



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; 12(5): 4766-4771
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www.thepharmajournal.com

Received: 16-03-2023

Accepted: 23-04-2023

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Business analysis of a flaxseed oil (Medicinal oil) extraction enterprise

Dr. Sangita Warade and Dr. Sulbha Sarap

Abstract

Flaxseeds contents Omega-3 and its oil is used as edible oil and in manufacturing of paints and varnishes, oilcloth, waterproof fabrics and linoleum. But, the Flaxseeds' Oil consumption is declined and consequently the area under Flaxseeds in also declining over last two decades. But, recently, due to awareness about the nutritive value of Flaxseeds, the processed products of the Flaxseeds are gaining importance.

To promote the area under Flaxseeds consumption and production, recently, the oil extraction enterprise in Wardha district is started and it is motivating farmers to increase production of Flaxseeds. The costs and returns data of the enterprise is collected for year 22-23. To find the profit and break-even point of the enterprise, the present research work is done.

From the results, it is found that the Flaxseed Processing Unit is Successful. If it is run on commercial basis, it can give more profitable results. The Fixed cost and variable cost of the Unit was Rs. 1,52,778 and 46,92,423 respectively. The net return from the unit was Rs. 22,90,300 per annum. The minimum break-even quantity required to run the unit is 29372 kg. The return per rupee invested in Rs.1.47. The value addition in Flaxseeds was 28.56 percent. The major constraints to run the unit is availability of marketing platform.

The results showed that the replication of the Flaxseed processing model will boost the farmers socio-economic status and subsequently rural economy.

Keywords: Flaxseed oil, processing enterprise, Wardha

Introduction

Agri-Business is now emerging sector with the development. To promote the income of farmers and to increase processing of agricultural produce, the agribusiness enterprise is to be evaluated. The results of the project evaluation will give insight to develop the replica and other agri-business enterprise.

The food chain in India from the farmer to the consumer involves several intermediaries leading to handling at multiple points and longer transit time. Only 25% of the consumer's rupees reach the farmer as compared to 50% in developed countries. It is estimated that 20% of the food produced in India is wasted. This is valued more than Rs 50,000 crores approximately. This wastage is equal to the amount that the government spends on food subsidy by more than 3 to 4 times. The processing and preservation has been very important to nullify the wastages. Therefore, government (MOFPI) emphasizing to increase processing of the Flaxseeds.

Nine oilseeds are the primary source of vegetable oils in the country, which are largely grown under rainfed conditions over an area of about 26 million ha. Among these, soybean (34%), groundnut (27%), rapeseed & mustard (27%) contributes to more than 88% of total oilseeds production and more than 80% of vegetable oil with a major share of mustard (35%), soybean (23%) and groundnut (25%). Russia is the world's largest producer of Flaxseeds (13.00 lakh tones), it is followed by Kazakithan (7.75 lakh tones) and Canada (3.45 lakh tones). India is 6th largest producer of Flaxseeds. The area and production of Flaxseeds in India is 1.17 lakh hectares and 1.11 Lakhs tones in 2021 respectively (FAOSTAT, 2021) [2]. The oil production of Flaxseeds in India is 24.4 thousand tonnes which is 8th rank in World (FAO, 2022). Flaxseeds is one of the oldest oilseeds grown and consumed in India and Vidarbha.

Flaxseeds contents Omega-3 and its oil is used as edible oil and in manufacturing of paints and varnishes, oilcloth, waterproof fabrics and linoleum. Flaxseeds cake is used as animal feed and manure. It is also used in making paper and plastics. It is grown in the states of Madhya Pradesh, Uttar Pradesh, Bihar, Chhattisgarh, Maharashtra, Jharkhand, Orissa, Assam, West

Bengal, Nagaland, Andhra Pradesh, Rajasthan, Himachal Pradesh, and Telangana. Omega-3 balances hormones of the human body. Even the consumption of non-filter Flaxseeds oil is increased over the time. Now days, due to omega-3, it has gain strong importance in pharmaceutical sector. Flaxseeds oils come in tablets form.

Jamnallal Bajaj Group runs Mangan Sangrahalay Sanstha, situated at Wardha. In addition Museum, it works for 30 rural industries. Girad Flaxseeds Processing Unit runs under Mangan Sanghralaya Sanstha. Girad Flaxseeds Processing unit started in year 2012-13. This unit started with 10 acre (10 farmers) and now spread over 500 acres (650 farmers). This is connected with 52 villages nearby Girad. It earns profit and the profit is used for social needs under Mangan Sangrahalay Sanstha. This sanstha runs its own retail outlet in Wardha. It sells around 200 herbal products. Currently in Nagpur, area is 0.79 (00 Ha) 0.40 (00 tonnes) production – year 2021-22

With intension to study the business analysis for Flaxseeds oil in Vidarbha, the present research work is selected.

Objectives

1. To study the Profitability of the selected Flaxseeds Processing Unit.
2. To estimate Break-even Point of Flaxseeds Processing Unit;
3. To study the value addition in Flaxseeds in Flaxseeds Processing Unit; &
4. To analyze Constraints faced by Flaxseeds Processing Unit.

Methodology

The certified successful agribusiness model Flaxseed's Processing Unit in Magan Sangralaya is identified. The data is collected from the selected agri-business model. The data is collected for the financial year 2022-23.

A) Estimation of the Profitability

1) Fixed Capital Investment

The data on the buildings and infrastructure is collected and it is presented in results and discussion. The Fixed Capital on Buildings, Machinery, Storage, tools and implements is

collected and simple tabular analysis is presented in results.

2) Fixed Costs and Variable Costs of the Flaxseeds Processing Unit

The fixed costs are estimated on the basis of depreciation of fixed capital, principal and interest on fixed capital. While the variable cost involves the cost of processing, labour cost, transport, quality control etc.

B) Break-even analysis of Flaxseeds Processing Units

- a) Total Cost per annum = Fixed Cost + Variable Cost per annum
- b) Net Profit = Gross Return – Total Cost
- c) Benefit Cost Ratio = Gross Return / Total Cost

Break Even Point = Fixed Cost/ (Price per unit – Variable Cost per unit)

C) Value addition in Flaxseeds

The increase in value in terms of price and returns over the primary purchase price is estimated in simple way.

D) The constraints faced by Flaxseeds Processing Unit.

The constraints faced by company owner in running business is discussed and presented in result.

Results and Discussion

The analysis is made on the line of the objectives and results obtained from the analysis are presented as follows

Area and Production of Flaxseeds in Vidarbha

The table number 1 represent the district-wise area of Flaxseeds in Vidarbha of triennial average of year 2018-19, 2019-20 and 2020-21. As per the table, the area under Flaxseeds in Vidarbha is 5007 hectares and the area under Flaxseeds in Maharashtra is 6255 hectares. Highest area amongst the districts is the Bhandara i.e. 34.79 percent. It is followed by Gondia is 31.70 percent. Only Eastern Vidarbha has Flaxseeds production. The share of Vidarbha in Maharashtra State is 80.05 percent.

Table 1: District-wise share of Flaxseeds Area in Vidarbha

| District | Area in 00 ha | Share in Vidarbha area |
|---------------------------------|---------------|------------------------|
| Akola | 0 | 0.00 |
| Amravati | 0 | 0.00 |
| Bhandara | 17.42 | 34.79 |
| Buldhana | 0.00 | 0.00 |
| Chandrapur | 4.94 | 9.86 |
| Gadchiroli | 11.22 | 22.41 |
| Gondia | 15.87 | 31.70 |
| Nagpur | 0.27 | 0.54 |
| Wardha | 0.35 | 0.70 |
| Washim | 0.00 | 0.00 |
| Yavatmal | 0.00 | 0.00 |
| Total Percentage | 50.07 | 100.00 |
| Total Area 00 ha | | 50.07 |
| Total Percentage of Maharashtra | | 80.05 |
| Total Area 00 ha of Maharashtra | | 62.55 |

(Area in triennial average of year 2018-19, 2019-20 and 2020-21)

(Currently in Nagpur, area is 0.79 (00 Ha) 0.40 (00 tonnes) production – year 2021-22)

The table number 2 shows that the change in Area, Yield and Production with the difference of 5 years. From the table, it is

seen that the Flaxseeds' area and production of Vidarbha is declined to 13.27 and 23.13 percent in year 2020-21

respectively from the base year (2000-2001). Whereas, the yield of Flaxseeds is increased to 162.44 percent over the same period of time.

In case Maharashtra State, the area and production of

Flaxseeds is declined to 8.95 and 13.01 percent in year 2020-21 respectively from the base year (2000-2001). While, the yield of the Flaxseeds is increased to 145.42 percent over the same period.

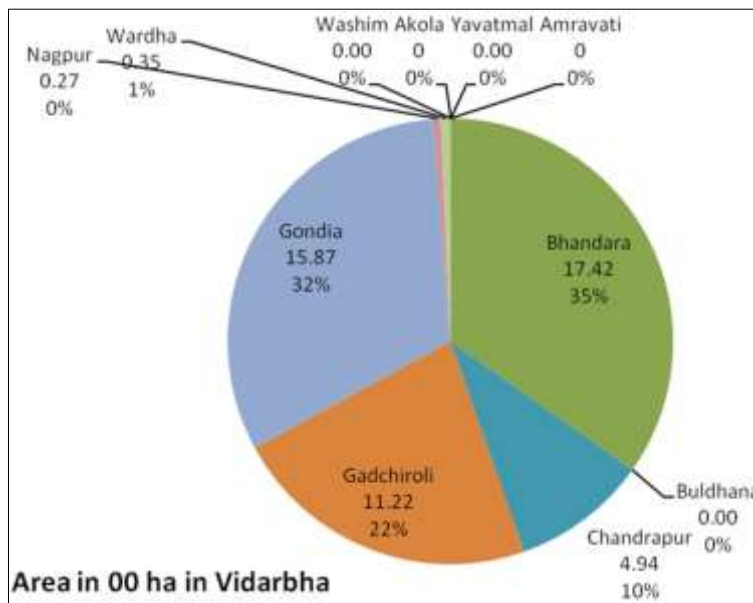


Fig 1: Change in Area, Productivity and Production of Flaxseeds in Vidarbha

Table 2: Change in Area, Yield and Production of Flaxseeds in Vidarbha and Maharashtra

| Year | Vidarbha | | | | | |
|---------|-------------------|----------|---------------|----------|----------------------|----------|
| | Area (00ha) | % change | Yield (kg/ha) | % change | Production (00 tons) | % Change |
| 2000-01 | 376.00 | 100.00 | 221.00 | 100.00 | 75.00 | 100.00 |
| 2005-06 | 472.00 | 125.53 | 277.75 | 125.68 | 132.00 | 176.00 |
| 2010-11 | 266.00 | 70.74 | 299.17 | 135.37 | 75.30 | 100.40 |
| 2015-16 | 130.15 | 34.61 | 237.00 | 107.24 | 35.24 | 46.99 |
| 2020-21 | 49.90 | 13.27 | 359.71 | 162.44 | 17.35 | 23.13 |
| Year | Maharashtra State | | | | | |
| | Area | % change | Yield | % change | Production | % change |
| 2000-01 | 699.00 | 100.00 | 233.00 | 100.00 | 163.00 | 100.00 |
| 2005-06 | 650.00 | 92.99 | 285.00 | 122.32 | 185.00 | 113.50 |
| 2010-11 | 393.00 | 56.22 | 264.00 | 113.30 | 104.00 | 63.80 |
| 2015-16 | 163.00 | 23.32 | 237.00 | 101.72 | 39.00 | 23.93 |
| 2020-21 | 62.58 | 8.95 | 338.84 | 145.42 | 21.20 | 13.01 |

Indian production: 1,030 (00 tons)

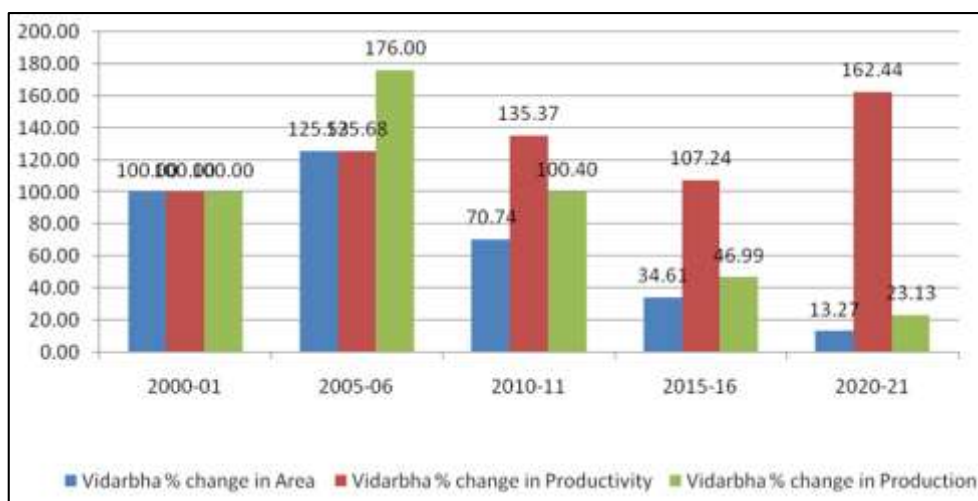


Fig 2: Change in Area, Productivity and Production of Flaxseeds in Vidarbha

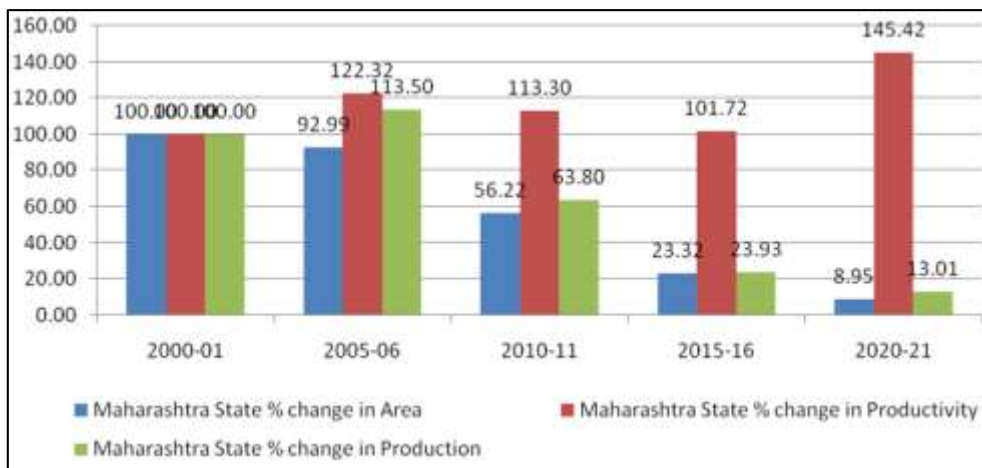


Fig 3: Change in Area, Productivity and Production of Flaxseeds in Maharashtra

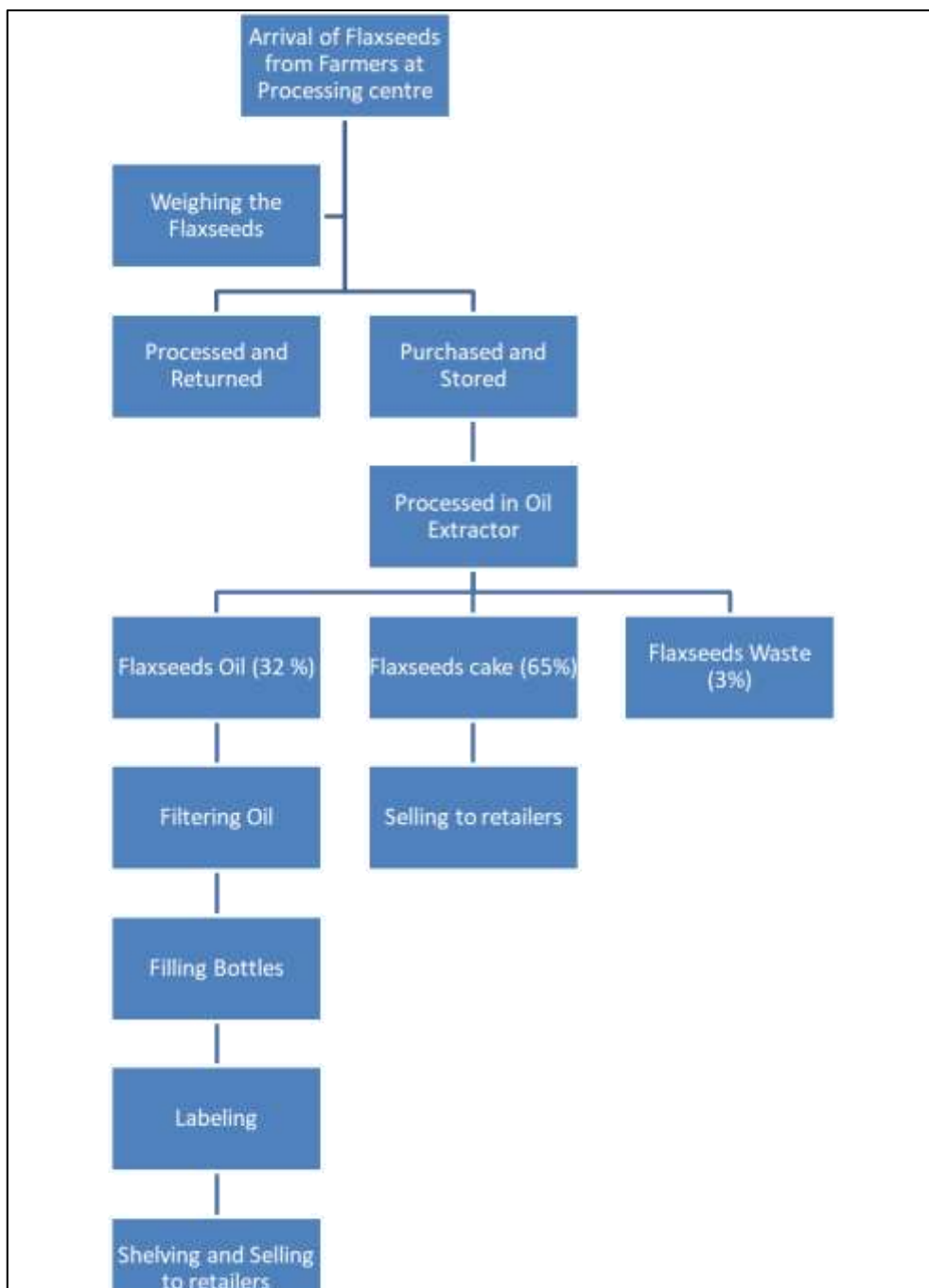


Chart 1: Flow Chart of Flaxseeds Processing Unit

Profitability of Flaxseed's Processing Unit

The Fixed Capital Investment of Flaxseed's Processing Unit is presented in table no 3. As per the results, Store room contributed highest in total Fixed Capital Investment i.e. 38.59 per cent, it is followed by Extraction unit i.e. 33.08 percent. The Oil Extractor also shared major portion in Fixed Capital Investment which is 21.06 percent.

The table 4 depicted Estimation of the Fixed cost from depreciation, principle amount and interest on fixed capital. Depreciation is estimated on the basis of asset life. The interest on fixed capital is estimated at 11 percent per annum. The principle estimated on life of the assets. As per the estimates, it is found that the Total Fixed cost is Rs. 1, 52, 778. The Store room and Extraction Unit shared 34.36 percent and 29.45 percent in Total Fixed Cost respectively. The Oil Extractor contributed 25.94 percent in Total Fixed cost. The

share of oil filter, weighing machine, containers, implements etc. is less.

Table 3: Fixed Capital Investment of Flaxseed's Processing Unit

| S.N. | Item | Value in (Rs.) | Percentage Share |
|------|---|----------------|------------------|
| 1. | Building a) Extraction Unit | 3,00,000 | 33.08 |
| 2. | b) Store Room | 3,50,000 | 38.59 |
| 3. | Oil Extractor | 1,91,000 | 21.06 |
| 4. | Oil Filter Machine | 40,000 | 4.41 |
| 5. | Weighing Machine | 6,000 | 0.66 |
| 6. | Containers | 15,000 | 1.65 |
| 7. | Implements and Tools (sieve, dish, spoons) etc. | 5,000 | 0.55 |
| | Total Fixed Capital Investment (Rs.) | 9,07,000 | 100.00 |

Table 4: Fixed Cost of Flaxseed's Processing Unit Per Annum (Rs.)

| S.N. | Item | Depreciation | Interest of Fixed Capital | Principle Repayment | Fixed Cost | Percent share |
|------|---|--------------|---------------------------|---------------------|------------|---------------|
| | Building | | | | | |
| 1. | a) Extraction Unit | - | 33000 | 12000 | 45,000 | 29.45 |
| 2. | b) Store Room | - | 38500 | 14000 | 52,500 | 34.36 |
| 3. | Oil Extractor | 9072.5 | 21010 | 9550 | 39,632 | 25.94 |
| 4. | Oil Filter Machine | 1900 | 4400 | 2000 | 8,300 | 5.43 |
| 5. | Weighing Machine | 285 | 660 | 300 | 1,245 | 0.81 |
| 6. | Containers | 1425 | 1650 | 1500 | 4,575 | 2.99 |
| 7. | Implements and Tools (sieve, dish, spoons) etc. | 475 | 550 | 500 | 1,525 | 1.00 |
| | Total Fixed Cost | | | | 1,52,778 | 100.00 |

The table 5 shows the Variable Cost of Flaxseed's Processing Unit. The results indicated that the Flaxseeds were purchased at Rs.85 per kg and oil extracted and filled in bottle of cost Rs. 3.50 per unit. Only a labourer work in Unit for whole day. He daily manages all batches of oil extraction process. The total variable cost of Flaxseeds processing is Rs. 46, 92, 423 per annum. The annually they processed 49, 750 kg Flaxseeds and it contributed 90.12 per cent in total variable cost. It is followed by cost of packing bottle i.e. 2.33 percent.

Other minor expenses are Electricity, repairing and maintenance wastage and transportation cost etc. The Gross Return of Flaxseeds Processing unit is presented in table 6. The return is divided in two sections. In first section, return is received from just providing service of oil processing to the farmers who process Flaxseeds and take back oil and oil cake with them. This service is provided @ Rs. 8 per kg. In a years, Unit processed 1, 20, 250 kg of Flaxseeds and earned Rs. 9, 62, 000.

Table 5: Variable cost of flaxseed's processing unit Per Annum (Rs.)

| S.N. | Variable Items | Quantity | Value (Rs.) | % share | Per Kg estimate rate (Rs.) |
|------|------------------------------------|----------|-------------|---------|----------------------------|
| 1. | Purchase cost of Flaxseeds | 49750 | 42,28,750 | 90.12 | 85.00 |
| 2. | Packaging Bottle | | 1,09,200 | 2.33 | 2.19 |
| 3. | Labour | | 49,750 | 1.06 | 1.00 |
| 4. | Electricity | | 27,860 | 0.59 | 0.56 |
| 5. | Repairing and Maintenance (annual) | | 30,000 | 0.64 | 0.60 |
| 6. | Wastage (3%) | | 1,26,863 | 2.70 | 2.55 |
| 7. | Transportation and Marketing cost | | 1,20,000 | 2.56 | 2.41 |
| | Total Variable Cost | | 46,92,423 | 100.00 | 94.32 |

Table 6: Gross Return of Flaxseed's Processing Unit Per Annum (Rs.)

| S.N. | Item | Quantity (Kg) | Value | % Share |
|------|--|---------------|-----------|---------|
| 1. | Flaxseeds Processing service for farmers @ Rs.8 per Kg | 120250 | 962000 | 13.48 |
| 2. | Flaxseeds Processed by Unit for sale | 49750 | | |
| 3. | a) Flaxseeds Graded Packs | 1000 | 200000 | 2.80 |
| 4. | b) Oil sold to retailer (32% extraction) | 15600 | 4680000 | 65.59 |
| 5. | c) Cake sold (65% Cake) @ Rs.40 per kg | 32338 | 1293500 | 18.13 |
| | Total Return | | 71,35,500 | 100.00 |

In second section, the Unit purchased Flaxseeds from farmers, processed it and sold oil and cake by its own. The return from sale of Flaxseeds, Flaxseeds oil and cake was Rs 61, 73, 500. Total revenue of the Unit was Rs. 71, 35, 500 in year 2022-23.

Break-Even Point

The net return from the unit was Rs. 22, 90, 300 per annum. The Break-Even Analysis and B:C ratio of the company is given in table 7. It is found that the cost and investment incurred on Unit was less as compared to other businesses.

Therefore the Break-Even came at 29372 kg only. It means that the processing of 29372 kg oil will cover fixed cost as well as all variable cost at the point. The return per rupee invested in Rs.1.47.

Value Addition in Flaxseeds

The simple value addition in Flaxseeds is presented in table no 8. The Processor bought Flaxseeds at Rs. 85 per kg. The Processing and Marketing Cost borne by Unit was Rs. 12.39 per kg. The total Unit cost was Rs.97.39 per kg. While return from 0.32 kg oil was Rs. 99.20 and return from 0.65 kg cake was Rs. 26. Overall return from 1 kg of Flaxseeds was Rs 125.20. The value addition in Flaxseeds was 28.56 percent.

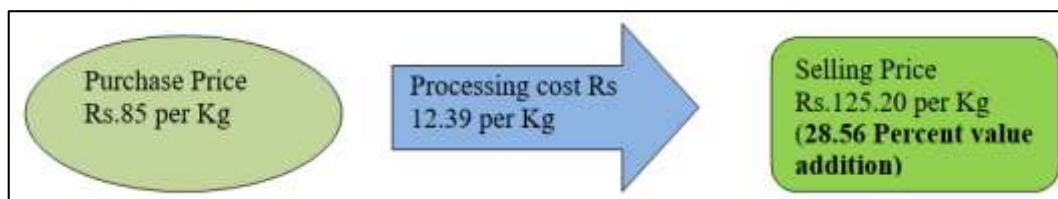


Chart 2: Value Addition in Flaxseeds

Table 8: Value Addition in Flaxseeds

| S.N. | Value Addition | Per /Kg |
|------|---|---------|
| 1. | Purchase Price of Flaxseeds | 85.00 |
| 2. | Processing Cost incurred | 12.39 |
| 3. | Total cost borne by Seller | 97.39 |
| 4. | Selling Price of oil @ 310 with 32% extraction per kg | 99.20 |
| 5. | Selling Price of oil @40 with 65% extraction per kg | 26.00 |
| 6. | Total return from 1kg processed Flaxseeds | 125.20 |
| 7. | Value added per quintal (%) | 28.56% |

Constraints faced by Flaxseeds Processing Unit

As per discussion with the Owner of Flaxseeds Processing Unit, constraints were identified, ranked and presented in table no.9. The major constraint is availability of marketing

platform for growing business. The Warehouse/Store is needed to be expanded for making more storage of Flaxseeds, but seeking subsidy for it. The modern accessories and filters are required to improve quality of oil.

Table 9: Constraints faced by Flaxseeds Processing Unit

| S.N. | Constraints faced by Unit Owners | Rank |
|------|--|------|
| 1 | Marketing platform is less | 1 |
| 2 | Warehouse/Store need is small | 2 |
| 3 | Storage drum of Modern facility is frequently need to be changed | 3 |
| 4 | Present Filter is not sufficient, Advanced filter unit is needed | 4 |
| 5 | Capacity of Building is not sufficient. Modern and big size unit is needed | 5 |
| 6 | Cleaning machine for unit is required | 6 |

Conclusions

It is concluded that the Flaxseeds Processing Unit is Successful. If it is run on commercial basis, it can give more profitable results.

- The Fixed cost and variable cost of the Unit was Rs. 1, 52, 778 and 46, 92, 423 respectively. The net return from the unit was Rs. 22, 90, 300 per annum.
- The minimum break-even quantity required to run the unit is 29372 kg. The return per rupee invested in Rs.1.47.
- The value addition in Flaxseeds was 28.56 percent.
- The major constraints to run the unit is availability of marketing platform

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