Dal Making Unit (Toor, Moong, Urad, etc)

1. INTRODUCTION:

Whole Pulses are processed to produce Split Pulses (commonlyknown as Dal), which is also at times De-skinned and Oiled for ease of cooking andbetter preservation. Commonly processed Pulses are Chana (Gram), Mung, Massor, Uradand Arhar (Tur), which are important part of staple diet in all state of India.

2. PRODUCT & ITS APPLICATION:

Pulses splits commonly called 'dal' in India are essential components of the diet for both vegetarians and non-vegetarians. Split Pulses constitute one of the main sources ofprotein in Indian staple food. The common varieties are: Chana (Gram), Mung, Masoor,Urad and Tur (Arhar) dal. Out Of these, Chana (Gram) Masoor and Mung dal arepredominantly consumed in the North, Central and Eastern India regions. Chana, Arhar, and Mung Dal are consumed in Western and Central India regions, and Urad, Arhar andMung dal are mainly consumed in Southern India region.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

Successful running this project does not require any specific qualification.

4. INDUSTRY LOOKOUT AND TREND

The various pulses are part of the normal diet of all vegetarians and are also used frequently by non-vegetarians too. They are the main sources of protein. The pulses are used for preparing hot dishes, sweet dishes and other varieties. Pulses are the most common diet

part of Indian families. Cleanly removing the peels and splitting the pulse grains in facts two pieces is the most desired form of dal to be cooked for the families. Dal is dry cereal, which is taken to fulfill the requirements of protein for a normal human being. The inner portion of the dal is rich in protein, vitamins and after cooking supplies the necessary nutrients. Due to the high content of proteins pulses are mixed in other cereal foods to increase the quality of proteins to be injected in the body. Pulses are the edible dry seeds of legumibous plants. The use of pulses as food is concentrated in developing countries, which account for about 90 per cent of global food pulse consumption. In low-income countries, pulses contribute about 10 percent of the daily proteins and about 5 per cent of energy requirements in human diets. Per capita consumption of pulses is also high among vegetarians, as a source of protein, and a high percentage of people in India are vegetarians. The important part of pulses play as a source of dietary protein, energy, minerals and vitamins for the redominantly vegetarian population of India, needs no reiteration and nutritionists regards pulses as an essential means to correct malnutrition. India has the distriction of being the worlds largest producer of grain legumes (Pulses) even if the production is not adequate to ensure a per capita availability of 80 grams, which is the minimum recommended by the World Health Organization and the Food and Agriculture Organization of India. Pulses are the chief source of protein for the majority of the population. There are over 1000 units at present engaged in processing of various pulses in different parts of the country. The pulse milling industry is predominantly a small-scale industry and has been reserved for exclusive development in small-scale sector. There is good domestic as well as export demand of Dal/pulse. New entrepreneur venture into this field will be successful. Few Indian Major Players are as under: Ajeet Seeds Ltd. B G H Exim Ltd. Bafna Agro Inds. Ltd. Bhura Exports Ltd. Eastern Overseas Ltd. Edible Products (India) Ltd. Green Gold Seeds Ltd. K R B L Ltd. Kumar Food Inds. Ltd. M K International Ltd. Nath Seeds Ltd. Navjivan Roller Flour & Pulse Mills Pvt. Ltd. Oasis Agritech Ltd. P E C Ltd. Parakh Agro Inds. Ltd. Parakh Foods Ltd. Poona Dal & Oil Inds. Ltd. Poona Roller Flour Mills Ltd. Poonam Rasayan Ltd. Prime Impex Ltd. Rajhans Foods Ltd. Ruchi Global Ltd. Shree Bankey Behari Exports Ltd. Sita Shree Food Products Ltd. Soubhik Exports Ltd. State Farms Corpn. of India Ltd. Sunstar Overseas Ltd. Tamil Nadu Civil Supplies Corpn. Ltd. Transglobe Foods Ltd. Usher Agro Ltd.

5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:

The all India per capita consumption of pulses is about 2.8 kg per year. In the North and Eastern and Central India consumption of pulses is generally higher. In Western and Southern India consumption of split pulses is comparatively lower, as there is also Wheat and Rice, along with Green vegetables used as major part of staple diet. Pulses / split pulses consumption has also been affected due their irregular supply, high import / processing cost and use of substitute products. Considering national average of 2.8 kg / year and population of 130.0 Crore, the estimated demand for pulses / split pulses is approx. 37.07 Lac MT per annum. At conservative estimate also, there is demand of approx. 25.0 Lac MT per annum, out of which almost 60% is met from domestic crop and 40 % is met through import of pulses from various countries.

6. RAW MATERIAL REQUIREMENTS:

Basic raw material required to produce split pulses is whole pulse grain. For 1 Kg of split pulse production, 1.2 Kg of whole pulse grain is required. Moreover, for packing, materials of HDPE food grade and cardboard boxes are required.

7. MANUFACTURING PROCESS:

The stones and foreign matter are removed and the pulse is graded in 2-3 different size grades through sieves. It is soaked in water for 60-90 minutes and heaped for uniform moisture absorption and dried in the sun for 2-3 days till fully dried. It is fed into mini dal mill at 90-100 rpm. The split dal falls in the cone chamber from control plate, which is separated into whole dal, broken and husk through an aspirator. The fractions are packed separately. The Mini dal mill can mill Bengal gram, Bokla, Kesari, Pea, Soybeans pigeon pea in a single operation at 25-30 kg per hour. Lentil (masoor) is milled in 2 operations with output of 25-30 kg/hour. Black gram, green gram and moth beans are milled with double operation with output of 15-20 kg dal/hour.

The important steps involved in the Manufacturing Process are –

1. Cleaning
2. Milling
3. De-husking and cleaning and applying Oil in some Dal
4. Weighing and Packing.

Food Safety Management system (such as ISO 22000) should be implemented in addition to Agmark and ISI certification. Processes of such standards, if followed, can bring better quality and higher yield of pulses.

8. MANPOWER REQUIREMENT:

The enterprise requires 27employees as detailed below**:**

Sr. No.	**Designation of Employees**	**Salary Per Person**	**Monthly Salary ₹**	**Number of employees required**				
				Year-1	**Year-2**	**Year-3**	**Year-4**	**Year-5**
	Variable Labour: Workers							
1	Operator	₹ 10,000.00	₹ 10,000.00	3	3	3	4	4
2	Un Skilled Workers	₹ 8,000.00	₹ 24,000.00	12	12	12	16	16
	sub-total		₹ 34,000.00	15	15	15	20	20
	Fixed Staff:							
1	Accountant	₹ 12,000.00	₹ 12,000.00	1	1	1	1	1
2	Store Keeper	₹ 8,000.00	₹ 8,000.00	3	3	3	4	4
3	Sales Staff	₹ 12,000.00	₹ 24,000.00	8	8	8	10	10
	sub-total		₹ 44,000.00	12	12	12	15	15
	Total		₹ 78,000.00	27	27	27	35	35

9. IMPLEMENTATION SCHEDULE:

The project can be implemented in 8 - 11months' time as detailed below:

Sr. No.	Activity	Time Required *(in months)*
1	Acquisition of premises	2.00
2	Construction (if applicable)	3.00
3	Procurement & installation of Plant & Machinery	3.00
4	Arrangement of Finance	1.50
5	Recruitment of required manpower	1.50
	Total time required *(some activities shall run concurrently)*	8.00 - 11.00

10. COST OF PROJECT:

The project shall cost ₹ 428.75lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land	26.00
2	Building	30.00
3	Plant & Machinery	54.45
4	Furniture, other Misc Equipments	0.85
5	Other Assets including Preliminary / Pre-operative expenses	5.45
6	Margin for Working Capital	312.00
	Total	**428.75**

11. MEANS OF FINANCE:

Bank term loans are assumed @ 75% of project cost. The proposed funding pattern is as under

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	107.19
2	Bank Finance	321.56
	Total	**428.75**

12. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹312lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	156.00	0.25	39.00	117.00
2	Receivables	78.00	0.25	19.50	58.50
3	Overheads	78.00	100%	78.00	0.00
4	Creditors	-		0.00	0.00
	Total	312.00		136.50	175.50

13. LIST OF MACHINERY REQUIRED:

A detail of important machinery is given below:

Sr. No.	Particulars	UOM	Qty	Rate (₹ in Lacs)	Value (₹ in Lacs)
	Plant & Machinery / equipments				
a)	***Main Machinery***				
1	Automatic Dal Mill	Nos	1	₹ 35.00	₹ 35.00
2	Lentil, Dal, Pulses Husk Remover	Nos	1	₹ 5.40	₹ 5.40
3	Lentil, Dal, Pulses Polisher	Nos	1	₹ 5.25	₹ 5.25
4	Storage Tanks	Nos	5	₹ 0.60	₹ 3.00
Sr. No.	**Particulars**	**UOM**	**Qty**	**Rate (₹ in Lacs)**	**Value (₹ in Lacs)**
5	Vessels for Oil Applying	Nos	3	₹ 0.45	₹ 1.35
6	Automatic Packing, Filling and Sealing Machine	Nos	1	₹ 2.75	₹ 2.75
7	Weighing Scale	Nos	3	₹ 0.25	₹ 0.75
8	Material Handling Equipment	Nos	LS	₹ 0.60	₹ 0.60
9	Misc Tools	Nos	LS	₹ 0.35	₹ 0.35
	sub-total Plant & Machinery				**₹ 54.45**
	Furniture / Electrical installations				
1	Office furniture and Electrification	LS	1	₹ 0.85	₹ 0.85

	sub total				**₹ 0.85**
	Other Assets				
1	preliminary and preoperative	LS		5.45	₹ 5.45
	sub-total Other Assets				**₹ 5.45**
	Total				**₹ 60.75**

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. Kamdhenu Agro Machinery
   Plot No. 6, Near Power House,
   Wathoda Road Wathoda,
   Nagpur - 440035,
   Maharashtra, India

2. Fry-Tech Food Equipments Private Limited
   S. No. 4, Raviraj Industrial Estate,
   Bhikhubhai Mukhi Ka Kuwa Bharwadvash,
   Ramol, Ahmedabad - 380024,
   Gujarat, India
3. Hindustan Vibrotech Pvt. Ltd.
   Office No. 2, Ground Floor,
   Vrindavan Building, Vile Parle East,
   Mumbai – 400057,
   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	897.00	1046.50	1196.00	1345.50	1495.00
3	Raw Materials & Other direct inputs	₹. In Lacs	761.35	888.24	1015.14	1142.03	1268.92
4	Gross Margin	₹. In Lacs	135.65	158.26	180.86	203.47	226.08
5	Overheads except interest	₹. In Lacs	31.41	33.37	37.30	38.47	39.26
6	Interest @ 10 %	₹. In Lacs	32.16	32.16	21.44	16.08	12.86
7	Depreciation @ 30 %	₹. In Lacs	38.12	27.23	19.06	13.61	12.25
8	**Net Profit before tax**	₹. In Lacs	**33.97**	**65.50**	**103.07**	**135.31**	**161.71**

The basis of profitability calculation:

This unit will have 2000-2500 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 or decreased 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 23.05% of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	1495.00
2	Variable costs	₹. In Lacs	1268.92
3	Fixed costs incl. interest	₹. In Lacs	52.12
4	BEP = FC/(SR-VC) x 100 =	% of capacity	23.05%

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,Retails 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.