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Socio-economic profile and disposal pattern of jaggery producers in Dholpur district of Rajasthan

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Abstract

This paper presents findings on two core objectives of a larger study on jaggery marketing conducted in Dholpur district of Rajasthan during 2025-26: (i) the socio-economic profile of jaggery-producing farmers, and (ii) the disposal pattern and marketed surplus of jaggery. A multistage stratified random sampling design was adopted, covering three tehsils (Dholpur, Bari and Rajakhhera) and nine villages, from which 100 farmer respondents were selected proportionately across five land-holding categories. The results show that jaggery farming is largely undertaken by middle-aged farmers (mean age 43.2 years), dominated by small (36%) and marginal (32%) land-holding categories, with an average farm size of 2.14 hectares, of which 0.68 hectares (31.8%) was devoted to sugarcane. Literacy among respondents (86%) was higher than the district's rural literacy rate. Jaggery and sugarcane contributed 42.3 per cent of average annual household income of ₹2,14,389. On disposal, only 12 per cent of production was retained for home consumption and 18 per cent was sold locally, while 70 per cent constituted the formal marketed surplus channelled through three identified marketing routes, with the traditional multi-intermediary channel absorbing the largest share (38%). The findings underline the commercial orientation of jaggery production in the district alongside a continued dependence on traditional, intermediary-heavy disposal routes.

Keywords: Socio-economic profile, disposal pattern, marketed surplus, jaggery, Dholpur, Rajasthan

Introduction

Jaggery (locally called gur), a traditional non-centrifugal cane sugar product, occupies an important place in the rural agro-processing economy of India, which accounts for nearly 70 per cent of world jaggery output. In Rajasthan, Dholpur district has emerged as the leading jaggery-producing area of the state on account of assured canal irrigation from the Chambal basin, contributing an estimated 35,800 quintals of jaggery annually as of 2022-23. Jaggery processing provides an important supplementary source of income to small and marginal farmers who are unable to meet the quality and quantity requirements of large sugar mills.

A sound understanding of the socio-economic characteristics of producers and of how they dispose of their produce (home consumption, local sale, or sale through the market) is a necessary first step before the efficiency of the marketing system itself can be evaluated. This paper, therefore, restricts itself to these two foundational objectives drawn from a wider dissertation on jaggery marketing in the district, namely the socio-economic profile of producers and the disposal pattern/marketed surplus of jaggery.

Materials and Methods

The study was conducted in Dholpur district of Rajasthan during the agricultural year 2025-26, with reference data

pertaining to 2022-23. A multistage stratified random sampling design was used. Three tehsils — Dholpur, Bari and Rajakhhera — accounting for about 82 per cent of the district's jaggery production, were selected purposively; the fourth tehsil (Saipau), where sugarcane cultivation is negligible, was excluded. From each tehsil, three villages with the highest area under sugarcane were identified, and one village was selected at random from each set, giving nine sample villages in all. Farmers in each village were stratified into five land-holding categories — marginal (<1 ha), small (1–2 ha), semi-medium (2–4 ha), medium (4–10 ha) and large (>10 ha) — and approximately 11 farmers were drawn proportionately from each village using simple random sampling without replacement, yielding a total sample of 100 farmer respondents.

Primary data on socio-economic characteristics, production, and disposal pattern were collected through a pre-tested, structured interview schedule using the personal interview method. Secondary data were sourced from the District Agriculture Office, Dholpur; APMC Dholpur; the Directorate of Economics and Statistics, Rajasthan; and the Ministry of Agriculture and Farmers Welfare, Government of India. Simple tabular and percentage analysis was used to summarise the socio-economic profile, while marketed surplus was estimated as total production minus the quantity

retained for home consumption and other domestic uses.

Analytical Tools

Chi-Square Test (χ^2 Test): $\chi^2 = \sum [(O - E)^2 / E]$

Cost Sheet Analysis

Total Cost=Fixed Cost+Variable Cost

$$\frac{\text{Total Cost}}{\text{Fixed Cost} + \text{Variable Cost}} = \frac{\text{Total Cost}}{\text{Fixed Cost} + \text{Variable Cost}}$$

- Fixed Costs: Land revenue, depreciation, interest on fixed capital, etc.
- Variable Costs: Labour, raw material (sugarcane), fuel, transportation, packaging, etc.

Results and Discussion

Socio-Economic Profile of Sample Farmers

Age Distribution: Nearly half of the sample farmers (48%) belonged to the 36–50 years age group, followed by 31–35 years (22%), above 50 years (20%), and below 30 years (10%). The mean age of respondents was 43.2 years, indicating that jaggery production in the district is predominantly undertaken by middle-aged farmers, with relatively limited participation of younger farmers.

Table 1: Age Distribution of Sample Farmers

Age Group	No. of Respondents	Percentage (%)
Below 30 years	10	10.0
31–35 years	22	22.0
36–50 years	48	48.0
Above 50 years	20	20.0
Total	100	100.0

Educational Status: About 14 per cent of respondents were illiterate, while 26 per cent had primary education, 34 per cent secondary education, 18 per cent higher secondary education, and 8 per cent were graduates or above. The overall literacy rate among sample farmers (86%) exceeded the district's rural literacy rate of 72.4 per cent, suggesting a positive association between literacy and engagement in commercial jaggery production.

Table 2: Educational Status of Sample Farmers

Education Level	No. of Respondents	Percentage (%)
Illiterate	14	14.0
Primary Education	26	26.0
Secondary Education	34	34.0
Higher Secondary Education	18	18.0
Graduate and Above	8	8.0
Total	100	100.0

Land Holding: The sample was dominated by small farmers (36%), followed by marginal (32%), semi-medium (18%), medium (10%), and large farmers (4%). The average land holding was 2.14 hectares, of which 0.68 hectares (31.8%) was under sugarcane cultivation, reflecting the relatively small and fragmented land base typical of jaggery producers in the district.

Table 3: Distribution of Sample Farmers by Land-Holding Category

Farmer Category	No. of Respondents	Percentage (%)
Marginal (below 1.00 ha)	32	32.0
Small (1.00–2.00 ha)	36	36.0
Semi-Medium (2.00–4.00 ha)	18	18.0
Medium (4.00–10.00 ha)	10	10.0
Large (above 10.00 ha)	4	4.0
Total	100	100.0

Household Income: The average annual household income of sample farmers was estimated at ₹2,14,389. Jaggery and sugarcane together formed the single largest income source, contributing 42.3 per cent, followed by other crops (28.0%), animal husbandry (16.0%), labour/wages (8.0%), and non-farm activities (5.7%). This confirms that jaggery production is not a marginal, subsidiary activity but the principal economic pursuit of the sampled households.

Table 4: Average Annual Household Income of Sample Farmers, by Source

Source of Income	Average Income (₹/year)	Share (%)
Jaggery/Sugarcane	90,680	42.3
Other Crops	60,032	28.0
Animal Husbandry	34,304	16.0
Labour/Wages	17,152	8.0
Non-Farm Activities	12,221	5.7
Total	2,14,389	100.0

Disposal Pattern and Marketed Surplus of Jaggery

The disposal pattern describes how total jaggery output is allocated among home consumption, local (village-level) sale, and sale through the formal marketing channels. Of the average annual production of 34.60 quintals per farm, 12.0 per cent (4.15 quintals) was retained for home consumption — reflecting jaggery's continued role in household food security and ceremonial uses such as puja, weddings and festivals — while 18.0 per cent (6.23 quintals) was sold locally to neighbours and village shopkeepers. The remaining 70.0 per cent (24.22 quintals) constituted the formal marketed surplus, channelled through three identified marketing routes: the traditional multi-intermediary channel (38.0%), the commission-agent channel (22.0%), and the short, direct channel (10.0%). Including local village sales, the total marketed surplus — i.e., production over and above home consumption — amounted to 88.0 per cent (30.45 quintals) of total farm production.

Table 5: Disposal Pattern of Jaggery, Per Sample Farm, 2022-23

Disposal Category	Average Quantity (Qt/farm)	Percentage (%)
Home Consumption	4.15	12.0
Local/Village Sale	6.23	18.0
Channel I (Traditional, multi-intermediary)	13.15	38.0
Channel II (Commission Agent)	7.61	22.0
Channel III (Direct)	3.46	10.0
Total Production	34.60	100.0
Total Marketed Surplus	30.45	88.0

The high level of marketed surplus (88%) indicates that jaggery production in Dholpur district is overwhelmingly commercial rather than subsistence-oriented. At the same time, the concentration of 38 per cent of marketed surplus in the longest, traditional channel — as against only 10 per cent in the shortest, most direct channel — points to a continued reliance on intermediary-based disposal routes, largely on account of the immediate cash/credit access that village traders provide at the farm gate.

Conclusion

Jaggery production in Dholpur district is undertaken predominantly by middle-aged, literate farmers operating small and marginal holdings, for whom jaggery and sugarcane form the single largest source of household income. The disposal pattern reveals a strongly commercial orientation, with 88 per cent of production entering the market in one form or another; however, the bulk of this marketed surplus continues to move through the longest and most intermediary-dependent channel rather than shorter, more remunerative routes. These findings on socio-economic profile and disposal behaviour provide the necessary baseline for evaluating the cost, margin, and efficiency structure of the different marketing channels, and point to the need for interventions — such as strengthening cooperative marketing and improving farm-gate storage and credit access — that can help shift marketed surplus toward shorter, more efficient disposal channels.

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