



E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2019; 8(2): 1579-1582
Received: 18-01-2019
Accepted: 21-02-2019

Ajit Kumar Panigrahi
Post Graduate Scholar,
Dept. of Agricultural Economics,
IAS, SOA (DU), Bhubaneswar,
Odisha, India

Subhashree Mishra
Post Graduate Scholar,
Dept. of Agricultural Economics,
IAS, SOA (DU), Bhubaneswar,
Odisha, India

Upasana Mohapatra
Assistant Professor,
Dept. of Agricultural Economics,
IAS, SOA (DU), Bhubaneswar,
Odisha, India

Economics of small-scale rice mill in Ganjam district of Odisha

Ajit Kumar Panigrahi, Subhashree Mishra and Upasana Mohapatra

Abstract

Milling is the process wherein the rice grain is transformed into a form suitable for human consumption. Ganjam is a leading district in rice milling operation in the state. There are over 280 mills in the district. The current study was conducted with the objectives to analyze the investment pattern and financial feasibility of small-scale rice milling units and to elicit the problems faced by them. The sample of fifty small-scale mill was selected. Both, primary and secondary data were used for the study. The data were summarized with the help of statistical tools like averages and percentages to obtain meaningful inferences. Investment analysis techniques were carried out to evaluate the feasibility of investment in rice mills. The total initial investment in the mill accounts for Rs 83 lakhs. The total annual returns obtained by the mill accounts for Rs 2,20,30,830.00 of which 78.82 per cent is contributed by sale of rice (Rs 1,73,65,140.00), 6.77 per cent by sale of bran (Rs 14,92,050.00), 6.03 per cent by milling charges (Rs 14,40,000.00) and 5.80 per cent by sale of broken rice (Rs 12,78,900.00). The net present value (NPV) was calculated to be Rs 1,24,64,460.54. The BCR was found out to be 2.50. The IRR turned out to be 28 per cent. the PBP was calculated to be 4 years and 4 months. As NPV is positive, BCR is greater than 1, IRR is greater than the existing rate of interest (7 per cent) and PBP is of less duration, the investment in small-scale rice mill is financially feasible. Invariably all the sample rice mill owners opined that frequent interruption of power supply and high cost of working capital were the major problems faced by them in running the units. Since rice is an important staple crop of the state, it would be advisable for entrepreneurs to invest in small-scale rice milling units to ensure profits for self as well as food security for the state.

Keywords: Paddy, rice mill, financial feasibility, economics

Introduction

Paddy in its raw form cannot be consumed by human beings. It needs to be suitably processed for obtaining rice. Rice milling is the process which helps in removal of hulls and barns from paddy grains to produce polished rice. Rice forms the basic primary processed product obtained from paddy and this is further processed for obtaining various secondary and tertiary products. The basic rice milling processes consist of Pre Cleaning, De-stoning, Parboiling, Husking, Husk Aspiration (Separating the husk from brown rice/ unhusked paddy), Paddy Separation (Separating the unhusked paddy from brown rice), Whitening (Removing all or part of the bran layer and germ from brown rice), Polishing (Improving the appearance of milled rice by removing the remaining bran particles and by polishing the exterior of the milled kernel), Length Grading (Separating small and large brokens from head rice), Blending (Mixing head rice with predetermined amount of brokens, as required by the customer), Weighing and bagging (Preparing the milled rice for transport to the customer).

Milling is the process wherein the rice grain is transformed into a form suitable for human consumption, therefore, has to be done with utmost care to prevent breakage of the kernel and improve the recovery. Brown rice is milled further to create more visually appealing white rice. After harvesting and drying, paddy is subjected to the primary milling operation which includes de-husking as well as the removal of bran layers (polishing) before it is consumed. In this process the rice which is obtained after milling is called raw rice. Another process through which rice is obtained after milling is called "Parboiling Rice." Rice has potential in a wide range of food categories. Besides having nutritional and medicinal benefits, the by-products of rice are equally important and beneficial. By-products from growing rice create many valuable and worthwhile products. The inedible parts which are discarded through the milling process and the edible part could be transformed into some of the following suggested products like rice husks, rice bran, broken rice, rice flour, rice milk, rice pudding, rice starch, rice straw.

Present status of Rice milling units in India: Rice milling is the oldest and the largest agro processing industry of the country. At present it has a turnover of more than Rs 36,500/- crores per annum.

Correspondence

Ajit Kumar Panigrahi
Post Graduate Scholar,
Dept. of Agricultural Economics,
IAS, SOA (DU), Bhubaneswar,
Odisha, India

It processes about 85 million tones of paddy per year and provides staple food grain and other valuable products required by over 60 per cent of the population. Ganjam is a leading district in rice milling operation in the state. There are over 280 rice mills in Ganjam district, of which, 180 are small, 40 are medium and 60 are large scale units.

Till date, no empirical study has been conducted to elicit the economics related to rice mill in Ganjam district. With this backdrop, the current study was conducted with the following specific objectives.

Specific Objectives of the Study

1. To analyze the investment pattern and financial feasibility of conventional and modern rice milling units.
2. To analyze the costs and returns structure in selected units.
3. To analyze the problems faced by rice mills in processing and marketing operations.

Methodology

The data required for accomplishing the objectives of the study were collected both from primary and secondary sources. The primary data collected from the mill owners related to paddy procurement cost, processing cost, inventory costs, management issues in procurement, processing and marketing returns from the sale of main products and by-products, marketing costs incurred and problems encountered in the rice milling operations. Secondary data were collected from the records maintained by the mill owners. These data pertained to the details of assets and liabilities, extent of investment made at different points in time, cash inflows and outflows. The data were collected for a period of five years. The data collected were presented in tabular form to facilitate easy comparisons. The investment pattern cost of procurement, inventory costs, value addition, costs and returns in paddy milling and problems faced by the processors were studied using tabular analysis. The data were summarized with the help of statistical tools like averages and percentages to obtain meaningful inferences. Investment analysis techniques were carried out to evaluate the feasibility of investment in rice mills. Four conventionally used project evaluation techniques were adopted in the study to evaluate the feasibility of the investment in paddy processing units. They are as follows.

- a) Net present value (NPV)
- b) Benefit cost ratio (BCR)
- c) Internal rate of return (IRR)
- d) Payback period (PBP)

Table 3: Annual variable cost incurred in the rice mill

Particulars	Amount	Price per unit	Cost (In Rs)	Percentage to total
Paddy (5t per day @20 days per month)	1080 ton/year	Rs 17,500 per ton (14400 gunny bags)	189,00,000	93.30
Maintenance				
a) Rubber band	10 piece	Rs 5000 per 1500 bags	50,000	0.24
b) Grease, Screw			2,00,000	0.98
Electricity	10800 q	2 units per quintal @ Rs 6/unit	1,29,600	0.63
Transformer		Rs 20000 per month	2,40,000	1.18
Manpower	7,63,200		7,36,200	3.63
Total			2,02,55,800	100.00

Annual Output from the rice mill

Table 4 presents the annual output from the sample small size rice mill in the study area and the total returns obtained by the mills. There are four major outputs from the rice mill viz.,

Results and Discussion

Investment pattern in Rice mills

Table 1 reveals the investment pattern in small-scale rice mill in the study area. The total initial investment in the mill accounts for Rs 83 lakhs of which, major share is contributed towards buildings (Rs 40,00,000) that accounts for 48.19 per cent of the total initial investment, followed by equipments and machinery (Rs 16,00,000) and land (Rs 14,00,000) contributing to the total investment by 19.27 per cent and 16.86 per cent, respectively.

Table 1: Investment pattern in Rice mills:

Particulars	Amount (in Rs)	Percentage to Total
Land	14,00,000	16.86
Building	40,00,000	48.19
Equipments and machinery	16,00,000	19.27
Infrastructures	3,00,000	3.61
Miscellaneous	10,00,000	12.07
Total	83,00,000	100.00

Staffing Position of the rice mills

The staffing position of the small-scale rice mill in the study area are elicited in Table 2. The mill requires one technician, one accountant, one helper, one security guard and four skilled labourers (*Khalasi*). The annual expenditure on human resource incurred by the mill accounts to Rs 7,63,200, of which 52.83 per cent is contributed by expenses on skilled labour, 18.86 per cent on technician, 12.57 per cent on security guard and 7.86 per cent each on accountant and helper.

Table 2: Staffing Position of the rice mills

Staff Particulars	Amount (in Rs)	Percentage to Total
Technician (01 No.)	1,44,000	18.86
Accountant (01 No.)	60,000	7.86
Helper (01 No.)	60,000	7.86
Security guard (01 No.)	96,000	12.57
Skilled labour (04 Nos)	4,03,200	52.83
Total	7,63,200	100.00

Annual variable cost incurred in the rice mill

The variable costs incurred in the sample rice mills in the study area has been depicted in Table 3. The sources of variable expenditure includes purchase of paddy, maintenance of the mill, electricity expenses and manpower. Of all the sources, purchase of paddy contributes for highest cost (93.30 per cent) followed by manpower (3.63 per cent) and transformer charges (1.18 per cent). The paddy for milling is purchased from *mandis* and local farmers.

rice, broken rice, bran and husk. The total annual returns obtained by the mill accounts for Rs 2,20,30,830.00 of which 78.82 per cent is contributed by sale of rice (Rs 1,73,65,140.00), 6.77 per cent by sale of bran (Rs

14,92,050.00), 6.03 per cent by milling charges (Rs 12,78,900.00).
14,40,000.00) and 5.80 per cent by sale of broken rice (Rs

Table 4: Annual Output and Returns from the rice mill

Particulars	Amount	Price per unit	Returns (In Rs)	Percentage to total
Rice	667.89 ton	Rs 26000 per ton	1,73,65,140	78.82
Broken rice	85.26 ton	Rs 15000 per ton	12,78,900	5.80
Bran	99.47 ton	Rs 15000 per ton	14,92,050	6.77
Husk	227.37 ton	Rs 2000 per ton	4,54,740	2.60
Milling Charge	14400 bags	Rs 100 per bag	14,40,000	6.03
Total			2,20,30,830	100.00

Cash flows in the rice mill over years

The cash inflows, cash outflows and net cash flows involved in a small-scale rice mill are presented in Table 5. It is assumed that the cash outflows increase by Rs 2,00,000 per year and the cash inflows increase by Rs 5,00,000 per year. The net cash flows were discounted at the rate of 7 per cent

per annum. The net present value (NPV) was calculated to be Rs 1,24,64,460.54. As the NPV is positive and high, investment in small-scale rice mill in the study area is financially feasible and such investments should be encouraged in the study area.

Table 5: Cash flows in the rice mill over years

Year	Cash Inflow	Cash Outflow	Net cash flow	Net discounted cash flow (@7% per annum)
0	0	83,00,000	-83,00,000	-83,00,000
1	22030830	20255800	1775030	1657878.02
2	22530830	20455800	2075030	1811501.19
3	23030830	20655800	2375030	1938024.48
4	23530830	20855800	2675030	2038372.86
5	24030830	21055800	2975030	2118221.36
6	24530830	21255800	3275030	2181169.98
7	25030830	21455800	3575030	2223668.66
8	25530830	21655800	3875030	2255267.46
9	26030830	21855800	4175030	2267041.29
10	26530830	22055800	4475030	2273315.24
	NPV			12464460.54

Evaluation of investment in paddy processing units

Based on the cash inflows and outflows in the Table 5, Net Present Value (NPV), Benefit Cost Ratio (BCR), Internal Rate of Return (IRR) and Pay Back period (PBP) were calculated and the results are presented in Table 6. The net present value (NPV) was calculated to be Rs 1,24,64,460.54. The BCR was found out to be 2.50. The IRR turned out to be 28 per cent. the PBP was calculated to be 4 years and 4 months. As NPV is positive, BCR is greater than 1, IRR is greater than the existing rate of interest (7 per cent) and PBP is of less duration, the investment in small-scale rice mill is financially feasible. Similar results were witnessed in the study conducted by Shwetha in 2009 in Karnataka.

Table 6: Evaluation of investment in paddy processing units

Sl No	Particulars	Value
1	NPV	Rs 1,24,64,460.54
2	BCR	2.50
3	IRR	28%
4	PBP	4 years 4 months

Problems faced by the rice milling units

The major problems faced by the sample rice milling units included interruption in power supply, difficulties in labour availability, high costs of paddy procurement, transportation problems, high cost of working capital and repairs and maintenance. The problems were ranked based on percentage of response from the sample respondents. As depicted from Table 7, the most important faced by the rice milling units is interruption in power supply (88.00 per cent) followed by high cost of working capital (74.00 per cent), problems

regarding repair and maintenance (42.00 per cent), difficulty in labour availability (34.00 per cent), transportation problems (20.00 per cent) and high cost of paddy procurement (14.00 per cent).

Similar findings were obtained by Jayalakshmy and Abdul in 2002 for cashew apple processing unit in Silchar.

Table 7: Problems faced by the rice milling units (n=50)

Sl No	Problem	Percentage	Rank
1	Interruption in power supply	88.00 (44)	I
2	Difficulties in labour availability	34.00 (17)	IV
3	High costs of paddy procurement	14.00 (7)	VI
4	Transportation problems	20.00 (10)	V
5	High cost of working capital	74.00 (37)	II
6	Problems regarding repairs and maintenance	42.00 (21)	III

Conclusion

The financial feasibility analysis revealed good performance in respect of modern small-scale rice milling units in the study area. Procurement costs were lower when paddy was purchased directly from farmers instead of purchasing commission agents. Thus, mills would benefit from strong contractual arrangements with paddy growers. Invariably all the sample rice mill owners opined that frequent interruption of power supply and high cost of working capital were the major problems faced by them in running the units. Since rice is an important staple crop of the state, it would be advisable for entrepreneurs to invest in small-scale rice milling units to ensure profits for self as well as food security for the state.

References

1. Chinappa Reddy. Study on vermicompost production in Karnataka. M.Sc. (Agri.) Thesis, GKVK Bangalore, 2007,
2. Jayalakshmy VG, Abdul SM. Cost of establishment of cashew apple processing unit and production cost of cashew apple syrup. *The Cashew*. 2002; 16(2):29-32.
3. Shwetha MK. Business efficiency in rice mills – a comparative analysis of conventional and modern rice mills in Davangere district. M.Sc. (Agri.) Thesis, UAS, Dharwad, 2009.
4. Veena G, Tajinder K. Performance analysis of Bhagpur and Jargaon Sugar mills in Punjab. *Indian J. Agric. Mktg.* 2000; 14(12):73-76.