

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 11; November 2025; Page No. 473-477

Received: 25-09-2025
Accepted: 30-10-2025

Indexed Journal
Peer Reviewed Journal

Business performance of major spice products of selected self-help groups in Bilaspur district of Chhattisgarh

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DOI: <https://www.doi.org/10.33545/26180723.2025.v8.i11f.2680>

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Abstract

This study analyzes the performance of two women Self-Help Groups (SHGs)—Radha Krishna SHG and Jai Seva SHG—involved in processing and marketing major spices (Turmeric, Chilli, and Coriander Powder) in the Bilaspur district of Chhattisgarh. The research covered the demographic profile of members, the cost and returns of spice processing, and the overall annual business performance. Demographically, the majority of respondents in both SHGs were married and fell into the 31-40 years age group, with most having completed primary schooling. Annual fixed costs were dominated by building rent for both groups. In terms of product economics, raw material cost was the largest variable component across all spices (e.g., 71.4% for Chilli Powder). Overall business performance showed that Chilli Powder was the most profitable product for both SHGs. Collectively, Jai Seva SHG exhibited higher annual gross (₹9,33,500) and net returns (₹3,58,500) and a better Input-Output Ratio (1:1.62) than Radha Krishna SHG (1:1.58). However, Radha Krishna SHG recorded a higher per-person annual income (₹32,410) due to fewer members. The findings suggest a profitable venture with scope for efficiency improvements, enhanced marketing strategies, strengthened value addition, improved access to credit, and better training in quality management.

Keywords: Self-help groups (SHGs), spice processing, business performance

Introduction

Strongly flavoured or aromatic vegetable-based compounds derived from tropical plants that are frequently used as condiments are called spices. Any dried seed, fruit, root, rhizome, bark, vegetative material, or flower bud that is used in small amounts for flavouring purposes but has little nutritional value is considered a spice. Spices, which are used in food, festivals, and medicine, are among the first goods traded internationally. Every society in the world was altered and moulded by their seductive charm and their enticing scents and vibrant flavours, spices have permanently shaped Indian culture, impacting its religious customs, business relationships, and culinary heritage. (International Journal of Applied Research, 2024). The state of Chhattisgarh, with its favourable agro-climatic conditions, is demonstrating rising potential in the cultivation of essential spices, including turmeric, chilli, and coriander. Within this context, Women Self-Help Groups (SHGs) in regions like the Bilaspur district have become critical drivers of decentralized agri-business. These groups operate on the principle of "people autonomy," empowering rural women socially and financially through small-scale processing and value-addition.

Despite their successful mobilization and evidence of strong

production efficiency, these micro-enterprises face significant business hurdles. These challenges, which include high raw material costs, inadequate infrastructure, limited market access beyond local outlets, and a lack of formalized business and marketing skills, restrict their long-term profitability and sustainable development. Self-help groups have been investigated as a means of enhancing the efficacy of enterprises owned by women. Among other things, they are believed to improve group cohesion, thrift, and mutual trust. In rural India, self-help groups have been shown to improve socioeconomic standing. (Amutha, 2011) ^[1]. Women's attendance at group meetings, the network's structure, and members' financial relationships all supported collective action in fostering social capital and normative influence, according to Sanyal (2009). It was discovered that self-help groups were particularly crucial for underprivileged Indian women's communication skill development. Enhancing communication abilities was linked to easier access to banks, becoming a successful microbusiness owner, and becoming a self-sufficient, successful woman in every way. (Pangannavar, 2012) ^[2]. In this background, this study was conducted to estimate the cost and returns of processing of major spices in selected Self-help groups.

Materials and Methods

The study utilized a multi-stage sampling design to analyze the business operations of spices processing and marketing in Bilaspur District, Chhattisgarh, India. The district was purposively selected due to its emerging spice cultivation and processing industry. Subsequently, two blocks (Kota and Takhatpur) were chosen, and from these, two villages (Majhgaon and Belpan) were selected using simple random sampling. The primary respondents were 22 members from two women Self-Help Groups (SHGs)—Radha Krishna SHG and Jai Seva SHG—purposively selected for their direct involvement in processing and selling major spices (turmeric, chili, and coriander). Primary data were collected through personal interviews using a structured and pre-

tested questionnaire to gather detailed information on processing costs, returns, marketing patterns, and constraints. Additionally, 100 consumers were randomly selected and interviewed to assess their preferences for the processed spices. Secondary data were sourced from government publications (State Agri/Horti Departments, Spice Board of India, DA&FW) and existing literature. Data analysis involved descriptive statistics such as tabulation, frequency, and percentage, as well as calculating profitability metrics including Mean, Variable Cost Ratio (V:C Ratio), and Input-Output Ratio. Data from the year 2024-25 was taken in this study.

Results and Discussion

Table 1: General Demographic Profile of Respondents (N = 22)

Category	Sub-Category	Radha Krishna SHG (n=10)	%	Jai Seva SHG (n=12)	%
Age (Years)	18-30	4	40	0	0
	31-40	3	30	8	66.67
	41-50	3	30	4	33.33
	51-60	0	-	0	-
Literacy Level	Illiterate	1	10	1	8.33
	Primary School	4	40	4	33.33
	Middle School	3	30	4	33.33
	High School	2	20	1	8.33
	Higher Secondary	0	-	1	8.33
Marital Status	Graduate	0	-	1	8.33
	Married	10	100	12	100
	Unmarried	0	-	0	-
	Widowed	0	-	0	-
	Divorced	0	-	0	-

Source: Processed Primary Data 2024-25

The table 1 presents the demographic characteristics of members from Radha Krishna SHG (n=10) and Jai Seva SHG (n=12) across age, literacy level, and marital status. Most members in both groups fall within the middle-age categories, with Radha Krishna SHG having 40% of its members in the 18-30 age group, while Jai Seva SHG has no representation in this range; the majority of Jai Seva members (66.67%) belong to the 31-40 age group, followed by 33.33% in the 41-50 group. Literacy levels show that primary and middle-school education are the most common in both SHGs, with Radha Krishna SHG having 40% at primary level and 30% at middle level, while Jai Seva SHG

records 33.33% each in these categories. A small proportion of Jai Seva members have higher secondary (8.33%) and graduate-level education (8.33%), unlike Radha Krishna SHG, where none have attained these levels. Marital status is uniform across groups, as all members of both SHGs are married, with no respondents reported as unmarried, widowed, or divorced. Overall, the table highlights that both SHGs consist predominantly of married women in their productive age group with basic formal education.

Fixed cost of processed spices under selected women SHGs

Table 2: Fixed cost of processed spices under Radha Krishna and Jai Seva SHG

S. No.	Particulars	Radha Krishna SHG (Rs.)	Jai Seva SHG (Rs.)	Time Period
1	Machinery Depreciation	7500	6000	Yearly
2	Rent of Building (electricity included)	34800	36000	Yearly
Total		42300	42000	

Source: Processed Primary Data 2024-25

The table 2 presents the annual fixed cost structure of spice-processing operations for Radha Krishna SHG and Jai Seva SHG. The major components of fixed costs for both groups include machinery depreciation and building rent, which also covers electricity charges. For Radha Krishna SHG, machinery depreciation amounts to ₹7,500 per year, while Jai Seva SHG incurs ₹6,000 for the same. Building rent

constitutes the largest fixed expense for both SHGs, recorded at ₹34,800 for Radha Krishna and ₹36,000 for Jai Seva. The total annual fixed cost is slightly higher for Radha Krishna SHG (₹42,300) compared to Jai Seva SHG (₹42,000), indicating similar fixed-cost structures with minor variations in machinery and infrastructure expenses.

Table 3: Business Performance of Spices Products Produced by Radha Krishna women SHG (Rs/Year)

Product	Quantity sale (Quintals/Year)	Net Return Per Kg in Rs.	Total Net Return in Rs.	Sale Price Per kg in Rs.	Gross Return Rs.
Turmeric Powder	8	₹160	₹128000	₹430	₹344000
Coriander Powder	3	₹80	₹24000	₹300	₹90000
Chilli Powder	8	₹280	₹224000	₹560	₹448000
Total	19 Quintal		₹376000		₹882000

Source: Processed Primary Data 2024-25

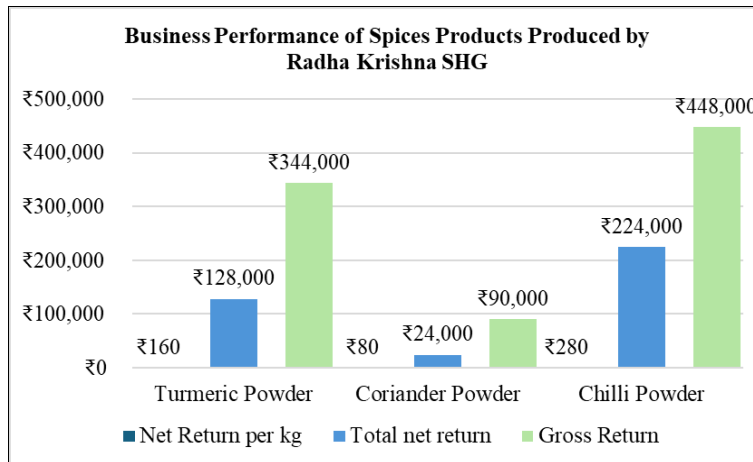


Fig 1: Business Performance of Radha Krishna SHG

The Table 3 and Fig. 1 highlights the annual business performance of spice products by Radha Krishna SHG. Among the products, chilli powder generated the highest net return of ₹2,24,000 from 8 quintals, followed by turmeric

(₹1,28,000) and coriander powder (₹24,000). The total annual net return amounted to ₹3,76,000, with a gross return of ₹8,82,000 from 19 quintals of total spice sales.

Table 4: Business Performance of Spices Products Produced by Jai Seva women SHG (Rs/Year)

Product	Quantity sale (Kg/Year)	Net Return Per Kg in Rs	Total Net Return in Rs	Sale Price Per kg in Rs	Gross Return
Turmeric Powder	7.5	₹170	₹127500	₹410	₹307500
Coriander Powder	5	₹70	₹35000	₹300	₹150000
Chilli Powder	8.5	₹280	₹238000	₹560	₹476000
Total	21 Quintal		₹400500		₹933500

Source: Processed Primary Data 2024-25

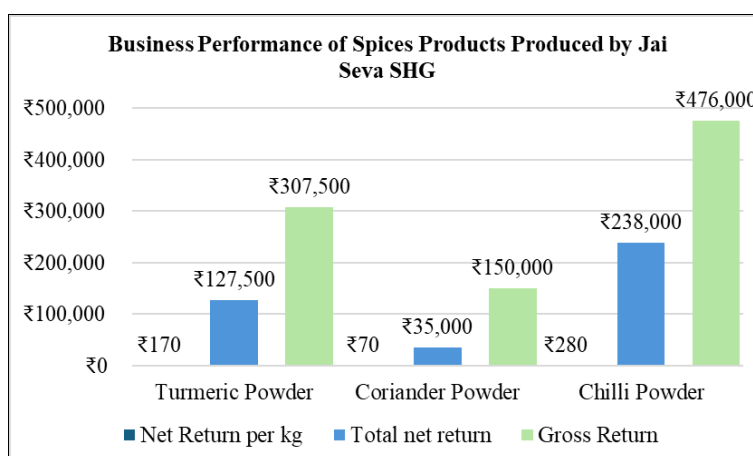


Fig 2: Business Performance of Jai Seva SHG

The Table 4 and Fig. 2 details the annual business performance of Jai Seva Women SHG from three spice products total 21 quintals. Chilli powder was the most profitable, with 8.5 quintals sold, yielding a gross return of ₹4,76,000 and a net return of ₹2,38,000 at ₹280 net profit per kg. Turmeric powder, with 7.5 quintals sold, generated

₹3,07,500 in gross return and ₹1,27,500 net return at ₹170/kg. Coriander powder contributed the least, with 5 quintals sold, yielding ₹1,50,000 gross and ₹35,000 net return. Overall, the SHG earned ₹9,33,500 gross and ₹4,00,500 net annually from spice sales.

Table 5: Total cost and return from all spice products (19 Quintals) by Radha Krishna SHG

Total Cost			
S. No.	Particulars	Total Cost	Percentage %
1	Raw Material	₹346000	62.01
2	Packaging material	₹57000	10.21
3	Human Labour	₹40600	7.27
4	Other Costs (Transport & Maintenance)	₹72000	12.90
5	Fixed cost	₹42300	7.58
	Total	₹557900	100.0
Return			
1	Gross Return	₹882000	
2	Net income	₹324100	
3	Input-Output Ratio	1:1.58	
4	Benefit-Cost Ratio (BCR)	1:1.58	
5	Cost Per Quintal of Production	₹29363	

Source: Processed Primary Data 2024-25

The table 5 presents the total cost and returns from processing 19 quintals of spice products by Radha Krishna SHG. The total production cost amounted to ₹5,57,900, with raw materials being the major component (62.01%). The gross return was ₹8,82,000, resulting in a net income of ₹3,24,100. Both the Input-Output Ratio and Benefit-Cost Ratio stand at 1:1.58, indicating profitability. The cost per quintal of production is ₹29,363.

Table 6: Total cost and return from all spice products (21 Quintals) by Jai Seva SHG

Total Cost			
S. No.	Particulars	Total Cost	Percentage %
1	Raw Material	₹365000	63.47
2	Packaging material	₹63000	10.95
3	Human Labour	₹63000	10.95
4	Other Costs (Transport & Maintenance)	₹42000	7.30
5	Fixed cost	₹42000	7.30
	Total	₹575000	100.0
Return			
1	Gross Return	₹933500	
2	Net income	₹358500	
3	Input-Output Ratio	1:1.62	
4	Benefit-Cost Ratio (BCR)	1:1.62	
5	Cost Per Quintal of Production	₹27380	

Source: Processed Primary Data 2024-25

The table 6 outlines the total cost and returns from 21 quintals of spice products by Jai Seva SHG. The total cost incurred was ₹5,75,000, with raw material accounting for the highest share (63.47%). The gross return stood at ₹9,33,500, yielding a net income of ₹3,58,500. The Input-Output and Benefit-Cost Ratios are both 1:1.62, reflecting good profitability. The production cost per quintal is ₹27,380.

Table 7: Comparative study of spice business between Radha Krishna SHG and Jai Seva SHG

S. No.	Particulars	Radha Krishna SHG	Jai Seva SHG
1	Total Quantity Produced	19 Quintal	21 Quintal
2	Gross Return	₹882000	₹933500
3	Total cost	₹557900	₹575000
4	Net income	₹324100	₹358500
5	Input output ratio	1:1.58	1:1.62
6	No. of Members	10	12
7	Per person annual income Rs.	₹32,410	₹29,875
8	Monthly income	₹2,700	₹2,489
9	Spices Processed	Turmeric, Chilli, Coriander	Turmeric, Chilli, Coriander

Source: Processed Primary Data 2024-25

The comparative study reveals that Jai Seva SHG produced 21 quintals of spices, slightly more than Radha Krishna SHG with 19 quintals. Jai Seva achieved a higher gross return (₹9,33,500) and net income (₹3,58,500) compared to Radha Krishna's ₹8,82,000 and ₹3,24,100, respectively. Despite this, Radha Krishna SHG had a marginally lower total cost. Jai Seva also had a better input-output ratio (1:1.62), indicating higher efficiency. Both groups

processed the same spices—Turmeric, Chilli, and Coriander—but Jai Seva SHG was formed more recently, on 25/05/2022, whereas Radha Krishna SHG started on 19/12/2019. Jai Seva SHG also had more members (12 vs 10), which might have contributed to higher production and returns. Per person annual income is ₹ ₹32,410 in Radha Krishna SHG and ₹29,875 in Jai Seva SHG.

Table 8: Employees working hours (8 hours/day) distribution in spices processing

S. No.	Spices	Components	Radha Krishna SHG	Jai Seva SHG
1	Coriander	Working hours/day	1 hour	1 hour
		Working days/month	15	20
		Working days/year	180 days	240 days
		Total working hours/year	180 hours	240 hours
		Processed spice quantity per day	1.67 kg/day	2.08 kg/day
2	Chilli	Value of daily production	₹501/day	₹624/day
		Working hours/day	4 hour	5 hour
		Working days/year	180 days	240 days
		Total working hours/year	720 hours	1200 hours
		Processed spice quantity per day	4.44 kg/day	3.54 kg/day
		Value of daily production	₹2486.4/day	₹1982.4/day

3	Turmeric	Working hours/day	3 hour	2 hour
		Working days/year	180 days	240 days
		Total working hours/year	540 hours	480 hours
		Processed spice quantity per day	4.44 kg/day	3.13 kg/day
		Value of daily production	₹1909.2/day	₹1283.3/day

Source: Processed Primary Data 2024-25

Table 8 presents the working hour distribution of employees engaged in processing three spices—coriander, chilli, and turmeric—by Radha Krishna and Jai Seva SHGs, assuming an 8-hour workday. For coriander, both SHGs allocate 1 hour/day per employee, but Jai Seva works more days annually (240 vs. 180), resulting in higher total hours (240 vs. 180) and a greater daily production value of ₹624 compared to ₹501. In chilli processing, Radha Krishna employees work 4 hours/day, while Jai Seva assigns 5 hours/day. Despite Jai Seva's longer annual working time (1200 hours vs. 720), Radha Krishna achieves higher daily production (4.44 kg vs. 3.54 kg) and a greater value of ₹2486.4/day compared to ₹1982.4. For turmeric, Radha Krishna again allocates more hours per day (3 vs. 2 hours), resulting in higher daily production and value (₹1909.2 vs. ₹1283.3). This comparison highlights that working hours and efficiency per hour vary by SHG and crop, impacting daily output and economic returns.

Conclusion

Based on the analysis of the two Self-Help Groups (SHGs), Jai Seva SHG generally demonstrated higher overall business performance than Radha Krishna SHG, with greater total quantity produced (21 quintals vs. 19 quintals), higher gross return (9,33,500 vs. 8,82,000), and a better Input-Output/Benefit-Cost Ratio (1:1.62 vs. 1:1.58). However, Radha Krishna SHG achieved a slightly higher annual income per person (32,410 vs. 29,875) due to having fewer members (10 vs. 12). For both groups, chilli powder was the most profitable product, yielding the highest total net return and gross return. Furthermore, the analysis of fixed costs shows that building rent is the most significant fixed expenditure for both SHGs. Findings suggest a profitable venture with scope for efficiency improvements, enhanced marketing strategies, strengthened value addition, improved access to credit, and better training in quality management.

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