status of the farmers at sample households of Chhattisgarh state

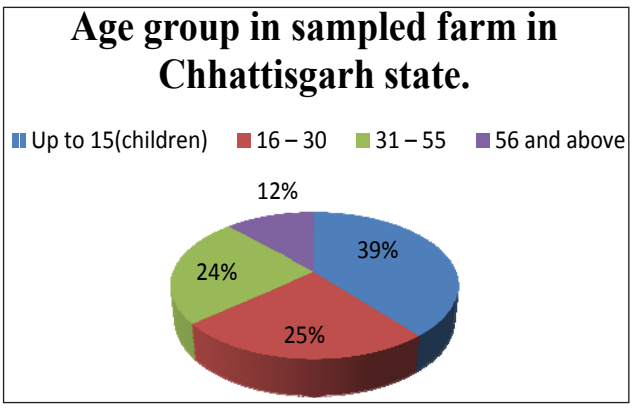

Fig. 2: Age group of sampled households of Chhattisgarh state

Table 1: General information of sample households of Chhattisgarh state

Sl. No.	Particulars	Farm Size				
		Marginal	Small	Medium	Large	Overall
1	Total number of sample households	88	62	54	36	240
2	Average holding size (ha.)	0.74	1.53	2.62	5.85	2.13
3	Average family Size	6.19	5.53	5.39	5.39	5.72
4	Literacy					
(a)	Illiterate	194 (35.60)	114 (33.24)	80 (27.49)	56 (28.87)	444 (32.34)
(b)	Primary	188 (34.50)	104 (30.32)	53 (18.21)	20 (10.31)	365 (26.58)
(c)	Middle	79 (14.50)	61 (17.78)	70 (24.05)	46 (23.71)	256 (18.65)
(d)	High School / Secondary	64 (11.74)	45 (13.12)	61 (20.96)	47 (24.23)	217 (15.80)
(e)	Graduate and above	20 (03.67)	19 (05.54)	27 (09.28)	25 (12.89)	91 (06.63)
	Total	545 (100)	343 (100)	291 (100)	194 (100)	1373 (100)
5	Age (Years)					
(a)	Up to 15(children)	249 (45.69)	124 (36.15)	94 (32.30)	69 (35.57)	536 (39.04)
(b)	16 – 30	127 (23.30)	87 (25.36)	77 (26.46)	49 (25.26)	340 (24.76)
(c)	31 – 55	107 (19.63)	95 (27.70)	73 (25.09)	55 (28.35)	330 (24.03)
(d)	56 and above	62 (11.38)	37 (10.79)	47 (16.15)	21 (10.82)	167 (12.16)
	Total	545 (100)	343 (100)	291 (100)	194 (100)	1373 (100)

Table 2: Cost of cultivation of pigeon pea of Chhattisgarh state: (₹/Ha)

Sl. No.		Farm size				
(A)	**Variable cost**	**Marginal**	**Small**	**Medium**	**Large**	**Average**
1	Family Human labour	1910.46 (12.15)	1551.70 (09.34)	1327.89 (07.63)	1031.92 (05.66)	1554.92 (09.30)
2	Hired Human labour	889.30 (05.66)	1587.82 (09.55)	1920.19 (11.03)	2343.71 (12.85)	1519.86 (09.09)
	Total Human labour	2799.76 (17.81)	3139.51 (18.89)	3248.09 (18.65)	3375.63 (18.51)	3074.78 (18.4)
3	Bullock power	607.57 (03.86)	398.74 (02.40)	281.30 (01.62)	178.40 (0.98)	415.84 (02.49)
4	Machine power	623.96 (03.97)	882.63 (05.31)	1178.90 (06.77)	1419.15 (07.78)	934.92 (05.59)
	Total labour and power cost	4031.29 (25.64)	4420.89 (26.60)	4708.29 (27.04)	4973.18 (27.27)	4425.54 (26.48)
5	Seed	3174.84 (20.19)	3383.80 (20.36)	3476.59 (19.97)	3647.23 (20.00)	3367.57 (20.15)
6	Manure/ fertilizers	949.32 (06.04)	1047.99 (06.31)	1215.39 (06.98)	1346.64 (07.38)	1094.27 (06.55)
7	Irrigation charges	75 (0.48)	83.14 (0.50)	112.54 (0.65)	120.12 (0.66)	92.32 (0.55)
8	Plant protection chemicals	346.25 (02.20)	408.54 (02.46)	527 (03.03)	675.83 (03.71)	452.09 (02.71)
9	Interest on working capital@4%	266.65 (01.70)	311.71 (01.88)	348.48 (02.00)	389.24 (02.13)	315.09 (01.89)
	Sub -total	8843.35 (56.24)	9656.06 (58.10)	10388.29 (59.66)	11152.24 (61.15)	10009.99 (58.32)
(B)	**Fixed Cost**					
1	Land Revenue	10 (0.06)	10 (0.06)	10 (0.06)	10 (0.05)	10 (0.06)
2	Depreciation on implements	201.11 (01.28)	279.75 (01.68)	335.37 (01.93)	392.42 (02.15)	280.33 (01.68)
3	Rental value of owned land	6250 (39.75)	6250 (37.60)	6250 (35.89)	6250 (34.27)	6250 (37.40)
4	Interest on fixed capital@6.5%	419.97 (02.67)	425.08 (02.56)	428.70 (02.46)	432.41 (02.37)	425.12 (02.54)
	Sub- total	6881.08 (43.76)	6964.84 (41.90)	7024.07 (40.34)	7084.83 (38.85)	6965.45 (41.68)
(C)	**Total cost (A+B)**	**15724.42 (100)**	**16620.90 (100)**	**17412.36 (100)**	**18237.07 (100)**	**16712.70 (100)**

Cost of cultivation of pigeon pea

Overall variable cost and fixed cost for total cost for cultivation of pigeon pea per hectare contributes 58.32 percent and 41.68 percent respectively. In variable items the major share of cost among different cost items were found in labour which is 26.48 percent to the total cost of cultivation out of which 18.4 % contribution of human labour, bullock labour and machine labour were together contributed 08.08 % followed by seed cost (20.15 %), manure and fertilizer together contributes (06.55 %). In case of fixed cost the major cost incurred in rental value of land 37.40 % followed by interest on fixed capital (02.54 %) and depreciation on implements (1.68 %).

Cost and returns

On the basis of cost concept in the production of pigeon pea the cost and returns have been presented in the table 2. It is evident from table that, the per hectare Cost-A_1, Cost-A_2, Cost-B_1, Cost-B_2, Cost-C_1, Cost-C_2 and Cost-C_3 at the overall level were ₹ 8482.65, ₹ 8482.65, ₹ 8907.77, ₹ 15157.77, ₹ 10462.70, ₹ 16712.70 and ₹ 18383.96 per hectare, respectively on the sample farms. The overall income per hectare over Cost-A_1, Cost-B_1, Cost-B_2, Cost-C_1, Cost-C_2 and Cost-C_3 were worked out to ₹ 14197.70, ₹ 14197.70, ₹ 13772.58, ₹ 7522.58, ₹ 12217.66, ₹ 5967.66 and ₹ 4296.39 respectively.

Income measures

It was found that the overall production of main yield and byproduct was 5.50 q/ha and 8.79 q/ha. respectively. Income over main yield was 22002.44 ₹ at the rate of 4000 per quintal and overall income over byproduct was 1318.12 at the rate of 150 ₹ per quintal. The overall cost of cultivation, gross income and net income was 17245.67 ₹/ha., 23320.56 ₹/ha. and 6074.90 ₹/ha. respectively. The overall family labour income at rupee/ hectare farm business income at rupee per hectare, farm investment

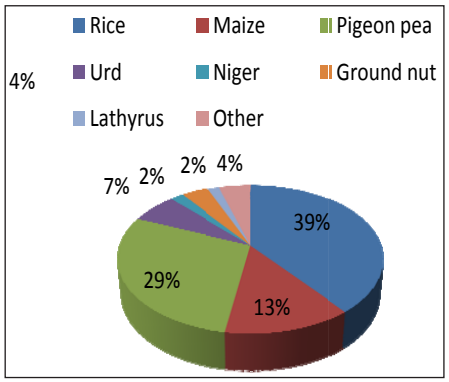

Fig. 3: Cropping pattern at sampled farm in Chhattisgarh state (*Kharif*)

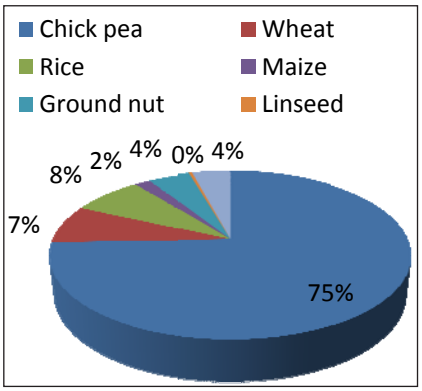

Fig. 4: Cropping pattern at sampled farm in Chhattisgarh state (*Rabi*)

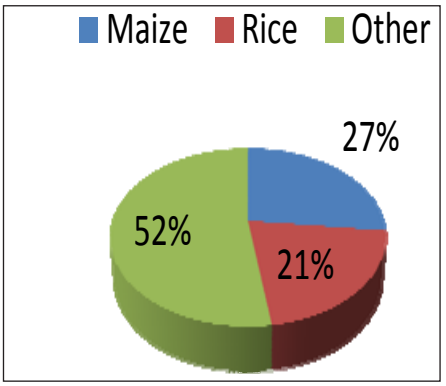

Fig. 5: Cropping pattern at sampled farm in Chhattisgarh state (Summer)

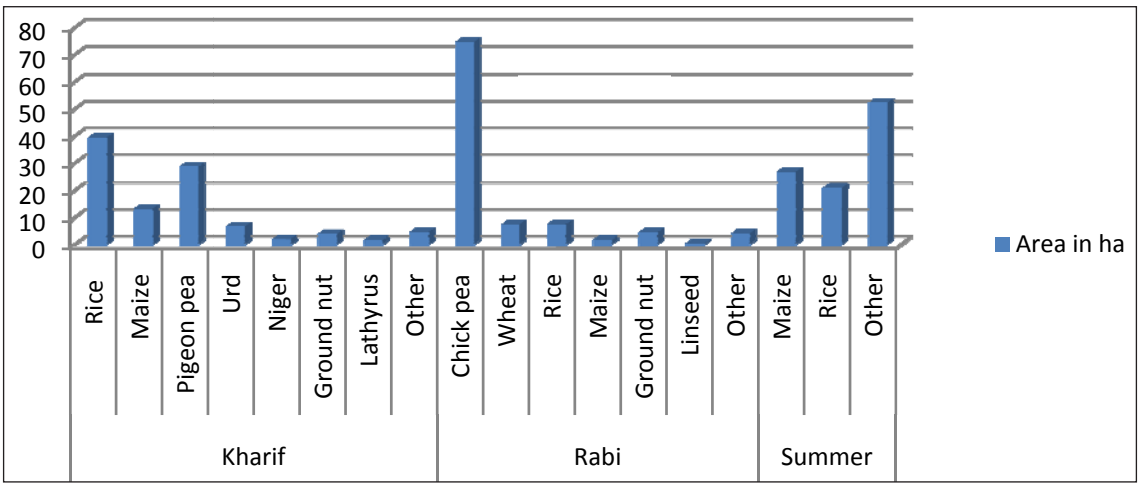

Fig. 6: Cropping pattern at sampled farm in Chhattisgarh state (*Kharif* + *Rabi* + Summer)

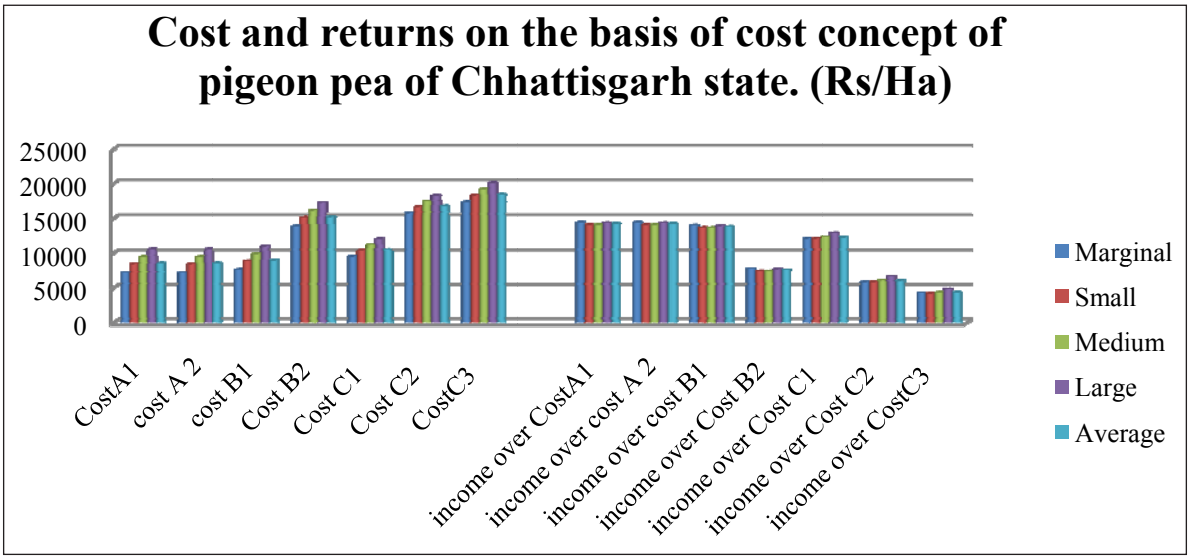

Fig. 7: Cost and returns on the basis of cost concept of pigeon pea of Chhattisgarh state (₹/Ha)

income and input output ratio at farm size and at overall in the study area recorded was 7437.40 ₹/ha., 14115.28 ₹/ha., 12752.78 ₹/ha. and 1:1.35 respectively.

Constraints in pigeon pea cultivation

Pigeon pea cultivation in Chhattisgarh faces several challenges that hinder its profitability and adoption in the state. The most critical constraints was inadequate access to credit facilities ranked first (96.67 %) among all the constraints included here followed by lack of awareness about government Schemes (95.42 %). Other constraints are high cost of inputs (94.58 %), and low productivity and returns (91.67 %). Additionally, farmers struggle with post-harvest losses, limited market linkages, lack of contract farming, and insufficient value addition. These issues contribute to unstable income and discourage farmers from expanding pigeon pea cultivation. To improve the economic viability of the crop, focused interventions are needed in the areas of financing, infrastructure, market access, and farmer awareness.

Marketing of major pulses

It is evident from the study that the quantity of marketable surplus increase with respect to the enhancement in the size of holding in farms for the cultivation of the respected crop. It was observed that the marketable surplus in pigeon pea was 0.83, 1.50, 1.67, 8.99 and 2.23 quintal per farm constituting 65.25, 67.71, 70.28, 72.73 and 68.29 per cent to their total production for marginal, small, medium, large and overall farms respectively.

The increasing trend of marketable surplus as percentages to total production with the increase in the size of farms for major pulses was due to the fact that proportion of retained quantity of major pulses for various purposes on the farms decreased with the increase in production of major pulse crops as the farm size increased.

Disposal pattern

Quantity of pigeon pea sold by producer to different marketing functionaries of the sample household has been worked out in table 5. The table shows the pulse growers were sold directly to consumer, village trader and wholesaler in the study area. The quantity of pigeon pea sold through consumer was 64.58 per cent (0.53 qt/farm), 61.94 per cent (0.93 qt/farm), 36.80 per cent (0.61 qt/farm), 19.49 per cent (1.75 qt/farm) and 49.39 per cent (0.84 qt/farm) of marginal, small, medium, large and overall farm, respectively. The quantity sold through village trader was 23.51 per cent (0.19 qt/farm), 21.80 per cent (0.32 qt/farm), 29.66 per cent (0.49 qt/farm), 23.54 per cent (2.12 qt/farm) and 24.50 per cent (0.58 qt/farm) of marginal, small, medium, large and overall farm, respectively. The quantity of pigeon pea sold through wholesaler was 11.91 per cent (0.10 qt/farm), 16.13 per cent (0.24 qt/farm), 33.70 per cent (0.56 qt/farm), 56.98 per cent (5.12 qt/farm) and 41.14 per cent (0.99 qt/farm) of marginal, small, medium,

Table 3: Different cost concepts of pigeon pea (₹/Ha)

Sl. No.	Different cost	Farm size				
		Marginal	Small	Medium	Large	Overall
1	Cost A_1	7143.99	8394.11	9405.77	10522.75	8482.65
2	Cost A_2	7143.99	8394.11	9405.77	10522.75	8482.65
3	Cost B_1	7563.96	8819.20	9834.46	10955.16	8907.77
4	Cost B_2	13813.96	15069.20	16084.46	17205.16	15157.77
5	Cost C_1	9474.42	10370.90	11162.36	11987.07	10462.70
6	Cost C_2	15724.42	16620.90	17412.36	18237.07	16712.70
7	Cost C_3	17296.87	18282.99	19153.59	20060.78	18383.96

Table 4: Income obtained over different cost of pigeon pea cultivation (₹/Ha)

Sl. No.	Categories	Farm size				
		Marginal	Small	Medium	Large	Overall
1	Income over Cost A_1	14375.84	14027.22	14023.65	14316.92	14197.70
2	Income over Cost A_2	14375.84	14027.22	14023.65	14316.92	14197.70
3	Income over Cost B_1	13955.87	13602.13	13594.95	13884.51	13772.58
4	Income over Cost B_2	7705.87	7352.13	7344.95	7634.51	7522.58
5	Income over Cost C_1	12045.41	12050.44	12267.06	12852.59	12217.66
6	Income over Cost C_2	5795.41	5800.44	6017.06	6602.59	5967.66
7	Income over Cost C_3	4222.97	4138.35	4275.82	4778.89	4296.39

Table 5: Income measures of Pigeon pea (Q/₹/ ha)

Sl. No.	Particulars	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	Over-all
1	Main yield (Q/ha)	5.06	5.28	5.53	5.88	5.50
	Income 1	20233.33	21113.33	22106.67	23506.67	22002.44
2	Byproduct yield	8.58	8.72	8.82	8.89	8.79
	Income-2	1286.50	1308.00	1322.75	1333.00	1318.12
3	Gross income (₹/ ha)	21519.83	22421.33	23429.42	24839.67	23320.56
4	Cost of cultivation (₹/ ha)	15724.42	16620.90	17412.36	18237.07	17245.67
5	Net income (₹/ ha)	5795.41	5800.44	6017.06	6602.59	6074.90
6	Family labor income (₹/ ha)	7705.87	7352.13	7344.95	7634.51	7437.40
7	Farm business income (₹/ ha)	14375.84	14027.22	14023.65	14316.92	14115.28
8	Farm investment income (₹/ ha)	12465.38	12475.52	12695.76	13285.00	12752.78
9	Input output ratio	1: 1.37	1: 1.35	1: 1.35	1: 1.36	1: 1.35

Main product price @4000/ quintal; By product price @150/ quintal.

Table 6: Constraints in pigeon pea cultivation

Sl. No.	Constraints	Total	Percentage share	Rank
1	Inadequate Credit and Financing Facilities	232	96.67	I
2	Low Productivity and Returns	220	91.67	IV
3	Lack of Infrastructure and Market Linkages	214	89.17	IV
4	Inadequate Insurance Coverage	170	70.83	XI
5	High Cost of Inputs	227	94.58	III
6	Low and Fluctuating Market Prices	178	74.17	X
7	Lack of Value Addition	140	58.33	XII
8	Post-Harvest Losses and Poor Storage	219	91.25	V
9	Small Land Holdings	210	87.50	VII
10	Lack of Contract Farming or Assured Buy-Back	201	83.75	VIII
11	Seasonal Employment & Labor Dependence	190	79.17	IX
12	Lack of Awareness about Government Schemes	229	95.42	II

Note: *Figure in parenthesis indicates percentage to the total production at farm level.*

Table 7: Marketable surplus of pigeon pea of Chhattisgarh state (Q/Farm)

Sl. No.	Particulars	Size groups				Overall
		Marginal	Small	Medium	Large	
1	Total quantity produce	1.27 (100)	2.22 (100)	2.38 (100)	12.35 (100)	3.26 (100)
2	Quantity retained for the seed	0.09 (07.05)	0.16 (07.07)	0.16 (06.81)	0.85 (06.92)	0.23 (06.98)
3	Consumption and others	0.35 (27.67)	0.56 (25.19)	0.54 (22.85)	2.51 (20.29)	0.81 (24.70)
4	Total quantity utilized	0.44 (34.72)	0.72 (32.26)	0.71 (29.66)	3.36 (27.21)	1.03 (31.67)
5	Marketable surplus	0.83 (65.25)	1.50 (67.71)	1.67 (70.28)	8.99 (72.73)	2.23 (68.29)

Note: *Figure in parenthesis indicates percentage to the total production at farm level.*

Table 8: Quantity of pigeon pea sold by producer to different marketing functionaries of the sample households (Q/Farm)

Sl. No.	Farm size	Consumer	Village trader	Wholesaler	Total
1	Marginal	0.53 (64.58)	0.19 (23.51)	0.10 (11.91)	0.83 (100)
2	Small	0.93 (62.24)	0.32 (21.63)	0.24 (16.13)	1.50 (100)
3	Medium	0.61 (36.71)	0.49 (29.59)	0.56 (33.70)	1.67 (100)
4	Large	1.75 (19.49)	2.12 (23.54)	5.12 (56.98)	8.99 (100)
5	Overall	0.84 (34.69)	0.58 (24.17)	0.99 (41.14)	2.41 (100)

Note: *Figure in parenthesis to the total marketable surplus.*

Table 9: Farmer perceptions in Constraint in marketing of Pigeon Pea

Sl. No.	Constraints	Total	Percentage share	Rank
1	Lack of cheap transportation facility	228	95.00	II
2	Small marketable surplus	205	85.42	IV
3	Lack of regulated and co-operative market	229	95.42	I
4	Lack of knowledge of market intelligence	195	81.25	V
5	Lack of storage management	145	60.42	IX
6	Limited value addition opportunity	154	64.17	VI
7	Low bargaining power	170	70.83	VIII
8	Quality standard and grading issue	140	58.33	X
9	Dependence on Middlemen	191	79.58	VII
10	Price Fluctuations and Market Instability	221	92.08	III

n = Sample size of pigeon pea.

Note: *Figures in parentheses indicate percentage to total sample size n=240.*

large and overall farm, respectively. It may be noted, that the pigeon pea growers were left with relatively small marketable surplus to dispose-off the produce.

Constraint in marketing of pigeon pea

Under major constraints pertaining to marketing of pigeon pea crop, Lack of regulated and co-operative market was the most important problem (95.42 %) followed by Lack of cheap transportation was the most important problem as reported by 95 per cent of the total pigeon pea grower. The third most important constraint reported by the growers was Price Fluctuations and Market Instability (92.08 per cent). Small marketable surplus (85.42 per cent), followed by Lack of market intelligence (78.75 per cent) and lack of storage management (57.50 per cent) were the other prominent constraints reported by the pigeon pea producers in study area.

CONCLUSION

The study reveals that the marketable surplus achieved by the farmers was very low mainly due

to the low production of the crop, so it is relatively most important to enhance the productivity in pigeon pea cultivation by making essential focused interventions in key areas such as financing, infrastructure development, market access, and enhancing farmer awareness. It may also be suggested that strengthening availability of good quality seed, along with ensuring timely provision of fertilizers, improved irrigation facilities, and effective pest management, is crucial for increasing productivity. Additionally, efforts should be directed toward promoting the cultivation of pigeon pea on more fertile and productive lands to maximize yield and profitability. The pigeon pea growers encountered many problems in marketing of pigeon pea. Looking to this, there is a need to establish regulated market nearby to the study area and strengthen productivity for the better marketable surplus, and also a need of extension activities for storage management in the study area. Increased extension effort is required to disseminate marketing news, information and intelligence on different aspects of production and marketing of pigeon pea. The study therefore reveals that although setting up local processing mills in the study area can help stabilize market prices, reduce post-harvest losses, and generate additional income opportunities for the farming community.

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