

Original Research Article

ECONOMIC FEASIBILITY ANALYSIS OF PROCESSING OF SESAME (EDIBLE OIL) IN NORTHERN TELANGANA ZONE

ABSTRACT

Aim: To assess the financial feasibility analysis of sesame cold pressed and refined oil units in Northern Telangana Zone

Methodology: The study was conducted in the northern Telangana Zone of Telangana state . The data was collected from three districts from NTZ where sesame is grown extensively. Random sampling method is used to select the sesame processors in the study area. The data has been collected from 15 sesame processors from three districts through pre schedules. The data was analysed by using discounted cash flow techniques involving Internal Rate of Return (IRR), Net Present Worth (NPW), Benefit cost Ratio (BCR) were employed.

Result: The Net Present Worth of the processing units in the study area was positive and the results revealed that the sesame processing units higher IRR and BCR greater than one.

Conclusion: The study showed that sesame processing units in the study area are financially feasible and profitable.

Key words: Sesame processors, financial feasibility, discounted cash flow technique

1. INTRODUCTION

Sesame is an ancient crop originated from Africa and Turkey. Among the oil seed crops, sesame enjoys a special status and is often called as the "Queen of seeds". (Pathak N *et al.* 2014). Sesame is one of the most commonly eaten foods either in fresh or processed. It is also an important component of many processed food products with its excellent flavor, attractive color, and high levels of many macro- and micro-nutrients. Sesame seeds contain 50-60% oil. (Prasad M N N *et al.* 2012). Myanmar, India and China are the top three sesame producing countries in the world. India is the second

largest producer of sesame crop. In India the area cultivated under sesame is 1.6 million hectares, production is 0.65MT and productivity is 405 kg/ha in the year 2019-20. According to the 4th advanced estimates sesame production will be 0.81 MT in the year 2020-21. (Source: indiastat.com)

Sesame seed oil is an edible vegetable oil derived from sesame seeds through different processes namely hot pressed oils (Refined oils) and cold pressed oils. Refined oils are extracted using high heat. Refined oils are made by grinding them at high speed which can generate heat upto 200C and using chemicals which finally gives the oil. Cold pressing is a mechanical process in which the oil is extracted from the seeds without addition of chemicals or any other substances at a temperature that does not exceeding 35C. Pressing is the process of applying pressure to squeeze the seeds. This method allows the nutrients and vitamins being retained in the oil without being extracted since there is no application of external heat. It is the healthiest way of making oils which contains adequate amounts of nutrients. Sesame oil is a polyunsaturated semi drying oil. Sesame seed oil can be produced from black hulled and white hulled sesame seeds.

Sesame oil is composed of fatty acids such as linoleic acid (41 % of the total) , oleic acid (39 %) , palmitic acid (8 %), stearic acid (5%). The essential nutrient present in significant content is vitamin K. It consists of relatively high percentage of unsaponifiable matter (1.5 to 2.3 %). In India and some other European countries Sesame oil (5 to 10 %) is added to margarine and hydrogenated veget The market for sesame oil at global level experienced 5.2% value growth. Sales of sesame oil were high in the food processing industry, accounting for around 30% market share from 2016-2020. The Sesame oil industry in India is expected to grow at a CAGR of 5% during the forecasted period of 2017-2022. The country is facing a paradigm shift in the consumption of sesame oil because of its increasing use in different cuisines, ayurveda, various massage oils, etc. The sesame oil is very popular amongst the Southern regions in India, along with countries in Asia, USA, etc.

Now a day's cold pressed oils have been preferred to refined oils due to their natural characteristic flavour and their minor bioactive components including natural antioxidants. The minor bioactive lipids present in the cold pressed oils are phytoserols, phospholipids, tocopherols, phenolic compounds, hydrocarbons, flavour and aroma compounds. The minor

bioactive lipids in cold pressed oils have beneficial effect on human health such as antiinflammatory, antimicrobial, anticancer, antihypertension and lowering of low density lipoprotein. Further these bioactive compounds play an important role in prolonging the shelf life of the oil by increasing oxidative stability.

2. MATERIALS AND METHODS

2.1. Study region

The study was conducted in Northern Telangana Zone of Telangana state where the Sesame is produced extensively. The cultivated area under sesame in Telangana state was 20,264 hectares, production was 14000 tonnes and productivity was 583.33kg/ha in the year 2019-20. Northern Telangana Zone includes Adilabad, Komaram Bheem, Asifabad, Nirmal, Mancherial, Nizamabad, Jagityal, Kamareddy, Rajanna siricilla and Karimnagar districts. Three major districts Jagityal, Nirmal, Nizamabad were selected to extensively cover the Sesame processing areas of Northern Telangana Zone of the state.

Chart 1 : List of districts and their description

District	Parameters	Description
Jagityal	Area (Sq. Km.) Population Literacy rate (%) Annual rainfall (mm) Important crops Area under sesame cultivation (acres)	2419 985417 60.26 976.2 Rice, Maize, Groundnut, Sesame, Red gram, Turmeric 28,556.08
Nizamabad	Area (Sq.km.) Population Literacy rate (%) Annual rainfall (mm) Important crops Area under sesame cultivation (acres)	4288 1571022 64.25 919.6 Rice, Maize, Groundnut, Sesame, Chillies, Turmeric 23,545.52

Nirmal	Area (Sq. Km.) Population Literacy rate (%) Annual rainfall (mm) Important crops Area under sesame cultivation (acres)	3845 709418 58 767.5 Rice, Maize, Redgram, Sesame, Groundnut 20,384.26

2.2. Sampling procedure

Purposive sampling method is used to select the three districts of Northern Telangana Zone and random sampling method is used to select the oil units in each district. In each district a sample of 5 oil units are selected making a total sample of 15 oil units.

2.3. Economic viability of processing unit

a. NPV (Net Present Value)

The difference between the present value of cash inflows and the present value of cash outflows. NPV is used in capital budgeting to analyze the profitability of an investment or project.

The NPV was calculated by using following formula

$$NPV = \sum Y_i (1+r)^{-i} - I$$

Where : Y_i = net cash inflow during the period, I = initial investment, r = discount rate, and i = year of life period 1, 2...n

b. BCR (Benefit Cost Ratio)

A ratio attempting to identify the relationship between the costs and benefits of a proposed project. Benefit cost ratios are oftenly used in corporate finance to detail the relationship between possible benefits and costs, both quantitative and qualitative undertaking of new projects or replacing old ones.

$$\text{BCR} = \frac{\text{Present worth of gross return}}{\text{Present worth of costs}}$$

C.IRR (Internal Rate of Return)

The discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero. The higher a projects internal rate of return, the more desirable it is to undertake the sesame processing unit, the project with the highest IRR would probably be considered the best and undertaken first.

$$\text{IRR} = \text{Lower discount rate} + \frac{\text{NPW at lower discount rate}}{\text{Absolute diff.between two NPW}} \times \text{Diff.between two discount rate}^*$$

RESULTS AND DISCUSSION

The findings of the study are shown in the table 1 and 2 . Table 1 shows the socio economic characteristics of the sesame processors. The table 1 shows that all the respondents were married, 93.4% of the sesame processors are male, 46.7% of the processors are graduated and 60% of the processors had banks as their source of investment

Table 1. Distribution of respondents according to socio economic characters

Socio economic characteristics	Frequency	Percentage
Gender		
Male	14	93.4
Female	1	6.6
Total	15	100
Marital status		
Married	15	100
Unmarried	0	0
Total	15	100
Educational level		
No formal education	0	0
Primary	2	13.3
Secondary	6	40
Graduation	7	46.7
Total	15	100
Sources of finance		
Private money lender	0	0
Friends and relatives	6	40
Bank	9	60
Total	15	100

Table 2. Financial feasibility of the sesame processing units

UNIT	NPW	IRR	BCR
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1	227776.53	31.38	0.94
2	5460482.91	58.32	1.09
3	2164405.22	13.00	1.87
4	6280472.03	11.53	1.53
5	201067.28	14.70	1.44
6	3032116.82	37.45	1.61
7	1613718.74	27.67	1.01
8	299093.06	16.06	1.15
9	3161886.70	44.67	1.81
10	2639936.77	29.88	1.51
11	1744512.27	16.35	10.21
12	383144.87	21.19	1.08
13	1907711.55	35.48	1.16
14	1708503.56	37.98	1.09
15	1604721.32	35.79	
Average	2022639.335	30.33	1.60

Feasibility analysis

The findings of the feasibility analysis of the processing units are given in the table 2. It shows that the NPW of the processing units is positive which indicates that the processing units are profitable in the study area. The results also showed higher IRR (30.33) and BC ratio (1.60) greater than 1 which indicates that the processing units are economically viable in the study area.

CONCLUSION

The feasibility analysis of the study revealed that the sesame processing units have positive NPW, higher IRR and the BCR of the units is greater than one which indicates that the processing of sesame in the study area is economically feasible and profitable. The study suggests that the processing of sesame in the study area is profitable.

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