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RESEARCH PAPER

Economic performance of processing industries in Pune district of Maharashtra

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ABSTRACT

Agro-processing is now regarded as the sunrise sector of the Indian economy in view of its large potential for growth and likely socio-economic impact specifically on employment and income generation. Some estimates suggest that in developed countries, upto 14 per cent of the total work force is engaged in agro-processing sector directly or indirectly.People generally prefer fresh fruits and vegetables in India due to abundance of seasonal fruits throughout the year available at low price. The production of pickles and chutneys has traditionally been rural level cottage industrial activity. However, in the recent years, processed foods in the form of canned fruits such as pineapple, Mango slices and pulps, grapes, apple, peaches etc have increased considerably. The uses of fruits in the form of concentrated juice, dry powder, jam and jelly have also increased. The percentage production of processed fruits and vegetables are fruit juice and fruit pulp - 27, jams and jellies - 10, pickles -12, ready to serve beverages -13, synthetic syrups - 8, squashes - 4, tomato products - 4, canned vegetables- 4 and others -18.

KEY WORDS : Economic performance, Processing industries, Agro-processing, Processed foods

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Objectives of the study :

– To study capital investment of the processing industry

– To calculate the performance and fesibility parameters of the processing industry

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METHODOLOGY

Primary data was collected by taking actual survey in or region for agricultural processing data were collected from various food processing industry in the Saswad area (Pune district) of Maharashtra.

Analysis of data:

This is done with the help of various type of mathematical and statistical tools like graph, table, charts and various formulas. The data phased on fixed cost, variable cost, Net Present worth, Breakeven point, Benefit cost ratio and pay back period to work out the efficiency and feasibility of processing industries.

ANALYSIS AND DISCUSSION

The findings of the present study as well as relevant discussion have been summarized under the following heads and Table 1 to 9.

Capital investment of processing unit:

Cost of processing:

Fixed price :

Variable cost:

Variable cost means the costs which are become recur during the year such as costs for inputs. In high tech nursery the Variable costs mainly including purchasing of Raw material, Payments of labours, loss during process, electricity charges,Sample checking charges, license renew charges, etc.

Total cost of processing /kg:

= Total fixed cost per kg + Total variable cost per kg

=6.07 + 46.71

= 52.79

Total cost of processing /kg = Rs. 52.79

Total annual cost of production:

Total processing cost:

= Total variable cost + Total fixed cost

= 32,69,917.9 + 4,25,394

Table 1 : Variable cost

Sr. No.	Item	Quantity	Purchased price (Rs.)	Total amount (Rs.)	Amount with 27% share
1.	Water supply structure (Bore-well, Pipe line)	-	1,00,000	27,000	0.88
2.	Construction of building (Processing house, laboratory, godown , office)	60 x 170 Ft	76,50,000	20,65,500	67.65
3.	Fencing	480 Ft	2,40,000	64,800	2.12
4.	Machineries and equipment's	-	16,97,950	4,58,446.5	15.01
5.	Vehicles	1	15,00,000	4,05,000	13.27
6.	Furniture's	-	20,000	5,400	0.18
7.	Office equipment's	-	50,000	13,500	0.44
8.	License fee	1	50,000	13,500	0.44
	Total	-	1,13,07,950	30,53,147	100

Table 2 : Fixed cost

Sr. No.	Particulars	Present value (Rs.)	Rate of depreciation (%)	Remaining life (Year)	Depreciation value (Rs.)
1.	Building	76,50,000	2	50	1,49,940
2.	Machinery	1,697,950	10	25	61,126.2
3.	Furniture and office equipment	20,000	10	10	1,800
4.	Bore well	1,00,000	2	50	1,960
5.	Vehicle	15,00,000	10	20	67,500
6.	Fencing	2,40,000	2	50	4,704
	Total	1,12,07,950			2,31,576.48

Particular	Quantity	Total amount	Value (Share)	Rental value
Value of land	20 R	12,00,000	3,24,000	32,400

A	Fixed cost (Rs.)	2,31,576.48
B	Interest on fixed cost @ 14% on Rs. 2,31,576.48	32,421
C	Permanent labour (Rs.)	1,15,497
D	Rental value of land (Rs.)	32,400
E	License fee (Rs.)	13,500
	Total fixed cost (A+B+C+D+E) (Rs.)	4,25,394
	Fixed cost per kg (Rs.)	6.07

Table 3 : Cost of processing/kg

Sr. No.	Particulars	Amount (Rs.)	Amount (%)
1.	Purchase of raw material	16,83,432	56.63
2.	Wages, pay and allowances	1,31,652	4.43
3.	Loss in processing	33,668.64	1.13
4.	Electricity charges	54,000	1.82
5.	Repairing of machinery	27,000	0.91
6.	Telephone charges	3,200	0.11
7.	Sample checking charges	350	0.01
8.	License fee	1,350	0.05
9.	Transportation cost	42,600	1.43
10.	Packing cost	9,95,400	33.49
	Total	29,72,652.64	
	Interest on working capital @ 10% Rs. 29,72,652.64	2,97,265.264	
	Total variable cost	32,69,917.904	
	Variable cost per kg	46.71	

= Rs. 36, 95,312

Total annual cost of production = Rs.36,95,312

Gross income:

Table 4 : Gross income

Name of product	Production (kg)	Price (Rs. / kg)	Gross income (Rs.)
	A	C	A x C
Mango pickle	70,000	80	56,00,000

Net income:

Net income = Gross income – Total annual cost of Production

= 56,00,000 – 36,95,312

= Rs. 19,04,688

Net income per kg = Selling price–Total cost production

= 80 – 52.79

= Rs. 27.21

Net cash flow:

Cash flow statement is a simply summary of all cash inflows (gross income) and cash outflows (total cost)".

Net present worth (NPW):

Table 5 : Net income

Particulars	Year I	Year II	Year III	Year IV	Year V
Capital investment	30,53,147	-	-	-	-
Fixed cost	4,25,394	4,25,394.2	4,25,394.2	4,25,394.2	4,25,394.2
Variable cost	29,51,101	31,06,422	32,69,918	34,33,414	36,05,084
Total cost	64,29,642	35,31,816	36,95,312	38,58,808	40,30,479
Gross income	50,54,000	53,20,000	56,00,000	58,80,000	61,74,000
Net income	-13,75,642	17,88,184	19,04,688	20,21,192	21,43,521

Table 6 : Total cost of processing/kg

Year	Total cost	Gross income	Net income	D.F. (12%)	NPW
1	64,29,642	50,54,000	-13,75,642	0.8928	-12,28,173
2	35,31,816	53,20,000	17,88,184	0.7971	14,25,361
3	36,95,312	56,00,000	19,04,688	0.7117	13,55,566
4	38,58,808	58,80,000	20,21,192	0.6355	12,84,468
5	40,30,479	61,74,000	21,43,521	0.5674	12,16,234
		Total			40,53,456

Interpretation : NPW is positive hence, the project is feasible.

Internal rate of return (IRR):

$$\text{IRR} = \text{Lower discount rate} + \left[\text{Difference between two discount rates} \times \frac{\text{NPW at lower discount rate}}{\text{Difference between NPW at two discount rates}}\right]$$

= 12 + [4 X 40,53,456/ 5,53,684]
= 41.28

Interpretation : Internal rate of return is greater than the Market interest rate (16%), hence project if financially feasible and acceptable.

Average net income:
(Annual net cash revenue)
= 64,81,943/5
= 12,96,388.69

$$\text{Payback period} = \frac{\text{Initial investment}}{\text{Annual net cash revenue}}$$

= 64,81,943/12,96,388.69
= 2.4

We can calculate in months and days,
Year = 2+1=3
In months = 0.4X 12 = 4.8
In days = 0.8 X 30 =24
Payback period = 3 years, 4 months, 24 days.
Interpretation= after 3 years, 4 months, 24 daysproject will cover the initial investments.

Feasibility ratio's:
Benefit cost ratio (BCR) :
Benefit cost ratio = Present worth of gross income / Present worth of cost
= 1,91,38,224/ 1,53,24,549
BCR = 1.25
Interpretation: BC ratio is Greater than 1, hence project is financially feasible**.**

Table 7 : Internal rate of return (IIR)

Year	Total cost	Gross income	Net income	D.F. (12%)	NPW @ 12%	D.F. (16%)	NPW @ 16%
1.	64,29,642	50,54,000	-13,75,642	0.8928	-12,28,173	0.862	-11,85,803
2.	35,31,816	53,20,000	17,88,184	0.7971	14,25,361	0.7431	13,28,799
3.	36,95,312	56,00,000	19,04,688	0.7117	13,55,566	0.6406	12,20,143
4.	38,58,808	58,80,000	20,21,192	0.6355	12,84,468	0.5522	11,16,102
5.	40,30,479	61,74,000	21,43,521	0.5674	12,16,234	0.4761	10,20,531
		Total			40,53,456	-	34,99,772

Table 8 : Average net income

Year	Total cost	Gross income	Net income
1	64,29,642	50,54,000	-13,75,642
2	35,31,816	53,20,000	17,88,184
3	36,95,312	56,00,000	19,04,688
4	38,58,808	58,80,000	20,21,192
5	40,30,479	61,74,000	21,43,521
	Total		64,81,943

Table 9 : Benefit cost ratio (BCR)

Year	Total cost	Gross income	D. F. (14%)	PW of cost @ 14% Rs.	PW of gross income @ 14%
1	64,29,642	50,54,000	0.877	56,38,796	44,32,358
2	35,31,816	53,20,000	0.796	28,11,326	42,34,720
3	36,95,312	56,00,000	0.675	24,94,336	37,80,000
4	38,58,808	58,80,000	0.593	22,88,273	34,86,840
5	40,30,479	61,74,000	0.519	20,91,818	32,04,306
	Total			1,53,24,549	1,91,38,224

Profitability Index:

Profitability index = NPW/Initial investment

= 40,53,456 / 30,53,147

Profitability index = 1.33

Interpretation: Profitability index is greater than 1 hence, the Pratik Food Products Pvt. Ltd. is financially feasible.

Break even point:

Formula :

BEP=F/(P-v)

where,

F= Fixed cost

P= Selling price / kg

V= Variable cost / kg

Here,

Total fixed cost (F) = Rs. 4,25,394.18

Selling price/kg (P) = Rs. 80

Variable cost /kg (V)= Rs. 46.71

BEP (Unit) = 4,25,394.18 / (80 – 46.71)

= 12,779.63 Kg

Interpretation : The break even point of mango pickle is kg 12,779.63

BEP (Rs) = Total fixed cost / (1-Variable cost per kg/selling price per kg)

= 4,25,394.18/(1- 46.71 / 80)

= **10,22,370.60**

Interpretation: The break even point of mango pickle is 12,779.63 Kg in Rs. 10,22,370.60.

Margin of safety:

Margin of safety = Total production – Production at BEP (Unit)

(Unit) = 70,000 – 12,779.63

= 57,220 kg

Margin of safety = 57,220 kg

Margin of safety = Gross income – BEP in Rs.

(Rs.) = 56,00,000 – 10,22,370.61

= 45,77,629.39

Margin of safety = Rs. 45,77,629.39

Interpretation : In order to place the selected Processing Unit is in Profit, the unit must produce more than 57,220 kg.

Financial ratio analysis:

Current ratio :

= Current assets / Current liabilities

= 56,000,000 / 32,69,918

= 1.7

Interpretation : Current assets covers current liabilities therefore estimated current ratio considered as satisfactory.

Net profit ratio :

= (Net profit / Net sales) x 100

= (19,04,688 / 56,00,000) x 100

= 34.01%

Interpretation: Net profit is higher as compared to net sales which showing that firms position to survive in the face of decreasing selling prices, rising cost of production or declining demand. Similar work related to the present investigation was also carried out by Asha (2003); Chadha (1999) and Behera (2009).

Conclusion :

– NPW is positive hence, the project is feasible

– Internal rate of return is greater than the Market Interest Rate (16%), hence project is financially feasible and acceptable.

– After 3 years, 4 months, 24 days project will cover the initial investment.

– BC Ratio is Greater than 1, hence Project is financially feasible.

– Profitability index is greater than 1 hence, the Pratik Food Products Pvt. Ltd. is financially feasible.

– In order to place the selected Processing Unit is in Profit, the unit must produce more than 57,220 kg

– Current ratio is 1.7 therefore estimated current ratio considered as satisfactory.

– Net profit ratio is 34.01 hence, net profit is higher as compared to net sales which showing that firms position to survive in the face of decreasing selling prices, rising cost of production or declining demand.

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