

CRACKING NUTS

1. INTRODUCTION:

Every person needs good health and for good health we want good things for care of our health. To attain good health it is essential to follow good nutrition, regular exercise & regulation in sexual activity. To achieve good health we must have good foods which are naturally available just as nuts. Dry fruits are the best way to achieve good health. They are an excellent source of vitamins and enzymes. People who have this natural diet will always enjoy good health because they are easy to digest and clean the blood. We have many qualities of dry-fruits like raisins, walnuts, almond, sweet almond etc. They all are helping us for maintaining good health. Nevertheless the leading world regions growing pistachios include all Iran, Turkey and the San Joaquin valley in California. At present the largest supplier of pistachios to the USA is Turkey. The nuts and dry fruits industry in India is a very old one. Nuts and dried fruits are a favorable alternative to unhealthy snacking and to the consumption of meat, and they are more in keeping with a healthy lifestyle. However, competition in this market is increasing. Furthermore, retail requirements will put more pressure on the processing industry and, ultimately, on exporters from developing countries. Dried fruit is part of the market for preserved fruit and vegetables. Dried fruit is mainly used as a snack or in breakfast cereals, muesli, bakery products, dairy products and desserts. Bakery products and breakfast cereal mixes are the largest end users of dried fruit. Consumption of nuts and dried fruits is steadily increasing, and is being driven by changing lifestyles and rising health consciousness, which is reflected in growing focus on preventive healthcare against the backdrop of rising healthcare expenditures. In India, nuts and dry fruits have just started making a place for themselves on the health plate. The dried fruit market in India has enjoyed growth, benefiting from the ever growing demand for snacking products and interest in healthy eating.

2. PRODUCT & ITS APPLICATION:

A nut is a fruit composed of an inedible hard shell and a seed, which is generally edible. In general usage, a wide variety of dried seeds are called nuts, but in a botanical context "nut" implies that the shell does not open to release the seed (indehiscent). The translation of "nut" in certain languages frequently requires paraphrases, as the word is ambiguous. Most seeds come from fruits that naturally free themselves from the shell, unlike nuts such as hazelnuts, chestnuts, and acorns, which have hard shell walls and originate from a compound ovary. The general and original usage of the term is less restrictive, and many nuts (in the culinary sense), such as almonds, pecans, pistachios, walnuts, and Brazil nuts, are not nuts in a botanical sense. Common usage of the term often refers to any hard-walled, edible kernel as a nut. Nuts are the source of energy and nutrients for the new plant. They contain a relatively large quantity of calories, essential unsaturated and mono unsaturated fats including linoleic acid and linolenic acid, vitamins, and essential amino acids. Many nuts are good sources of vitamin E, vitamin B2, folate, fiber, and the essential minerals magnesium, phosphorus, potassium, copper, and selenium. Nuts are most healthy in their raw un-roasted form, because roasting can significantly damage and destroy fats during the process. Un roasted walnuts have twice as many antioxidants as other nuts or seeds. It is controversial whether increasing dietary antioxidants confers benefit or harm.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

Successful running this project does not require any specific qualification.

4. INDUSTRY LOOKOUT AND TRENDS

Nuts industrial processing includes several steps as shelling to liberate the endocarp, which exhibits low yielding and bruises as high as 40–50% to the shelled nuts. Cashew nuts industry is looking for an improvement on yield and minimizing bruising occurrence by acquiring knowledge of a mechanical behavior of a product to support equipment project and development. Nuts shell is divided into three layers named as exocarp, the external cover; mesocarp, the middle layer containing the shell liquid and the internal one that is the

most resistant layer, named as endocarp. These layers show different responses to diverse mechanical loading, including an important situation known as contact stress, generated by the pressure exerted between elastic bodies through infinitesimal contact areas. Traditional nuts shelling involves placing individual nut on a flat stone and applying repeated impact with a wooden mallet along the vertical and horizontal axis until the nut cracks. The efficiency of cracking process mostly depends on human skills because of the irregularity in nuts geometry and the kernel's brittleness. Several techniques of nuts cracking have been invented and patented; but presently none of them is in commercial use due to the complexity in commercial application. Thus, there is pressing need for developing a new technique for nuts cracking where the exact cracking force for the nut needs to be examined.

5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY

Though, we have proposed project for most of all types of nuts cracking, here we have discussed most viable product walnut in Kashmir area. Jammu and Kashmir produces some 3.5 lakh quintals of walnut every year, thus contributing around 98 per cent of the total walnut output in India. Of this, the Kashmir Valley alone produces 95 per cent and the rest is grown in Doda and Kishtwar districts of the Jammu region. The fruit also earns huge revenue in terms of foreign reserves as it is exported to Europe where India has a close to 20 percent of the market share. Total requirement for walnut in India is projected to increase from 3.6 lakh quintals produced currently to 7.25 lakh quintals by 2020. Local consumption (including tourists): 10-15 per cent of the total production. Exports: 85-90 of the total production Major markets outside the state: Delhi and Mumbai Processed in local industries: 60-65 per cent Total unprocessed export: 35-40 percent. According to a survey, there are a total number of 136 walnut processing units of varying capacity in the state.

The actual demand of such units is about of different capacity – as per the crop production, which is approx. 6,181 tonnes. Total walnut production in the state: 3.5 lakh quintals Major areas of production in the state: Kupwara, Pulwama, Anantnag, Ganderbal, Budgam

6. RAW MATERIAL REQUIREMENTS:

The principal raw material required for the production of cracking of nuts are nuts. Different types of raw nuts either locally available or imported from nearby states or country.

7. MANUFACTURING PROCESS:

Walnut processing starts with:Washing, Drying, and Calibrating, Cracking (pre-cracking, shell removal, post-cracking, and sorting and kernel calibration).

8. MANPOWER REQUIREMENT:

Sr. No.	Designation	SALARY	Salary ₹	Number	Number	Number	Number	Number
	Working Staff		PER ANNUM	Year-1	Year-2	Year-3	Year-4	Year-5
1	OPERATORS	12000	12000	1	1	1	1	1
2	HELPERS	10000	60000	6	6	6	6	6
			72000	7	7	7	7	7
	Fixed Staff:							
1	ADMIN MANAGER	15000	15000	1	1	1	1	1
2	Office Boy	9000	9000	1	1	1	1	1
	<i>sub-total</i>		24000	3	3	3	3	3
	Total		96000	10	10	10	10	10

9. IMPLEMENTATION SCHEDULE:

The project can be implemented in 3 months' time as detailed below:

Sr. No.	Activity	Time Required (in months)
1	Acquisition of premises	1.00
2	Construction (if applicable)	2.00
3	Procurement & installation of Plant & Machinery	2.00
4	Arrangement of Finance	1.00
5	Recruitment of required manpower	1.00
	Total time required <i>(some activities shall run concurrently)</i>	3.00

10. COST OF PROJECT:

The project shall cost ₹ 25.80 lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land	0.00
2	Building	0.00
3	Plant & Machinery	8.00
4	Furniture, other Misc Equipments	5.00
5	Other Assets including Preliminary / Pre-operative expenses	0.80
6	Margin for Working Capital	12.00
	Total	25.80

11. MEANS OF FINANCE:

Bank term loans are assumed @ 75 % of project cost.

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	6.45
2	Bank Finance	19.35
	Total	25.80

12. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹ 12.00 lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	6.00	0.25	1.50	4.50
2	Receivables	3.00	0.25	0.75	2.25
3	Overheads	3.00	100%	3.00	0.00
4	Creditors	-		0.00	0.00
	Total	12.00		5.25	6.75

13. LIST OF MACHINERY REQUIRED:

The Major machineries required for the projects are: Nut crackers (optional: manual cracking is preferred), Crates (for storing kernels), Trolley (for shifting material), Dryer and separate trays, Size grader (for kernel grading), a. Half big size, b. Half Small Size, c. 3 Piece, d. 4 piece 1/8, Colour grader (for final inspection belt), Air Conditioner (to maintain temperature below 20 degrees Celsius for finished products), Digital weighing Machine, Vacuum packaging machine, Generator (at least 20 horse power).Digital Sorting Platform, Air Cleaner, Bio Print Sorter, Collection Conveyors, Distribution Conveyors, Feed Conveyors, Grading, Sizing and Separating Conveyors, Optyx Digital Camera/Laser Sorter, Smart Laser

Sorter, Digital Laser Sorter, etc.

Sr. No.	Particulars	UOM	Qty	Rate	Value
	Main Plant & Machinery				8.00
1	Office furniture	LS	0	50000	0.50
2.	Digital equipments	LS	0	400000	4.00
3.	Computer & Printer	LS	1	50000	0.50
1	<i>sub total</i>				5.00
	Preliminary and preoperative				0.80
	Total				13.80

All the machines and equipments are available from local manufacturers. The entrepreneur needs to ensure proper selection of product mix and proper type of machines and tooling to have modern and flexible designs. It may be worthwhile to look at reconditioned imported machines, dies and tooling. Some of the machinery and dies and tooling suppliers are listed here below:

1. Ricon Engineers
10 To 13, Bhagwati Estate,
Near Amraiwadi Torrent Power,
Behind Uttam Dairy,
Rakhial, Ahmedabad - 380023,
Gujarat, India
2. Hindustan Vibrotech Pvt. Ltd.
Office No. 2, Ground Floor,
Vrindavan Building, Vile Parle East,
Mumbai – 400057,
Maharashtra, India
3. Electrons cooling systems Pvt. Ltd.

S-27, SIDCO Industrial Estate

Kakkalur Industrial Estate

Tiruvallur – 602003,

Tamil Nadu, India

4. Springboard Enterprises India Ltd.

1st, 2nd & 3rd Floor,

Plot No. 7, 8 & 9, Garg Shopping Mall,

Service Centre, Rohini Sector 2

New Delhi – 110085,

Delhi, India

5. Flour Tech Engineers Private Limited

Plot No. 182, Sector 24,

Faridabad - 121005,

Haryana, India

14.PROFITABILITY CALCULATIONS:

Sr. No.	Particulars	UOM	Year-1	Year-2	Year-3	Year-4	Year-5
1	Capacity Utilization	%	60%	70%	80%	90%	100%
2	Sales	₹. In Lacs	1620.00	1890.00	2160.00	2430.00	2700.00
3	Raw Materials & Other direct inputs	₹. In Lacs	1342.99	1566.82	1790.66	2014.49	2238.32
4	Gross Margin	₹. In Lacs	277.01	323.18	369.34	415.51	461.68
5	Overheads except interest	₹. In Lacs	21.07	22.39	25.02	25.81	26.34
6	Interest @ 10 %	₹. In Lacs	51.38	51.38	34.25	25.69	20.55
7	Depreciation @ 30 %	₹. In Lacs	30.00	21.00	15.30	12.00	9.00
8	Net Profit before tax	₹. In Lacs	174.56	228.41	294.77	352.01	405.79

The basis of profitability calculation:

This unit will have 300 MT/Annum capacity. The growth of selling capacity will be increased 10% per year. (This is assumed by various analysis and study, it can be increased according to the selling strategy.)

Energy Costs are considered at Rs 7 per Kwh and fuel cost is considered at Rs. 65 per litre. The depreciation of plant is taken at 10-12 % and Interest costs are taken at 14 -15 % depending on type of industry.

15. BREAKEVEN ANALYSIS:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	2700.00
2	Variable costs	₹. In Lacs	2238.32
3	Fixed costs incl. interest	₹. In Lacs	46.89
4	$BEP = FC/(SR-VC) \times 100 =$	% of capacity	10.16%

16. STATUTORY / GOVERNMENT APPROVALS

The Ministry of Food Processing Industries has been operating several plan schemes for the development of processed food sector in the country during the 10th Plan. One of the schemes relates to the Technology Up-gradation/ Establishment/ Modernization of food processing industries.

The Indian food processing industry is regulated by several laws which govern the aspects of sanitation, licensing and other necessary permits that are required to start up and run a food business. The legislation that dealt with food safety in India was the Prevention of Food Adulteration Act, 1954 (hereinafter referred to as "**PFA**"). The PFA had been in place for over five decades and there was a need for change due to varied reasons which include the changing requirements of our food industry. The act brought into force in place of the PFA is the Food Safety and Standards Act, 2006 (hereinafter referred to as "**FSSA**") that overrides all other food related laws.

FSSAI initiates harmonization of India's food regulations as per international standards. It establishes a new national regulatory body, the Food Safety and Standards Authority of India (hereinafter referred to as "**FSSAI**"), to develop science based standards for food and to regulate and monitor the manufacture, processing, storage, distribution, sale and import of food so as to ensure the availability of safe and wholesome food for human consumption. Entrepreneur may contact State Pollution Control Board where ever it is applicable.**All food imports will therefore be subject to the provisions of the FSSAI and rules and regulations which as notified by the Government on 5th of August 2011 will be applicable.**

Key Regulations of FSSAI

- A. Packaging and Labeling
- B. Signage and Customer Notices
- C. Licensing Registration and Health and Sanitary Permits

17. BACKWARD AND FORWARD INTEGRATIONS

The objective of the scheme is to provide effective and seamless backward and forward integration for processed food industry by plugging the gaps in supply chain in terms of availability of raw material and linkages with the market. Under the scheme, financial assistance is provided for setting up of primary processing centres/ collection centres at farm gate and modern retail outlets at the front end along with connectivity through insulated/ refrigerated transport.

The Scheme is applicable to perishable horticulture and non-horticulture produce such as, fruits, vegetables, dairy products, meat, poultry, fish, Ready to Cook Food Products, Honey, Coconut, Spices, Mushroom, Retail Shops for Perishable Food Products etc. The Scheme would enable linking of farmers to processors and the market for ensuring remunerative prices for agri produce.

The scheme is implemented by agencies/ organizations such as Govt./ PSUs/ Joint Ventures/ NGOs/ Cooperatives/ SHGs / FPOs / Private Sector / individuals etc.

Backward Linkage:

- Integrated Pack-house(s) (with mechanized sorting & grading line/ packing line/ waxing line/ staging cold rooms/cold storage, etc.)
- Pre Cooling Unit(s)/ Chillers
- Reefer boats
- Machinery & equipment for minimal processing and/or value addition such as cutting, dicing, slicing, pickling, drying, pulping, canning, waxing, etc.
- Machinery & equipment for packing/ packaging.

Forward Linkage:

- Retail chain of outlets including facilities such as frozen storage/ deep freezers/ refrigerated display cabinets/cold room/ chillers/ packing/ packaging, etc.
- Distribution centre associated with the retail chain of outlets with facilities like cold room/ cold storage/ ripening chamber.

18. TRAINING CENTERS AND COURSES

There are few specialised Institutes provide degree certification in Food Technology, few most famous and authenticate Institutions are as follows:

1. Indian Institute of Food Science & Technology,
Plot No.1, Near Maa-Baap ki Dargah,Opp to Nath Seeds,
Paithan Road Aurangabad
Aurangabad - 431005
Maharashtra, India
2. MIT College of Food Technology, Pune
Gate.No.140, Raj Baugh Educational Complex,
Pune Solapur Highway,
Loni Kalbhor, Pune – 412201
Maharashtra, India

3. CSIR - Central Food Technological Research Institute (CFTRI)

Cheluvamba Mansion, Opp. Railway Museum,

Devaraja Mohalla, CFTRI Campus, Kajjiahundi, Mysuru

Karnataka – 570020

Udyamimitra portal (link : www.udyamimitra.in) can also be accessed for handholding services viz. application filling / project report preparation, EDP, financial Training, Skill Development, mentoring etc.

Entrepreneurship program helps to run business successfully is also available from Institutes like Entrepreneurship Development Institute of India (EDII) and its affiliates all over India.

Disclaimer:

Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.