



International Journal of Agriculture and Food Science

ISSN Print: 2664-844X
ISSN Online: 2664-8458
NAAS Rating (2026): 4.97
IJAFS 2026; 8(8): 649-652
www.agriculturaljournals.com
Received: 07-06-2026
Accepted: 11-07-2026

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Business analysis of organic jaggery production by ramtek agro vision farmer Producer Company limited, Nagpur

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DOI: <https://www.doi.org/10.33545/2664844X.2026.v8.i8h.1822>

Abstract

Jaggery is an important value-added product of sugarcane and provides opportunities for income generation through processing and marketing. The present study was undertaken to analyse the economics of organic jaggery produced by Ramtek Agro Vision Farmer Producer Company Limited, Nagpur. The study was based mainly on primary data collected through a structured questionnaire and personal interaction with the concerned person of the Farmer Producer Company during 2025-26. The processing unit operated for 120 working days and processed four quintals of jaggery per day, resulting in annual production of 480 quintals. The total cost of production was ₹37.32 lakh, comprising fixed cost of ₹8.17 lakh and variable cost of ₹29.15 lakh. The cost of processing was ₹7,775.39 per quintal against an average selling price of ₹9,000 per quintal. The enterprise generated gross returns of ₹43.20 lakh and net returns of ₹5.88 lakh. The benefit-cost ratio was 1.16, indicating economic viability. The break-even output was estimated at 279.13 quintals. The study concludes that jaggery processing is a viable value-addition activity with considerable scope for future growth and expansion.

Keywords: Organic jaggery, cost and returns, break-even point, benefit-cost ratio, farmer producer company

Introduction

India is the second-largest producer of sugarcane in the world, and a significant proportion of this cane is diverted towards the production of jaggery (gur), a traditional non-centrifugal sugar valued for its natural sweetness. Jaggery processing is one of the oldest agro-processing enterprises in rural India and continues to provide an important source of supplementary income and employment to sugarcane growers, particularly in regions where cane cannot be economically transported to distant sugar factories. Jaggery processing also provides an opportunity for value addition to sugarcane and contributes to rural agro-processing activities. The economics of jaggery production depends on various factors such as the cost of sugarcane, labour, fuel, electricity, packaging, transportation, processing infrastructure and other operating expenses. Farmer Producer Companies (FPCs) provide a collective institutional mechanism through which farmers can undertake activities such as processing, value addition and marketing of agricultural produce. The present study was conducted at Ramtek Agro Vision Farmer Producer Company Limited, Ramtek, Nagpur district, Maharashtra. The company was established in 2024 and is engaged in processing and value addition of agricultural produce. The study was undertaken during 2025-26 and focused on the economics of organic jaggery produced by the unit. Primary information was collected through a structured questionnaire and personal interaction with the concern person of the company.

Objectives of study

1. To work out the establishment cost of the organic jaggery processing unit.
2. To analyse cost and returns of organic jaggery production.
3. To estimate the break-even point of organic jaggery production.

Methodology

The present study was conducted at Ramtek Agro Vision Farmer Producer Company Limited, Ramtek, Nagpur district, Maharashtra, during the year 2025-26. The study focused on the establishment cost, cost and returns and break-even point analysis of jaggery produced by the Farmer Producer Company. Primary data were collected from the company through a structured questionnaire and personal interaction with the concerned person of the company. The information collected included investment in the processing unit, production expenditure, quantity processed, selling price and returns.

Establishment cost of organic jaggery production

Establishment cost included expenditure on land, building and construction, machinery, material-handling equipment, electrical installation and power setup, heating system, water supply system, vehicles and transportation, and other miscellaneous expenses. The total establishment cost was obtained by adding all the components.

Cost and returns of organic jaggery production

The data collected on the cost and returns of jaggery production were analysed and tabulated under the following aspects,

Fixed cost

Fixed cost includes depreciation on fixed assets and interest on fixed capital.

Variable cost

Variable cost included the cost of raw material, human labour, transportation, repair and maintenance and interest on working capital.

Total Cost: Total cost was the sum of fixed cost and

variable cost incurred in the production of jaggery.

Total cost = Fixed cost + Variable cost

Gross Returns

Gross returns were estimated by multiplying the quantity of jaggery sold by its selling price.

Gross Returns = Quantity of the product × Price per unit

Net Returns

Net returns represent the profit earned from jaggery production after deducting the total cost from gross returns.

Net returns = Gross return - Total cost

Benefit-Cost Ratio (B:C Ratio)

Benefit-Cost ratio measures the economic profitability of the unit by comparing gross returns with total cost incurred.

B:C ratio = Gross returns / Total cost

Break-even point analysis

Break-even point is the level of production or sales at which total revenue is equal to total cost. At this point, the enterprise earns neither profit nor loss.

Break-even point (Quantity) = Fixed cost / (Selling price per quintal – Variable cost per quintal)

Results and Discussion

Establishment cost of the organic jaggery processing unit

The information related to the investment required for establishing the jaggery processing unit is presented in Table 1.

Table 1: Capital Investment for Organic Jaggery Processing Unit

Sr. No.	Particulars	Amount (Rs)	Percent to total cost
1	Land	2700000.00	37.49
2	Building and Construction	3000000.00	41.66
3	Machinery	200000.00	2.78
4	Material Handling Equipment	620000.00	8.61
5	Electrical Installation and Power Setup	10000.00	0.14
6	Heating System	40000.00	0.56
7	Water Supply System	190000.00	2.64
8	Vehicles and Transportation	225000.00	3.12
9	Furniture and Office Equipment	100000.00	1.39
10	Miscellaneous Expenses	116500.00	1.61
	Total Establishment cost	7201500.00	100.00

The total investment for the organic jaggery processing unit was estimated at Rs 72,01,500 (Table1). Building and construction accounted for the highest share of investment at Rs 30,00,000 (41.66 per cent), followed by land at Rs 27,00,000 (37.49 per cent). Material-handling equipment

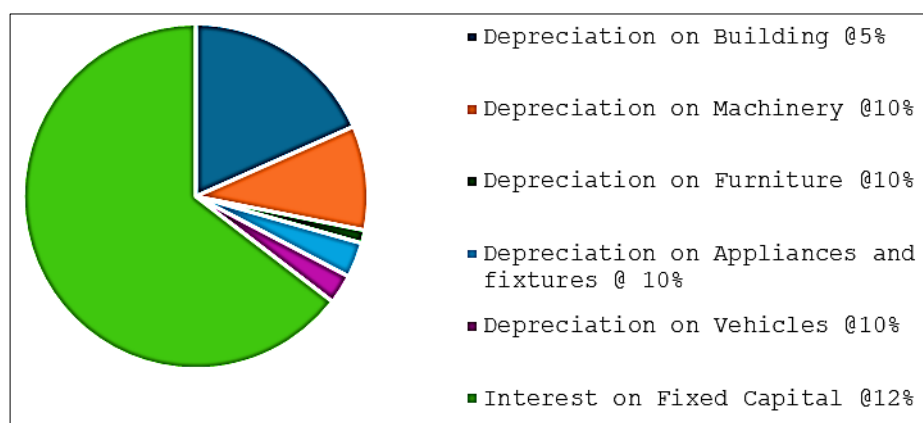
required Rs 6,20,000 (8.61 per cent) and the crusher (machinery) Rs 2,00,000 (2.78 per cent), while vehicles and transportation accounted for Rs 2,25,000 (3.12 per cent). The remaining investment was incurred on utilities, heating system and miscellaneous expenses.

Table 2: Fixed cost for Organic Jaggery Production

Sr. No.	Particulars	Amount (₹)	Percentage %
1	Depreciation cost on Building @5%	150000.00	18.36
2	Depreciation cost on Machinery @10%	80000.00	9.79
3	Depreciation cost on Furniture @10%	10000.00	1.23
4	Depreciation cost on Appliances and fixtures @ 10%	27000.00	3.30
5	Depreciation cost on Vehicles @10%	22500.00	2.75
6	Interest on Fixed Capital @12%	527400.00	64.56
	Total Fixed Cost	816900.00	100

The annual fixed cost of the unit was estimated at Rs 8,16,900 (Table 2), of which interest on fixed capital accounted for the largest share (64.56 per cent), followed by

depreciation on building (18.36 per cent) and machinery (9.79 per cent).

**Fig 1:** Distribution of fixed cost components in jaggery production**Table 3:** Variable cost for Organic Jaggery Production.

Sr. No.	Particulars	Quantity	Amount (₹)	Percent to total cost
1	Raw Material Cost			
a)	Sugarcane (Tonnes)	533.32	1706624.00	58.54
b)	Bhendi Extract (kg)	60.00	1500.00	0.051
	Subtotal		1708124.00	58.59
2	Labour cost	-	756000.00	25.93
3	Electricity Cost	-	4000.00	0.14
4	Fuel Cost	-	48000.00	1.65
5	Packaging Cost	-	240000.00	8.23
6	Transportation Cost	-	96000.00	3.29
7	Repair & Maintenance	-	6000.00	0.21
8	Interest on Working Capital @6%	-	57162.00	1.96
9	Total Variable Cost	-	2915286.00	100
10	Total produce per Annum (qt)	480.00		

The annual variable cost was estimated at Rs 29,15,286 (Table 3) for a processed quantity of 480 quintals, with raw material cost (58.59 per cent) and labour cost (25.93 per cent) together accounting for over 84 per cent of variable expenditure, followed by packaging (8.23 per cent) and transportation (3.29 per cent).

Table 4: Total cost of Jaggery production

Sr. No.	Particulars	Amount (₹)	Percentage (%)
1	Fixed cost	816900.00	21.89
2	Variable cost	2915286.00	78.11
	Total cost	3732186.00	100.00

Table 4 reveals the distribution of total cost of jaggery production into fixed and variable cost components. The total cost of production was estimated at ₹37,32,186, of which variable cost constituted the largest share, amounting

to ₹29,15,286 (78.11 per cent) and fixed cost amounted to ₹8,16,900 (21.89 per cent).

Table 5: Economics of organic jaggery production

Sr. No.	Particulars	Value
1	Quantity of jaggery processed per season (qt)	480.00
2	Cost of production per quintal (Rs)	7775.39
3	Selling price of jaggery per quintal (Rs)	9000.00
4	Gross Returns (Rs)	4320000.00
5	Net returns	587814.00
6	Benefit cost ratio	1.16

Table 5 shows that the unit processed 480 quintals of jaggery during the study period. The cost of production was Rs 7775.39 per quintal while selling price was ₹ 9000 per quintal. The unit generated gross returns of ₹ 43.20 lakh and net returns of ₹ 5.88 lakh. The benefit-cost ratio of 1.16, indicating that jaggery production was economically viable.

Table 6: Break-even point analysis of selected unit

Sr. No.	Particulars	Value
1	Actual quantity processed per year quintal	480.00
2	Annual fixed cost (₹)	816900.00
3	Selling price per qt (₹)	9000.00
4	Variable cost per qt (₹)	6073.51
5	Break-even point (physical quantity) qt	279.13
6	Break-even point (monetary value) ₹	2512170.00
7	Margin of Safety (physical quantity) qt	200.87
8	Margin of Safety (monetary value) ₹	1807830.00
9	Percentage of Margin of Safety (physical quantity) qt	41.85 %
10	Percentage of Margin of Safety (monetary value) ₹	41.85 %

The table 6 shows that the unit processed 480 quintals of jaggery annually, with an annual fixed cost of ₹8.17 lakh, selling price of ₹9,000 per quintal and variable cost of ₹6,073.51 per quintal. The break-even point was 279.13 quintals, corresponding to a monetary value of ₹25.12 lakh. The unit had a margin of safety of 200.87 quintals or ₹18.08 lakh, with a margin of safety of 41.85 per cent in both physical and monetary terms. The unit therefore operated above its break-even level.

Conclusion

- The total investment was ₹72.02 lakh, with building and construction and land accounting for the major share of the total establishment cost.
- The unit processed 480 quintals of jaggery during production period. The total cost of production was ₹37.32 lakh, comprising fixed cost of ₹8.17 lakh and variable cost of ₹29.15 lakh.
- The cost of production was ₹7,775.39 per quintal, against a selling price of ₹9,000 per quintal.
- The unit generated gross returns of ₹43.20 lakh and net returns of ₹5.88 lakh. The benefit-cost ratio of 1.16, indicated that jaggery production was economically viable.
- The break-even output was estimated at 279.13 quintals, which was lower than the actual production of 480 quintals. The margin of safety was 200.87 quintals, indicating that the unit operated considerably above its break-even level.

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