



GOVERNMENT OF GUJARAT

Establishment of De-hulled Sesame Seed & Roasted Sesame Oil Unit

Agro & Food Processing

Government of Gujarat



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The concept

The project envisages setting up of **De-hulled Sesame Seed & Roasted Sesame Oil Unit**, which can focus on production, processing, packaging, export, etc.

What is sesame?

Sesame is commonly known as Till. Its botanical name is *Sesamum indicum* L, one of the earliest domesticated plants.

India produces a wide range of sesame varieties with different grades each peculiar to the region. Sesame is harvested twice a year and is available around the year. Sesame has been classified in different colours as below :

White seed

Yellow seed

Red seed

Brown seed

Black seed

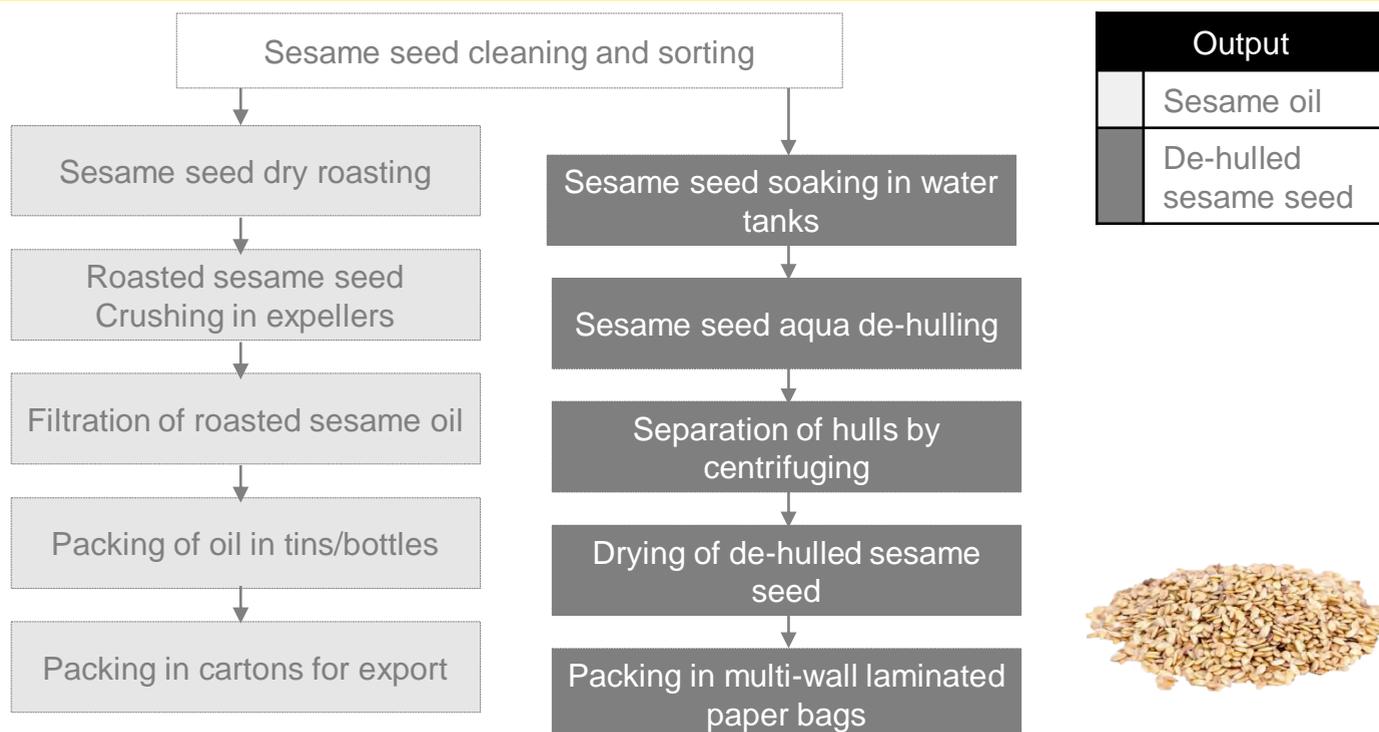
Uses of sesame in various forms

Seeds: Sesame seeds are used in various food and snack preparations as well as in salad dressing. Sesame is used mainly as a food ingredient in whole, broken, crushed, shelled, powdered and paste forms.

Oil: Sesame seeds contain the highest oil compared to any other oilseed to an extent of 50% and above. The unique qualities of sesame oil are stability and resistance to rancidity, with long shelf life due to the presence of the high level of natural antioxidants. Other than for cooking and salad dressing, the oil is an essential ingredient in manufacture of soaps, pharmaceuticals (as healing oil) and lubricants with additional use in cosmetic and skin care industries.

Meal: Sesame seeds are rich in protein with about 25% of their weight. Sesame meal contains 35-50% protein and used as feed for poultry and livestock.

De-hulling and Roasted Sesame seed oil manufacturing process



Global overview

India – one of the major producers of sesame

- ▶ Sesame is cultivated over an area of ~74 lakh hectares in the world with an annual production of ~40 lakh tonnes and yield of 535 kg/hectares.
- ▶ Myanmar and India are the major sesame growing countries, accounting for almost 40% of the global sesame production.
- ▶ India accounts for over one-fourth of land area under sesame cultivation in the world.

Average Area, Production and Yield of major Sesame growing countries (2007-12)

Country	Area (lakh hectares)	Production (lakh tonnes)	Yield (kg/ha)
Myanmar	15.2	8.4	556
India	19.1	7.4	387
China	4.8	5.9	1234
Sudan	12.8	2.9	227
Uganda	2.8	1.7	607
World	74.1	39.6	535

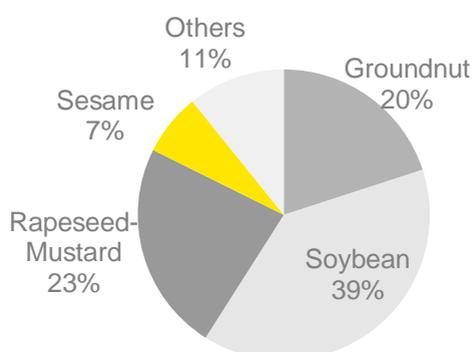
Source: Status Paper on Oilseeds, December 2014

India overview

Sesame – one of major oilseeds in India

Sesame ranks 4th out of nine major oilseeds in terms of area of production (nationally).

Crop-wise area under cultivation
5-yr average (2009/10 – 2013/14)



Of the average (2009/10 – 2013/14) area under production for oilseeds in India (~270 lakh hectares), Sesame ranks fourth with ~19 lakh hectares, which is about 7% of the total.

Source: Status Paper on Oilseeds, December 2014

Sesame – primarily an export earner for India

Among oilseeds, sesame occupies 2nd position after groundnut as far as exports of oilseeds are concerned. More than 40% of the sesame seeds produced in India are exported every year.

Sesame seeds export: Jan'14 – July'16



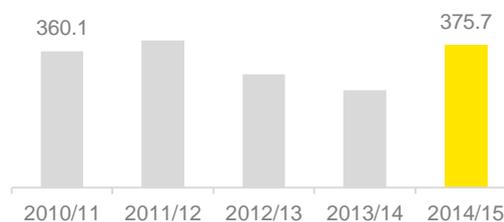
- ▶ India is the largest exporter of sesame seeds in the world, contributing nearly 25% to international trade.
- ▶ Vietnam is the primary destination for Indian sesame seed, followed by South Korea, USA, Taiwan and China.
- ▶ For the period Jan'14 – July'16, Mundra accounted for 53.3% of exports followed by Nhava Sheva Sea and Pipavav (Victor) Port which account for 18.7% and 15.9% of exports respectively.

Sesame seeds export
Value - INR Crores



Source: Status Paper on Oilseeds, December 2014

Sesame seeds export
Volume – '000 Metric Tonnes



Source: Status Paper on Oilseeds, December 2014

- ▶ During financial year 2014/15, sesame seed exports value increased by 31.7% to INR4,718 crores in comparison to INR3,584 crores during 2013/14.
- ▶ In terms of volume, exports increased by 45.9% for the same period.

India seeks market access for sesame seeds in Japan

India, on July 28, 2016 (India-Japan) Joint Committee meeting, plans to seek greater market access in the Japanese market for its farm products including sesame seeds.

The focus on sesame seeds is because:

- ▶ Japan is the world's second largest importer of the item (after China) with annual imports of around 1.6 lakh tonnes.
- ▶ Sesame seeds are used in Japanese cuisine in salads, soups, snacks, candies, and for flavouring and baking.
- ▶ Sesame oil is used in cooking, and in manufacture of soaps, perfumes and pharmaceuticals, while sesame meal (a by-product of the oil) is used as poultry feed.

1 Growth in consumer industries

Sesame seed is used in a variety of sweets, confectionery and bakery products. The current annual growth rate registered by the bakery industry is 7.5% and the confectionery industry is 9%.

- ▶ India's bread industry is valued at US\$ 0.5 Billion (FY 2015). The industry is expected to grow at a CAGR of ~10%, to reach US\$ 0.82 Billion by FY 2020.
- ▶ The confectionery market in India was ~US\$ 1.3 Billion in 2013 and is expected to grow by 71% to reach US\$ 2.2 Billion in 2018.

2 Changing lifestyle

Changing lifestyle and adoption of cosmopolitan food habits has increased the demand for ready-to-eat food products, many of which have sesame seeds garnish added for flavour.

3 Increasing popularity of Chinese food

Sesame oil is commonly used in Chinese cuisines. Sesame is also sprinkled over rice and red beans and served at the exchange of wedding presents. Increasing popularity of Chinese vegetarian food world-wide has increased the demand for roasted sesame seed oil.

4 Rising demand from China to boost Indian exports

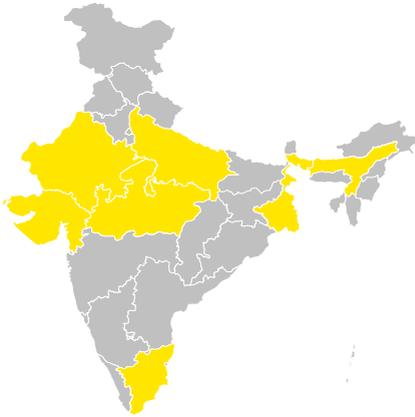
- ▶ China used to be a major exporter of sesame, but the tedious harvesting process, mostly done by hand, discouraged many farmers there from cultivating the crop. Numerous farms have now switched to growing more profitable vegetables.
- ▶ The reduction in domestic yield, along with rising domestic demand for sesame oil, has pushed up sesame imports, making it the world's largest sesame importer.

5 Increasing health consciousness

- ▶ Sesame seeds are full of calcium, magnesium, copper, vitamin B1, zinc and dietary fiber.
- ▶ Sesame seeds provide many health benefits – protects heart health, improves blood pressure, balances hormones, helps prevent diabetes, provides healthy skin, helps lessen anxiety, prevents cancer and damage from radiation, etc.
- ▶ With people becoming more health conscious, the usage of sesame seed oil is increasing globally.

Gujarat - Competitive Advantage

Key sesame-producing states



More than 85% production of Sesame comes from West Bengal, Madhya Pradesh, Rajasthan, Uttar Pradesh, Gujarat and Andhra Pradesh.

Gujarat ranks amongst the top sesame producing states in the country (2013/14):

- ▶ 4th in terms of area under production and yield
- ▶ 2nd in terms of production
- ▶ Gujarat scores above national average in terms of yield.

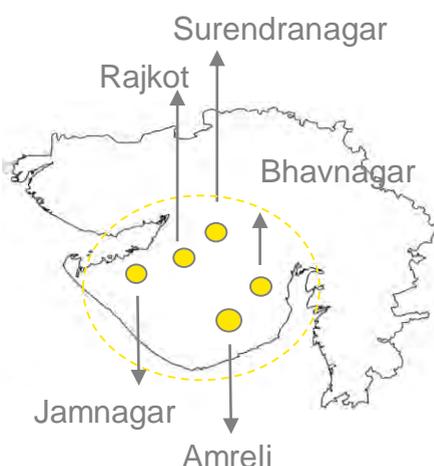
Top five sesame producing states 2013/14

Area (lakh hectares)		Production (lakh tonnes)		Yield (kg/ha)	
Rajasthan	3.6	West Bengal	2.2	West Bengal	960
Uttar Pradesh	2.9	Gujarat	1.2	Assam	727
Madhya Pradesh	2.6	Madhya Pradesh	1.1	Karnataka	553
Gujarat	2.4	Rajasthan	0.7	Gujarat	525
West Bengal	2.2	Uttar Pradesh	0.4	Tamil Nadu	438
All India	16.7	All India	6.8	All India	405

Source: Status Paper on Oilseeds, December 2014

Gujarat – A key sesame-producing state

Sesame seeds AEZ - Gujarat



Gujarat's contribution to the national sesame seed production in the year 2013/14 was ~18.4% with a production of around 1.2 lakh tonnes which is second only to West Bengal.

Why Gujarat?

- ▶ Gujarat is the only state which has an Agri-Export Zone (AEZ) for sesame seeds in the country. Amreli, Bhavnagar, Surendranagar, Rajkot, Jamnagar form part of the AEZ for Sesame seeds.
- ▶ Agriculture activities have intensified in the state with the accessibility of Narmada canal irrigation in Saurashtra and North Gujarat region which are main sesame growing area.
- ▶ Well developed oil seed industry in Gujarat makes availability of technical and commercial manpower easy.

Project Information

Project location options

Amreli, Bhavnagar, Rajkot, Surendranagar, Banaskantha are districts suggested for location of the proposed project.

Implementation schedule

Project implementation will take a period of 8 months. Break-up of the activities and relative time for each activity is shown below:

Implementation schedule	
Scheme preparation and approval	0-1 month
SSI provisional registration	1-2 months
Sanction of financial supports etc	2-5 months
Installation of machinery and power connection	6-8 months
Trial run and production	01 month



Infrastructure availability

Saurashtra region has an extensive outlay of existing infrastructure - rail, road and air - which makes it an excellent investment destination.



- ▶ A 269-km-long rail line links Pipavav with the first major railway line at Surendranagar in the Saurashtra region of Gujarat.
- ▶ The Delhi - Mumbai broad gauge line provides nationwide broad gauge connectivity for the Saurashtra and Kutch regions of the state of Gujarat.

Proposed

- ▶ The Mumbai-Ahmedabad bullet train project will have Surat as one of the stations.



The cities in Saurashtra region are very well connected with each other and also with other cities in the state of Gujarat.

Proposed

- ▶ Widening of 4-laning of about 260km long Bhavnagar-Somnath coastal highway NH8E in Gujarat (timeline: 2.5 years; cost INR 5,000 crores)
- ▶ 6 new national highways for Gujarat and refurbishing of a 277-km highway between Bhavnagar and Veraval, Saurashtra
- ▶ Expressway for connectivity of Ahmedabad with Pipavav port (INR 9000 crores)
- ▶ Connection of Western DFC to Pipavav (INR 2500 crores)



Saurashtra region is very well connected through air. Of the key sesame growing regions, Rajkot, Amreli, Bhavnagar and Jamnagar have airports.

Proposed

- ▶ Seeking to improve air connectivity, the Gujarat government has decided to develop six new airstrips in smaller towns in the state. Of these two lie in the Saurashtra region - Morbi and Dwarka.

In Morbi, the process of land transfer and providing alternate route for villagers is underway while land mapping is underway for Dwarka airstrip



- ▶ Saurashtra region boasts of a number of ports – Porbandar, Pipavav, Bhavnagar, Navlakhi, Bedi, Sikka, Okha and Mundra
- ▶ Mundra and Pipavav port, used for sesame exports, are in close proximity to sesame growing regions.

Proposed

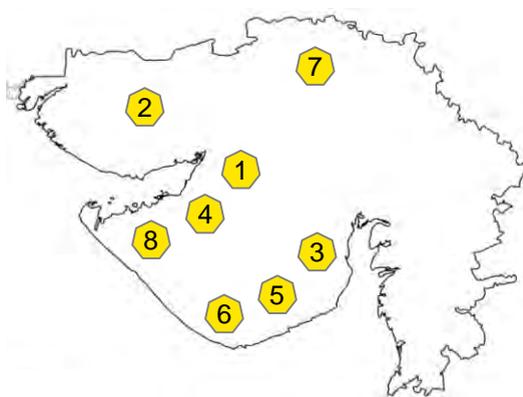
- ▶ Five new berths are likely to be added to the 20-year-old Pipavav port in the next three years

Manpower requirement

The proposed unit shall engage labourers as required on contract and seasonal basis. Apart from them the unit would require a supervisor, an accountant to maintain records, sales personnel and a guard. Approximately, the unit would require around 15- 20 persons.

Raw material requirement

Gujarat is the second largest producer of sesame seed in India. Sesame is one of the major oil seed crop grown in the state and a principle ingredient in the proposed unit.



Major sesame producing districts of Gujarat (>80%)		
Rank	District	% share
1	Surendranagar	22.3
2	Kutch	16.1
3	Bhavnagar	12.1
4	Rajkot	7.7
5	Amreli	7.2
6	Junagadh	7.0
7	Banaskantha	6.8
8	Jamnagar	6.7

Source: National Mission on Oilseeds and Oil Palm (NMOOP)

Note: the % share has been calculated using statistics for 2008/09 – 2010/11

Crop Calendar: Sesame in Gujarat												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Kharif						Planting	Planting			Harvesting	Harvesting	
Summer		Planting	Planting			Harvesting	Harvesting					

Source: Agricultural Statistics at a Glance - 2014

Utilities requirement

The project would necessitate utilities like water, electric power and fuel for roasting.

Estimates for a project with a capacity of 3000 MTPA or 15 MT per day:

- ▶ 35 KL/day water
- ▶ 1100 KWH /day power
- ▶ 25 to 15 MTPD coal / FO respectively as fuel, would be a basic requirement for the proposed unit.

Project Information



Leading players in Gujarat



Sun Agro is a HACCP-certified manufacturer and exporter of sesame seeds and its products.

Products: Natural/ toasted/ roasted/ hulled/ toasted hulled -sesame seed, Ready-to-grind (roasted) hulled sesame seeds for making tahini & halwa, sesame oil, tahini/ sesame paste

Year est: 1992

Address: Plot No. 800, Rakanpur, Santej - 382721, Kalol, Gujarat

Tel: 91-9825015620, 91-9825015748

Fax: +27642866686

Website:

<http://www.sesameworld.com/index.htm>



SAGAR International is a family enterprise, involved in processing and export of agricultural commodities from India.

Products: Hulled Sesame Seeds (Auto dried / Sun dried) Natural Sesame Seeds (White, Black, Brown & Golden), Peanuts, spices and cereals

Year est: 1958

Address: D-402, The Imperial Heights, 150 Ft Ring Road, Rajkot, Gujarat

Tel: +91 281 281 2580011 / 2580012

Fax: +281 2580014

Website:

<http://www.sagarintl.com/index.html>



SHYAM INDUSTRIES

Shyam Industries is a recognized Star Export House by Government of India.

Products: Hulled/ Natural/ Black/ Roasted/ Toasted Golden yellow/ sesame seeds, Flax seeds, Soybeans

Year est: 1992

Address: 402/403, Phase 4, GIDC, Naroda, Ahmedabad - 382 330 Gujarat

Tel: +91-79-22822365, +91-79-22801298 +91-9825078169

Fax: +79-22821433

Website:

<http://www.shyamind.com/>

Leading machinery suppliers



Ganga Agro Foods Industries - Rajkot

Sifter International, Faridabad



Buhler, Mumbai



Target Engineers, Noida, UP

Sakav, Mumbai



Shree Laxmi Vijay Brass & Iron Factory, Vadodra



To help protect your privacy, Acrobat has blocked automatic download of this picture.

Walia Engineering, Ahmedabad

Plant and machinery requirement

S. No	Particulars	Quantity
1	Seed cleaning	2
2	Sortex	1
3	De-hulling of seeds	
	Soaking tanks	4
	Aqua De-hullers	3
	Hull separators	3
	Hot air dyers	3
4	Packing section for De Hulled sesame seed bag filling and sealing	1
5	Dry roasting	2
6	Baby expellers	3
7	Filter Presses	2
8	Oil packing unit	1
9	Steam and hot water generator	2

Project capacity

Production capacity

Quantity	280 TPA
Installed capacity	2 TPA
Working days	200/Annum
Optimum capacity utilization	70%
Manpower	19
Utilities	
Motive Power	18 KW
Water	8 KL/Day

Key considerations

- ▶ **Pollution Control:** Disposal of waste is a critical task for a sesame unit and would have to be managed appropriately. The project operators are advised to take "No Objection Certificate" from the State Pollution Control Board.
- ▶ **Energy Conservation:** The fuel for the steam generation in the boiler is coal or Light Diesel Oil (LDO) depending upon the type of boiler. Proper care should be taken while utilising the fuel for the steam production. There should be no leakage of steam in the pipe lines and adequate insulation should be provided.
- ▶ **Weather at the major domestic producing centres:** The southwest monsoon is the most important factor that determines the area sown, production and prices.

Project Financials

Total capital investment for the project is ~INR 55-60 lakhs
(~40 lakhs fixed capital + ~ 16 lakhs working capital)

Project cost	Fixed cost
Project components & specifications	Cost (INR)
Total land and building	13,59,625
<ul style="list-style-type: none"> ▶ Land (60 m²) ▶ Built up area: (150 m²) 	<p>1,63,155</p> <p>11,96,470</p>
Total Machinery and Equipment	23,27,678
<ul style="list-style-type: none"> ▶ Sesame seed pre-cleaning unit, destoner, wire mesh basket, mixing tanks, vibratory screen, pulper and mechanical drier ▶ Erection & electrification of machinery & equipment @10% cost ▶ Office furniture & fixtures 	<p>19,57,860</p> <p>1,84,909</p> <p>1,84,909</p>
Preoperative expenses (Consultancy fee, project report, deposits with electricity department)	3,26,310
Total Fixed Capital	40,13,613

Project cost	Recurring cost
Project components & specifications	Cost (INR)
Personnel	10,70,732
<ul style="list-style-type: none"> ▶ Factory manager (1* 13,052 per month*12 months) ▶ Supervisory staff (2* 8702 per month*12 months) ▶ Office assistant (2* 6,526 per month*12 months) ▶ Marketing supervisor (2* 5,439 per month*12 months) ▶ Unskilled workers (8* 2,175 per month*7 months) ▶ Skilled workers (4* 3,263 per month*12 months) ▶ Perquisites @15% 	<p>1,56,629</p> <p>2,08,838</p> <p>1,56,629</p> <p>1,30,524</p> <p>1,21,822</p> <p>1,56,629</p> <p>1,39,661</p>
Utilities	3,80,695
<ul style="list-style-type: none"> ▶ Power ▶ Water 	<p>3,69,818</p> <p>10,877</p>
Raw material (Raw sesame, Soda Alkali, Hydrochloric acid, Jute bags, Miscellaneous)	177,29,510
Other contingent expenses	4,56,834
<ul style="list-style-type: none"> ▶ Repairs and maintenance @10% ▶ Consumables and spares, others ▶ Insurance @1% 	<p>2,33,856</p> <p>1,75,120</p> <p>47,859</p>
Total Recurring Expenditure	1,96,37,771
Working capital (per month)	16,36,481

Approvals

- ▶ The proposed unit will have to register itself with Secretariat of Industrial Approvals (SIA), Ministry of Industries and Government of India, by filing Industrial Entrepreneur's Memorandum (IEM), if it has plant and machinery investment of more than INR10 million.
- ▶ The proposed unit being an Export Oriented Unit (EOU) and catering the major market of advance countries like Japan, Egypt, USA, South Korea & Netherlands, the unit will require to get approved their products with Food and Drugs Administration (FDA) in these countries, apart from registration with Indian and state food administration departments.
- ▶ The most critical aspect of this product will be its quality for export consumers and Codex standards of respective countries will be followed by the unit. Being an EOU the unit will have to follow strict quality standards as accepted in the countries where export is to be done. It is obligatory to meet provisions under the PFA act for all ingredients and quality aspects for marketing product in Indian market.
- ▶ The unit will get EOU registration from RBI, DGFT and with IOPEA / APEDA as registered manufacturer exporter to avail export incentives.

Additional approval for export to EU Countries, w.e.f. February 2016

- ▶ The proposed unit will have to obtain a 'Certificate of Export' (COE) and a "Stuffing certificate" for outbound shipments of sesame seeds to the European Union countries. This regulation has come into practice since February 2016.
- ▶ Indian Oilseeds & Produce Export Promotion Council (IOPEPC) is designated as competent authority to issue export certification.
- ▶ The unit will be responsible to take all measures to ensure the absence of Salmonella (an organism, which can cause serious and sometimes fatal infections) in the sesame seeds intended for export.
- ▶ SGS India Pvt. Ltd. is the only registered laboratory for export of sesame seed to the EU in Gujarat. Rest are in Maharashtra, Haryana, Chennai and Bangalore.

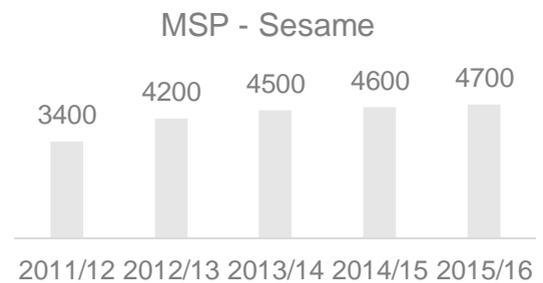
Registration number: IOPEPC/SSL_EU/005

Address: 201, SUMEL II, NR. Gurudwara, Thaltej Circle, Sarkhej- Gandhinagar Highway, Ahmedabad-380 054

Incentives from Government of India

- 1 Export of oilseeds** like HPS groundnut, white sesame, sunflower, mustard and niger seeds is allowed without any quantitative restrictions.
- 2 Temporary relaxation for the import of Sesame seeds** into India with a condition that it will be treated with Methyl Bromide.
- 3 Price Support Scheme:** Price Support Scheme (PSS) is being implemented by Government of India in Gujarat for main crops of the state including Sesamum. When prices of commodities fall below the Minimum Support Price (MSP), State and central notified procurement nodal agencies purchase commodities directly from the farmers at MSP under specified FAQ (Fair Average Quality) through APMC centers arranged by them.

- 4 Minimum Support Price:** In order to provide remunerative prices to farmers, Government declares MSP of oilseeds well before the cropping season. Sesame MSP has seen a continuous rise since last five years. NAFED has been designated as a Central Agency for procurement of oilseeds.



- 5 Scheme for Technology Up gradation/ Establishment/ Modernization for Food Processing Industries:** All implementing agencies engaged in setting up/expansion/modernization of food processing industries (covering all segments viz fruits & vegetable, milk product, meat, poultry, fishery, oil seeds and such other agri-horticultural sectors) are eligible for financial assistance. The assistance is in the form of grant subject to 25% of the plant & machinery and technical civil work subject to a maximum of INR 50 lakhs in 'General Areas' and 33.33% up to INR 75 lakh in 'Difficult Areas'. Gujarat falls under "General Area".

Incentives from Government of Gujarat

- 1 National Agriculture Insurance Scheme:** The main aim of the scheme is to stabilize farmers' income, particularly in disaster years by providing insurance coverage and to provide financial support to the farmers in the event of failure of any of the notified crop as a result of natural calamities, pest and diseases.
- 2 Assistance of Capital Investment Subsidy for Agro and Food Processing Units:** Capital Investment Subsidy @ 25% of eligible project cost subject to maximum INR 50 lakhs for setting up/expansion and diversification/modernization.

Note: Please refer Gujarat Agro Industries Corporation website (<https://gaic.gujarat.gov.in/index.htm>) for comprehensive Agro-Business policy (2016-21).

Agricultural & Processed Food Products Export Development Authority

<http://apeda.gov.in/apedawebsite/>

National Agricultural Cooperative Marketing Federation of India

<http://www.nafed-india.com/>

Department of Agriculture, Cooperation & Farmers Welfare

<http://agricoop.nic.in/>

Agriculture and Co-operation Department

www.agri.gujarat.gov.in/index.htm

Gujarat Industrial Development Corporation

www.gidc.gov.in/

Industries Commissionerate

www.ic.gujarat.gov.in

This project profile is based on preliminary study to facilitate prospective entrepreneurs to assess a prima facie scope. It is, however, advisable to get a detailed feasibility study prepared before taking a final investment decision.

For further details:

INDEXTb
INDUSTRIAL EXTENSION BUREAU
(A GOVT. OF GUJARAT ORGANISATION)
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