

ECONOMIC PERFORMANCE OF AGRO-BASED 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. The Indian food processing industry accounts for 32% of the country's total food market. It is one of the largest industries in India and is ranked fifth in terms of production, consumption and export. It contributes about 14% of manufacturing Gross Domestic Product (GDP), 13% of India's exports and 6% of total industrial investment. The uses of fruits in the form of concentrated juice, dry powder, jam and jelly have also increased. Important sectors in agro processing industries are: fruit and vegetable processing, grain processing, fish processing, milk processing, meat and poultry processing, packaged/ convenience foods, alcoholic beverages and soft drinks etc.

Improve the quality or to change the form or characteristics of the agricultural product. Processing operations are undertaken to add value to agricultural materials after their production. The main purpose of agricultural processing is to minimize the qualitative and quantitative deterioration of the material after harvest.

1. OBJECTIVES OF STUDY:

- A. To study Capital Investment of the processing industry
- B. To calculate the performance and feasibility parameters of the processing industry

2. METHODOLOGY.

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

2.1 Analysis of Data:

This is done with the help of various type of mathematical & statistical tools like graph, table, charts & various formulas. The data phased on fixed cost, variable cost, Net Present worth,

Breakeven point, Benefit cost ratio and payback period to work out the efficiency and feasibility of processing industries.

3. RESULT AND DISCUSSION

3.1 Capital Investment of Processing Unit:

Sr. No.	Particulars	Total Amount (Rs.)	Share (50.25%)
1	Land	3,123,456	1,569,537
2	Water Supply Structure	1,740,000	874,350
3	Construction Of Building	21,459,180	10,783,238
4	Fencing	1,540,540	774,121
5	R. O. Plant	1,525,324	766,475
6	Raw Water Plant	2,040,000	1,025,100
7	E.T.P.	3,549,761	1,783,755
8	Machinery & Equipment	32,552,274	16,357,518
9	Miscellaneous Assets	13,794,558	6,931,765
	TOTAL	81,325,093	40,865,859

3.2 Cost of Processing:

3.2.1. Fixed Cost:

Sr. No.	Particulars	Original Value	Useful Life Period	Depreciation Rate	Junk Value	Depreciation Amount	Share (50.25%)
1	Land	3123456	10% Rental Value			312346	156954
2	Water Supply Structure	1,740,000	50	2	34800	34104	17137
3	Construction Of Building						
A	Admin Office	2,520,000	50	2	50400	49392	24819
B	Processing House	2,250,000	50	2	45000	44100	22160
C	Q. C. Lab	180,000	50	2	3600	3528	1773
D	Micro Lab	30,000	50	2	600	588	295
F	Office	1,920,000	50	2	38400	37632	18910
G	Engineering Store	2,200,000	50	2	44000	43120	21668
H	Packaging material Store	1,260,000	50	2	25200	24696	12410

I	Cold Room	1,140,000	50	2	22800	22344	11228
J	Sorting Room	225,000	50	2	4500	4410	2216
L	Raw Material Storage Area	3,600,000	50	2	72000	70560	35456
M	WIP Area	1800000	50	2	36000	35280	17728
O	Printing Section	1080000	50	2	21600	21168	10637
P	Finished Good Area	2250000	50	2	45000	44100	22160
Q	Wash Room	96800	50	2	1936	1897	953
R	Lunch Room	720000	50	2	14400	14112	7091
S	Boiler House	187380	50	2	3748	3673	1846
T	Fencing	1540540	50	2	30811	30195	15173
4	Machinery & equipment's	-	-	-	-	-	618,855

3.2.2 Variable Cost:

Variable cost means the costs which are become recur during the year such as costs for inputs. In any agro-based processing industries the Variable costs mainly including purchasing of Raw material, Payments of labours, loss during process, electricity charges, Sample checking charges, license renew charges, etc.

Sr. No.	Particulars	Amount	Share (50.25%)
1.	Cost Of Raw Material for tomato ketchup	12,155,552	12,155,552
2.	Wages, pay & Allowance	5,267,500	2,646,919
3.	Electricity charges	1,495,800	751,640
4.	Spoilage of raw material (0.1%)	12,155,552	12,156
5.	Maintenance charges	1,256,340	631,311
6.	Packaging & packing charges	11,697,319	11,697,319
7.	Advertising charges	625,000	314,063
8.	Transportation charges	885,449	444,938
9.	Telephone charges	43,575	21,896
10.	Water supply charges	616,059	309,570
11	Cost of Fuel	2,179,344	1,095,120
A)	Variable cost		30080483
B)	Interest on variable cost @ (10%)		3008048
	Total variable cost (A+B)		33088531

	Total Production		830,664
	Variable Cost Per Kg		39.83

3.3 Total Cost of Processing:

Table No. 3.1 Total Cost of Processing

Sr. No.	Particulars	Amount	Per Kg Cost
1	Total fixed cost	15,781,330	19.00
2	Total variable cost	33088531	39.83
3	Total cost of production	48,869,921	58.83

3.4 Total Profit during Year:

Sr. No	Name Of Product	Production (Kg)	No. of Bottles	Selling Price (Rs/Kg)	Gross Income (Rs)
1	1Kg	694,191	694,191	100	69,419,100
2	200 Gram	27801	139,005	40	5,560,200
3	8 Gram Sachet	108672	13,584	1	13,584
	TOTAL	830,664			74,992,884

Table No.3.2 Total profit from Tomato Ketchup:

Sr. No.	Particulars	Amount (Rs.)	Per Kg Income
1	Gross income	74,992,884	100
2	Total cost of production	48,869,921	58.83
3	Net income	26,122,963	47.17

Interpretation: The Situation at no profit, no loss where producers have to produce 262,279 Kg tomato Ketchup.

3.5 BEP (in Rs.)

Total fixed cost

= -----

1- (Variable cost per kg / Selling price)

= 15,781,330 / 1- 0.40

= Rs. 26,227,905

Interpretation: The Break Even Point (Unit) in Rs. 26,227,905

3.6 Margin of Safety

$$\begin{aligned} \text{Margin of Safety (Kg)} &= \text{Total Production} - \text{Production at BEP (Kg)} \\ &= 830,664 - 262,279 \\ &= 568,385 \text{ Kg} \end{aligned}$$

$$\begin{aligned} \text{Margin of Safety (Rs.)} &= \text{Gross Income} - \text{BEP in Rupees} \\ &= 74,992,884 - 26,227,905 \\ &= \text{Rs. } 48,764,979 \end{aligned}$$

3.7 Cash Flow Statement

Table No.3.3 Cash flow statement

Particulars	Year I	Year II	Year III	Year IV	Year V
Capital investment (Rs.)	40,865,859	-	-	-	-
Total Fixed Cost	15,781,330	15,781,330	15,781,330	15,781,330	15,781,330
Total Variable Cost	33,088,591	34,743,020	36,480,171	38,304,180	40,219,389
Total cost	89,735,780	50,524,351	52,261,502	54,085,510	56,000,719
Gross income	74,992,884	78,742,528	82,679,655	86,813,637	91,154,319
Net Profit	14,742,896	28,218,178	30,418,153	32,728,127	35,153,600

3.8 Payback Period

Table No.3.4 Payback period

Years	Total Cost	Gross Income (Rs.)	Net Income (Rs.)
I	89,735,780	74,992,884	-14,742,896
II	50,524,351	78,742,528	28,218,178
III	52,261,502	82,679,655	30,418,153
IV	54,085,510	86,813,637	32,728,127
V	56,000,719	91,154,319	35,153,600
	TOTAL	111,775,162	291138513.9

Year	Cash Inflow	Cumulative Cash Flow
I	14,742,896	14,742,896
II	28,218,178	42,961,074
III	30,418,153	73,379,227
IV	32,728,127	106,107,354
V	35,153,600	141,260,954

Initial Capital Investment = Rs. 40,865,859

nd

Unrecovered Investment at Start of 2nd Year = Initial Capital Investment – Cumulative

st

Cash Inflow at the end of 1st year.

$$= 40,865,859 - 14,742,896$$

$$= 26,122,963$$

$$\text{Pay Back Period} = 1 + (26,122,963 / 28,218,178)$$

$$= 1 + 0.93$$

$$\text{Pay Back Period} = 1.93$$

$$\text{Pay Back Period} = 1 + (26,122,963 / 28,218,178)$$

$$= 1 + 0.93$$

$$\text{Pay Back Period} =$$

$$1.93$$

=

Interpretation: After 1 Year, 9 Months and 3 days Project will cover the initial Investment.

3.27 Net Present Worth

Table No.3.36 Net present worth

Year	Total Cost (Rs.)	Gross Income (Rs.)	Net Income (Rs.)	Discount Factor (14%)	Net Present Worth
I	89,735,780	74,992,884	-14,742,896	0.877	-12,932,365
II	50,524,351	78,742,528	28,218,178	0.769	21,712,971
III	52,261,502	82,679,655	30,418,153	0.675	20,531,387
IV	54,085,510	86,813,637	32,728,127	0.592	19,377,679
V	56,000,719	91,154,319	35,153,600	0.519	18,257,678
	TOTAL				66,947,350

Interpretation: The NPW is 66,947,350 it is positive so, project is financially feasible and acceptable.

3.9 Benefit Cost Ratio

Table No.3.9 Benefit cost ratio

Year	Total Cost (Rs)	Gross Income (Rs.)	D. F. @ 14%	Pw Of Cost (Rs.) @ 14%	Pw Of Gross Income (Rs.) @ 14%
I	89,735,780	74,992,884	0.877	78,715,598	65,783,233
II	50,524,351	78,742,528	0.769	38,876,846	60,589,816
III	52,261,502	82,679,655	0.675	35,275,024	55,806,410
IV	54,085,510	86,813,637	0.592	32,022,965	51,400,644
V	56,000,719	91,154,319	0.519	29,085,032	47,342,718
			Total	213,975,465	280,922,823

Present Worth of Benefit

BCR = -----

Present Worth of Cost

$$\begin{aligned}
 & 280.922,823 \\
 & = \frac{\quad}{213,975,465} \\
 & = 1.31
 \end{aligned}$$

Interpretation: The BCR is greater than 1 so, project is financially feasible.

3.10 Internal Rate of Return

Table No.3.10 Internal rate of return

YE R	TOTAL COST	GROSS INCOME	NET INCOME (RS.)	D.F. @ 14%	D.F. @ 18%	NPW @ 14%	NPW @ 18%
I	89,735,78 0	74,992,88 4	- 14,742,89 6	0.87 7	0.84 7	- 12,932,36 5	- 12,493,97 9
II	50,524,35 1	78,742,52 8	28,218,17 8	0.76 9	0.71 8	21,712,97 1	20,265,85 5
III	52,261,50 2	82,679,65 5	30,418,15 3	0.67 5	0.60 9	20,531,38 7	18,513,42 8
IV	54,085,51 0	86,813,63 7	32,728,12 7	0.59 2	0.51 6	19,377,67 9	16,880,80 5
V	56,000,71 9	91,154,31 9	35,153,60 0	0.51 9	0.43 7	18,257,67 8	15,365,96 2
	TOTAL					66,947,35 0	58,532,07 0

$$\text{IRR} = \left(\begin{array}{c} \text{Lower} \\ \text{Discount} \\ \text{Rate} \end{array} \right) + \left(\begin{array}{c} \text{Difference} \\ \text{between two} \\ \text{discount rate} \end{array} \right) \times \left(\begin{array}{c} \text{NPW at lower discount Rate} \\ \text{-----} \\ \text{Difference between NPW} \end{array} \right)$$

At two discount rate,

$$\text{IRR} = 14 + 4 \times (66,947,350 / 8,415,280)$$

$$\text{IRR} = 14 + (4 \times 7.96)$$

$$\text{IRR} = 14 + 31.82$$

$$\text{IRR} = 45.82\%$$

Interpretation: IRR is greater than market interest rate (18%) so, project is financially feasible.

3.11 Profitability Index:

$$\text{Profitability Index} = \frac{\text{Net Present Worth}}{\text{Initial Investment}}$$

$$\begin{aligned} &= \frac{66,947,350}{40,865,859} \\ &= 1.6 \end{aligned}$$

Interpretation: Profitability index is greater than 1 hence, the Weikfield foods PVT. LTD. is financially feasible.

3.12 Financial Ratio

3.12.1 Liquidity Ratio

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$$

Here, Current assets = Gross income = Rs. 74,992,884

Current Liabilities = Variable cost = Rs. 33,088,591

$$\begin{aligned} \text{Current Ratio} &= 74,992,884 / 33,088,591 \\ &= 2.3 \end{aligned}$$

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

3.12.2 Net Profit Ratio:

$$\text{Net Profit Ratio} = (\text{Net Profit} / \text{Net sale}) \times 100$$

$$\text{Here, Net Profit} = 26,122,963$$

$$\text{Net Sale} = \text{Gross income} = 74,992,884$$

$$\begin{aligned}\text{Net Profit Ratio} &= (26,122,963 / 74,992,884) \times 100 \\ &= 0.3483 \times 100 \\ &= 34.83\end{aligned}$$

Interpretation: The net profit ratio is 34.83% which indicates that net profit is more over net sale.

3.12.3 Net Capital Ratio:

$$\text{Net capital ratio} = (\text{Net Capital} / \text{Net Sale}) \times 100$$

$$\text{Here, Net capital} = \text{Total cost of production} = 48,869,921$$

$$\text{Net Sale} = \text{Gross income} = 74,992,884$$

$$\begin{aligned}\text{Net Capital Ratio} &= (48,869,921 / 74,992,884) \times 100 \\ &= 0.5257 \times 100 \\ &= 65.2\%\end{aligned}$$

Interpretation: Net Capital Ratio is 65.2 which indicates that gross income is more than cost of production, hence project is feasible.

3.13 Working Capital Turnover Ratio

$$\text{3.13.1 Turnover Ratio} = \text{Net Sale} / \text{Working Capital}$$

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

$$\begin{aligned}\text{Current Assets} &= \text{Gross Income} \\ &= \text{Rs. } 74,992,884\end{aligned}$$

$$\begin{aligned}\text{Current Liabilities} &= \text{Variable Cost} \\ &= \text{Rs. } 33,088,591\end{aligned}$$

$$\text{Working Capital} = 74,992,884 - 33,088,591$$

Working Capital = 41,904,293

Net Sale = Gross Income
= Rs.74, 992,884

Working Capital Turnover Ratio = 74,992,884 / 41,904,293

Working Capital Turnover Ratio = 1.8

Interpretation: - Net sales are 1.8 times more than working capital therefore, it indicates efficient utilization of fixed assets.

3.13.2 Operating Ratio:

Operating Expenses = (Total Operating Expenses / Gross income)

Total Operating Expenses = Variable Cost

= Rs. 33,088,591

Gross Income = Rs. 74,992,884

Operating Ratio = (33,088,591/ 74,992,884)

Operating Ratio = 0.44

Interpretation: Operating Ratio is less than one which indicates that project is profitable for run of the business.

3.13.3 Fixed Ratio

Fixed Ratio = (Fixed Expenses / Gross Income)

Fixed Expense = Total Fixed Cost

= Rs. 15,781,330

Gross Income = Rs. 74,992,884

Fixed Ratio = (15,781,330 / 74992884)

Fixed Ratio = 0.21

Interpretation: Fixed Ratio is less than one which indicates that project is profitable run of the business.

3.13.4 Gross Ratio

Gross Ratio = (Total Expenses / Gross Income)

Total Expense = Total Cost Of Production

= Rs.48, 873,138

Gross Income = Rs.74, 992,884

Gross Ratio = (48,873,138 / 74,992,884)

Gross Ratio = 0.65

Interpretation: Gross Ratio is less than one which indicates that project is profitable run of the business.

3.13.5 Capital Turnover Ratio

Capital Turnover Ratio = (Gross Income / Average Capital Investment)

Gross Income = Rs.74, 992,884

Average Capital Investment = Average of Total Cost

= Rs.302, 632,247

Capital Turnover Ratio = (74,992,884 / 302,632,247)

Capital Turnover Ratio = 0.25

Interpretation: Capital Turnover Ratio is less than one which indicates that project is profitable run of the business.

3.13.6 Rate of Return on Investment:

Rate of Return on Investment = Net Return to Capital / Average Capital Investment

Net Return to Capital	= Net Income
	= Rs. 26,119,746
Average Capital Investment	= Average of Total Cost
	= Rs.302, 632,247
Rate of Return on Investment	= 26,119,746 /
302632247 Rate of Return On investment	= 0.09

Interpretation: Rate of Return on Investment is 0.09 which indicates that project is profitable run of the business.

4. Conclusion:

- 1) NPW is positive hence, project is feasible.
- 2) Internal Rate of Return is Greater than the Market Interest Rate (18%), hence project is financially feasible and acceptable.
- 3) After 1 Year, 9 Months, 3 Days project will cover the initial investment.
- 4) BC Ratio is greater than 1, Hence Project is financially feasible.
- 5) Profitability Index is greater than 1, hence, the Weikfield Foods PVT. LTD. is financially feasible.
- 6) Current ratio is 2.3 therefore estimated current ratio considered as satisfactory.
- 7) Net profit ratio is 45.82 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.
- 8) The entrepreneur must have to sell more than 262,279 kg in order to get profit from upcoming business.
- 9) The entrepreneur must have margin more than 568,385 kg in order to get profit from upcoming business.
- 10) Company should stock extra raw material (Tomato paste) when prices are low, therefore Company can produce the tomato ketchup throughout the year for fulfillment demand of Customers and complete annual target of company.
- 11) Cash flow statement is positive hence, project is run profitable.

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