**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:**
2. To study Capital Investment of the processing industry
3. To calculate the performance and feasibility parameters of the processing industry
4. **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.

1. **RESULT AND DISCUSSION**
   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** |

* 1. **Cost of Processing:**

**3.2.1. Fixed Cost:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Particulars** | **Original Value** | **Useful Life Period** | **Depreciati on Rate** | **Junk Value** | **Depreciation Amount** | **Share (50.25**  **%)** |
| 1 | Land | 3123456 | 10% Rental Value | | | 312346 | 156954 |
| 2 | Water Supply  Structure | 1,740,00  0 | 50 | 2 | 34800 | 34104 | 17137 |
| 3 | **Construction Of Building** | | | | | | |
| A | Admin  Office | 2,520,00  0 | 50 | 2 | 50400 | 49392 | 24819 |
| B | Processing House | 2,250,00  0 | 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 | 1,920,00  0 | 50 | 2 | 38400 | 37632 | 18910 |
| G | Engineering Store | 2,200,00  0 | 50 | 2 | 44000 | 43120 | 21668 |
| H | Packaging material  Store | 1,260,00  0 | 50 | 2 | 25200 | 24696 | 12410 |
| I | Cold  Room | 1,140,00  0 | 50 | 2 | 22800 | 22344 | 11228 |
| J | Sorting  Room | 225,000 | 50 | 2 | 4500 | 4410 | 2216 |
| L | Raw Material  Storage Area | 3,600,00  0 | 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** |

* 1. **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 |

* 1. **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

## Margin of Safety

**Margin of Safety (Kg) =** Total Production – Production at BEP (Kg)

= 830,664 –262,279

= 568,385 Kg

**Margin of Safety (Rs.)** = Gross Income – BEP in Rupees

**=** 74,992,884 - 26,227,905

**=** Rs. 48,764,979

## 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 |

* 1. **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 2 Year = Initial Capital Investment**–**Cumulative

st

Cash Inflow at the end of 1

year.

= 40,865,859 **–** 14,742,896

= 26,122,963

Pay Back Period= 1 + (26,122,963 **/** 28,218,178)

= 1+ 0.93

Pay Back Period= 1.93

Pay Back Period= 1 + (26,122,963 **/** 28,218,178)

= 1+ 0.93

Pay Back Period = 1.93

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

## 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**

280.922,823

= 213,975,465

= 1.31

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

## Internal Rate of Return

### Table No.3.10 Internal rate of return

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **YEA 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** |

Lower Difference NPW at lower discount Rate

**IRR =** Discount + between two × --------------------------------------

Rate discount rate Difference between NPW At two discount rate,

IRR= 14 + 4 × (66,947,350 **/** 8,415,280)

IRR= 14 + (4 **×** 7.96)

IRR= 14 + 31.82

IRR= 45.82%

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

## Profitability Index:

### Net Present Worth

**Profitability Index = -----------------------------**

**Initial Investment**

66,947,350

= 40,865,859

**=** 1.6

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

## Financial Ratio

### Liquidity Ratio

**Current Ratio = Current Assets / Current Liabilities**

Here, Current assets = Gross income = Rs.74, 992,884 Current Liabilities = Variable cost= Rs. 33,088,591

Current Ratio = 74.992,884 / 33,088,591

= 2.3

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

## 3.12.2 Net Profit Ratio:

### Net Profit Ratio = (Net Profit / Net sale) X 100

Here, Net Profit = 26,122,963

Net Sale = Gross income = 74,992,884

**Net Profit Ratio =** (26,122,963 / 74,992,884) × 100

= 0.3483 × 100

= 34.83

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

## 3.12.3Net Capital Ratio:

**Net capital ratio = (Net Capital / Net Sale) × 100** Here, Net capital = Total cost of production = 48,869,921 Net Sale = Gross income= 74,992,884

Net Capital Ratio = (48,869,921 / 74,992,884) × 100

= 0.5257 × 100

= 65.2%

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

* 1. **Working Capital Turnover Ratio** 
     1. **Turnover Ratio = Net Sale / Working Capital Working Capital = Current Assets – Current Liabilities** Current Assets = Gross Income

= Rs.74, 992,884

Current Liabilities = Variable Cost

= Rs. 33,088,591

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.

## 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.

## 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.

## 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.

## 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.

## 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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