Original Research Article

ECONOMICS OF VALUE ADDED PRODUCTS OF GROUNDNUT IN YADGIR DISTRICT OF KARNATAKA

ABSTRACT

The present study was conducted to analyze the costs and returns of value added products of groundnut in Yadgir district of Karnataka. The data was derived from primary sources, consisting of 30 respondents; the information was collected using snowball sampling technique. The findings revealed that for groundnut holige, the total cost of production for 300 holiges was ₹ 2,616.16, with a net return of ₹ 2,783.84 and returns per rupee of investment (RRI) of 2.064. Groundnut chikki production incurred a cost of ₹ 3,595.84 for 500 chikkis, yielding a net return of ₹ 1,404.16 and a RRI of 1.390. Groundnut chutney powder production of 10 kg had a total cost of ₹ 2,079.37, resulting in a net return of ₹ 950.37 and a RRI of 1.463. Boiled groundnut production of 10 kg involved a total cost of ₹ 1,503.71, yielding a net return of ₹ 1,496.29 and a RRI of 1.995. Spicy coated groundnut production (10 kg) had a total cost of ₹ 2,227.91, resulting in a net return of ₹ 772.08 and a RRI of 1.346. The profitability and income-enhancing potential of value-added groundnut products, suggests that the farmers and entrepreneurs in Yadgir District can benefit from processing groundnuts into diverse, marketable products.

Keywords: Groundnut; Value added products; Costs; Returns.

1. INTRODUCTION

Groundnut (*Arachis hypogaea* L.), known as the “King of oilseed crops” and referred to as the “Wonder nut” and “poor man’s cashew nut,” derives its name from the Greek words “Arachis” and “hypogea,” meaning “below the ground,” which refers to the development of pods in the soil. It belongs to the Fabaceae family and is a self-pollinated legume crop. Due to its high nutritional value, groundnut is also called a miracle nut, earthnut, peanut, monkey nut, goober, panda, and manila nut. The term groundnut is commonly used in Asia, Africa, Europe, and Australia, while in North and South America, it is referred to as peanut (Adebayo *et al.* 2020). China, India, Nigeria, United States, Senegal, Myanmar, Indonesia and Sudan are the major groundnut producing countries.

Globally, groundnut is cultivated on 32.7 million hectares, yielding 53.9 million tonnes with an average yield of 1,648 kg/ha (Annon., 2022). In India, during 2022-23, groundnut was grown on 4.96 million hectares, producing 10.29 million tonnes with a productivity of 2,009 kg/ha (Annon., 2023a). Groundnut is cultivated across almost all states in India, with Karnataka being one of the key states. It is a major cash crop in eight districts of Karnataka. In 2023, Karnataka contributed 9.37 per cent of India’s total area under oilseeds and 5.63 per cent of its production. Major groundnut growing districts in Karnataka include Chitradurga, Tumakuru, Ballari, Gadag, Koppal, Dharwad, Haveri and Yadgir (Annon., 2023b).

The processing of agricultural products is an efficient method of maintaining the shelf-life of agricultural produce. Such processed products provide local foods for consumption round the year among the rural population. Groundnut is a high-value crop that can be marketed with little processing. It is extremely versatile and can be used in making a wide range of value-added products such as groundnut holige, groundnut chikki, groundnut chutney powder, boiled groundnut and spicy coated groundnut. Processing of groundnut is a potential area for an investor to engage as the maximum per cent of the product that can be utilized with very little wastage (Zhao *et al.* 2012).

Commodity with no value addition fetches low price when it is sold in market. There will be limited product differentiation, leading to added costs at each stage of the supply chain without contributing additional value. In value chain of groundnut, additional value to the product (groundnut) would be added at each stage. In the stages of packaging, processing, quality branding, grading, and so on there will be an involvement of stakeholders. Farmers will be better able to identify market opportunities and capitalize on available potential as a result of increased awareness and skill development. Value addition enhances profit margins. It plays a more positive role in supporting rural welfare and reducing poverty by providing farm level jobs (Niketha *et al*., 2018).

This study aims to explore the economic aspects of value added groundnut products in Yadgir district by analyzing production costs, market demand, and profitability. By understanding these factors, the study provides insights into how farmers and entrepreneurs can optimize returns and contribute to the sustainable development of the groundnut sector in the region.

2. METHODOLOGY

2.1 Sampling design and Method of Data Analysis

The study was carried out in Yadgir district of Kalyana Karnataka region. To analyse the economics of value added products of groundnut 30 value creators were selected to identify value added products of groundnut using snow ball sampling technique. This method allowed researchers to identify individuals actively engaged in groundnut value addition by leveraging referrals from initial participants. The focus was on identifying the range of value-added products, such as roasted groundnuts, boiled groundnut, groundnut-based snacks and other derivatives. The study aimed to assess the costs, returns and profitability associated with each product, thereby providing insights into the economic viability and sustainability of these ventures.

2.2 Cost and returns of groundnut value added products

Various value added products from groundnut were being produced by the processors in the study area. Cost and returns for each of the value-added product was worked out. Computation includes following aspects:

Cost of production

The expenses incurred on inputs and input services in producing a unit quantity of output. In the study the amount spent on various inputs including labour were calculated.

Gross returns

Gross returns are the total returns on expenditure incurred before deducting the expenses or the total costs.

$$Gross\ returns = Price \times Total\ output\ sold$$

Net returns

Net returns are the total returns on expenditure incurred after deducting the expenses or the total costs.

$$Net\ returns = Gross\ returns - Total\ cost$$

Returns per rupee of investment (RRI)

$$\text{Returns per rupee of investment} = \frac{\text{Gross returns}}{\text{Total cost of production}}$$

3. RESULTS AND DISCUSSION

3.1 Cost and returns in production of groundnut holige

The cost and returns from the production of groundnut holige are presented in Table 1. Average quantity of holiges produced by value creators in the study area was 300 with the total cost of production of ₹ 2,616.16. Gross returns realised by processing was ₹ 5,400 and net return was ₹ 2,783.84.

Among the material cost, cost of groundnut was highest with ₹ 900 (34.40%) followed by jaggery ₹ 300 (11.47%), maida ₹ 300 (11.47%), cost of transportation ₹ 150 (5.73%), miscellaneous ₹ 120 (4.59%), packing material ₹ 90 (3.44%), oil ₹ 81 (3.10%), labelling material ₹ 60 (2.29%) and interest on working capital accounted for ₹ 15.16 (0.58%). On the other hand, labour cost accounted for ₹ 600 *i.e.* 22.93 per cent of the total cost of production of holiges. By processing 2.5 kg of the groundnut 100 holiges were produced. The total cost for production of 100 holiges was worked out to be ₹ 872.05. The gross returns came to ₹ 1800 at a price of ₹ 18 per holige. The net return was ₹ 927.95 and yielding ₹ 2.064 per rupees of investment on groundnut holige production. Similar results were reported by Kusuma *et al.* (2013). Furthermore, producing and selling locally popular products like groundnut holige strengthens ties with local markets and consumers, providing a more resilient income source. As income grows, farmers are better positioned to invest in improved healthcare, education and better farming practices, all of which can contribute to enhanced overall well-being and long-term sustainability in the agricultural sector.

Table 1: Cost and returns in production of groundnut holige

Sl. No.	Particulars	300 holiges		100 holiges		%
		Quantity of inputs/ output	Total cost / returns (₹)	Quantity of inputs/ outputs	Total cost/ returns (₹)	
a)	**Costs**					
1	Groundnut (kg)	7.50	900	2.50	300	34.40
2	Jaggery (kg)	6	300	2	100	11.47
3	Maida (kg)	6	300	2	100	11.47
4	Oil (ml)	750	81	250	27	03.10
5	Packing material (No.)	300	90	100	30	03.44
6	Labelling material (No.)	30	60	10	20	02.29
7	Cost of transportation		150		50	05.73
8	Family labour (No.)	3	600	1	200	22.93
9	Miscellaneous		120		40	04.59
10	Interest on the working capital @ 7 per cent		15.16		5.05	00.58
	Total cost of production (₹)		**2616.16**		**872.05**	**100.00**
b)	**Returns**					
1	Gross returns (₹) @ ₹18/holige	300	5400	100	1800	
2	Net returns (₹)		2783.84		927.95	
3	Returns per rupee of expenditure (₹)		2.064		2.064	

Note: Miscellaneous includes cost of fuel, electricity etc.

3.2 Cost and returns in production of groundnut chikki

The cost and returns from production of groundnut chikki are presented in table 2. Average quantity of chikkis produced in the study area was 500 units of chikki with 50 grams with the total cost of production of ₹ 3,595.84. Gross returns realised by processing was ₹ 5,000 and net return was ₹ 1,404.16.

Among the material cost, cost of groundnut was highest ₹ 1,785 (49.64%) followed by jaggery ₹ 540 (15.02%), ghee ₹ 150 (4.17%), packing material ₹ 150 (4.17%), labelling material ₹ 150 (4.17%), cost of transportation ₹ 100 (2.78%), miscellaneous cost ₹ 100 (2.78%) and interest on working capital accounted for ₹ 20.84 (0.58%). On the other hand, labour cost accounted for ₹ 600 *i.e.* 16.69 per cent of the total cost of production of chikkis. By processing 3.4 kg of the groundnut, hundred chikkis were produced. The total cost per 100 chikkis worked out to be ₹ 719.16. The gross returns realised was ₹ 1000 at a price of ₹ 10 per chikki and net return was ₹ 280.84 and yielding ₹ 1.390 per rupee of investment on groundnut chikki production. The findings are contrast with Israel *et al.* (2019). By processing groundnuts into chikki, they can generate additional revenue beyond the raw crop sales, creating a steady cash flow that is less affected by market fluctuations in raw groundnut prices. This also supports the concept of rural employment, as the labour required for processing provides additional job opportunities in the region, further contributing to the local economy.

Table 2: Cost and returns in production of groundnut chikki

Sl. No.	Particulars	500 chikkis		100 chikkis		%
		Quantity of inputs/ output	Total cost / returns (₹)	Quantity of inputs/ outputs	Total cost/ returns (₹)	
a)	**Costs**					
1	Groundnut (kg)	17	1785	3.4	357	49.64
2	Jaggery (kg)	12	540	2.4	108	15.02
3	Ghee (g)	200	150	40	30	04.17
4	Packing material (No.)	500	150	100	30	04.17
5	Labelling material (No.)	500	150	100	30	04.17
6	Cost of transportation		100		20	02.78
7	Family labour (No.)	2	600	0.4	120	16.69
8	Miscellaneous		100		20	02.78
9	Interest on the working capital @ 7 per cent		20.84		4.16	00.58
	Total cost of production (₹)		**3595.84**		**719.16**	**100.00**
b)	**Returns**					
1	Gross returns (₹) @ ₹ 10/chikki	500	5000	100	1000	
2	Net returns (₹)		1404.16		280.84	
3	Returns per rupee of expenditure (₹)		1.390		1.390	

Note: Each chikki weighs about 50 grams

3.3 Cost and returns in production of groundnut chutney powder

The cost and returns from the production of groundnut chutney powder are presented in Table 3. Average quantity of chutney powder produced in the study area was 10 kg per unit, with the total cost of production of ₹ 2079.37. Gross returns realised by processing was ₹ 3000 and net returns was ₹ 950.37.

Among the material cost, cost of groundnut was highest ₹ 840 (40.99%) followed by cost of red chilli powder ₹ 490 (23.91%), cumin ₹ 175 (8.54%), packing material ₹ 80 (3.90%), labelling material ₹ 60 (2.93%), cost of transportation ₹ 60 (2.93%), garlic ₹ 52.50 (2.56%), miscellaneous ₹ 50 (2.44%), curry leaf ₹ 20 (0.98%), salt cost ₹ 10 (0.50%) and interest on working capital accounted for ₹ 11.87 (0.58%) of the total cost of production of chutney powder. On the other hand, labour cost accounted for ₹ 200 *i.e.* 9.76 per cent of the total cost of production of groundnut chutney powder. By processing 0.7 kg of the groundnut one kg of the groundnut chutney powder were produced. The total cost per kg of chutney powder worked out to be ₹ 204.93. The gross returns realised was ₹ 300 at a price of ₹ 300 per kg. The net return was ₹ 95.06 and yielding ₹ 1.463 per rupee of investment on groundnut chutney powder production. Similar results were reported by Nayana *et al.* (2022). The processing of groundnut offers a viable means for enhancing farmers income. By converting raw groundnuts into chutney powder, farmers can achieve higher returns compared to selling raw

groundnuts alone, thus providing a more secure income source. Engaging in chutney powder production offers additional benefits for farmers and rural communities.

Table 3: Cost and returns in production of groundnut chutney powder

Sl. No.	Particulars	10 kg chutney powder		1 kg chutney powder		%
		Quantity of inputs/ output	Total cost / returns (₹)	Quantity of inputs/ outputs	Total cost/ returns (₹)	
a)	**Costs**					
1	Groundnut (kg)	7	840	0.7	84	40.99
2	Red chilli powder (kg)	1.75	490	0.175	49	23.91
3	Garlic (g)	350	52.50	35	5.25	02.56
4	Cumin (g)	350	175	35	17.5	08.54
5	Salt (g)	700	10	70	1	00.49
6	Curry leaf (g)	100	20	10	2	00.98
7	Packing material (No.)	40	80	4	8	03.90
8	Labelling material (No.)	40	60	4	6	02.93
9	Cost of transportation		60		6	02.93
10	Family labour (No.)	2	200	0.2	20	09.76
11	Miscellaneous		50		5	02.44
12	Interest on the working capital @ 7 per cent		11.87		01.18	00.58
	Total cost of production (₹)		**2049.37**		**204.93**	**100.00**
b)	**Returns**					
1	Gross returns (₹)	10	3000	1	300	
2	Net returns (₹)		950.62		95.06	
3	Returns per rupee of expenditure (₹)		1.463		1.463	

3.4 Cost and returns in production of boiled groundnut

The cost and returns from production of boiled groundnut are presented in Table 4. Average quantity of boiled groundnut produced in the study area was 10 kg. Total cost of production of boiled groundnut was ₹ 1503.71. Gross returns realised by processing was ₹ 3000 and net returns was ₹ 1496.29.

Among the material cost, cost of groundnut which amounted to ₹ 1,200 (79.80%) was highest followed by cost of transportation ₹ 100 (6.66%), miscellaneous cost ₹ 50 (3.33%), salt ₹ 25 (1.66%), packing material ₹ 20 (1.33%) and interest on working capital accounted for ₹ 8.71 (0.58%) of the total cost of production of boiled groundnut. On the other hand, labour cost accounted for ₹ 100 *i.e.* 6.65 per cent of the total cost of production of boiled groundnut. By processing 1 kg of the groundnut one kg of boiled groundnut were produced. The total cost per kg of boiled groundnut worked out to be ₹ 150.37. The gross returns came to ₹ 300 at a price of ₹ 300 per kg. The net return was ₹ 149.66 and yielding ₹ 1.995 per rupee of investment on boiled groundnut production. The findings are in line with Govindaraj and Jain (2011). Boiled groundnut production allows farmers to achieve high profit margins with minimal costs for ingredients and packaging. By selling directly to consumers, farmers

bypass intermediaries, leading to higher returns and quicker income turnover. This improved cash flow helps farmers meet immediate needs and reinvest in their farms, strengthening their financial stability.

Table 4: Cost and returns in production of boiled groundnut

Sl. No.	Particulars	10 kg boiled groundnut		1 kg boiled groundnut		%
		Quantity of inputs/ output	Total cost / returns (₹)	Quantity of inputs/ outputs	Total cost/ returns (₹)	
a)	**Costs**					
1	Groundnut (kg)	10	1200	1	120	79.80
2	Salt (kg)	1.50	25	0.15	2.5	01.66
3	Packing material (No.)		20		2	01.33
4	Labelling material (No.)		-		-	-
5	Cost of transportation		100		10	06.65
6	Family labour (No.)		100		10	06.65
7	Miscellaneous		50		5	03.33
8	Interest on the working capital @ 7 per cent		8.71		0.87	00.58
	Total cost of production (₹)		**1503.71**		**150.37**	**100.00**
b)	**Returns**					
1	Gross returns (₹)	10	3000	1	300	
2	Net returns (₹)		1496.29		149.66	
3	Returns per rupee of expenditure (₹)		1.995		1.995	

3.5 Cost and returns in production of spicy coated groundnut

The cost and returns from production of spicy coated groundnut are presented in Table 5. Average quantity of spicy coated peanuts produced in the study area was 10 kg per unit with the total cost of production of ₹ 2227.91. Gross returns realised by processing was ₹ 3000 and net returns was ₹ 772.08.

Among the material cost, cost of groundnut was ₹ 660 (29.80%) which was highest followed by cost of oil ₹ 450 (20.20%), masala ₹ 170 (7.63%), corn flour ₹ 150 (6.73%), bengal gram flour ₹ 130 (5.84%), cost of transportation ₹ 120 (5.39%), packing material ₹ 100 (4.49%), miscellaneous ₹ 100 (4.48%), red chilli powder ₹ 90 (4.04%), turmeric powder ₹ 40 (1.80%), interest on working capital accounted for ₹ 12.91 (0.58%) and salt cost accounted for ₹ 5 (0.22%) of the total cost of production of spicy coated groundnut. On the other hand, labour cost accounted for ₹ 200 *i.e.* 8.98 per cent of the total cost of production of spicy coated groundnut. By processing 0.6 kg of the groundnut one kg of the spicy coated peanuts was obtained. The total cost per kg of spicy coated peanuts production was worked out to be ₹ 222.79. The gross returns realised was ₹ 300 at a price of ₹ 300 per kg. The net return was ₹ 77.21 and yielding ₹ 1.346 per rupee of investment on spicy coated groundnut

production. The findings are in line with Sweta (2008) As a flavourful and nutritious snack, spicy coated groundnuts offer consumers a healthy alternative to other processed snacks, which enhances their dietary choices. The production of spicy coated groundnuts supports rural economic growth by encouraging entrepreneurship and creating small businesses in food processing, packaging and retailing.

Table 5: Cost and returns in production of spicy coated groundnut

Sl. No.	Particulars	10 kg spicy coated groundnut		1 kg spicy coated groundnut		%
		Quantity of inputs/ output	Total cost / returns (₹)	Quantity of inputs/ outputs	Total cost/ returns (₹)	
a)	**Costs**					
1	Groundnut (kg)	6	660	0.6	66	29.62
2	Bengal gram flour (kg)	1.5	130	0.15	13	05.84
3	Corn flour (kg)	1.5	150	0.15	15	06.73
4	Red chilli powder (g)	300	90	30	9	04.04
5	Turmeric powder (g)	100	40	10	4	01.80
6	Masala (g)	250	170	25	17	07.63
7	Salt (g)	200	5	20	0.5	00.22
8	Oil (lit.)	5	450	0.5	45	20.20
9	Packing material (No.)		100		10	04.49
10	Labelling material (No.)		-		-	-
11	Cost of transportation		120		12	05.39
12	Family labour (No.)	1	200	0.1	20	08.98
13	Miscellaneous		100		10	04.48
14	Interest on the working capital @ 7 per cent		12.91		1.29	00.58
	Total cost of production (₹)		**2227.91**		**222.79**	**100.00**
b)	**Returns**					
1	Gross returns (₹)	10	3000	1	300	
2	Net returns (₹)		772.08		77.21	
3	Returns per rupee of expenditure (₹)		1.346		1.346	

Returns per rupee of expenditure for each value added groundnut product is given in Table 6. Cost of production of groundnut holige was highest (₹ 872.05) followed by groundnut chikki (₹ 719.16), spicy coated peanuts (₹ 222.79), groundnut chutney powder (₹ 202.92) and boiled groundnut (₹ 150.37). Profit was highest in groundnut holige to the extent of ₹ 927.95, followed by groundnut chikki to the extent of ₹ 280.84, boiled groundnut to the extent of ₹ 149.63, groundnut chutney powder to the extent of ₹ 97.08 and spicy coated peanuts ₹ 77.20. Returns per rupee of expenditure was highest in groundnut holige that is ₹ 2.06, which means that every one rupee invested has generated an income of ₹ 2.06. It was ₹ 1.99 in boiled groundnut, ₹ 1.47 in groundnut chutney powder, ₹ 1.39 in groundnut chikki and ₹ 1.34 in spicy coated peanuts. Similar results were reported by Deepa (2017).

Table 6: Estimation of product wise value addition to groundnut

Sl. No.	Products	Quantity of value added products	Cost of production (₹)	Returns (₹)	Profit (₹)	Returns per rupee of expenditure (₹)
1	Groundnut holige (No.)	100	872.05	1800	927.95	2.06
2	Groundnut chikki (No.)	100	719.16	1000	280.84	1.39
3	Groundnut chutney powder (kg)	1	204.93	300	95.06	1.46
4	Boiled groundnut (kg)	1	150.37	300	149.63	1.99
5	Spicy coated groundnut (kg)	1	222.79	300	77.20	1.34

4. CONCLUSION

Economics of value added groundnut products in Yadgir district of Karnataka reveals that processing groundnuts into various products such as groundnut holige, chikki, chutney powder, boiled groundnut and spicy coated groundnut is financially viable and profitable. Overall, the processing of groundnuts into value added products offers significant potential for income generation and rural development in Yadgir district with the profitability of different products varying based on their material requirements, processing complexity and market demand. The study suggests that promoting value addition in the groundnut sector could contribute positively to the economic well-being of farmers and entrepreneurs in the region. Promoting value addition in the groundnut sector could greatly contribute to the economic well-being of farmers and local entrepreneurs in Yadgir district. To capitalize on this potential, it is recommended that local farmers receive training and technical support on processing techniques to improve product quality and meet market standards. Additionally, creating awareness about the health benefits and versatility of value-added groundnut products can expand consumer demand, both locally and in urban markets. Establishing small-scale processing units with access to affordable technology and infrastructure could lower production costs and increase profitability for small farmers.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

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