

HAND PICKED & SELECTED GROUNDNUT PROCESSING

1. INTRODUCTION:

The project envisages setting up of Hand-Picked and Selected Groundnut Processing Unit based on the raw material strength of Gujarat. The manufacturing unit can focus on cultivation, processing, packaging, export, etc. The three important processed products from groundnut are: (i) Hand-picked and selected ground-nuts (HPSG) (ii) Roasted and salted groundnuts, and (iii) Edible oil. Edible groundnuts are traditionally called HPSG in trade circles. HPSG is traditionally an export earner. Domestic and international trade in HPSG is undertaken as per the size of the groundnuts termed as "Count"- Based on the count, kernels are classified into four broad groups; small (60-80 counts); medium (40-60 counts); large (30-40 counts); and very large kernels (20-30 counts). A larger size of the kernel means lower count and would fetch a higher price and vice versa. Groundnuts (*Arachis Hypogaea*) or peanuts, are a food that is rich in protein and oil. Groundnut kernels contain 42% to 50% oil, 26% protein, 18% carbohydrates and are a source of riboflavin, thiamine, nicotinic acid, and Vitamin E. The digestibility of groundnut kernels is high, with little difference between raw and processed nuts. Groundnuts for edible use require considerable processing and sorting to ensure high quality: removal of stones and other foreign matter; removal of shell, removal of kernels that are shrivelled, off-color, or otherwise unsatisfactory; and grading for size and uniformity. In this process a large measure of hand sorting is needed to get the required quality. Therefore, edible groundnuts are traditionally called 'Hand Picked and Selected Groundnuts' or 'HPS Groundnuts' (HPSG) in trade circles. The Government of Gujarat is proposing to establish Agri Export Zones (AEZ) for Groundnut, and few other agricultural products. The main objective of AEZ is to provide higher returns to the farmers by enhancing their accessibility to export and extending their capacity to produce export specific quality products.

2. PRODUCT & ITS APPLICATION:

The two major varieties of peanuts produced in India are Bold (Virginia) and Java (Spanish) types. The winter crop of peanuts is rain-fed crop whereas the summer crop is irrigated. 70% of the winter crop is the bold variety and 85% of the summer crop is Java variety. The Bold variety peanuts are typically red skinned with elongated shape. The Java variety peanuts are pink skinned with round spheroid shape. HPSGs are graded into sizes which confirm to counts per ounce. For instance, 55-60 count means 55 to 60 kernels per ounce. Based on this count, kernels are classified into four broad groups; small (60-80 counts); medium (40-60 counts); large (30-40 counts); and very large kernels (20-30 counts); Usually, counts have a range of 10 for small kernels, a range of 5 for medium and large kernels, and a range of 2 for very large kernels. Similarly, a range of 2 is preferred for nuts-in-shell. HPSGs are normally indicated by country of origin, varietal group and count; for instance, Indian Bold 55/60; US Virginias 28/30; South Africa Natal 60/70; etc.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

Anyone can start this project. Successful running of this project does not require any specific qualification. Promoter should have knowledge of agriculture production and process, packaging etc.

4. INDUSTRY LOOKOUT AND TRENDS:

Groundnuts, a staple food for many developing countries, deserves a closer look as an export commodity. Less than 6% of the world groundnut crop is traded internationally, with export sales averaging close to US\$ 1 billion dollars per year. There is, therefore, scope for export growth in groundnuts.

Investing in groundnuts is a sustainable way to address the rising needs for both food and foreign exchange. Today's exporters face two major challenges: ensuring food safety by preventing and controlling mycotoxin contamination of products and adapting groundnut supplies to demand for varieties best suited to specific end-uses.

China took advantage of market reforms, as well as increased use of high-yielding seed varieties and agricultural inputs (fertilizers, pesticides, insecticides, mechanization and irrigation), to recently overtake India as the world's largest groundnuts producer. In China, over 3.6 million hectares are under groundnut cultivation and 6 million tons are produced yearly. India is the second largest producer, with surfaces under the crop exceeding 8 million hectares and outputs averaging 5.6 million tons per year. The United States, Nigeria, Argentina and Indonesia are the following largest producers, with annual outputs varying between 1 and 1.5 million tons per year.

Groundnut production in African countries fluctuated greatly, though it never exceeded 8% of the world output over the last decade. Yields per hectare are low, because of a combination of factors: unreliable rains; mostly non-irrigated cultures; small-scale, traditional farming with little mechanization, outbursts of pests and diseases and use of low-yielding seed varieties; and increased cultivation on marginal land. Political instability and the frequently unsupportive oilseed policies have also played their role.

5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:

Global production of groundnuts (40 million metric tons (mmt) - 2015/16) accounted for 7.7% of the global production of major oilseeds (527 mmt). Global groundnut production in 2015/16 was slightly higher than that in the previous season, due to increased demand from health-conscious consumers. The US, Brazil, Argentina, China and India are the major producers of oil seeds while China, India, Nigeria, US, Sudan lead the groundnut production. India is the second largest groundnut producer in the world after China (China: 41%, India 11%). The population of India is likely to touch a figure of 1,690 million by 2050. Providing food security to such a large population would be a daunting task and also a challenge to agricultural scientists for developing production technologies to bridge the gap in the demand and supply on a sustainable basis. In times to come, groundnut would play a greater role as a supplementary food crop besides continuing to be an oilseed crop. Apart from its use as edible oil, groundnuts are directly consumed in large quantities in individual houses Chikki and farsan manufacturers, salted peanuts processors, chocolate manufacturers,

peanut butter manufacturers, bars and pubs, etc. are the bulk consumers. The projected domestic demand of groundnut would be about 25 million tonnes in 2050. The area under groundnut may not shrink any further and would stay around 6-7 million hectares. Considering, the current national average productivity of 1200 kg/ha, a growth rate of about 4-5% in productivity is required to meet the demand. Consistent demand for Indian HPSG in Indonesia, Vietnam, Malaysia, Philippines, and Thailand keep exports buoyant. The domestic consumption of groundnuts has also seen an increase of ~4% from 2015 to 2016. Groundnut continues to be used widely in southern India, Gujarat and Maharashtra. Of the 400 HPS groundnut units located in Gujarat, around 37% (150 units) are located in Junagadh district (Keshod, Mangrol & Junagadh Talukas).

6. RAW MATERIAL REQUIREMENTS:

India is the second largest groundnut producer in the world after China (China: 41%, India 11%) Groundnuts account for about 15% of all oilseeds produced in India. 90% of groundnut produce in India mainly comes from six states: Gujarat (~40%), Andhra Pradesh (~18%), Tamil Nadu (~11%), Karnataka (~9%), Rajasthan (~8%) and Maharashtra (~6%) Gujarat (more particularly Saurashtra region) is the single largest as well as the best quality groundnut producer accounting for over 30% of total groundnuts produced in the country.

7. MANUFACTURING PROCESS:

Stage 1: Farm Quality Check, Classification of In shells, De-stoning, Shelling, Magnetic Separation, Inspection & Sorting, Classification of pod and kernels, Intake bins.

Stage 2: Classification of Kernels, Magnetic Separation, De-stoning, Vibro Grading, Uniform Gradation, Aspiration, Bi-chromatic Color Sorting, Metal Separation, On-line Auto Sampling, Loading, Lab analysis, Computerized Packing.

Capacity of the Project the rated capacity for the peanut processing unit is 1350, Recovery from groundnut shells or pods is 55% HPS.

Raw material: The sample units procured the raw material from Mangrol, Keshod, Junagadh, Kutch through brokers at INR 1700-1800 per tonnes. Packing: The processed groundnut is packed in 50 kg gunny bags which are available locally. Storage: The groundnut kernels are stored in godowns/ covered sheds. Transportation: Mode of transportation of both raw material and processed goods is truck (tarpaulin closed). Finished products are sold to parties through agents to places like Rajkot, Bharuch, Ahmedabad, etc.

8. MANPOWER REQUIREMENT :

The enterprise requires 15 employees as detailed below:

Sr. No.	Designation	SALARY	Salary ₹	Number of Employees				
	Working Staff		PER	Year-1	Year-2	Year-3	Year-4	Year-5
1	Production Manager	18000	18000	1	1	1	1	1
2	Operators	12000	12000	1	1	1	1	1
3	Helpers	10000	80000	8	8	8	10	10
			110000	10	10	10	12	12
1	Fixed Staff:							
2	Admin Manager	15000	15000	1	1	1	1	1
3	Accounts/Stores	12500	12500	1	1	1	1	1
	Office Boy	9000	9000	1	1	1	1	1
	<i>Sub-Total</i>		36500	3	3	3	3	3
	Total		146500	13	13	13	15	15

9. IMPLEMENTATION SCHEDULE:

The project can be implemented in 4 months' time as detailed below:

Sr. No.	Activity	Time Required (in months)
1	Acquisition of premises	2.00
2	Construction (if applicable)	2.50
3	Procurement & installation of Plant & Machinery	2.50
4	Arrangement of Finance	1.00
5	Recruitment of required manpower	1.00
	Total time required <i>(some activities shall run concurrently)</i>	4.00

10. COST OF PROJECT:

The project shall cost ₹ 46.41 lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land	2.00
2	Building	3.00
3	Plant & Machinery	3.50
4	Furniture, other Misc. Equipments	1.00
5	Other Assets including Preliminary / Pre-operative expenses	0.35
6	Margin for Working Capital	36.56
	Total	46.41

11. MEANS OF FINANCE:

Bank term loans are assumed @ 75 % of fixed assets.

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	11.60
2	Bank Finance	34.81
	Total	46.41

12. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹ 36.56 lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	18.28	0.25	4.57	13.71
2	Receivables	9.14	0.25	2.29	6.86
3	Overheads	9.14	100%	9.14	0.00
4	Creditors	-		0.00	0.00
	Total	36.56		16.00	20.57

13. LIST OF MACHINERY REQUIRED:

The major machineries required for the projects are openers, conveyors, sorting/grading machine, trays, filters, bore well, weighing machine,

Sr. No.	Particulars	UOM	Qty	Rate (₹)	Value (₹ in Lacs)
	Plant & Machinery / Equipments				
a)	Main Machinery				
1	Openers	NOS	1	0.50	0.50
2	Conveyors	NOS	1	0.75	0.75
3	Sorting/Grading Machine	NOS	1	1.50	1.50
4	Testing, Packing	L.S.	1	0.25	0.25
5	Utility Equipments	L.S.	1	0.25	0.25
	Installation, Taxes And Transportation	L.S.		0.25	0.25
	<i>Sub-Total</i>			3.50	3.50
	Furniture / Electrical Installations				
a)	Office Furniture	LS	1	50000	0.00
b)	Stores Cupboard	LS	0	0	0.00
c)	Computer & Printer	LS	1	50000	0.50
	<i>Sub Total</i>				1.00
	Other Assets				
a)	Preliminary And Preoperative				0.35
	<i>Sub-Total Other Assets</i>				0.35
	Total				4.85

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. Fry-Tech Food Equipments Private Limited

S. No. 4, Raviraj Industrial Estate,
Bhikhubhai Mukhi Ka Kuwa Bharwadvash,
Ramol, Ahmedabad - 380024,
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

6. P Square Technologies

3, Swami Mahal,
Gurunanak Nagar,
Off. Shankarsheth Road Bhavani Peth,
Pune - 411002,
Maharashtra, India

7. Ricon Engineers

10 To 13, Bhagwati Estate,
Near Amraiwadi Torrent Power,
Behind Uttam Dairy,
Rakhial, Ahmedabad - 380023,
Gujarat, India

8. Kamdhenu Agro Machinery

Plot No. 6, Near Power House,
Wathoda Road Wathoda,
Nagpur - 440035,
Maharashtra, 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	526.50	614.25	702.00	789.75	877.50
3	Raw Materials & Other direct inputs	₹. In Lacs	508.31	593.03	677.75	762.47	847.19
4	Gross Margin	₹. In Lacs	18.19	21.22	24.25	27.28	30.32
5	Overheads except interest	₹. In Lacs	3.58	3.81	4.26	4.39	4.48
6	Interest @ 10 %	₹. In Lacs	3.48	3.48	2.32	1.74	1.39
7	Depreciation @ 30 %	₹. In Lacs	1.05	0.74	0.54	0.42	0.32
8	Net Profit before tax	₹. In Lacs	10.07	13.20	17.14	20.73	24.13

The basis of profitability calculation:

This unit will have 1350 tonnes per 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:

The project shall reach cash break-even at 19.37 % of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	877.50
2	Variable costs	₹. In Lacs	847.19
3	Fixed costs incl. interest	₹. In Lacs	5.87
4	$BEP = FC/(SR-VC) \times 100 =$	% of capacity	19.37%

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.

FSSA 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 FSSA and rules and regulations which as notified by the Government on 5th of August 2011 will be applicable.

Key Regulations of FSSA

- A. Packaging and Labelling
- 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, Retailers 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, Kajjihundi, Mysuru
Karnataka – 570020

Udyamimitraportal (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.