



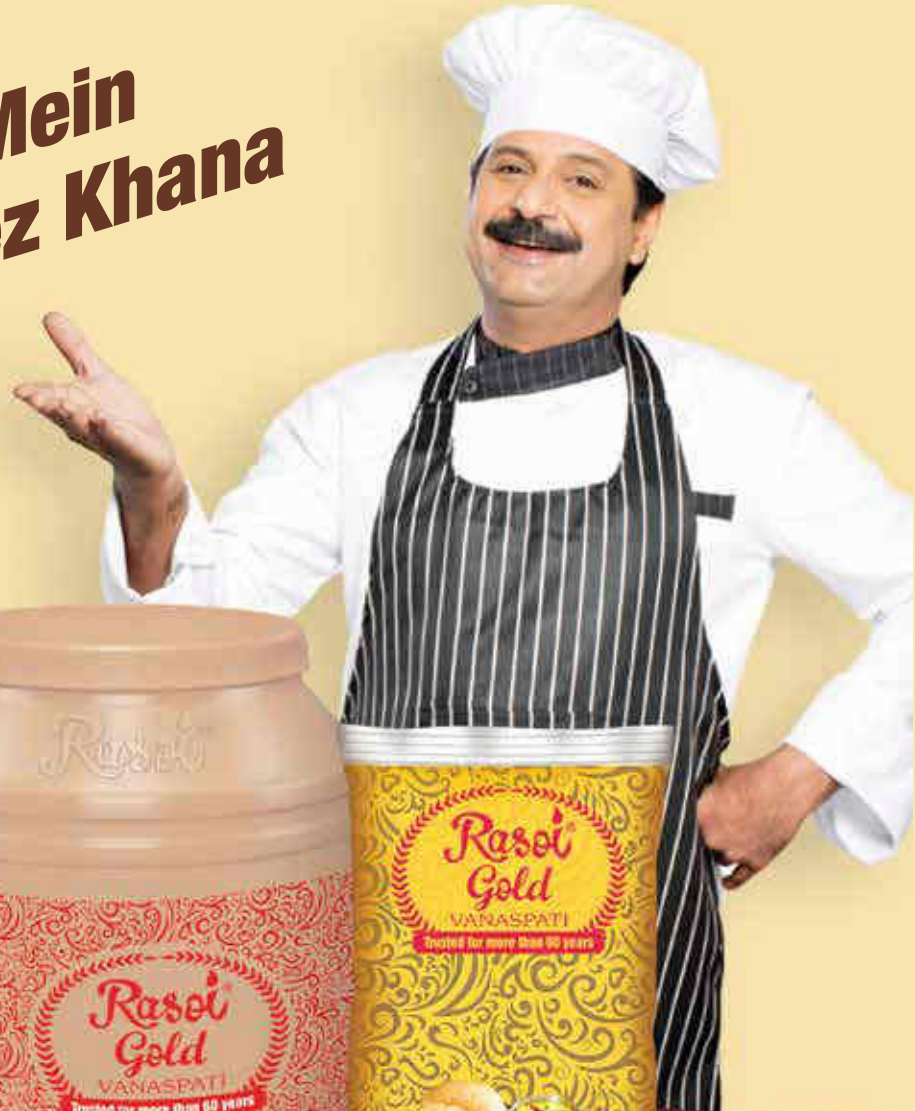
**GROWTH OF EDIBLE VEGETABLE  
OIL INDUSTRY IN INDIA**

**SOUVENIR  
2019**





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Banana Lazeez Khana**



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हरदीप एस पुरी  
HARDEEP S PURI



**Message**

आवासन और शहरी कार्य राज्य मंत्री (स्वतंत्र प्रभार)  
नागर विमानन राज्य मंत्री (स्वतंत्र प्रभार)  
वाणिज्य एवं उद्योग राज्य मंत्री  
भारत सरकार

Minister of State (I/C), Housing & Urban Affairs  
Minister of State (I/C), Civil Aviation  
Minister of State, Commerce & Industry  
Government of India

I am happy to learn that Indian Vanaspati Producers Association (IVPA) is celebrating its 42<sup>nd</sup> Annual Session at New Delhi on 12 September 2019 and shall be releasing a souvenir publication on this occasion on the theme "Growth of edible vegetable oil industry in India".

As our import dependence in case of edible oils has risen and presently stands at more than 60%, it is necessary for us to innovate and augment the domestic production of oils and oilseeds in the country. I hope this session will provide an opportunity to deliberate on exploring novel ways for sustainable growth of edible oils and oilseeds production in our country.

I extend my best wishes to all the organizers and participants on the occasion of 42<sup>nd</sup> Annual Session of IVPA.

05 August 2019  
New Delhi

  
(Hardeep S Puri)



सोम प्रकाश, मा.प्र.से. (से.नि.)  
SOM PARKASH, I.A.S. (Retd.)  
सोम प्रकाश, आई.ए.एस. (रिटा.)



राज्य मंत्री  
वाणिज्य एवं उद्योग मंत्रालय  
भारत सरकार  
Minister of State  
Commerce & Industry  
Government of India



### **MESSAGE**

I am pleased to note that **IVPA** is organizing its 42<sup>nd</sup> Annual Session at New Delhi on 12<sup>th</sup> September, 2019 and shall be releasing a Souvenir on the Theme "Growth of Edible Vegetable Oil Industry in India" comprising of papers contributed by eminent national and international scholars on various aspects of the domestic and global industry.

India is the biggest consumer and importer of edible oils, thus, there is a need and scope for striving towards self-sufficiency in a sustained manner while ensuring safe and healthier edible oils for the Indian masses.

I extend my best wishes to all the office bearers associated in organizing the Annual Session as well as for the publication of Souvenir.

(SOM PARKASH)



#startupindia





परशोत्तम रूपाला  
PARSHOTTAM RUPALA



राज्य मंत्री  
कृषि एवं किसान कल्याण  
भारत सरकार  
Minister of State For  
Agriculture & Farmers Welfare  
Government of India  
D.O. No. 16.....MOS(A&FW)/VIP/2019-20/

## MESSAGE

I am happy to know that IVPA is organizing its 42<sup>nd</sup> Annual Session on September 12, 2019, at New Delhi. I am also delighted to know that on this occasion IVPA is coming out with a Souvenir on the Theme "Growth of Edible Vegetable Oil Industry in India" comprising of papers contributed by eminent Scholars.

India being the largest consumer of edible oils is not self-sufficient and has to import more than 65% to meet its demand. Therefore, the need of the hour is to find ways of decreasing the import dependence and increasing domestic oilseed production, as it will also propel the growth of the Edible Oil Industry in India. I hope the Industry Association and its members shall also deliberate on this and recommend their suggestions to the Ministry.

I extend my warm greetings and convey my best wishes to the organization and participants.

  
(PARSHOTTAM RUPALA)

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**MANISH SISODIA**  
मनीष सिसोदिया



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GOVT. OF NCT OF DELH  
उप मुख्यमंत्री, दिल्ली सरकार  
DELHI SECTT, I.P. ESTATE  
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NEW DELHI-110002  
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Email : msisodia.delhi@gov.in

D.O. No. DYCM/2019/827

Date : 16<sup>th</sup> August, 2019.

### **MESSAGE**

I am delighted to learn that Indian Vanaspati Producers' Association (IVPA) is celebrating its 42<sup>nd</sup> Annual Session at New Delhi on 12<sup>th</sup> September, 2019 and a souvenir on the theme "Growth of Edible Vegetable Oil Industry in India" will also be released on this occasion

Achieving sustainable growth, in the domestic production of edible oils with rising consumption and import dependence, is extremely important. I am hopeful that the deliberations during the IVPA session will empower the edible oil industry with guiding principles for enhancing productivity on a sustainable basis for its betterment.

I extend my good wishes to the organizers of IVPA and also wish 42<sup>nd</sup> Annual Session of IVPA a success.

**(MANISH SISODIA)**



**सत्येन्द्र जैन**  
**Satyendar Jain**

स्वास्थ्य, उद्योग, लोक निर्माण, ऊर्जा, गृह,  
शहरी विकास, सिंचाई एवं बाढ़ नियंत्रण मंत्री  
**Minister of Health, Industries, PWD,  
Power, Home, Urban Development and  
Irrigation & Flood Control**



राष्ट्रीय राजधानी क्षेत्र, दिल्ली सरकार  
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D.O. No. minhealth/5337  
Date : 28/08/2019

**MESSAGE**

I am happy to know that Indian Vanaspati Producers Association (IVPA), an apex organisation of vegetable oil industry, is organising its 42<sup>nd</sup> Annual Session in September, 2019 at New Delhi and a Souvenir is being brought out on this occasion on the theme of "Growth of Edible Vegetable Oil Industry in India" comprising of papers contributed by eminent national and international scholars.

I wish all the best for the upcoming Annual Session of IVPA and successful release of its Souvenir containing valuable information.

  
(SATYENDAR JAIN)



इमरान हुसैन  
Imran Hussain

खाद्य एवं आपूर्ति, पर्यावरण एवं वन,  
पुनराव मंत्री  
Minister of Food & Supplies,  
Environment and Forest, Elections.



राष्ट्रीय राजधानी क्षेत्र, दिल्ली सरकार  
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D.O. No. f1/2019-20/427  
Date : 22/08/2019

### MESSAGE

It gives me immense pleasure to learn that "Indian Vanaspti Producers' Association", Delhi is organizing its 42<sup>nd</sup> Annual Session on September, 2019 at New Delhi. I am also happy to learn that a Souvenir entitled 'IVPA Souvenir 2019 on the theme "*Growth of Edible Vegetable Oil Industries in India*" is being brought out to mark the occasion.

I am sure the Souvenir will throw new ideas on various issues and create awareness among its readers on how vegetable oils have contributed to the economy of the country.

I convey my best wishes to all members of Governing body in organizing the event. I also wish the function a grand success.

  
(IMRAN HUSSAIN)



पेड़ लगाएं जीवन बचाएं







अध्यक्ष  
Chairperson

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Government of India  
Food Safety and Standards Authority of India  
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FDA Bhawan, Kotla Road, New Delhi-110002  
Website : www.fssai.gov.in

#### Message

I am pleased to note that Indian Vanaspati Producers Association is organising its 42<sup>nd</sup> Annual Session on 12<sup>th</sup> September, 2019 at New Delhi and will be releasing "IVPA Souvenir 2019" on the theme "Growth of Edible Vegetable Oil Industry in India".

India has always been one of the largest importers of edible oil in the world. The domestic oil industry should work on building capacity of farmers, and upgrading their infrastructure. Utilisation of indigenously produced oils including non-traditional oils such as rice bran oil, cottonseed oil etc, increase the diversity in the sector to benefit consumers and farmers will augment the growth of edible vegetable oil industry in India.

I convey my best wishes for the 42<sup>nd</sup> Annual Session of Indian Vanaspati Producers Association.

(Rita Teotia)



रविकान्त  
सचिव

**RAVIKANT**  
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### MESSAGE

I am glad to know that the Indian Vanaspati Producers' Association will be releasing the **IVPA Souvenir 2019** on the occasion of the 42<sup>nd</sup> Annual Session to be held in September 2019 at New Delhi.

The theme "Growth of Vegetable Oil Industry in India" is quite relevant, considering the fact that the country has to rely on imports to meet the domestic requirement for edible oils. It is a well-known fact that the edible oil industry has made considerable progress over the years by the induction of innovative modern technology to increase productivity. However, it is through such forums that new ideas and recent discoveries in research and development can be shared with all stake holders.

I hope the deliberations during the Annual Session will contribute towards the betterment and growth of this industry. I wish the function and the organizers great success in this endeavor.

  
(Ravikant)





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# Growth of Edible Vegetable Oil Industry in India



DR P RETHINAM

India is a potential market for edible oils because of its increased domestic consumption due to increased population and income, urbanisation, changing food habits and deeper penetration of edible oil in the processed foods. The deficit between production and consumption of edible oils is increasing rapidly, since domestic production though increased not able to meet even half of the requirements. The government has made many attempts in the past, present and planning for future to increase the production of annual oilseeds, other non-conventional sources of vegetable oils and also oil palm to solve the problems faced by the edible oil market. All these attempts made no doubt had increased the productivity and production of edible oils to some extent but the domestic requirements also going on increasing.

The ample opportunity to increase the production through a Smart Fast Tract Oil Palm Development under irrigation in 2.0 million ha in the 18 identified districts and also identifying additional areas of about 5.0 million ha from the existing wastelands exploiting ground and underground irrigation sources in a time targeted Mission Mode approach will go a long way in increasing edible oil pool in the country coupled with the ongoing approaches to increase the productivity and production of annual oilseeds, secondary sources and tree bearing oil yielding crops.

## INTRODUCTION

Edible oils are liquid fats that are capable of eaten as food or food accessory, derived from fruits and vegetables, such as soybeans, palms, and seeds like sunflowers, rapeseed mustard, ground nut, safflower and tree nuts such as almonds etc. The primary use for nearly all varieties of oil is in cooking applications. Edible oils are the dietary source for energy, growth and healthy functioning of human body. They play vital roles in the food, functional foods, nutritional and health security. Besides edible oils improve taste, texture, palatability and flavour of food items. Thus, edible oils constitute an important component of food expenditure in households and consumption is income elastic. According to the Persistent Market Research (PMR) report, through 2024, the Asia-Pacific region's share of the global market is expected to increase by 40% - much of which will be due to high demand from India and China. Latin America, regions with abundance

of raw materials for oils products such as soybeans and sunflowers, is also expected to experience significant growth. India has the fifth largest edible oil economy in the world which accounts for 4% of global vegetable oil production, 12% of global consumption and 21% of globally traded volumes. Even though India occupies a prominent position in the global oilseeds production more than 70% of India's edible oil demand is met through imports and it is projected that India may need to import 14 million tonnes of edible oil by the year 2020. Indian Oilseed production is about 25-26 million tonnes leading to 10.75 million tons of edible oil. Growing population, economic growth and rising disposable income will drive India's vegetable oil consumption growth, which is expected to grow by three per cent annually to exceed 34 million tons by 2030, according to Rabo Research report- 'The Future of India's Edible Oil Industry: How Will India's Vegetable Oil Demand Shape Up by 2030'

## 2. Global growth of Edible Oil

Global oilseeds production is expected to expand at around 1.5% p.a., well below the growth rates of the last decade. Brazil and the United States will be the largest soybean producers, with similar volumes. Demand for vegetable oil is expected to grow more slowly due to slower growth in per capita food use in developing countries and the projected stagnation in demand as feedstock for biodiesel. Vegetable oil exports will continue to be dominated by Indonesia and Malaysia, while soybean, other oilseeds and protein meal exports are dominated by the Americas (OECD-FAO Agricultural Outlook 2018-2027-Oilseeds and Oil Seeds products)

Increasing import demand around the world became evident and led to the refilling of stocks, including in importing countries. Per capita food use of vegetable oils also continued to grow both in developed and developing countries, though at a much faster rate for developing countries.

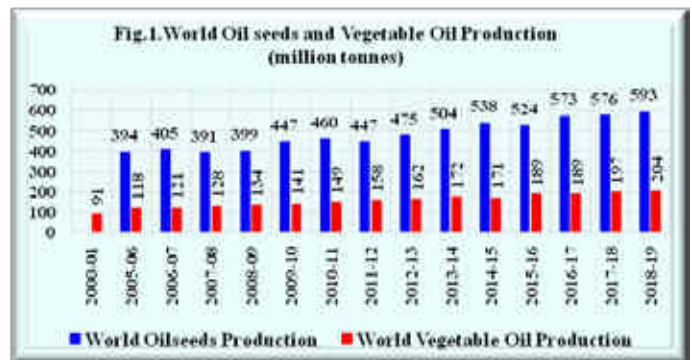
Vegetable oil includes oil obtained from the crushing of soybeans and other oilseeds (about 55% of world vegetable oil production), palm oil (35%), as well as palm kernel, coconut and cottonseed oils. Despite a slowdown in the expansion of the mature oil palm area, significant production growth is projected in Indonesia (1.8% p.a. vs. 6.9% p.a. in the previous decade) and Malaysia (1.4% p.a. vs. 1.3% p.a.). Growth in demand for vegetable oil is expected to be slower in the coming decade due to (i) reduced growth in per capita food use in developing countries (1.2% p.a. compared to 3.2% p.a. in the previous decade) as consumption levels are approaching saturation levels, and (ii) the projected stagnation in demand for vegetable oils that are used to produce biodiesel (4. OILSEEDS AND OILSEED PRODUCTS | 129 OECD-FAO AGRICULTURAL OUTLOOK 2018-2027 © OECD/FAO 2018).

According to a recent report released by Persistence Market Research (PMR), the global edible oils market is expected to increase from \$83.4 billion to \$130.3 billion by 2024, representing a CAGR of 5.1% (source: PMR). The global edible oil industry is highly concentrated where the eight largest companies account for over 80% of the total industry's revenue. In the edible oil industry, the major products include,

soybean cake and meal, shortening and cooking oils, corn sweeteners. Other products include margarine, butter blends, butter substitutes and soybean oil, palm oil, peanut oil, cottonseed oil and other edible oils. The cooking oil is manufactured from a wide variety of edible oil plants.

### 2.1 Global Production

Global production of Oilseed production had increased from 394 Million Tons in 2005-06 to 593 Million Tons in 2018-19 which is about 50 percent more. The vegetable oil production had increased from 91 Million Tons to 204 Million Tons for the same period. Global growth of edible oil is continuously increasing from 2000-01 to 2018-19 by 225.22 % (Fig. 1).



Source : Basic data from FAO

The growth of Global Vegetable Oils from 1960 to 2017 showed that the total vegetable oil production increased from 16.03 to 187.25 Million Tons over a period of 16 years. Palm Oil production had a tremendous increase from 7.86% to 36.28% and occupied the top most place followed by Soya bean oil, Rape seed mustard and sunflower oil (Fig.2). Palm kernel oil has an edge over coconut oil as lauric oil source.

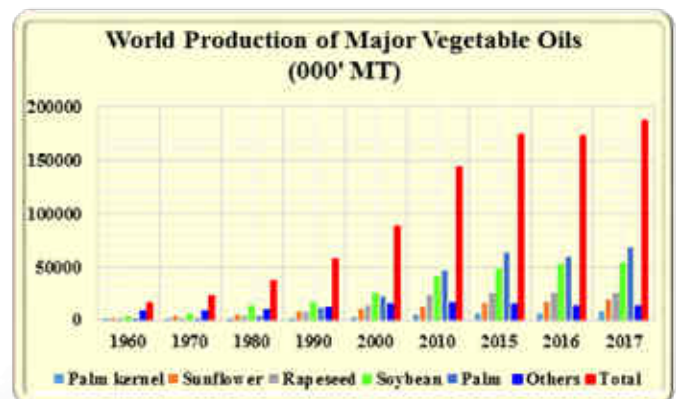
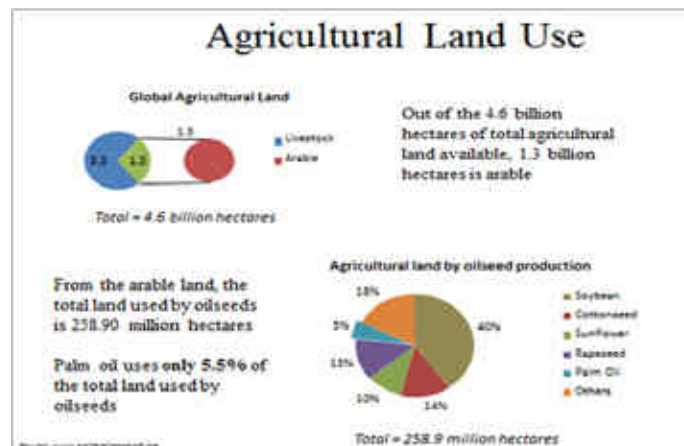


Fig. 2. Global Production of Major Vegetable Oils



## 2.2 Global Land use for Oilseeds production

Out of 1.3 billion ha of arable land only 258.90 million ha is used for oilseeds production as on 2012-13 of which only 5.0 % of land is used for production of palm oil which contributes highest quantity of vegetable oil. The present area is 282.03 million ha (2018-19). Palm oil required least amount of land (0.26 ha) for producing 1 ton of oil. Rape seed required 1.52 ha, sun flower 2.0 ha and soya bean 2.2 ha.



Global area under oilseed crops had increased from 223.40 million ha in 2006-07 to 282.03 million ha in 2018-19 and the production increase is from 405.57 to 601.35 Million Tons of oil seed for the same period.

## 2.3. Global oilseed production, consumption export and trade

Global Oilseed Consumption Continues to grow despite slowing Trade and Production. Global oilseed production, consumption export and trade from 2014-15 to 2019-20 is given in Fig.3.

The Global vegetable oils production and

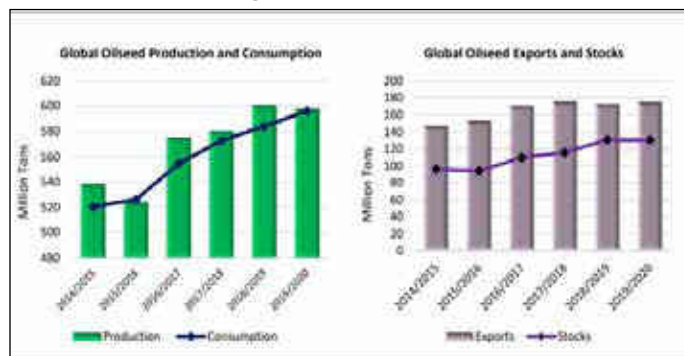


Fig.3. Global Oilseed Production, Consumption, Exports and Stocks. Source: USDA, Oilseeds: World Market and Trade, June 2019.

consumption from 2014-15 to 2019-20 shown in Figure 4 indicate that Palm oil occupies the prime position followed by soya bean, Rape seed and sunflower oils. The consumption is also continued to increase over years.

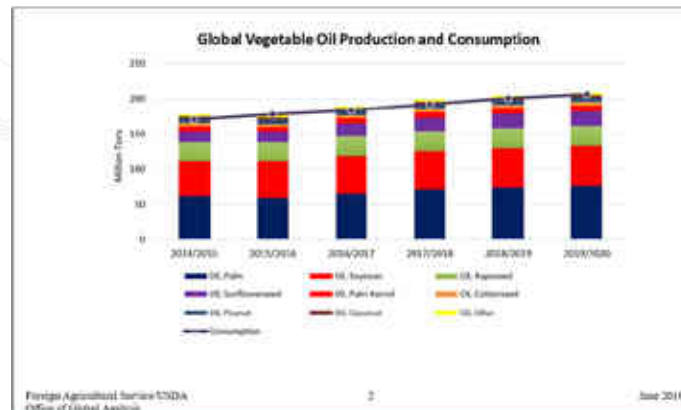


Fig. 4. Global Vegetable oils production and Consumption

## 2.4 Global Vegetable Oils Projections

The global vegetable oils projections over the average of 2015-17 to 2027 indicate that the overall increase will be 25% more in terms of production , nearly 81.0% is consumed for food and the remaining for other uses as could be seen in Table 1. The dominant growth of palm oil over years indicate that it is palm oil will be playing vital role in the global vegetable oil economy.

Marketing year	Average 2015-17	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
<b>WORLD TOTAL</b>											
Production	185.0	202.0	208.0	215.0	222.0	229.0	236.0	243.0	250.0	257.0	264.0
Consumption	161.0	171.0	175.0	179.0	183.0	187.0	191.0	195.0	199.0	203.0	207.0
Exports	24.0	31.0	33.0	36.0	39.0	42.0	45.0	48.0	51.0	54.0	57.0
Stocks	30.0	29.0	28.0	27.0	26.0	25.0	24.0	23.0	22.0	21.0	20.0
<b>Developed countries</b>											
Production	88.0	95.0	102.0	109.0	116.0	123.0	130.0	137.0	144.0	151.0	158.0
Consumption	78.0	82.0	85.0	88.0	91.0	94.0	97.0	100.0	103.0	106.0	109.0
Exports	10.0	13.0	17.0	21.0	25.0	29.0	33.0	37.0	41.0	45.0	49.0
Stocks	12.0	11.0	10.0	9.0	8.0	7.0	6.0	5.0	4.0	3.0	2.0
<b>Developing countries</b>											
Production	97.0	107.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0	106.0
Consumption	83.0	89.0	90.0	91.0	92.0	93.0	94.0	95.0	96.0	97.0	98.0
Exports	14.0	18.0	16.0	15.0	14.0	13.0	12.0	11.0	10.0	9.0	8.0
Stocks	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0

Table 1. Global vegetable oils projections over the average of 2015-17 to 2027

## 2.5 Global Growth of Vegetable Oil Food Supply Quantity

Globally, supply and demand factors have changed the edible vegetable oil industry. The Food and Agriculture Organization of the United Nations

(FAOSTAT) reports that global edible vegetable oil allocated to food uses increased by about 48 percent from 1961 to 2011 (Fig.5). Global income growth has spurred demand growth for oils used in food, fuel, and industrial applications. Vegetable oils will have to continuously play a vital role in Food security besides other uses.

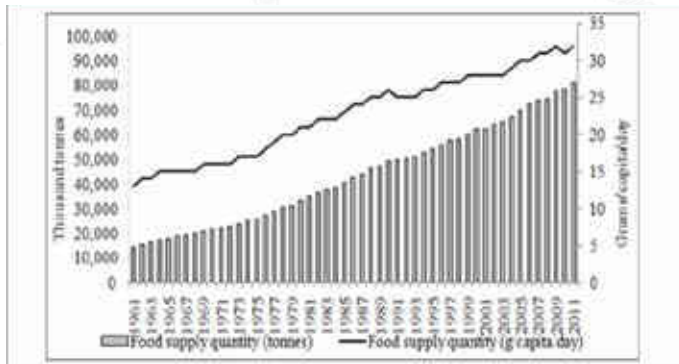


Fig.5. World Vegetable Oils Food Supply Quantities

### 3. Growth of Indian Edible Oil

India is one of the largest producers and exporters of the edible oil across the continent and the world. The climatic conditions in India favour growing a variety of seeds from which oil can be extracted, they are called oil seeds. The growing population and the varied dietary habits of different and diverse demographics have ensured a thriving market for edible oil industry in the country and in Asia (<https://www.marketresearchreports.com/edible-oils>). India, the second largest consumer country in the world, closely behind China, and the world's top importer of vegetable oil, is expected to maintain a high per capita consumption growth of 3.1% p.a. and reach 24 kg per capita in 2027. India's vegetable oil consumption will reach 37 Million t by 2027, up from 24 Million T in 2015-17. This substantial growth will be filled by both an expansion of domestic production, sourced in the intensification of oilseed cultivation, and a further increase in imports of mainly palm oil from Indonesia and Malaysia and other vegetable oil from other countries.

#### 3.1. Growth of Oilseed Production over a period of 26 years in India

Oilseed crops are the second most important determinant of agricultural economy, next only to

cereals within the segment of field crops. The self-sufficiency in oilseeds attained through "Yellow Revolution" during early 1990's, could not be sustained beyond a short period. Despite being the fifth largest oilseed crop producing country in the world, India is also one of the largest importers of vegetable oils today. There is a spurt in the vegetable oil consumption in recent years in respect of both edible as well as non-edible usages.

The demand-supply gap in the edible oils has necessitated huge imports accounting for 60 per cent of the country's requirement (2016-17: import 14.01 million tons; costing Rs. 73,048 crore). Despite commendable performance of domestic oilseeds production of the nine annual crops (Compound Annual Growth Rate of 3.89%), it could not match with the galloping rate of per capita demand (~6%) due to enhanced per capita consumption (18 kg oil per annum) driven by increase in population and enhanced per capita income.

#### 3.1.1 Oilseeds area, production and productivity production in India

In India, annual oilseeds cultivated over 10.73 million ha producing 5.1 million tons in 1950-51 increased to 26.67 million ha of area producing 30.06 million tons annually (quinquennium ending 2016-17. The area under oilseeds has experienced a deceleration in general and this is due to their relative lower profitability against competing crops like maize, cotton, chickpea etc., under the prevailing crop growing and marketing situations.

The trends in area, production and yield of Annual oilseeds from 2000 -01 to 2016-17 showed that there is considerable increase in production and productivity but the area has not increased (Fig .6) and majority of the oilseeds are cultivated under rainfed ecosystem (70%). Due to their relative lower profitability against competing crops like maize, cotton, chickpea etc., under the prevailing crop growing and marketing situations the farmers are losing interest in growing oilseeds. Though the yield level has increased to 1200 kg/ha, still there is scope for increasing the productivity with improved varieties and technologies available now.

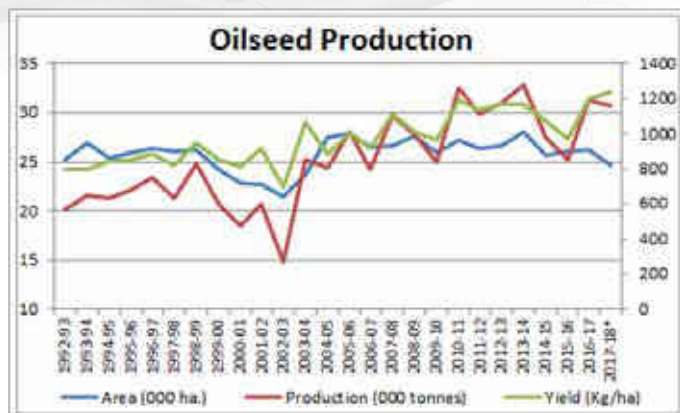


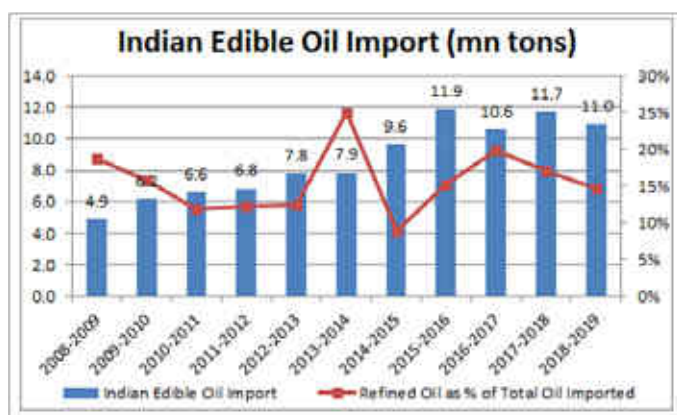
Fig. 6. Trends in area, production and yield of Annual Oilseeds (2000 -2017)

Source – NMOOP2018

### 3.2 Growth in Supply and Demand Of Edible Oil In India

#### 3.2.1 Growth in Import of Edible Oils in India

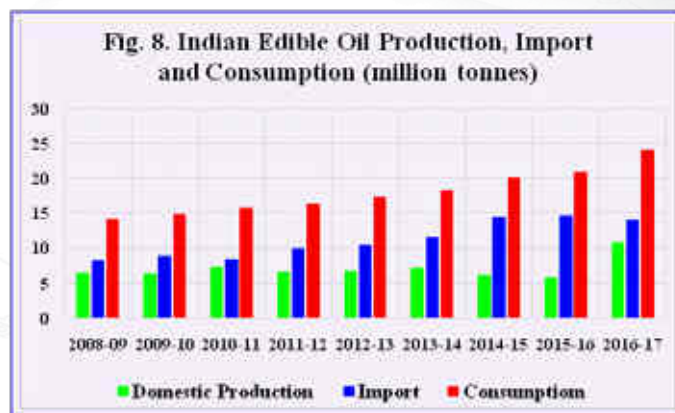
Indian edible oil import has grown at 8.4% CAGR over last decade. Broadly, the portion of refined oil in the imports has been 15% of the total imports (Fig. 7). The remaining crude (non-refined) edible oil imported is refined in local units. The existing duty differential between CPO (crude palm oil) and RBD (refined, bleached, and deionized) stands at 7.5%, which provides protection to domestic refiners against competition from imported refined oils to certain extent.



(Source – <http://www.sopa.org/statistics/>)

Fig.7.Edible oil Import (Edible and Refined)

Indian edible oil production, import and consumption from 2008-09 to 2016-17 given in Fig .8 clearly indicates that the consumption is higher than domestic production and thereby import is increasing.



Source: [https://wikibizpedia.com/Edible\\_Oil\\_market\\_in\\_India\\_is\\_the\\_5th\\_largest\\_in\\_the\\_world](https://wikibizpedia.com/Edible_Oil_market_in_India_is_the_5th_largest_in_the_world)

The Region wise consumption of edible oil as on 2014-15 shows that palm oil consumption is more irrespective of Regions followed by soya bean, mustard, sunflower and other oils. The import of palm oil is more than the other vegetable oils (Table 2). It shows that palm oil has wider acceptance in the country.

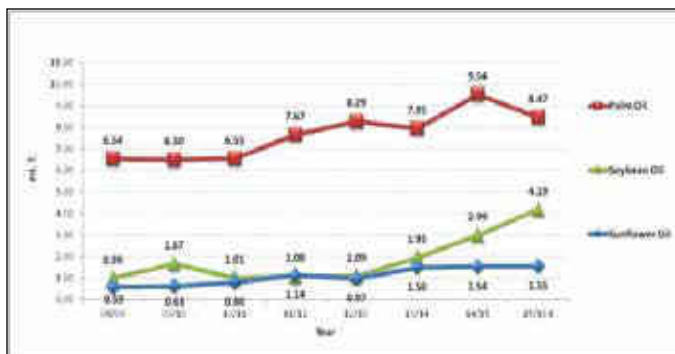
As of 2014-15	Indian Edible Oil		Type of Edible Oil Consumption (Mn Tons)				
	Population	Consumption	Palm Oil	Soybean Oil	Sunflower Oil	Mustard Oil	Other Oils
West India	26.10%	25.40%	2.18	1.89	0.41	0.30	1.12
North India	24.80%	24.50%	1.77	1.23	0.30	0.79	0.84
South India	20.90%	20.00%	2.53	0.28	0.92	0.04	0.24
East India	28.20%	26.10%	2.52	0.63	0.10	0.94	1.05
<b>Total</b>			<b>9.00</b>	<b>4.01</b>	<b>1.74</b>	<b>2.07</b>	<b>3.25</b>

Table 2. Total Edible Oil Consumption in different Regions of the country

(Source – Indian Edible Oils Demand & Supply And Outlook for 2016-17 by Govindbhai G. Patel)

#### Import Breakup of Edible Oil in India

Palm oil has been the main edible oil imported in India. Off late, Soybean oil imports have also increased sharply (Fig, 9).



Source – Indian Edible Oils Demand & Supply And Outlook for 2016-17 by Govindbhai G. Patel

Fig.9. Import Breakup of Edible Oil In India

Domestic availability, import, value and per capita availability of Edible oils from 2012-13 to 2017-18 given table 3 indicate that domestic demand is increasing and the availability is less than 50% which necessitated import the required quantity which has costed Rs 74,999 crores during 2017-18 (Table 3).

(Million tonne)						
Year	Total domestic demand	Domestic availability	Import	Import as % of total domestic demand	Value of import (Rs Cr)	Per capita availability (kg/yr)
2012-13	19.82	9.23	10.61	54.54	53562	15.80
2013-14	21.06	10.08	10.98	52.14	44038	16.80
2014-15	21.71	8.95	12.71	58.54	64894	18.30
2015-16	24.04	9.19	14.85	61.77	68677	19.10
2016-17	24.75	10.75	14.00	56.57	73048	18.75
2017-18	25.88	10.52	15.35	59.31	74996	19.30

Source: Department of Sugar & Vegetable Oils; DG, CI&S, Dept of Commerce, Kolkata

ICMR recommendation i.e. 30 g/person /day : 10.95 kg/person/year  
Per capita requirement by 2022 : 21.55 kg/person/year

Table 3. Indian Edible oils Domestic availability, import, value and per capita availability

Source – Import Breakup of Edible Oil In India

Source – Indian Edible Oils Demand & Supply And Outlook for 2016-17 by Govindbhai G. Patel

Presentation on Vegetable oils vis-a-vis Soybean in India by DAC&FW

The Assessment of vegetable oil requirement for 2022 reported by DFI Committee Estimate presented in Table 4 indicate that the total vegetable oil requirement will be 33.20 million t and the availability from primary and secondary including Oil Palm will be 17.03 and the dependence on import will be 16.13 million t.

Item/Year	2022
Expected population (billion)	1.34
Per capita consumption (kg/annum)	21.70
Vegetable oil requirement for direct consumption (mt)	29.08
Vegetable oil requirement for industrial use (mt)	4.12
<b>Total vegetable oil requirement (mt)</b>	<b>33.20</b>
Vegetable oil production from annual oilseeds	11.41
Vegetable oil production from oil palm	0.40
Vegetable oil availability from secondary sources (mt)	5.22
Total vegetable oilseeds requirement from 9 annual oilseed crops (mt)	45.64
<b>Total vegetable oil availability from primary and secondary sources including oil palm</b>	<b>17.03</b>
<b>Dependence on imports</b>	<b>16.13</b>

Source: DFI Committee Estimates

Table 4. Assessment of vegetable oil requirement for 2022  
(Additional Source: <http://www.nmoop.gov.in>)

#### 4. Indian Edible Oil Structure

The category of mills, number of units, processing capacity, and capacity utilization of Oil Industries

given in Table 5. In a report it has been indicated that the existing Indian mills are operating at very low capacity due to heavy import of edible oil. The other way of looking at this is the production of oilseeds in the country may not be adequate to feed the processing units in full capacity.

Capacity Utilization of Oil Industry			
Category	No of units	Processing capacity (million tonne/year)	Capacity utilization (%)
Oil mills	15000	36.00	20-30
Solvent extraction plants	600	31.00	40
Vegetable oil refineries	465	20.00	50
Vanaspati units	250	3.00	40

(Source – Presentation on Vegetable oils vis-a-vis Soybean in India by DAC&FW)

Table 5. Capacity utilisation of oil industry

Domestic turnover of the vegetable oil industry is over Rs.125,000 crores.

The demand projection of vegetable oils in India published in the Vision Document of Indian Council for Agricultural Research (ICAR) is given in Table 6 which is self explanatory.

Demand source	2020	2030	2040	2050
Projected population (billion)	1.32	1.43	1.55	1.68
Per capita consumption considering 30, 60, 70 and 75% above the prescribed consumption levels during 2020, 2030, 2040 and 2050, respectively				
Per capita consumption (kg/annum)	16.43	17.52	18.62	19.16
Vegetable oil requirement for direct consumption (million tonnes)	21.69	23.15	24.58	25.29
Vegetable oil requirement for non-industrial uses (million tonnes)	3.57	6.34	9.69	10.61
Total vegetable oil requirement (million tonnes)	25.26	29.47	34.27	35.90
Vegetable oil availability from secondary sources (million tonnes)	5.05	5.89	6.85	7.18
Total vegetable oil requirement from annual oilseed crops (million tonnes)	20.21	23.58	27.42	28.72
Total vegetable oilseeds requirement from nine annual oilseed crops (million tonnes)	67.37	71.43	80.65	82.06

Source: Vision Document of ICAR

Table 6. Demand Projections of Vegetable Oils in India

From the information available over almost six decades it is true that the demand for edible oils is increasing and the domestic production could meet only about 50% of demand and the import to meet the demand is increasing and it will go on increasing with the population growth, economic improvement and consumers preference over food.

#### 5. Oil Palm Development in India

Though oil palm as ornamental palms introduced

during 1886 at Botanical Gardens, Kolkata took shape as commercial plantation in 1960 at Thodupuzha, Kerala in 200 ha expanded as joint venture, Oil Palm India in 3705 ha and about 1593 ha in Little Andamans during seventies as forest plantations. Malaysia and Indonesia also started commercial plantations during 1960 and made tremendous progress to occupy first two positions in the world vegetable oil production. When Oil Palm development came to a halt after these two plantations, Oil Palm as small holders' irrigated crop took shape as Oil Palm Development Project (OPDP) under Technology Mission on Oil seeds (TMO) since 1990 in the potential areas identified by Expert Committees (Table 7). India has a potential to grow Oil Palm in about 1.933 million ha in 18 states in the country. This crop besides contributing to the vegetable oil pool can help to elevate the socio-economic status of the farmers growing Oil Palm in the country particularly in North Eastern India.

States	Area identified (ha)				Total Reassessed potential area (ha)
	As per Chaudha Committee 1988	As per other Committees 1988-91	Reassessed as per Chaudha Committee 2006	Additions as per Rethinam Committee 2012	
Andaman & Nicobar Islands	Nil	Nil	Nil	Nil	Nil
Andhra Pradesh	2,10,000	1,50,000	4,00,000	67,800	4,19,500
Assam	Nil	Nil	Nil	25,000	25,000
Bihar	10,000	Nil	Nil	20,000	30,000
Chhattisgarh	Nil	Nil	40,000	20,000	60,000
Goa	Nil	10,000	2,000	Nil	2,000
Gujarat	Nil	61,150	90,000	81,400	1,72,550
Karnataka	2,10,000	Nil	2,10,000	16,000	3,60,000
Kerala	5,000	Nil	6,500	3,500	15,000**
Maharashtra	10,000	Nil	Nil	1,70,000	1,80,000
Meghalaya	Nil	Nil	Nil	18,000	18,000
Mizoram	Nil	Nil	6,000	72,000	78,000
Nagaland	Nil	Nil	Nil	18,000	18,000
Odisha	10,000	Nil	25,000	38,500	73,500
Tamil Nadu	25,000	1,000	1,42,000	41,015	2,09,015
Telangana	Nil	Nil	Nil	Nil	Nil
Tripura	5,000	Nil	Nil	7,000	12,000
West Bengal	10,000	Nil	Nil	18,000	28,000
<b>Total</b>	<b>5,75,000</b>	<b>2,26,350</b>	<b>16,36,300</b>	<b>9,14,215</b>	<b>19,33,215</b>

Table 7. Potential areas identified by various Expert Committees

In addition, there is a possibility of identifying another 4.0 to 5.0 million ha of cultivable waste lands with underground and ground water sources in identified states. The performance of Pilot Project on Oil Palm in the wastelands of Odisha in Nayagarh and Boudh Districts with irrigation facilities gives the confidence taking up Oil Palm in such areas.

From TMO the scope was widened including Pulses (TMOP) then some other crop was added, subsequently named as Centrally Sponsored Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM) during the 10th Five Year Plan and the Integrated Scheme (ISOPOM) was

implemented from 2004-05, and subsequently as Special Programme on Oil Palm Area Expansion (OPAE) under RKVY from 2011 -12 and later in the name of National Mission on Oilseeds and Oil Palm (NMOOP) during 2012-17. Presently it is merged with NFSM with three Mini Missions.

As on March 2018 an area of 317161 ha has been planted with Oil Palm in 14 states in the country (Fig.8). The largest area is in Andhra Pradesh including Telangana followed by Karnataka and Mizoram.

State	Potential Area	Area coverage (ha)	FFBs Production (in MT)	CPO Production (in MT)
AP	419500	162689	142782	234695
Telangana	90000	18312	147516	27279
Karnataka	260000	43517	12917	2224
Tamil Nadu	205000	20990	6983	338
Gujarat	260250	5797	NA	NA
Goa	2000	953	NA	NA
Odisha	56000	21777	NA	NA
Assam	25000	1849	NA	NA
Kerala	6500	5785	30330	5181
Mizoram	61000	29295	NA	NA
Chhattisgarh	419500	162689	142782	234695
Ar. Pradesh	90000	18312	147516	27279
Nagaland	260000	43517	6983	338
Other	205000	30900	12917	2224
<b>Total</b>	<b>1933200</b>	<b>331082</b>	<b>1625463</b>	<b>270323</b>

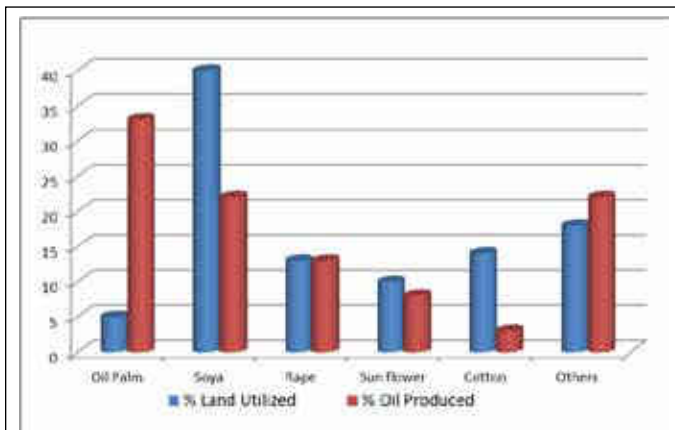
Table 8. State wise area and production of FFBs and CPO -2017-18

Source: <http://www.nmoop.gov.in>

The progress made in area expansion over 28 years is much less even though a Mission Mode approach is being undertaken. The average yield levels are also low when many farmers are getting 20 to 30 tons of FFB and the maximum yield realized is 50 t FFB/ha. This indicate that the farmers have to exploit the potential of the crop. It is also fact that the socio-economic condition of thousands of Oil Palm growers had raised considerably and it is more so in Andhra Pradesh.

There are 26 Processing units to process around 584.3 MT of FFB / hour of which Andhra Pradesh alone has 13 mills with a capacity of 424 t/hr. Many units have been upgraded to bigger units. Palm kernel oil Processing units also have come up. At present about 2.0 lakh tons of Palm oil is produced annually and it will go on increasing every year. Concerted efforts should be made to increase the productivity to a level of 3 to 4 t CPO/ha/yr. in the existing plantations which is possible through timely application of fertilizers and manure as well as adequate irrigation.

Having realized highest yield of 50 t FFB ha/yr by a small farmer and many oil palm growers getting 25 to 30 tons of FFB/ha/yr, it is time now for us to exploit the potential on fast tract approach with an area expansion of one lakh ha /year with indigenous and exotic high yielding planting materials and providing necessary inputs on time and planting about 2.0 million ha in the next 15 years will greatly contribute to vegetable oil pool of the country and increase the socioeconomic status of the farmers. This is the ideal crop for doubling the income and per drop more crops.



Palm Oil Production requires less land 0.22ha for producing one ton of oil compared to other vegetable oil production. Arable land being a constraint due to conversion to various purposes it would be wise to exploit the potential of Oil Palm and can yield 4 to 6 tons of oil and latest hybrids available elsewhere can yield 8 tons of oil / ha/year which can be imported.

Fig.10. Lands utilized and the oil produced (%) by various oil seed crops

**6. A report Rabo Bank published in June 2018 Rohit Dhanda Analyst - Grains & Oilseed had analyzed the trend of edible oils in the country and indicated the following:**

- Because of current stagnant domestic vegetable oil supplies, import volumes will continue to fill the majority of the supply-and-demand gap over the next decade, it added.
- Palm oil, soy oil and sunflower oil are expected to penetrate regional markets further in the future, with the packaged edible oil segment leading the way for future growth of the industry, the report said.
- “Domestic oilseed production growth can’t keep

up with rising demand. Rising demand and stagnant domestic vegetable oil supply, which has been range bound between 6.5 million tons and 8.5 million tons in the past decade, will push the country’s vegetable oil imports to over 25 million tons by 2030, from 15.5 million tons in 2017,” Rabo Bank analyst, Grains and Oilseeds, Rohit Kumar Dhanda said.

- Driven by low domestic supplies, palm oil, soy oil, and sunflower oil will continue to represent more than 98 per cent of total vegetable oil imports, the report said.
- Palm oil from Malaysia and Indonesia will continue to take the lions share at 60 per cent of total imports in 2030, followed by South American soy oil taking a 24 per cent and sunflower oil from the Black Sea Region at 14 per cent market share, respectively, it added.
- Soybean and sunflower oil import volumes into India will continue to grow at a five per cent annually despite their price premium over palm oil, due to a shift in domestic demand and consumer preferences for quality, it said.
- However, the report said, palm oil will continue to be the largest imported vegetable oil because of its price advantage, the price sensitivity among the low-income population, consumption growth in the fast-moving consumer goods (FMCG) sector, blended vegetable oil segments and increasing out of home consumption.
- The packaged branded edible oil sector in retail currently, which accounts for 40 per cent of total edible oil consumption, will continue to grow between 6-8 per cent annually over the next five years, it added.

**7. Efforts made to increase the Vegetable oil Production by the Government of India**

Considering the growing domestic demand for edible oils, the staggering deficiency and the cost to the exchequer on account of imports, the urgency of scaling up the oilseeds production, the Government of India made lot of efforts over a period of time. Starting with Technology Mission for Oilseeds (TMO) headed by a Special Secretary and four

Joint Secretaries during 1986, adding Pulses and expanding it to TMO&P and later adding Maize and renaming as ISOPAM, RKVY, NMOOP and presently as NSFM with three Mini Missions.

7.1. NMOOP had made a report on Present Status of Oilseed crops and vegetable oils in India during 2018 with a vision to achieve a production of 45.64 million tons from nine annual oilseed crops by 2022-23, expecting an additional production of about 15.58 mt over and above the 30.06 mt production (QE 2016-17). Thus, the availability of total vegetable oil from domestic production of nine annual oilseed crops would be about 13.69 mts by 2022 (at 30 per cent recovery) as against the current annual output of 7.0 mts. Anticipated area, production and yield of oilseed crops by 2022 had been indicated as 31.20 million ha, 45.65 million tons and yield 1500 kg/ha. The vegetable oil availability from secondary sources such as coconut, cotton seed, rice bran, solvent extracted oil (SEO) and tree & forest origin has been estimated at 5.22 million tons by 2022. As a sequel, the anticipated vegetable oil availability (primary + secondary + oil palm) would be around 17.03 million tons indicating the possible reduction in imports to the tune of about 15 per cent from the present 67 per cent by 2022. This would be an impressive achievement of reduction in import burden to an extent of about Rs. 15,000 crore vis-à-vis present status of import.

The strategies for enhancing the productivity (and profitability) of oilseed-based production system are prepared for the annual oilseeds and for oil palm in the country are categorized under three situations as follows. 1. Increasing seed production and distribution of newly released varieties. 2. Low cost technologies with high impact on productivity resulting in higher income. 3. Technologies with high impact that involve reasonable investment with high return on investment (ROI), with emphasis on eco-friendliness, high input use efficiency, and 4. Strategies with emphasis on quality improvement and value addition leveraging technologies with a bearing on the employment through skill/entrepreneurship development. The newer opportunities to explore non-traditional seasons and regions for crops are also projected that have proven

success for area expansion and integration into major cropping systems.

Reducing the Yield gap of nine oilseed crops by increasing the average productivity to 1541 kg/ha from the National average of 1019kg/ha by adopting the technologies already available.

7.2. NFSM-Oilseeds and Oil Palm is in operation from 2018-19 the year with the objectives to i) increase in production and productivity of vegetable oils sourced from oilseeds and Oil palm. It aims to augment the availability of vegetable oils and to reduce the import of edible oils by increasing the production and productivity of oilseeds from an average production of 29.79 million tonnes and productivity of 1122 kg/ha during 12th plan period to 36.10 million tons and 1290 kg/ha, respectively by end of 2019-20.

ii) Effort will be made to achieve additional area of 1.05 lakh hectare under oil palm cultivation during 2017-18 to 2019-20. With additional area of 1.05 lakh ha under Oil Palm during next three years i.e. up to March, 2020, total area of about 4.20 lakh ha, will be achieved.

iii) An area of 7480 ha will be covered under plantation of 09 TBOs namely Olive, Mahua, Kokum, Wild Apricot, Neem, Jojoba, Karanja, Simaroba and Tung during next 03 years i.e. upto March, 2020.

(Source: 1.0 Present Status of Oilseed crops and vegetable oils in India. NMOOP 2018 Report.)

To achieve many Interventions of NFSM-Oilseeds, Oil Palm and Tree Bearing Oil seeds have been enumerated starting from seed production, production inputs, creation of irrigation facilities transfer of technologies, machineries and tools, training, demonstrations, monitoring and evaluation, consultancy, need based R&D, import of germplasm, infrastructure facilities for research, assisting in setting up of processing facilities etc.

The Government of India has prepared a five-year schedule to double India's edible oil production and reduce import dependence, through expansion in sowing area and yield. (<https://www.business-standard.com/article/economy-policy/govt->

plans-to-double-edible-oil-production-by-2022-to-cut-import-dependence-118092400873\_1.html.- September 25, 2018 .

At a recent Rabi conference, the ministry of agriculture revealed the plan to take annual production to 13.69 million tonnes (mt) by 2022, as against the current 7.31 mt.

Several such roadmaps were drawn in the past, too, but the momentum did not continue. Sustained increase in consumption against stagnating production widened India's import dependence to 67 per cent for 2016-17, with an estimated demand of 24.5 mt.

"Despite notable performance in domestic production of the nine annual crops (compound annual growth rate of 3.89 per cent), it could not match the galloping rate of per capita demand (around six per cent) due to enhanced per capita consumption (19 kg edible oil per annum), driven by increase in population and enhanced per capita income. The production of nine annual oilseed crops (primary source) has been targeted at 45.64 million T from which availability of vegetable oils would be about 13.69 million by 2022," said a senior official from the ministry.

The Road Maps developed for increasing edible oil production are exhaustive and also need to be widened. In addition to the Road Map developed the following policy issues also to be considered for the success of the programme to increase the edible vegetable oil pool.

## 8. POLICY ISSUES NEED GREATER ATTENTION

I Price policy is the very critical factor for oil palm development in the country. The country has vast potential to grow oil palms. Even though two million ha are presently identified, still there is potential to for more area. Now that the farmers have experienced in growing oil palm successfully and getting yields ranging from 20 to 40 t FFB/ha/year. If we are able to more an attractive price for FFB on continuous basis the farmers have confident that they will get their fair price continuously for the FFB, the oil palm

cultivation will get speed up. If we look at the import we spent around Rs. 70,000 crores and this will go up every year. It is imperative to say that a higher allocation can be made for oil palm development.

- II Price stabilization fund/ captive fund can be set up for making such contingencies. Whenever the price fall and below the floor price of Rs. 9500/ton of FFB, this fund can be utilized immediately to compensate the fall in price.
- III Oil Palm Act has to be enacted rates and regulations should be approved from the competent authorities. The states like Andhra Pradesh, Karnataka, Tamil Nadu, Goa, Gujarat and Orissa etc., which have experienced for more than 20 years now it is time to reexamination to be mad and need be revised. Timely enactment if Oil Palm Act will give further confidence to the farmers.
- IV Policy decisions to be taken to import quality planting material special Tenera combinations and compact hybrids for high FFB yield, oil yield, high OER, decreased incremental growth and cold tolerant varieties. Since these materials will cost more revision of price of sprouts, cost of seedlings and seedling subsidies are to be modified accordingly.
- V Micro irrigation should be mandatory. Adequate funds to be provided to cover all planted area with drip irrigation. All the planted area of every year should have provision for drip/micro irrigation.
- VI Imposing quality aspects of FFB- Presently farmers are supplying FFB to factories which are not subject to quality control. So immature fruits, long stalk fruits, rotten fruits, soil fruits etc. being characteristically there is set quality control parameters for this. These quality control aspects should be implemented at the procurement point. This will solve the OER problem also. The OER definitely get increased. More education to farmers to assess the maturity and time of harvest are needed.
- VII Establishment of harvester banks with trained



personal-A group of unemployed youth can be trained cluster wise in harvesting FFB using power operated as well as light weight long poles and provided with all accessories and equipment and also life insurance facilities. These harvesters' group can be attached to the processors or farmers, group. The farmers will pay for harvest of FFB and collection of loose fruits. Many such groups need to be set up and trained. In every Factory zone in all states this has to be established involving the processors. And providing adequate funds for training and buying harvest equipment.

VIII Crop insurance for oil palm is a long pending item need attention.

IX Additional processing facilities Delayed setting up of processing factories also play very great negative role in area expansion. The processors are waiting for more areas to come to set up the factories and do not want to make heavy investment and keep the factory underutilized and idle for some time. In such cases at least one small processing unit of 5 T/year capacity to be installed by the end of third year so that when the fruits are ready for harvest it will go to the mill immediately. The policy is adopted to give back ended subsidy for the processing mill can be extended to all newer areas.

X Periodical monitoring and evaluation- The OPDP when started had good monitoring systems by competent agencies like AFC. Subsequently, this has also diluted and new agencies without much experience in oil palm started monitoring, In some place, the monitoring agencies also trying to something for control a good report. Instead of going for a low tender a competent committee to be set up for taking up this important item. IIOPR, Pedavegi, primarily has a mandate for research and this institute cannot do justice in regular monitoring and evaluation hence it may be worth to consider having Senior Adviser with NMOOP who can visit the states and participate in the Project Management Committee (PMC) meeting and provide advice. This person should have the capacity to provide technical advice, supervision and good command.

XI Project Management Committee (PMC) is the apex committee in the state, supposed to meet once in a quarter at the state secretariat and review. Now it is almost a forgotten one in many states. This should be reviewed and should be conducted regularly.

XII Proactive role of state Government to declare oil palm as plantations crop under land ceiling act.

The very purpose of introducing oil palm which can yield 4-6 T of oil/ha /year is to increase the vegetable oil pool of the country. But when the crop was considered for subsidy earlier only 6 Ha allocated and now increased to 25 ha to promote small to medium holders. But here are big farmers and agencies who can go for larger area under oil palm. But the present land ceiling does not permit to go for larger area under a single individual like coffee, tea and rubber if oil palm also exempted from land ceiling act larger areas under oil palm is possible within short time. This subject was many times taken up as recommendations of many committees. Now that considering the need for augmenting the oil pool and the oil palm best source for this purpose it is worth to consider exempting cultivation from the land ceiling limit.

XIII The State Governments implementing the Oil Palm Development Project should own the project and allocate the state share in time and assure timely disbursement of subsidies. They should make the triangle of Government-Farmer-Processor as effective.

XIV There are many research gaps need to be addressed rather than reassessing the potential areas already identified. Excessive use of water and imbalanced fertilizer use, persistence pest problem, the effect of organic farming and nutrient availability etc. need attention.

## 9. WAY FORWARD TO REDUCE THE IMPORT DEPENDENCY OF EDIBLE OILS

Increasing the area under nine annual oilseed crops may be a difficult task but productivity and production increase is definitely possible through augmenting the production and supply of high

yielding varieties and hybrids developed so for in adequate quantity and time, adoption latest production, processing and post-harvest technologies, assured remunerative and assured market price, timely procurement and payment, cluster /group farming approach, effective transfer of technology, training, demonstration and mini kit programme, confidence building in farmers mind, effective monitoring and evaluation engaging right

type of people / organizations and determined political will.

If the Oil Palm development is taken up in about 2.0 million ha on war footing in the identified 18 potential states and also identifying and utilizing the waste lands with underground water potential it will surely contribute substantially to the Vegetable edible and industrial oil pool of the country

## Acknowledgement

I acknowledge Dr. K. Sivaraman, Former Director, Directorate of Arecanut, Spices and Cocoa, Government of India and Dr P. Sundararaj, Bharathiar University Coimbatore for the editorial assistance provided in preparing this article. I also thankful to Mr. S.P. Kamrah, Secretary General, IVPA, New Delhi for giving me an opportunity to share my views through this Souvenir article.

# Growth of Edible Vegetable Oil Industry in India

PIYUSH PATNAIK



Edible oils constitute an important component of food expenditure in Indian households. The edible oil industry is thus, one of the most important industries of agriculture sector in the country. India is also one of the four major players in the vegetable oil scenario of the world next to the USA, China, and Brazil, being one of the important oilseed grower, oil producer, importer and exporter. However, our country's vegetable oil scenario is multilayered and is greatly influenced by market forces, conflicting interests, vagaries of weather, technology and various biotic and abiotic stresses.

The Indian vegetable oil industry accounts for about 5 per cent of the world's vegetable oil production. The vegetable oil industry is classified into four categories - small scale expellers or Ghanis, solvent extractors, oil refiners and vanaspati manufacturers. The vegetable oil refinery industry is the largest energy user in the vegetable oil processing sector as compared to crushing and solvent extraction industries. The estimated demand for vegetable oil is over 23mt (million tonnes) which is largely met through importing 15mt of edible oil, spending around Rs. 77,000 crore to meet our annual requirement. Our consumption of vegetable oil, however, has been increasing - and it is expected to grow by 3 percent CAGR and to exceed 34m tonnes by 2030. India is the fifth largest oilseed crop producing country in the world, producing 31.42mt annually and thereby lays a big gap in consumption and production currently.

But, this is just one side of the story. The edible oil market in India has also witnessed growth in recent years on account of escalating demand for alternatives of edible oil driven by expansion in

the production. The surge in growth is mostly originated from growth in palm and soybean as a segment of the edible oil market. Over the past few years, various drivers have contributed to the growth of the industry such as increasing income, urbanization, changing food habits, and deeper penetration of processed foods. Because of current stagnant domestic vegetable oil supplies, vegetable oil import volumes will continue to fill the majority of the supply-and-demand gap over the next decade. Palm oil, soy oil, and sunflower oil are expected to penetrate regional markets further in the future. Due to the growing awareness for health and the increase in population base, adoption of western lifestyle and the rising affordability of branded products, packaged edible oil segment will lead the way for the future growth of the industry. However, there is a need to increase domestic oilseeds production or pursue other options to meet the rising vegetable oil demand. Public-private partnership in varietal development, developing self-reliant seed supply mechanism, efficient input, and MSP support for oilseed, delineating and developing efficient oilseed production zones, promoting contract farming, adding value to oilseeds, oils and by-products, providing effective market linkages and introducing favorable policy framework are some of the measures that can further grow the edible vegetable oil sector in India.

The government is also taking a number of steps for better promotion of the domestic oil industry. The same is highlighted in the recent budget where the government reiterated its focus on growing more oilseeds to cut down the swelling import bills of edible oil. The finance minister, while hailing pulses

farmers for sustainable growth in pulses production, has called upon farmers to produce more oilseeds. The government has also announced the launch of a new National Mission for Vegetable Oils to reduce reliance on hefty imports by promoting output of home-grown oilseeds, including oil palm.

Provided the optimistic macro and demographic essentials, the edible oil market has a promising demand growth outlook for the years to come. The edible oil market in India is predominantly

underpenetrated and thus holds enormous business opportunities. Vegetable oil consumption has amplified due to the upsurge in overall household income, surging retail sector, increasing awareness on health and wellness, growing population base, and increasing demand. Edible oil industry happens to be the key player in the economic development of the country and its long-term outlook is highly favorable, if the increasing demand is synced with the level of production and challenges such as low yield hectare are addressed.

## BRIEF PROFILE OF AUTHOR

**Piyush Patnaik,**  
**Managing Director, Cargill's Oils business in India**

Piyush Patnaik is the Managing Director of Cargill's Oils business in India. Piyush has been with Cargill for over a decade and a half and brings with him 18 years of overall in-depth industry experience. In his current role, he is responsible for driving profitable growth across consumer and customer segments for the company. Prior to his role as a Managing Director, he was Director & Business Head of the edible oil business of Cargill India.

Piyush comes with a comprehensive knowledge of various functions including procurement, sales, business development, M&A and supply chain management. He has also led the Soya and Palm product line for the business in India in 2013, where he helped to build the company's successful consumer business and go-to-market strategy. He helped in the growth of market share, profitability and expanded the product portfolio into multiple new application categories and facilitated further investment into the business. Prior to joining Cargill, Patnaik worked with large consumer companies including Coca-Cola and Dabur.

In his current capacity, he will be looking after the leading consumer staples business - with leading brands like NatureFresh, Gemini Cooking oil and Leonardo Olive Oil, operating pan India. He will be looking into sales & distribution network, multi-channel go-to-market teams (Consumer, Retail & B2B), embedded manufacturing, supply chain, and marketing functions.

Piyush is an alumnus of National Institute of Industrial Engineering (NITIE) with an MBA degree in Supply Chain Management and Operations, along with a Chemical Engineering degree from Utkal University, Odisha. He resides in Delhi with his family and has a keen interest in various outdoor activities, reading and spending time with young kids. He is passionate about sustainability and making an everyday contribution towards the same.

# The Growth of Edible Vegetable Oil Industry in India: demand-supply and dietary needs



DR. R.P. SINGH

## ABSTRACT

Edible oils are the dietary source for energy, growth and healthy functioning of human life. In addition, edible oils put high emphasize on tasty food, improving texture of food items, increasing palatability of food, flavor of food maintenance. Thus, edible oils constitute an important component of food expenditure in house-holds. Edible oils comprised a dominant component of food expenditure in Indian kitchens. India comprises 25% of the population suffering from cholesterol and heart related diseases.

The inclination of Indian consumers has increased towards edible oils because of the pursuit for low fat and low absorbs oil. India is appropriate for growing all major oil seed crops due to its agro-ecological diversity. The major oilseed crops cultivated are ground nut, mustard, sunflower, sesame, safflower, Rice bran and niger. India is one of the largest producers and consumers of edible oils in the world. India is the fourth largest oilseed producing country in the world, next only to USA, China and Brazil, harvesting about 25 million tons of oilseeds against the world production of 250 million tons per annum. Since 1995, Indian share in world production of oilseeds has been around 10 percent.

Rapidly increasing population and changes in dietary habits associated with urbanization increased demands for food and fuel. Non-true oilseed crops like cotton, maize, etc. are contributing up to 73% towards the national edible oil production in the country, while conventional oilseeds (rapeseed & mustard) rank second and contribute about 18-20% in the domestic edible oil production

Growing population, economic growth and rising disposable income will drive India's vegetable oil consumption growth, which is expected to grow by three per cent annually to exceed 34 million tonnes by 2030.

## INTRODUCTION

A vegetable oil is a triglyceride extracted from a plant. Such oils have been part of human culture for millennia. The term "vegetable oil" can be narrowly defined as referring only to plant oils that are liquid at room temperature, or broadly defined without regard to a substance's state of matter at a given temperature. For this reason, vegetable oils that are solid at room temperature are sometimes called vegetable fats. Vegetable oils are composed of triglycerides, as contrasted with waxes which lack glycerin in their structure. Although many plant parts may yield oil, in commercial practice, oil is extracted primarily from seeds. On food packaging, the term "vegetable oil" is often used in ingredients lists instead of specifying the exact plant being used, especially when the oil used is less desirable to the consumer or if a mix is used. Note that these figures include industrial and animal feed use.

Although, India is a major producer of oilseeds, per capita oil consumption in India is only 17.6 kg/annum which is low compared to China, Japan, Brazil, Russia and USA. Depending on the period of cultivation, the

oilseeds are classified as 'Kharif Crop' and 'Rabi Crop'. The Kharif Crop that is dependent on the Monsoon is harvested around October-November each year. On the other hand, the Rabi Crop is harvested around March-April each year. The major oilseeds of India are groundnut, rape seed mustard, linseed, sesame and castor. Groundnut and rape seed mustard account about 85 percent of the total production of oilseeds in the country. In other words, groundnut among the major oilseeds is accounted as about two third, mustard seed one fourth of linseed and sesame five percent of castor, and three percent of total production. Soybean, sunflower, safflower, cotton seed and coconut are the other important oilseeds produced in India.

“Increasing income, urbanisation, changing food habits and deeper penetration of processed foods will be key drivers of future consumption growth of edible oil in the country”..

Palm oil, soy oil and sunflower oil are expected to penetrate regional markets further in the future, with the packaged edible oil segment leading the way for future growth of the industry, the report said.

“Domestic oilseed production growth can’t keep up with rising demand. Rising demand and stagnant domestic vegetable oil supply, which has been range bound between 6.5 million tonne and 8.5 million tonne in the past decade, will push the country’s vegetable oil imports to over 25 million tonne by 2030, from 15.5 million tonne in 2017”. Driven by low domestic supplies, palm oil, soy oil, and sunflower oil will continue to represent more than 98 per cent of total vegetable oil imports, the report said.

Palm oil from Malaysia and Indonesia will continue to take the lions share at 60 per cent of total imports in 2030, followed by South American soy oil taking a 24 per cent and sunflower oil from the Black Sea Region at 14 per cent market share, respectively.

Soybean and sunflower oil import volumes into India will continue to grow at a five per cent annually despite their price premium over palm oil, due to a shift in domestic demand and consumer preferences for quality.

However, the report said, palm oil will continue to be the largest imported vegetable oil because of its price advantage, the price sensitivity among the low-income population, consumption growth in the fast-moving consumer goods (FMCG) sector, blended vegetable oil segments and increasing out-of-home consumption.

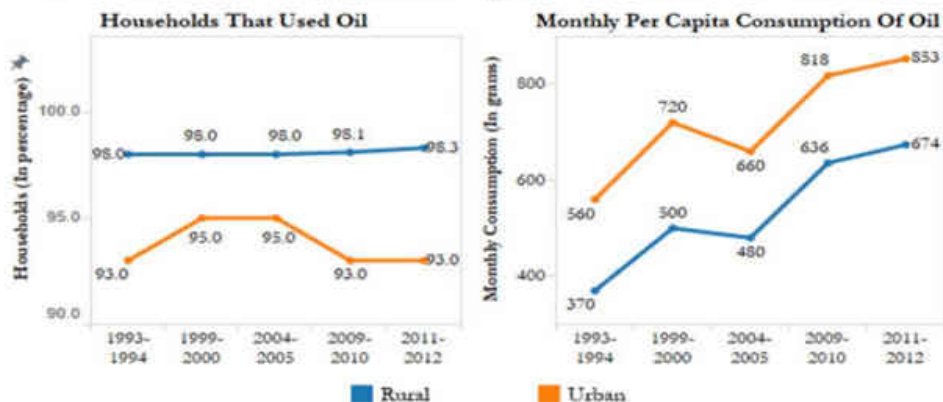
The packaged branded edible oil sector in retail currently, which accounts for 40 per cent of total edible oil consumption, will continue to grow between 6-8 per cent annually over the next five years, it added.

<b>Demand Projections by author based on various recommended consumption parameters (in million tons)</b>			
Category	Production In 2015 (Estimated.)	Demand By 2030 (Projected)	Required Growth in production per year (in Million tons)
Pulses	17.2	40.0	1.52
Coarse Cereals	41.7	102.0	4.02
Wheat	88.9	95.0	0.41
Rice	104.8	156.0	3.41
<b>Oilseeds</b>	<b>26.7</b>	<b>70.0</b>	<b>2.89</b>
Milk	146.3	182.0	2.38
Fish	10.1	16.0	0.39
Egg	39.2	57.0	1.19
Meat	6.0	15.0	0.60
Fruits	86.0	110.0	1.60
Vegetables	167.0	180.0	0.87
Tea	0.9	1.1	0.01
Sugar	25.0	33.0	0.53
<b>Total food Demand</b>	<b>759.8</b>	<b>1057.1</b>	<b>19.82</b>

Please note: Demand for many other items which make part of food system is yet to be estimated.  
Source: The POLITIECONOMY, Int'l Research Journal of Political Economy, Volume 3, Issue 1, September 2016, Page 135

## As Income Going Up, Consumption Going Up

### Indians Are Using Increasing Quantities Of Edible Oil



Blog: Vijay Sardana Online

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**Table 1. Demand projections of vegetable oils for India**

Demand source	2020	2030	2040	2050
Projected population (billion)	1.32	1.43	1.55	1.68
<i>Per capita consumption considering 50, 60, 70 and 75% above the prescribed consumption levels during 2020, 2030, 2040 and 2050, respectively</i>				
<i>Per capita consumption (kg/ annum)</i>	16.43	17.52	18.62	19.16
Vegetable oil requirement for direct consumption (million tonnes)	21.69	23.13	24.58	25.29
Vegetable oil requirement for non-industrial uses (million tonnes)	3.57	6.34	9.69	10.61
Total vegetable oil requirement (million tonnes)	25.26	29.47	34.27	35.90
Vegetable oil availability from secondary sources (million tonnes)	5.05	5.89	6.85	7.18
Total vegetable oil requirement from annual oilseed crops (million tonnes)	20.21	23.58	27.42	28.72
Total vegetable oilseeds requirement from nine annual oilseed crops (million tonnes)	67.37	71.45	80.65	82.06

Source : Vision Document of ICAR

Blog: Vijay Sardana Online

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## Global & Domestic Production, Exporters and Importers of Major edible oil

Vegetable oils are derived from plant seeds or their parts and have a wide variety of food and non-food applications. Major types of vegetable oils include sunflower oil, rapeseed oil, soybean oil, palm kernel oil, and palm oil.

The use of palm oil in cooking and various applications in the food industry is gaining popularity propelled by a number of factors. In the recent years, palm oil as edible oil has increasingly gained traction in several countries of Southeast Asia and various parts of Africa and South America. World over, there is surging demand for palm oil due to its functional properties, such as a viable substitute for trans-fats, and lower cost of production than other commonly used oils such as soybean oil. This bodes well for the growth of the

global vegetable oil market. In many parts of the globe, palm oil is preferred in making margarines. The soaring popularity of palm oil as feedstock in manufacturing biofuels is offering a robust impetus to the demand for the oil.

However, owing to surging environmental concerns in various developed regions, particularly in Europe, the market for palm oil is likely witnessed turbulent times ahead. The unregulated production of palm oil in several European countries has led to concerns of deforestation and the noticeable loss of peat lands. Consequently, various advocacy groups in Europe concerned with the carbon footprint opine this to adversely affect the biodiversity. Nevertheless, it is still considered as the most versatile oilseed crop world over.

The global vegetable oil market is segmented on the basis of type, extraction method, application, and geography. On the basis of type, the global market is segregated into sunflower oil, rapeseed (canola) oil, soybean oil, palm kernel oil, palm oil, and minor vegetable oil. Palm oil held the most dominant market share in 2015 and is forecasted to witness a steady growth rate over the forecast period.

This is attributed to its low price among all the variants of vegetable oil and its continued demand from the food sector for use in cooking oil, frying fat, bakery fat, and margarine among others. Its growing application in the form of feedstock in the bio-fuel industry is also a major reason for its continued steady growth.

Sunflower oil is experiencing significant growth in this category. This is attributed to its property of providing a trans-fat free alternative in the food service industry. On the basis of extraction method, the global vegetable oil market is segregated into mechanical extraction, solvent extraction, hydrogenation, and sparging. Mechanical extraction held the key market share in 2015 and is expected to grow at a steady rate over the forecast period.

Hydrogenation is the most speedily growing segment in this category. On the basis of application, the global market for vegetable oil is segregated into food, industrial, and bio diesel. Food application is further segregated into baking & frying processes, salads & cooking oils, fatty ingredients, margarine & other spreads, frozen & processed foods, and others. Industrial application is sub-divided into paints, lubricants, cosmetics, pharmaceuticals, and others. In the biodiesel segment the major application of vegetable oil is in feedstock.

Major drivers of the global vegetable oil market include increasing use of vegetable oil in the food industry as they provide a trans-fat free alternative. Increasing demand for vegetable oils in the bio fuel industry as feedstock to produce bio fuel is another major driver. Growing health benefits of a few vegetable oils is another major reason triggering the overall market growth of vegetable oil. High price volatility of vegetable oils is a restraint that is hindering market growth as it is resulting in lack of working capital required to carry on with the production processes. Palm oil as a reliable substitute to trans-fat in the cooking sector is a promising opportunity for the growth of the vegetable oil market globally.

Geographically, the market is segregated into North America, Europe, Asia Pacific, Middle East & Africa, and Latin America. Asia Pacific was the most dominant market in 2015 and is forecasted to maintain its dominance over the forecast period owing to the growing convenience food sector as a result of urbanization. This in turn increases the demand for palm and kernel oil. North America closely follows Asia Pacific owing to the large size of the food and food service industry which triggers continued demand for vegetable oil.

The growing global demand for vegetable oils for food leads to increased oilseeds production. Almost 2/3rd of the current million tons of vegetable oils produced in the world correspond to palm and soybean oils. The oil palm is cultivated in the tropical zone, in areas formerly occupied by forests, and soybean oil is a by-product of protein meal production. The diversification of raw materials for the vegetable oil market is thus strategic for both food and non-food sectors. Sources for vegetable oil should be economically competitive



and provide sustainability indexes higher than that provided by oil palm and soybean.

India has the fifth largest edible oil economy in the world which accounts for 4% of global vegetable oil production, 12% of global consumption and 21% of globally traded volumes. Even though India occupies a prominent position in the global oilseeds production more than 70% of India's edible oil demand is met by imports and it is projected that India may need to import 14 million tonnes of edible oil by the year 2020. Indian Oilseed production is about 25-26 million tonnes leading to 10.75 million Ton of edible oil. This deficit of 14 million tonnes in demand and supply is met by imports. India primarily imports edible oil from Indonesia, Malaysia, Argentina and Brazil.

Consumption of major edible oils in India stood at 24.10 million tonnes (MT) in 2017, and was valued at Rs1.4 trillion. Domestic production met only 30% of that demand; the rest was imported. The demand for edible oils in India has shown a steady growth at a CAGR (Compound annual growth rate) of 5%.

(Qty in MillionMT)

<b>Table 1: Global &amp; Domestic Production, Exporters and Importers of Major edible oil</b>				
<b>Edible oil</b>	<b>Global Production (2017-18)</b>	<b>India's Production (2017-18)</b>	<b>Major Exporters/ Importers (2017-18)</b>	<b>Major Producer</b>
Ground nut oil	5.52	1.86	Exporters: Argentina, Brazil, Senegal	China, India, Burma, Nigeria, Sudan
			Importers: China, Italy, USA	
Mustard oil	28.35	2.34	Exporters: Canada, Germany, Czech Republic	EU, China, Canada, India, Japan
			Importers: USA, China, Netherland	
Sunflower oil	17.75	0.07	Exporters: Ukraine, Russia, Argentina	Ukraine, Russia, EU, Argentina, Turkey
			Importers: India, China, Netherlands	
Soybean oil	56.15	1.83	Exporters: Argentina, Brazil, USA	China, US, Argentina, Brazil, EU
			Importers: India, Bangladesh, Algeria	
Palm oil	69.42	0.22	Exporters: Indonesia, Malaysia, Netherland	Indonesia, Malaysia, Thailand, Colombia, Niger
			Importers: India, China, Pakistan	

Source: Global Production: USDA, India's Production: DVVOF, Exporters & Importers: Comtrade

### **Production and Consumption Pattern of Edible Vegetable oil in India**

India imports about 60% of the edible oil requirements as the domestic production of edible oil is not sufficient to meet internal consumption needs. During 2016-17, the country imported 14.01 million tonnes of edible oil which amounted to Rs.73,048 crore. The domestic production of the nine annual crops grew at a notable CAGR of 3.89%. However, the per capita demand increased at a faster pace of about 6% on account of enhanced per capita consumption (19 kg oil per annum) driven by increase in population and growth in per capita income. Also, it is noticed that area under oilseeds has witnessed a deceleration in general, and this is due to their relative lower profitability against the competing crops like maize, cotton, chickpea etc., under the prevailing crop growing and marketing situations. The agenda estimates the vegetable oil requirement in the country to be at 33.2 million tonnes by 2022. This is assuming per capita consumption of about 22 kg per person per annum from the level of 19 kg per person per annum during 2015-16. It also estimates the oilseed production (nine annual oilseed crops: primary source) target at 45.65 million tonnes from which the vegetable oils would be available at around 13.69 million tonnes

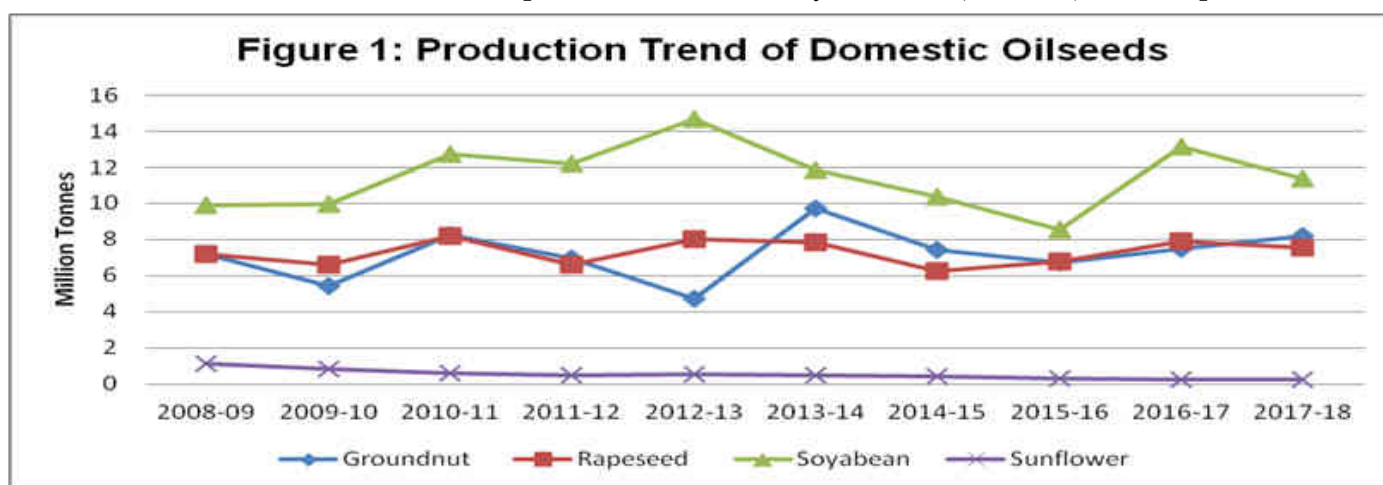
(Unit: million Tonnes)

	2016-17	2017-18* Estimate
Production	10.75	10.52
Import	14.00	15.36
Availability	24.75	25.88
Export and Industrial Use	0.65	0.63
Total Availability for Domestic Consumption	24.10	25.25

by 2022. The current annual output of vegetable oils is 7.31 million tonnes.

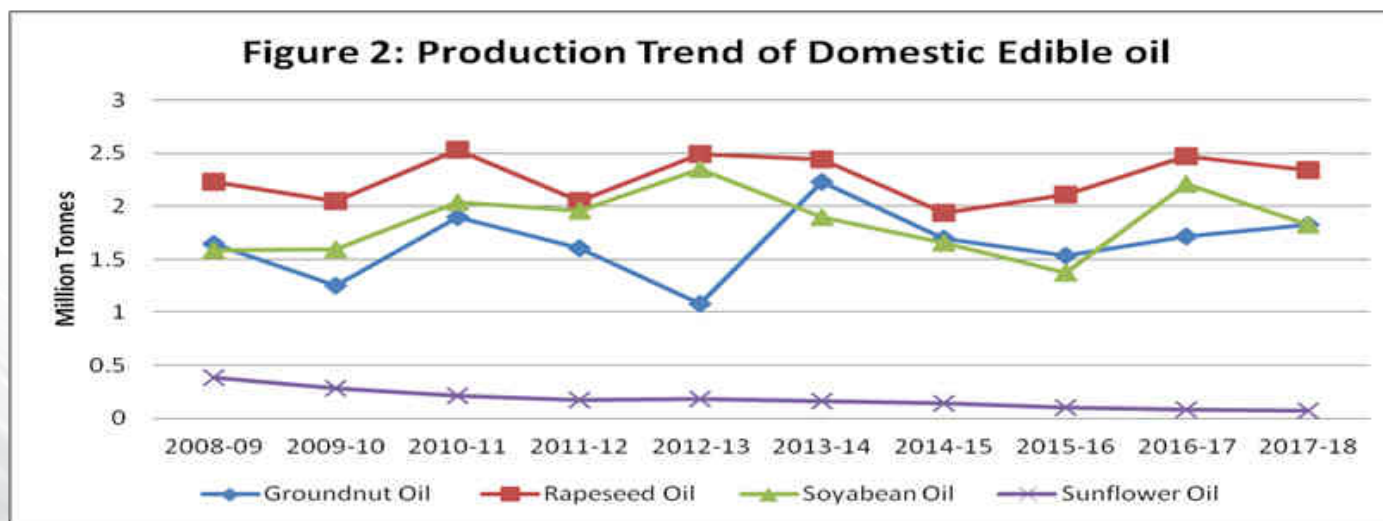
It's expected the various national and multinational players to dominate the edible oil market due to the increasing import dependence of the country in the near future. Rice bran and blended oil market are expected to be the fastest growing categories in the entire edible oil segment with Oils such as Mustard, Sunflower, Groundnut and Cottonseed tend to remain region specific in the near future with a moderate fluctuation in their prices.

Between 2008/09 and 2016/17 domestic production increases by 4.41 ml T (+58.97%), consumption increased



by 10.04 ml T (171%) and import increased by 5.82 ml T (171%) to match the rising consumption.

### Production Trend of Domestic Oilseeds



Source: Directorate of Economics and Statistics

## India's import of major edible oils

(Qty in lacs Tonnes)

Year	Soybean Oil		Palm Oil		Sunflower Oil		all edible oils	
	Crude	Refined	Crude	Refined	Crude	Refined	Crude	Refined
2013-14	13.5	0.0	51.3	25.4	10.8	0.0	75.6	25.50
2014-15	23.2	0.0	69.7	11.9	17.1	0.0	110.0	11.91
2015-16	39.6	0.0	71.1	25.7	14.9	0.0	125.6	25.71
2016-17	34.6	0.0	53.6	29.4	17.3	0.0	105.5	29.43
2017-18	31.5	0.0	67.5	27.7	22.5	0.0	121.5	27.7
2018-19 (Apr-May)	5.56	0.0	8.66	3.90	5.69	0.0	19.91	3.90

Source: Department. Of commerce

### Production Trend of Domestic Edible Oils

Source: Directorate of Vanaspati, Vegetable oil and Fats (DVVOF)

### Growth Drivers for Vegetable Oil Industries

There are several growth drivers in the edible oil market in India; some of them are listed and explained below.

- Growing awareness for health.
- Rising affordability of branded products.
- Shift from vegetable oil to Palm oil and Soy Oil.

**Growing awareness of health:** The edible oil market is experiencing a considerable growth owing to the rising consumer awareness about health benefits and strong economic growth. Western lifestyle is being increasingly adopted which has credited to be one of the biggest factors driving the market.

**Rising affordability of branded products:** The global financial crisis, several poor harvests and the reduction in import duties on edible oils forced several small-scale players to close down or be taken over by larger players. Multinational players in the domestic market included Adani Willmar Limited, which offers a large product portfolio of edible oil variants. The branded products are very widely accepted in India due to their high quality and reasonable price. The competition in the oil industry limits the price structure of different brand structure of edible oils.

### Technologies Trend in Vegetable oil Processing

Through technological means such as refining, bleaching and de-odorisation, all oils have been rendered practically colourless, odourless and tasteless and, therefore, have become easily interchangeable in the kitchen. Newer oils which were not known before have entered the kitchen, like oils of cottonseed, sunflower, palm or its liquid fraction (palmolein), soyabean and ricebran.

These tend to have a strong and distinctive taste preferred by most traditional customers.

The share of raw oil, refined oil and vanaspati in the total edible oil market is estimated at 35%, 55% and 10% respectively.

## Production Process and Technology Selection

Use of oil in food is not new; oils extracted from plants have been used since ancient times and in many cultures. But at that time the extraction is done by traditional method like Mechanical Pressing. Those days there were limited source of extraction technique and people used to consume raw oils.

With the time technique has been improved. Now there are many different techniques are available through which all the impurities removed from the raw oil, according to Nature of Oil.

Characteristics Impurities present in Oils:

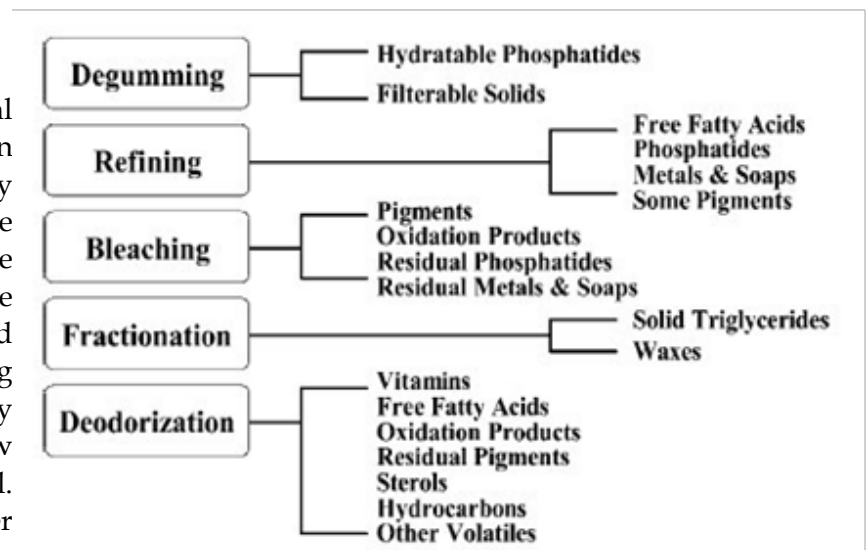
1. Gum
2. Free Fatty Acid
3. Coloring Pigments
4. Off-Flavor
5. Metal ions
6. Insoluble impurities

Now a day's edible oil extracted from the oil seed sources expose to numerous process to yield up oils of various amounts according to nature of oil content. In general, irrespective of seeds, industrial level production of cooking oil involves cleaning the seed, grinding them, pressing and extracting the oil from them by solvent extraction process. During Extraction a Volatile hydrocarbon such as hexane is used as a solvent.

The extracted oil cannot be used for cooking. In is proceeded for refining where it color, odor and other impurities which causes many disease to human, are removed. Refining is done by two Ways:

1. Chemical Refining
2. Physical Refining

Chemical refining is the traditional method used in past centuries. The main purpose of chemical refining is to saponify the FFA by an alkaline solution and dilute the resulting soaps in a water phase. These soaps are removed by separators. The neutral oils are subsequently bleached and deodorised. This chemical refining can be used for reliably refining virtually all crude oils, including oils of low quality, with the exception of castor oil. In addition to the removal of FFA, other undesirable non-glyceride materials are also removed.



Physical refining was utilized as early as 1930 as a process for the preneutralization of products with a high initial FFA content. In this case, preneutralization was followed by caustic refining. Later, it was found possible to physically refine lauric oils and tallow if the proper pretreatment was applied before steam distillation. Physical refining became a reality in the 1950s for processing palm oil, which typically contains high FFA and low gum contents. The palm oil process subjected the crude feedstock first to pretreatment and then to acidification.

Of late, the nano-technology is being upcoming for deacidification of oils. Further, double fatty acid scrubbers are used to get nutritional compounds and high ffa fatty acids of better purity.

### **IMPORTANCE OF EDIBLE OIL**

- The market size of the India Edible Oil, Palm Oil, Soyabean Oil, Mustard Oil, Sunflower Oil, Groundnut Oil, Cottonseed Oil, Rice Bran Oil, Blended Oil Market
- Market segmentation of India Edible Oil market on the basis of types of oils
- Market segmentation of Palm Oil, Soyabean Oil, Mustard Oil, Sunflower Oil, Groundnut Oil, Cottonseed Oil, Rice Bran Oil, Blended Oil market on the basis of geography and sector
- Trends and Development in the India Edible Oil Industry.
- Market Share of Major Brands by North, South, East, West region
- Competitive landscape and detailed company profiles of the major manufacturers of edible oil in India Edible Oil Industry

### **DEMAND GROWTH PROSPECTUS BY 2019**

The report on future demand prospectus provides a comprehensive analysis of the market size of India edible oil Industry, palm oil, soybean oil, sunflower oil, mustard oil, rice bran oil, blended oil, groundnut oil and cottonseed oil market. The report also covers the market shares of major edible oil brands in India as well as the revenues of major players in the edible oil market. Edible oil industry is driven by import of edible oils, registered huge revenue in FY'2012. With an increase in consumption of edible oils in the country, the revenue of edible oils had inclined by 30.8% as compared to FY'2011. Each segment in the edible oil industry is subject to a gamut of different factors such as price hikes and change in government policies play an important role in determining their respective revenues. The edible oil industry in the India has grown at a CAGR of 13.1% from INR 638.4 billion in FY'2009 to INR ~ billion in FY'2014. The competition in India edible oil market is highly fragmented owing to the presence of a large number of organized as well as local and unorganized players. India is the second-largest producer of Rice bran oil after China and the country has the potential to produce more than 1.4 million tonnes of rice bran oil. Rice Bran Oil market in India is still at its nascent stage, but the segment has showcased immense growth in the past few years. In 2012, the market for Rice Bran Oil in India grew at a sizeable growth rate of 14.0%. A large proportion of the rice bran oil market is dominated by regional and local players. Sunflower oil market in India has showcased a promising growth in revenues during the past few years. The sunflower oil market revenues during the period 2009 to 2014 have surged at a healthy CAGR of 3.2%. The market for. Blended Oil market in India has showcased a healthy and steady growth during the period from 2009 to 2014. The market for Blended Oil in India has been largely subjugated by organized players which has accounted for major share in the overall market. The edible oil market is expected to be dominated by various national and multinational players due to the increasing import dependence of the country in the near future. Rice bran and blended oil market are expected to be the fastest growing categories in the entire edible oil segment with Oils such as Mustard, Sunflower, Groundnut and Cottonseed tend to remain region specific in the near future with a moderate fluctuation in their prices. It provides a comprehensive analysis of the various aspects such as market size of India edible oil Industry, palm oil, soybean oil, sunflower oil, mustard oil, rice bran oil, blended oil, groundnut oil and cottonseed oil market. The report also covers the market shares of major edible oil brands in India as well as the revenues of major players in the edible oil market.

## **SIGNIFICANT OF USED OIL**

- A large quantity of used vegetable oil is produced and recycled, mainly from industrial deep fryers in potato processing plants, snack food factories and fast food restaurants.
- Recycled oil has numerous uses, including use as a direct fuel, as well as in the production of biodiesel, soap, animal feed, pet food, detergent, and cosmetics. It's traded as the commodity, yellow grease.
- Since 2002, an increasing number of European Union countries have prohibited the inclusion of recycled Marketing Scenario of Edible Oil in India (Marketing Strength of Edible Oil in Andhra Pradesh) vegetable oil from catering in animal feed. Used cooking oils from food manufacturing, however, as well as fresh or unused cooking oil, continue to be used in animal feed. Cooking Oil is plant, animal, or synthetic fat used in frying, baking, and other types of cooking. It is also used in food preparation and flavoring not involving heat, such as salad dressings and bread dips, and in this sense might be more accurately termed edible oil. Cooking oil is typically a liquid at room temperature, although some oils that contain saturated fat, such as coconut oil, palm oil and palm kernel oil are solid. There are a wide variety of cooking oils from plant sources such as olive oil, palm oil, soybean oil, canola oil (rapeseed oil), corn oil, peanut oil and other vegetable oils, as well as animal based oils like butter and lard. Oil can be flavored with aromatic foodstuffs such as herbs, chillies or garlic.

## **FUTURE PROSPECTUS OF OIL INDUSTRY IN INDIA**

- Future Growth of India Edible Oil Market is expected to be led by palm and soyabean oil segments. Ken Research announced its latest publication on "India Edible Oil Market Report Outlook to 2019" which provides a comprehensive analysis of the various types of edible oils in India. The report covers various aspects such as market size of India Edible Oil Market, segmentation on the basis of palm, soybean, mustard, sunflower, groundnut, cottonseed, rice bran and blended oil volume of exports and imports for edible oil. The report is useful for edible oil manufacturers, wholesalers of food and beverages, retail chains, edible oil products machinery manufacturers and new players venturing in the market. The Edible oil market in India has witnessed a growth in recent years on account of rising demand for variants of edible oil fueled by expansion in the production. The surge in growth is majorly originated from growth in palm and soybean as a segment of edible oil market. The growth in this segment has been largely led by the domestic factors such as growing preference for healthy oils, growth in population base, shift in consumption pattern towards branded oil and favorable government policies. The India Edible Oil Market Report revenues have grown at a CAGR of 13% from 2009-2014. According to the research report, the India Edible Oil Market Report will grow at a considerable CAGR rate thus exceeding INR 2,080 billion by 2019 due to the increasing number of edible oil brands and rising consumption of edible oil in the country. "While High level of imports, low agricultural productivity, absence of technology for oil refineries, lower capacity utilization, lack of liquid storage and warehousing facilities are few of the major challenges which will affect the growth of this industry in the future".

## **FSSAI INITIATIVE FOR THE DEVELOPMENT OF VEGETABLE OIL INDUSTRIES**

Food Safety and Standards Authority of India is working hard in bringing in awareness amongst people about vegetable oils and fats. Recently they have prescribed the limit of total polar compounds (TPC) present in raw oils and refined oils. Maximum TPC permitted in crude edible oils is 15% and for refined oils, after frying, it is 25%, thereafter, the oil should be rejected as used cooking oil (UCO).

Now fatty acid composition has been made compulsory and manufacturer has to declare saturated, unsaturated and trans fatty acid. We have tried to align with the codex, however, this alone does not give information about the purity of oils, it is to be tested for other physic-chemical characteristics to ascertain the purity of individual oils.

Shortly, the preparation is for including the fortification of vitamins in oils which will give nutritionally rich oil to the consumer having several health benefits. Presently, it is mandatory to write enriched with vitamin if they have been added in the product. Similarly, if other additives like antioxidants or anti-foaming agents are added, it is to be declared on the packaging. Diacetyl has been prohibited to be used as flavouring agent which was earlier being used by spurious butter fat manufacturers.

## CONCLUSIONS

- India is a potential market for edible oils because of its consumption in India.
- India happens to be the leading country in the production, consumption and marketing of edible oils.
- The scientific research has given the country many vegetable oils free from cholesterol and good for heart.
- The oil industry meets not only economic support but also the agricultural support.
- The competition in oil industry limits the price structure of different branded edible oils.
- The oil industry happens to be the main player in the export business in India.

## BRIEF PROFILE OF AUTHOR

Dr. R P Singh is a former Director & Professor, Oil Technology, HBTI, Kanpur having more than 33 years of teaching, research, and industrial experience. He is also Past President, OTAI. Dr. R P Singh is presently Managing Director of Rohil Khand Laboratories & Research Centre and Independent Director in M/s Rohit Surfactants Pvt. Ltd., Kanpur and M/s B.L. Agro Pvt. Ltd., Bareilly. He is advisor CMI, Hyderabad. He is recipient of Prof. J G Kane Memorial Award (most prestigious award in the discipline of Oil Technology) for the year 2006. He is also a recipient of Prag Narain Memorial Award for the best industrial project on Lubricants and Greases instituted by the OTAI (CZ) at National Level and RBGV Swaika award for best research paper for three consecutive years in OTAI. Dr. Singh has organised various Seminars and Conferences at National and International level.

# Oilseeds and Oils Policy Deserves Disruption

G. CHANDRASHEKHAR



It is heartening that at the highest level in the government realization, albeit late, has dawned about the dire need to pay close attention to the country's oilseeds sector. In her maiden Budget speech, the Finance Minister referred to the government's resolve to move towards self-sufficiency by boosting oilseed production.

To be sure, in edible oil, our dependence on import has worsened over the years and is currently poised precariously at about 70 percent which translates to an annual foreign exchange outgo of about \$ 11 Billion (well over Rs 75,000 crore) on import of a massive 14-15 million tons.

The alarming downside to this unaffordable import dependence is that domestic oilseed growers are often unable to receive even the minimum support price (MSP) guaranteed by the government. Depressed domestic crop prices discourage oilseed growers who in any case continue to face several risks including from weather and volatile markets.

Without doubt, in the short to medium term, edible oil import cannot be wished away. We need imported vegetable oils to meet food and industrial consumption demand. What is hurting domestic oilseeds is not import of low priced vegetable oil, but unregulated and unmonitored import. Unregulated imports tend to become excessive - often speculation driven - which actually hurts domestic interests.

So, imports must be regulated in a way that enhances overall welfare gains for all stakeholders. This calls for a serious review of the existing import policy and tariff structure. Edible oil import and tariff policies of the last twenty year or so have done little to encourage domestic oilseed production. The policy

of unregulated import and tinkering with the duty structure has more often than not brought windfall gains to speculators rather than advance domestic interests.

The policy of zero or low import duty on vegetable oil has surely been a facile option for New Delhi; yet it can be said to be the compulsion of the time - to ensure uninterrupted availability of cooking oil for consumers at affordable prices. However, sadly, such a liberal policy did nothing to support domestic producers.

But times are changing. Countries have now become more inward looking and are practicing protectionism. For governments, domestic socio-economic and political compulsions override everything else. Closer home, weather risks, uncertain crop prospects and falling crop prices have led to widespread farmers' protests in our country.

Whenever a commodity is in short supply, prices tend to rise. But in case of India's oilseeds, it is most ironic, indeed tragic, that unregulated import of the finished product - vegetable oil - continues to depress growers' prices. Under such circumstances, the Prime Minister's ambitious target of doubling farmers' income by 2022 is doomed to remain a pipedream.

From that perspective, the extant policy of liberal, unregulated import of vegetable oil now seems to outlive its utility. We need to disrupt the cozy arrangement, if we are serious about a significant expansion in domestic production of oilseeds, and are committed to moving towards self-sufficiency.

As part of creative disruption, New Delhi needs to



think through the current trade and tariff policies and examine if they continue to serve larger social, economic and political objective. Clearly, the current policies do not; and deserve to be changed.

Merely tinkering with the rates of customs duty from time to time on import of vegetable oil has failed to deliver tangible results for domestic oilseeds producers. We need to move well beyond tariffs.

Several steps are needed. To start with, freeze the quantum of vegetable oil import at say 12 million tons. This quantum should be reviewed every six months based on exigencies of domestic crop and price situation. Then, start regulating imports by mandating prior registration of import contracts. This will allow policymakers to track import commitments in terms of volume, value, type of oil, price and destination port. Currently, such data are not available to the government. Data will facilitate informed policy decision.

Customs duty on import must be at rates that would ensure that the domestic oilseed prices do not fall below the MSP.

The aforesaid measure will boost domestic oilseed

prices much to the relief of growers. Once farmers begin to see remunerative prices, they will begin to expand acreage and manage inputs better. While this will help, it must combine with other measures (input delivery, water management, technology infusion) to address low yields.

To advance the interest of consumers, the government must revive supply of edible oil, in addition to rice and wheat, through the public distribution system for the vulnerable sections of the population. We need to lift the per capita consumption of the really needy and nutritionally challenged sections of the population.

In the processing industry there is huge idle capacity. Inefficient units will be forced to exit the business and the fittest will survive. To support oilseed crushers by providing them raw material, import of oilseeds in addition to edible oil may be considered.

Oilseed import will deliver multiple benefits - help utilize idle processing capacity, generate jobs and incomes as also make available oils for human consumption and oilcakes /meal as feed for the livestock industry.

## BRIEF PROFILE OF AUTHOR

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# Increasing Import bill of Edible oils & rising MSP may destabilise India's food & feed security

VIJAY SARDANA



Edible oil is an integral part of Indian cooking system and used in every kitchen of India. Today 65% of edible oil is imported for consumption.

According to author's estimates, if we do not review our oilseed production and edible oil trade policy towards, the cost of this negligence will be more than USD 80 to 100 billion per year from 2025 onwards. The foreign exchange requirement for imported edible oil, according to conservative estimates, will be about USD 40 to 50 billion by 2025 and the loss of livestock productivity due to non-availability of oil meals for balanced ration which will lead to low production by growing animal population and loss of opportunity for employment and value addition and its impact on revenue collection and impact on added spending on social security programs for the government, all these combined together will be about additional USD 40 to 50 Billion per year.

## **Demand Side Analysis for Oilseeds and Edible Oils in India:**

### **Projected Population of India in 2025**

According to the Report of the Technical Group on Population Projections constituted by the National Commission on Population, Government of India, the population of India is expected to increase to 1400 million by 2025 at the rate of 1.2 percent annually. Therefore, the density of population will increase from 313 to 426 persons per square kilometer.

### **Projected Per-capita Income of India in 2025**

According to the Chairman of Prime Minister's Economic Advisory Council (PMEAC), it has been estimated if we grow at 9 percent per annum, India's per capita GDP will increase from the current level of

USD 1,600 to USD 8,000-10,000 by 2025. It looks more on the optimistic side, with this growth; India will become part of the middle-income group of countries when it achieves \$ 8000-\$ 10,000 per capita income. In order to plan the commodities, requirements let me take a conservative estimate growth rate of 5% and per capita income will be around USD 3,000 per year.

## **Projected demand for edible oils and oilseeds by 2025:**

According to an FAO study, food energy requirements for the South Asian population will be about 2700 Calories/person/day in the year 2025.

In terms of edible oil demand, currently it is about 22 million tons, it is estimated that it will be about 20 to 22 kg per capita per year. It means India will need about 30 million tons of edible oils by 2025. It means with an average yield of about 30% oil from oilseeds, we will need about 80 million tons of oilseeds. If the yield is less India will need more seeds for oil production.

## **Supply Side Analysis for Oilseeds and Edible Oils in India:**

With the projected demand of about 80 million tons of oilseeds to produce about 23.8 million tons of edible oils, India will need two vital natural resources i.e. water and land.

### **Land Availability for cultivation**

According to Minister of Agriculture, India will have about 0.12 ha. per capita land for cultivation by 2025. The net sown area is 140.02 m ha and it remains unchanged for the last two decades. Total

Arable land is about 182.47 m ha which is about 55% of India's reporting area and about 11% of world's arable land, out of this only one-third of cultivated land is irrigated and producing 55% of food grains

About 78.17 m ha (2010) of arable land is rainfed contributing to 45% of Agricultural production including oilseeds. At the same time, we have about 120 million ha. is degraded lands.

With the current productivity levels of 1.10 tons per hectare, we will need about 73 million hectares of land to produce 80 million tons of oilseeds. Where is the land for this much oilseed production? This will about 52% of the total agriculture land in India. Currently, about 55% of agriculture land is already used to cultivate food gains i.e. cereals. It means with the existing level of productivity and competing use of agriculture land, it is impossible to meet the growing demand for oilseeds and edible oils by domestic production.

#### **What should be an oilseed productivity target?**

At present about 18 million ha. is used for the production of oilseeds in India. It means we must develop an action plan to produce 4.5 tons per hectare per year from the same land to meet our demand for oil from domestic sources by 2025. Is this possible?

#### **Growing Water Requirement and Reduced availability:**

According to Minister of Agriculture, India will have about 1700 m<sup>3</sup> of water per person and 84% of this water will be used for irrigation purpose. This is at the stress level.

Water availability for agriculture is estimated to go down by up to 12 percent from the current level by 2025 from the current level.

The fact is due to the growing demand for food, farmers will require 25 percent more water in 2025 than what they are consuming currently to produce food for feeding the domestic population.

By 2025, the water requirement for irrigation will be 790 billion cubic meters. The total water availability as of today is far less than what is projected. Water harvesting and conservation must be a national mission.

#### **India will remain a net importer of edible oils:**

If we take the global average in oilseed production, we will not be able to produce more than 40 to 45 million tons of oilseeds, which is half of the requirement of oilseeds required to meet domestic demand. According to the author, estimate, the best of the efforts and resources India will have a shortage of about 30 to 40 million tons of oilseeds. In terms of edible oil, India will always need about 18 to 20 million tons of imported edible oil every year from 2025 onwards. It means with the current rate of exchange rate India will spend about USD 18 to 20 billion every year for the import of edible oils. If we take the inflation at the rate of 6% per year and the exchange rate unchanged, India will need about USD 40 billion to meet the shortfall of 15 to 20 million tons of edible oils.

For some reason, if we are not able to improve our productivity from 1.10 tons ha to 2.00 tons per hectare, the import bill will increase further.

#### **We can import edible oil but what about Non-GM animal feed?**

Edible Oilseeds also provide protein for Livestock population, which we are not factoring inedible oilseed policy.

Today, the poultry feed is more expensive than wheat for human consumption. Milk price is touching Rs. 40 to 45 per litre because feed for milking animals is also very expensive. Poor quality soybean meal for animals is as expensive as good quality rice for the common man. This will make protein more expensive and will lead to malnutrition and imbalance intake.

According to various data, India will need about 200 million tons of milk, 15 million tons of meat, 16 million tons of fish and 17 million tons of egg. To produce these items, livestock will also need protein. Please don't expect animals to eat poor quality grass, poor quality feed, and poor-quality drinking water to maintain good health and give high-quality milk, high-quality meat, and egg. Today, Indian livestock is suffering due to non-availability of protein for feed application. Poor Milk yield per animal and low meat yield per animal are clear examples. If we are planning high yielding animals, they will also need better high nutrient diets for better yield. Garbage-

input will lead to Garbage-output. Feeding leftover agriculture waste in fields and grass can't deliver high performance in animals. Issues of Aflatoxin and other quality challenges will hurt the livestock sector.

These all are protein-rich diet. In other words, India will need 48 to 50 million tons of oil meals for animal protein production per year from 2025 onwards. To produce 50 million tons of animal protein, the animal feeds will need about 125 million tons of good quality proteins in the diet.

**Implications for Indian Economy and food security:**

Oilseeds availability are vital not only for human but also for the live stock sector. Considering the above facts, India will have to pay USD 40 to 50 billion for import of edible oils and oil meals and at the same time, India will have to forgo the production of livestock products i.e. milk, meat, egg and fish and

their multiplier benefits worth another USD 40 to 50 billion to the local economy.

The net impact of neglecting oilseed sector will cost import bill in foreign currency of edible oil, loss of livestock production and loss of value creation by losing opportunity to create local industry, employment, revenue for government and loss of export market for oilseeds, protein and livestock products and food safety issues will be about USD 80 to 100 billion to the Indian economy.

Still, we don't see any plan how the government is planning to bridge the gap because we cannot produce more than 40 to 45 million edible oilseeds against the demand for about 80 million tons by 2025. All stakeholders must think seriously about how to address this gap. The coming budget can allocate funds to strengthen the agriculture extension system to address the productivity targets to reduce the economic losses to the country.

## BRIEF PROFILE OF AUTHOR

**Profile of Vijay Sardana:**

Vijay Sardana is highly qualified, experienced and well known Agriculture and Agribusiness expert, Lawyer, Commercial & Investment Advisor & Arbitrator, Independent Director on various Boards & Member of Expert Committees. Well-recognised in the Corporate World for Expertise in Techno-legal & Techno-Commercial Matters including Contracts Negotiation, Mediation & Arbitration including Intellectual Property Matters, business disputes and investments.

He is on the on board of various organisations, well-known speaker, writer, author, blogger, corporate trainer, well known TV panellist on techno-economic and techno-legal matters including public policies, bio-economy and consumer markets, on issues impacting global and national trade and rural economy including food, agriculture and consumer issues.

He is specialised in Agribusiness, Health foods and Nutraceuticals & Consumer Products Value Chain Development including Food and Consumer Related Laws, and techno-legal and techno-commercial matters.

His services are used as business advisor on subjects related to economic policies, research and innovation management, consumers and business risk management, consumer-agri-food products and value chain development by various Corporates and organisations within as well as outside India

# Malaysian Palm Oil and The Environment



**BHAVNA SHAH**

Malaysia appreciates the importance of the environment to the entire global community and is committed to preserving it. There are challenges and a right balance has to be struck with the dual objective of uplifting the wellbeing of its population.

The Malaysian Palm Oil (MPO) industry is a highly regulated industry, with sustainability being the buzzword. It adheres to more than 60 Federal and state laws and regulations. These cover among other areas, environmental standards, wildlife conservation, soil conservation, health and protection of workers. Oil palm is the major agricultural crop in the country. Contrary to common beliefs, Malaysia, despite being the world's second largest producer and exporter of palm oil, still retains a forest cover in excess of 50%, well in line with its commitment to the international community at the Rio Earth Summit in 1992.

Continuous R&D is aimed at reducing the industry's impact on the environment, being adopted as successful practices in oil palm plantations, palm oil mills, and refineries. Malaysia is committed to achieving the highest standards of sustainability for palm oil.

It is important to note that most members of the industry have volunteered their participation in producing certified sustainable palm oil (CSPO). As a result, many industry partners are active members of the Roundtable on Sustainable Palm Oil (RSPO), which is an international platform reaching out to various stakeholders, including social/developmental/conservation NGOs. This understanding has also translated into common actions towards achieving greater sustainability in palm oil production and usage. Malaysia has also instituted its own nationwide Malaysian Sustainable

Palm Oil (MSPO) certification system and this has been targeted for mandatory adoption throughout the entire Malaysian palm oil industry supply chain.

## **ALLEVIATING GLOBAL WARMING**

An oil palm plantation, with its perennial green cover and closed canopy, displays many similar features akin to other tree species of a tropical rainforest. It is an efficient carbon sink and helps absorb greenhouse gases. A study has shown that an oil palm plantation assimilates more dry matter than even rain forests do. Interestingly, dry matter production remains high throughout the entire 25-year economic life cycle of oil palm trees.

## **CONSERVING SOIL AND WATER QUALITY**

During planting, several proven measures are taken to prevent soil degradation and conserve soil fertility. Leguminous cover crops fix nitrogen in the soil, recycle organic matter, improve soil structure, keep out weeds, reduce soil compaction and erosion and promote rainfall acceptance.

## **OXYGEN TO THE AIR**

Oil palm trees are unique in that they have a higher leaf area index that promotes better photosynthetic efficiency. This enables oil palm trees to release more oxygen into and absorb more carbon dioxide from, the atmosphere. A study has shown that an oil palm tree has a leaf area index which is comparable to that of rainforests.

## **EFFICIENT LAND UTILIZATION**

Without a shadow of doubt, oil palm provides the highest yield of oil per hectare compared to other oil-bearing crops. One hectare of oil palm yields 5 to 10

times more oil than other major oil crops. An annual average yield of 4 tons of palm oil per hectare makes oil palm the most efficient oil-bearing crop in the world. Imagine the extra land area required if other oils are to replace palm oil totally!!

### **POSITIVE ENERGY BALANCE**

Compared to other major oilseed crops, the cultivation and processing of oil palm requires less input of fertilizers, pesticides, and fuel energy. A study has shown that this gives oil palm a very favorable input-output energy ratio compared to soybeans.

### **PALM OIL'S CONTRIBUTION TO HUMANITY**

In 1900, global population was 1.6 billion, today about 7.3 billion, by 2050 estimated to rise to 9.6 billion. To meet world food and dietary demand, we will need 60% more food. Feeding an additional 2 billion plus people by 2050 will be no simple task. It will take a major collective effort of all stake holders

to achieve this target. Besides additional human population, even cattle and poultry industry will grow, increasing the demand dramatically.

Palm Oil plays a very significant and critical role in helping to feed the world as it is very efficient, versatile and productive. Yield is the key. With Malaysia's constant R&D, utilizing smart technology, good agricultural practices, pest management etc., yield output in oil palm plantations is set to grow sustainably. This is also being facilitated by the recent full genome mapping of the oil palm by researchers in Malaysia.

People ask why is palm oil always targeted? It is very unfortunate that, despite all the benefits listed above, it is surrounded by un-merited controversy. Palm oil has never got its due accolades for its role in fulfilling the food and nutrition requirements of humanity. It can only be hoped that on this occasion of World Environment Day, Malaysia's efforts in making Palm Oil sustainable are duly recognized.

## BRIEF PROFILE OF AUTHOR

### **Ms. Bhavna Shah - Profile**

Ms. Bhavna Shah is the Regional Head for India and Sri Lanka, of the Malaysian Palm Oil Council (MPOC), Kuala Lumpur. She is based at the MPOC office in Mumbai, India.

Ms. Shah joined MPOC Mumbai in 2004 and helped in the process of making Palm Oil the single largest vegetable oil consumed in the region.

Recognising her stature and knowledge, the organisers of the premier event in India for Soaps Cosmetics, Oils Detergents, etc, SCODET ASIA, have deemed it an honour to invite her to be on their National Programmes Committee. She is on the Editorial Board of Indian Home & Personal Care Industry Association. She is a member of the Organising Committee of GLOBOIL, the premier event in the Indian vegetable oils, seeds and extractions calendar. Ms. Shah is also on the Managing Committees of The Solvent Extractors' Association of India (SEA of India) and International Conference on Soaps, Detergents & Cosmetics (ISDC), amongst others.

In recognition of her contributions to the industry, TEFLAS, under the auspices of the apex association of the vegetable oils and oilseeds industry in the India, The Solvent Extractors' Association of India, conferred on her the award of "Woman Entrepreneur of the Year" at its Annual Awards evening, 2009, in Mumbai.

The Indian Medical Association honoured Ms. Shah on the occasion of the International Women's Day, 2010, for her contributions in various fields.

A Special Award was conferred on her for outstanding contributions to the success of SCODET Asia in 2017. Also, heartening to note, Ms Shah was the first ever woman to receive Global Person of the Year 2018 award last year in the entire history of edible oils industry for her overall contributions to the trade and industry. Ms. Shah has been very recently, bestowed with the "Employee of The Year award by MPOC, Malaysia. This is the first time in the history that MPOC has conferred this award on one of its Regional Managers.

Ms. Shah is a graduate in Commerce & Economics from Mumbai University. She has participated in Executive Programs conducted by the Harvard Business School.

Ms. Shah has made presentations at various national and international forums and at institutes of higher learning in India.

# PALM OIL – FUNCTIONALITY IN MEETING REQUIREMENTS OF THE INDIAN FOOD INDUSTRY

DR NAGENDRAN BALASUNDRAM

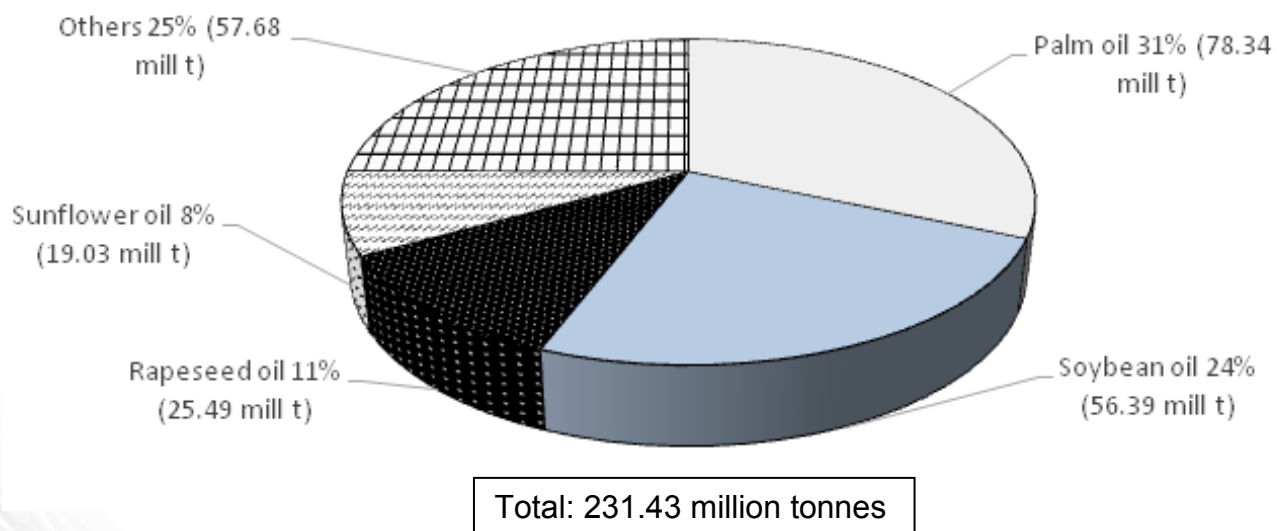


## INTRODUCTION

Oils and fats have an important role in foods as they enhance palatability and satiety; improve consistency, texture and mouthfeel through their crystallization and melting behaviour; and act as heat transfer medium in many food preparations (Talbot, 2016). Additionally, dietary fats play an important physiological role as macronutrients that provide energy; function as structural components of tissues; act as carriers of fat-soluble vitamins; and are involved in several physiological processes including growth and development. As such, oils and fats play an important role, both in human diets and in food preparation and processing. The choice of oil or fat used in food processing will also determine the taste, flavour, texture, palatability and shelf-life of foods and would thus, have an impact on the development of food industries and the quality of their products.

## GLOBAL OIL AND FATS SCENARIO

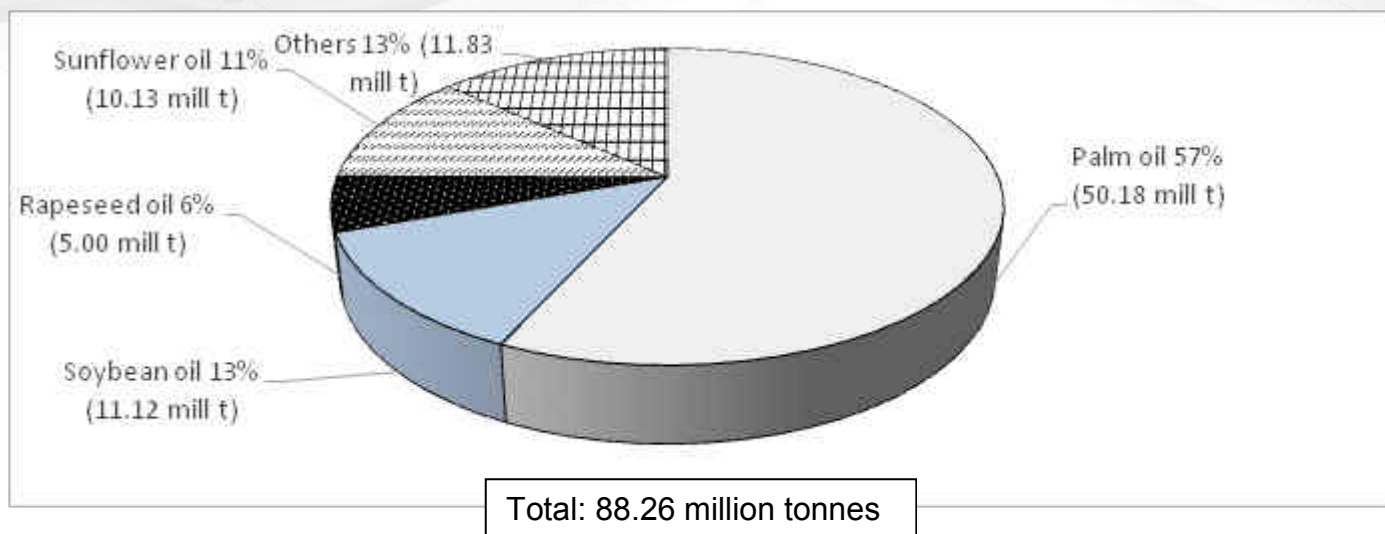
It is generally considered that there are 17 oils and fats produced and traded globally. However, palm oil, soybean oil, sunflower oil and rapeseed oil, which account for almost 75% of global oils and fats production and about 87% of trade (Figures 1 and 2) are the four predominant oils in the global oils and fats scenario.



(Source : Oil World, 2019)

Figure 1 : Global Production Share of Major Oils and Fats in 2018



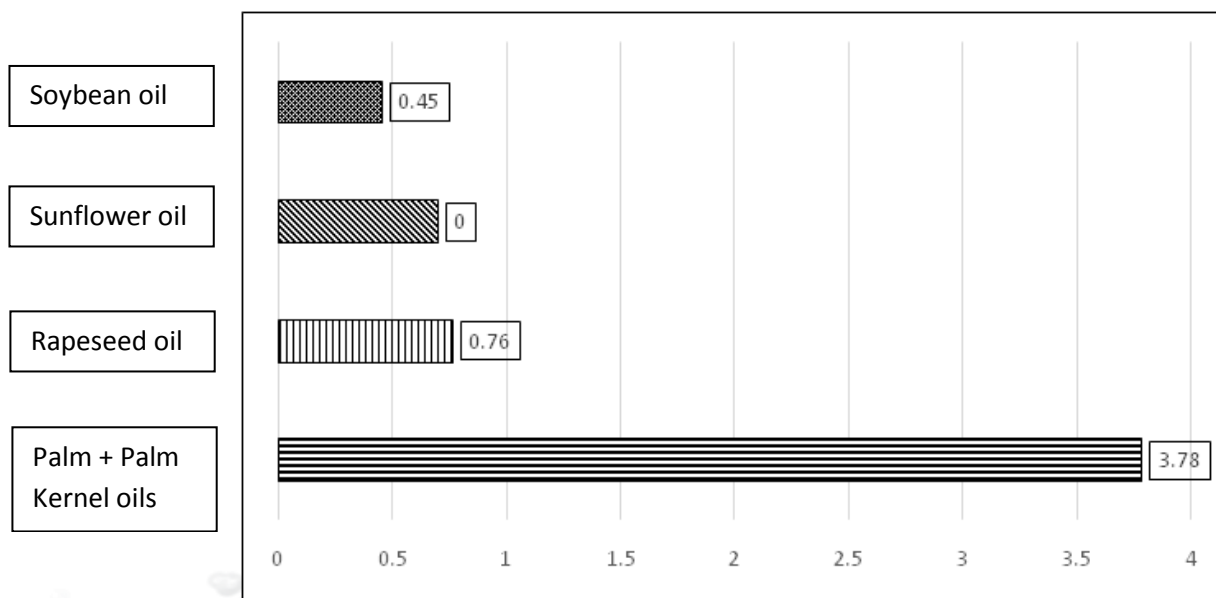


(Source : Oil World, 2019)

Figure 2 : Global Export Share of Major Oils and Fats in 2018

Note : Others include (in alphabetical order) butter as fat, castor oil, coconut oil, corn oil, cottonseed oil, fish oil, groundnut oil, lard, linseed oil, olive oil, palm kernel oil, sesame oil and tallow & grease.

The predominance of palm oil in the global production and trade of oils and fats is attributable to its high productivity compared to the other major oils. The oil palm (*Elaeis guineensis*) yields about 3.78 tonnes of palm and palm kernel oils/hectare (ha)/year, compared to about 0.76 tonnes of rapeseed oil/ha/year, 0.70 tonnes of sunflower oil/ha/year and 0.45 tonnes of soybean oil/ha/year (Figure 3). The oil palm is the most productive oil crop with a productivity that is about 5-9 times higher than other oil crops. Very significantly, the oil palm took up only about 10.3% of the total planted area of the four major oil crops (oil palm, soybean, sunflower seed and rapeseed), but accounts for 41.9% of the total oils produced from these crops in year 2018. When palm kernel oil is taken into account, the production of palm and palm kernel oils account for 44.4% of production of the major oil crops.



(Adapted from Oil World, 2019)

Figure 3 : Average Yields of Major Oil Crops (tonnes/ha)

## PALM OIL - MEETING INDIA'S EDIBLE OILS REQUIREMENTS

India's annual edible oil requirement is about 25 million tonnes, while production over the past 3 years has averaged around 10 million tonnes. Hence, India imports close to 15 million tonnes of edible oils each year, comprising palm oil, soybean oil, sunflower oil and rapeseed oil. A significant part of India's edible oils import requirement (about 60%) is met by palm oil (Table 1). Palm oil also accounts for almost 40% of the edible oils consumed in India. Palm oil offers several advantages to the Indian consumer, i.e. competitive price, all around year availability, closeness of supply from source countries (Malaysia and Indonesia), as well as versatility for various food applications.

**Table 1: India - Imports of Edible Oils**

Oil	January-December 2018		January-June 2019	
	million tonnes	% share	million tonnes	% share
Palm oil	8.652	59.9	4.514	62.4
Soybean oil	2.983	20.6	1.403	19.4
Sunflower oil	2.496	17.3	1.233	17.0
Rapeseed oil	0.206	1.4	0.019	0.3
Other oils	0.116	0.8	0.067	0.9
Total	14.452	100.0	7.237	100.0

(Source : Solvent Extractors' Association of India (SEA))

## PALM OIL -VERSATILITY AND FUNCTIONALITY FOR FOOD APPLICATIONS

Palm oil is very versatile, and can produce a wide range of different fractions, with diverse properties that are ideally suited for different applications in the Indian food processing industry. Palm kernel oil too can similarly be fractionated into different fractions to yield fractions with characteristics required for the specific food applications. The schematics of palm and palm kernel oil fractionation and the applications of basic fractions are shown in Figure 4. This versatility allows for a huge range of opportunities for the applications of palm products in various food products in India's food processing industry.

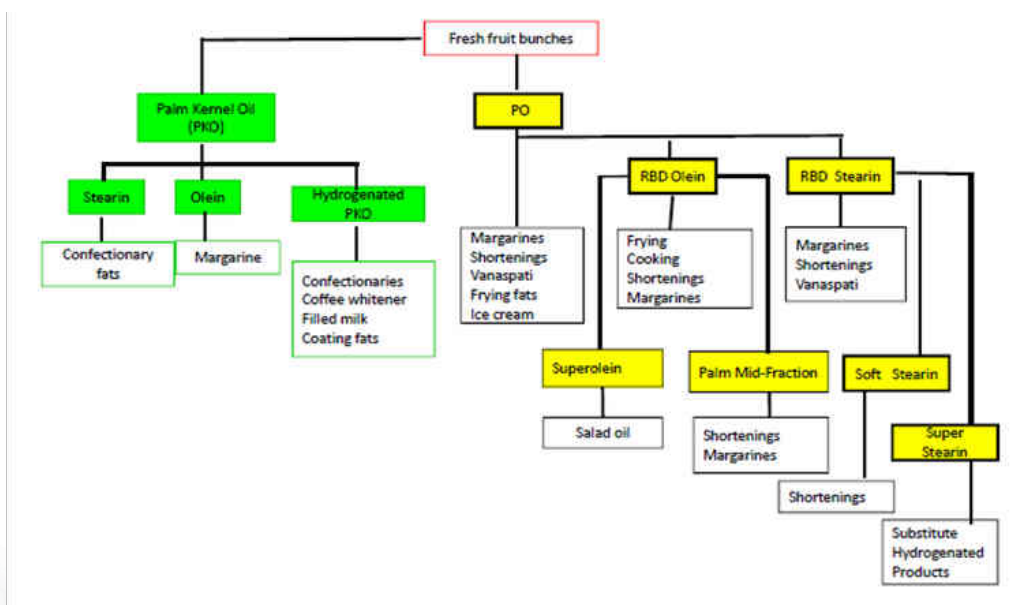


Figure 4: Palm and Palm Kernel Oil Utilisation Chart

## Palm-based Fats for the Bakery Industry

The Indian bakery industry is one of the biggest sections in the country's processed food industry. Products from this industry include, among others – breads, biscuits, cakes, pastries, rusks, buns, flat-breads, croissants and rolls. Based on available statistics, the total output of India's bakery sector is 3.0 million tonnes/ annum (tpa) of bakery products. The estimated value of the bakery sector was US \$7.22 billion in 2018. With a compound annual growth rate (CAGR) of 9.3% (2019-2024), the value of this sector is expected to reach US \$12 billion in the next 5 years (2024). Breads and biscuits account for over 82% of the total bakery products produced in the country. India is the third-largest biscuit manufacturing country, after the United States and China.

While India's bakery sector has access to an abundant supply of most of the primary ingredients required by the industry, India is deficient in edible oils and fats, particularly of the type with characteristics required for the bakery industry – i.e. semi solid fats like palm oil. Semi solid fats used in bakery products should have several characteristics such as:

- mixed composition of high and low melting point fats
- high solid fat content
- contribution to structural hardness
- cost efficient
- easily available; and
- high oxidative stability (for long shelf life)



Bakery fats and shortenings play an important role in the bakery industry as they contribute towards several important attributes of bakery products, i.e.

- tenderness
- moistness
- flavour
- richness/mouthfeel
- texture
- leavening
- lubrication
- structure; and
- product stability/shelf-life



Palm-based bakery fats can be tailor-made for the specific applications to provide the characteristic required of the baked product – be it a pastry, biscuit or bread. Various palm fractions including palm oil, palm olein and palm stearin may be blended or interesterified to achieve the desired consistency required for the specific bakery application.

Palm-based bakery fats have the great advantage of being free of trans fatty acids, and therefore, are the healthier alternative to partially hydrogenated oils that are still being used in some bakery products. This is particularly important for the Indian bakery industry as the Food Safety and Standards Authority of India (FSSAI) has set a target to reduce the trans-fatty acids content in foods from 5% at present to 2% by 2022. For the vanaspati industry, the semi-solid nature of palm oil is a huge advantage, as trans-free vanaspati may be produced by blending or interesterifying palm stearin with soft oils such as soy, sunflower or rapeseed oils, or a blend of palm oil and palm stearin.

## PALM-BASED FRYING FATS FOR SNACK FOODS INDUSTRY

India is a snacking powerhouse with a market worth of US\$4.4 billion in 2018, which is expected to reach US \$7.8 billion by 2022. Hence, the snack foods industry is another growing beacon in India's food industry as snacks represented 7% of all new product launches in India in 2018. A growing trend in India is snacks for specific purposes, such as elevating the mood, on-the-go convenience snacks, and snacks suitable for fasting during religious days. Thus, the Indian snack food industry also caters for several niche and lifestyle products.



Palm oil and palm olein are also the most suitable oils to be used in the snack foods industry – particularly for deep fat industrial frying of snacks. Here, the oxidative stability of palm oil and its high smoke points are strengths matched by few other oils. The balanced fatty acid composition makes palm oil and palm olein highly resistant to oxidation, prevents polymerization and provides excellent mouthfeel to the fried product. Palm oil is most suited oil for industrial frying, especially for frying of products that absorb large quantity of fats or oils and are eaten cold (e.g. potato crisps).



Palm oil is also an excellent choice in the production of extruded snacks, while palm olein is well suited as a frying medium for nuts (used as snacks) as it provides glossiness to the fried nut as it is virtually 100% liquid at room temperature (20°C). Palm oil is an equally good frying medium for nuts, but it lacks glossiness, though it is better at holding the salt used as seasoning. Both palm oil and palm olein are also the preferred oils for the production of instant noodles as these oils confer storage stability required of the fried product.

As many traditional Indian snack foods are now being exported world-wide, long-term storage stability is a requirement. In this aspect, stability and long-shelf life of products can be achieved by using palm oil or palm olein for frying these export-quality traditional Indian snack foods.

## CONCLUSION

Palm oil is a very versatile oil and provides a functional ingredient that can be used in a wide range of food industries. Palm oil can be used in industrial frying, bakery industry and various solid fats used in the different food industries in India. With its added advantage of being economically cost-effective, all year around availability and closeness of supply source, palm oil offers huge opportunities that could support the growth and enhances the global competitiveness of India's food products industries.

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## BRIEF PROFILE OF AUTHOR

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Dr Nagendran Balasundram has a Bachelor's and Master's degree in Food Technology from University of Science Malaysia (USM), a Diploma in Public Management from the National Institute of Public Administration (INTAN) Malaysia, and a PhD (Nutrition) from the University of Sydney, Australia.

Dr Nagendran began his working career as an officer in the Malaysian Administration and Diplomatic Services in 1989 and joined the Malaysian Palm Oil Board (MPOB) in 1995. He has served as the MPOB Regional Manager (Europe), based at the Embassy of Malaysia to Belgium/Mission of Malaysia to the European Union in Brussels, Belgium from January 2009 to December 2012 and Head of MPOB's Nutrition Unit from 1 March 2013 to 31 October 2015. He has been MPOB Regional Manager (South Asia) as of 1 November 2015.

His specific areas of research interest are food applications of palm oil, lipid metabolism and physiological effects of polyphenols. He has participated actively at many international meetings of the International Maritime Organization (IMO) and the Codex Alimentarius Commission (CAC) and its various Sub-Committees. He has extensive experience in the area of international food standards and regulatory developments.

He is currently a Regional Manager (South Asia), Malaysian Palm Oil Board (MPOB) and can be contacted at nagen@mpob.gov.my

# Wonderful Properties of Cottonseed Oil

**SANDEEP BAJORIA**



India is one of the largest producer of oilseeds in the world. The various oilseeds beings produced in the country are soyabean, groundnut, sesame, sunflower, safflower, etc. from which edible oils are obtained. Then there are other sources of edible oil like coconut, palm and cottonseed. The latest to come in the market is Rice Bran oil from paddy husk, its present production being about 1 million tonnes, next only to the production of China and Japan.

## **COTTONSEED OIL:**

Cottonseed oil is a vegetable oil obtained from the seeds of the cotton plant of various species after removal of the cotton lint. Unlike other major edible oils like soyabean, groundnut, rape & mustard etc., where the seeds are grown exclusively for production of oils, cottonseed oil although obtained from cottonseeds, the crop is not grown mainly for oilseeds but for textile fibre, the single largest source of fibre, having world wide demand.

## **COTTON PRODUCTION - INDIAN SCENARIO:**

India is now the largest cotton producing country in the world overtaking China and USA and producing between 360-370 lakh bales (170 kgs. each) of cotton in a year. According to the latest estimates of the Cotton Advisory Board (CAB), the Central Government Body (under Ministry of Textiles), for estimating production, consumption, import and export of cotton during a season, cotton production in India in the crop year 2017-18 was 370 lakh bales (of 170 kgs. each) and would be 337 lakh bales for the ongoing 2018-19 season.

## **COTTONSEED PRODUCTION:**

As stated above, cottonseed is a by-product of cotton plant and is a valuable source of edible oil. Like-wise cake, cotton linters and hulls all of which are also products of cottonseed have several industrial and other applications. These are also excellent source of cattle, poultry and fish feed. Cottonseed forms 2/3rd portion of seed cotton while lint forming remaining 1/3 portion. Based on the latest production estimates of cotton for 2017-18 and the ongoing season 2018-19 estimates of cottonseed production has been worked out and shown below together with comparable figures for 2015-16 and 2016-17. Also shown is the production of Cottonseed oil for these years.

Table - 1

(In lakh Tonnes)

	2015-16	2016-17	2017-18	2018-19 (E)
Cotton production (lakh bales of 170 kgs. each)	332.00	345.00	370.00	337.00
Cottonseed production (@333kg/bales)	110.56	114.89	123.21	112.22
Retained for sowing & direct consumption	5.00	5.00	5.00	5.00
Marketable surplus available	105.56	109.89	118.21	107.22
Production of washed cottonseed oil (12%)	12.67	13.19	14.19	12.87

E = Estimated

The State-wise break-up of cottonseed oil production for the last three years i.e 2015-16, 2016-17 and 2017-18 are shown below:

### State - Wise Production of Cottonseed Oil

(Unit lakh tonnes)

State	2015-16	2016-17	2017-18
Punjab	0.24	0.36	0.46
Haryana	0.54	0.79	0.90
Rajasthan	0.54	0.71	0.88
Total North Zone	1.32	1.86	2.24
Gujarat	3.70	3.76	4.16
Maharashtra	2.94	3.53	3.40
Madhya Pradesh	0.66	0.83	0.82
Total Central Zone	7.30	8.12	8.39
Andhra Pradesh/Telangana	3.30	2.65	3.02
Karnataka	0.74	0.83	0.72
Tamil Nadu	0.14	0.24	0.22
Total South Zone	4.16	3.72	3.96
Others (including Odisha)	0.14	0.20	0.22
All India	12.67	13.19	14.19

### NEED FOR EDIBLE OILS:

Fats and oils account for a substantial portion of the calorific value of the human diet, being ingested in their natural form as components of whole foods (e.g., meats, nuts) or in their extracted from either s ingredients in processed foods or as cooking mediums, salad oils and spreads. Per capita fats and oils consumption varies widely throughout the world and increases with greater affluence, to the point where in many western countries it is in excess of the 30% maximum value generally recommended by health authorities. Consequently considerable attention has been given in recent decades to the nutritional impacts of various fats and oils, in particular the influence of the constituents of fats and oils on cardiovascular disease, cancer and various inflammatory conditions.

## **WHAT IS COTTONSEED OIL:**

As stated earlier, cottonseed oil is a vegetable oil extracted from the seeds of the cotton plant after the cotton lint has been removed. According to Central Institute for Research on Cotton Technology (CIRCOT), ICAR, Mumbai, the oil must be refined to remove gossypol, a naturally occurring toxin that protects the cotton plant from insect damage, Therefore unrefined cottonseed oil is sometimes used as a pesticide.

Cottonseed oil is among the most common vegetable oils used in the United States “Referred to as American’s original vegetable oil”, it has been a part of American diet since the 1800s and has been in high demand among consumers since then.

## **USES OF COTTONSEED OIL:**

The primary use of cottonseed oil is for cooking and it is considered to be one of the most popular cooking oils in kitchens. This vegetable oil is frequently used for frying, deep frying and baking. It is said to be ideal for frying. Because of its natural taste, cottonseed oil is said to enhance the natural taste of food, unlike other oils. It is also used in a variety of ways such as salad dressing and deep frying of numerous food items. The enhancement of popularity of cottonseed oil is due to its cost advantage vis-à-vis other edible oils like groundnut oil , mustard oil etc. It can also be hydrogenated for use in making vanaspati

## **OTHER LESSER KNOWN FACTS ABOUT COTTONSEED OIL:**

1. Cottonseed oil is used as a yardstick for measuring the flavour as well as odour qualities in other oils?
2. Unlike many other oils, this oil does not revert rapidly in flavor even when heated to very high temperatures.
3. Cottonseed oil is one of the main ingredients in most oriental dishes.

## **SUITABILITY OF COTTONSEED OIL WITH RESPECT TO ITS DIFFERENT NUTRITIONAL COMPONENTS:**

According to scientists of the Central Institute for Research on Cotton Technology (CIRCOT), ICAR, Mumbai, cottonseed oil is an excellent source of essential fatty acids comparable to corn, sesame, safflower and superior to groundnut, rapeseed, olive and almond. In terms of its major component fatty acids, cottonseed oil falls under the oleic-linoleic acid group of fats, with about 20 and 50 percent respectively of these components.

Cottonseed oil also contains Vitamin E to a high degree and effective pro-vitamin A in the form of carotene and some Vitamin B complex. This oil also has the added advantage of greater stability due to its anti-oxidant activity.

An important characteristic of cottonseed oil is its high stability. Refined and bleached cottonseed oil may be thoroughly deodorized and will still resist rancidity, if carefully packaged, for periods in excess of time normally required for movement through commercial channels. Crude cottonseed oil is much more stable than refined oil. Cottonseed oil has a lesser tendency than many other oils to undergo flavour reversion which is again a result of oxidation. The stability of cottonseed oil is due to the presence of small amounts of substances capable of inhibiting oxidation markedly. Tocopherol is found to be the most abundant of such inhibitors, and gossypol which is present in crude cottonseed oil has been shown to have strong antioxidant properties.

## **OTHER ATTRIBUTES OF COTTONSEED OIL:**

Cottonseed oil is also termed as house wife’s friendly aid as it has high level of natural antioxidants that contribute to its long frying life and also long shelf life. This oil is easily digested by normal people and its



digestibility coefficient is about 98%, according to S.N. Pandey former Director, CIRCOT, (ICAR) Mumbai. This is cholesterol free as oils are extracted from plants. Cottonseed oil is light, and its non-oily consistency and high smoke point make it most desirable for cooking.

Refined cottonseed oil is considered as one of the most popular cooking oils in kitchens all over the world. It is golden yellow in colour and has no odour and its shelf life is extremely longer. However, crude cottonseed oil has to undergo a series of steps for refining and before it is used for edible oil purpose, such as alkali refining, bleaching, winterization, hydrogenation, deodorization and interest-reification. Once processed, cottonseed oil has a mild taste and appears generally clear with a light golden colour. Refined cottonseed oil has now become the second most preferred oil for frying in India, as the shelf life of food prepared in cottonseed oil is much longer than other edible oils. AICOSCA takes pride in this, as efforts over the decades for popularization of cottonseed oil has achieved the desired results

#### **POPULARITY OF COTTONSEED OIL:**

This oil is most popular in States like Gujarat, Maharashtra and partly in Andhra Pradesh. And in Gujarat, Prime Minister, Shri Narendra Modi's home state, the Gujarat's are loving it. This State is the major consumer of cottonseed oil – cottonseed or kapasiya oil, as they call it, is ruling the kitchens of Gujarat, the highest cotton growing state of India. Out of every two bottles of edible oil consumed in Gujarat one bottle contains cottonseed oil. According to Shri Govindbhai Patel of CGN Research, a consultancy firm based in Gujarat, of the 13-14 lakh tonnes of cottonseed oil produced in India annually, almost half is consumed in Gujarat alone. Shri Patel expects a 10% potential annual growth in demand of cottonseed oil provided the production of cotton crop keeps pace simultaneously. And as per Shri Govindbhai Patel, cotton is an extremely versatile crop whose production has increased remarkably in the past decade or so, However, the growth of cotton crop is subject to fluctuations, as determinants like weather, i.e rainfall, area sown, price of cotton and other competitive crops in India as well as global prices, export prospects etc. would impact cotton crop output, as is evident from the production data of cotton presented in the beginning of the Article.

#### **ROAD MAP FOR PROSPECTS OF COTTONSEED OIL - PRODUCTION AND ECONOMIES OF PRODUCTION:**

Present availability of washed cottonseed oil is about 13-14 lakh tonnes However, the washed oil availability can be substantially increased to about 17-18 lakh tonnes, if the cottonseed are scientifically processed instead of by the traditional method. The traditional method of cottonseed processing is primitive and yields only 12-13% of crude oil which is inferior in quality and dark in colour. In addition to loss of oil content of about 7 per cent, we also loose other valuable by-products like linters and hulls, in the traditional processing, valuing crores of rupees. Hence AICOSCA has been propagating scientific processing of cottonseed for so many years as against traditional method. The excess washed oil available through scientific processing would be 3 to 4 lakh tonnes. The value of this excess washed oil available would be several crores of rupees at current prices.

#### **AICOSCA EFFORTS IN PROPAGATING SCIENTIFIC PROCESSING OF COTTONSEED:**

The All India Cottonseed Crushers' Association (AICOSCA) has launched effective campaign for popularization of scientific processing of cottonseed virtually single handedly. Almost a dozens of Papers on Scientific Processing of Cottonseed have been presented by this Association at various Seminars organised by the cotton and edible oil industry from time to time.

A film on Scientific Processing of Cottonseed was prepared in collaboration with the Council of Scientific & Industrial Research (CSIR) and the Technology Mission on Oilseeds and Pulses (TMOP) and distributed among various organizations. The film was subsequently dubbed in four regional languages viz. Telegu,

Tamil, Gujarati and Marathi. Educative literature in the form of three pamphlets viz. "Scientific Processing of Cottonseed", "Cottonseed - a Golden Goose" and "AICOSCA in the Service of Nation" were printed in Hindi, Gujarati, Telegu and English and were distributed all over the country.

## CONCLUSION:

### CAN COTTONSEED OIL BE ONE OF THE PRIMARY SOURCE OF EDIBLE OIL: ?

Having regard to numerous attributes of cottonseed oil discussed in the proceeding paras, vis-à-vis other major edible oils, it can certainly become one of the primary sources of edible oil in the near future. Further, this oil can also help in import substitution of edible oils to a great extent, which is constantly on an increase (and is presently about 70% of our demand for edible oils). Considering its present production of about 13-14 lakh tonnes, which is no less by any standard, this can further be increased to 17-18 lakh tonnes by changing over to scientific processing as against traditional processing.

## BRIEF PROFILE OF AUTHOR

### Shri Sandeep Bajoria

Born on 22nd May 1960 at Nasik, Shri Bajoria is a product of Sydenham College, Mumbai University, having graduated in Commerce and subsequently obtained law degree. He also has a Diploma in Business Management and Import-Export Management

At present Shri Bajoria is the Chairman of the All India Cottonseed Crushers' Association, Mumbai. He was elected Chairman of the Association unopposed for 17th successive year in the year 2018. Past President, The Central Organisation for Oil Industry & Trade, New Delhi, Past President of the Solvent Extractors' Association of India, Mumbai. His business interest in India are in manufacturing and services globally.

Shri Bajoria interacted with the Kabra Commission, very effectively, resulting in grant of permission by the Government of India for future trading in oilseeds & its products. Shri Bajoria has been on the Reserve Bank of India Sub-Committee on inventory norms on oilseed industry. He was Chairman of Organising Committee of IASC's Global Conference of Vegetable & Oilseed Industry held in Mumbai in January, 2005.

Shri Bajoria is a widely travelled Man and has led various edible oil industry delegation to Indonesia, Singapore, South Korea, Taiwan, Vietnam, Thailand and Hong Kong. He has travelled to Malaysia, Singapore & Indonesia for Palm Oil Conferences and Presented papers in 2007-08. He has also chaired Globoil International Conference held in Dubai in April, 2008.

Due to his exemplary work, Shri Bajoria was declared as the "OIL MAN OF THE YEAR" in the International Conference on Vegetable Oil (Globoil) held at Mumbai in September, 2001.

He had been nominated by Government of India as Member of Managing Committee of "National Oilseeds & Oils Development Board" for 3 years from 2005 to 2008. He also has been nominated on Consultative Committee of "Cotton Advisory Board" consecutively for four years by the Ministry of Textiles, Government of India.

He can be reached at 'All India Cottonseed Crushers' Association', Khetan Bhavan, 6th Floor, 198, J.Tata Road, Churchgate, Mumbai - 400 020, T: 022-66333723, E: sunvin@vsnl.com or sandeep1137@hotmail.com

# Acknowledgement



IVPA Souvenir has come a long way since its inception. Not only the articles section is of great interest to one and all connected with the edible oils and fats industry but the product & services information directory has become very popular with both manufacturers and suppliers.

We wish to express our grateful thanks to all the eminent authors who have contributed well researched and thought out articles, our members and other advertisers for their support in making it possible for us to publish this souvenir in commemoration of our 42<sup>nd</sup> Annual General Meeting.

The views expressed and theories propounded in the articles are those of the respective writers and the Association does not necessarily subscribe to the same.



## **IVPA MOTTO**

Initiative - of the Association

Vision - for the Future

Productivity - of the Industry

Achievement - of its Members



## BRIEF RESUME OF IVPA

IVPA is an apex organization of Edible Vegetable Oils comprising of manufacturers of Refined Oils & hydrogenated Vegetable Oils in India.

### **About the Association**

The association was established in 1977 and incorporated as a company under the Companies Act, 1956 on 9th of March, 1979 with its registered office at New Delhi. The affairs of the association are managed by the Executive Committee which comprises of elected representatives of members from the various States. IVPA has an elected President and Vice President from amongst its members apart from Secretary General to represent the association before all agencies, government or otherwise.

### **Mission Statement**

To protect and safeguard the interests of the domestic industry and to seek out new initiatives and frontiers to promote its future growth and development.

### **Membership**

The membership of the association comprises of subscribing members. The Executive Committee of the association is authorized to admit as a member any person, firm or company which is engaged in the business of manufacturing vanaspati, other hydrogenated products and refined oils in India.

### **IVPA Knowledge Net-work**

The association is a member of the leading chambers of commerce and industry in India. It also maintains business and professional relations with the Malaysian Palm Oil Council (MPOC), Malaysian Palm Oil Board (MPOB), The Solvent Extractors' Association of India (SEA), The Oil Technologists' Association of India (OTAI) and The Central Organisation for Oil Industry & Trade (COOIT). IVPA also a member of FAD13 Committee of BIS.

### **Data Bank**

IVPA maintains a data bank on oilseeds, edible oils and vanaspati production both for the country and the world. It is also equipped with the latest prices prevailing in the national and international markets for rendering suitable advisory services to its members.

In brief, it maintains all the current and historical information pertaining to government policies notifications and other allied matters for ready reference.

## Some of the Advantages of Membership

- ❖ First and foremost a member can play a role in moulding the future of the industry and in **influencing the changes in government policies.**
- ❖ He can access the **latest & timely information on key issues** which will help in making the business more effective and profitable.
- ❖ **He can access the data bank resources** and also bench mark his factory's performance against that of other factories by accessing the factory-wise actual monthly production of vanaspati (bulk & small), bakery shortening, margarine and refined oil
- ❖ He can receive information on important **national and international seminar/conferences.**
- ❖ He can get regular feedback on the **industry's problems and government's response.**
- ❖ He can interact and benefit from the **experience of other members** with long experience in the edible oils & fats industry.
- ❖ **He will have the privilege to attend the annual session of the association and get the feedback on the industry's problems and the government's response to the same. A copy of the Annual Report which is the only comprehensive docket containing operational and statistical data of the industry will be reserved exclusively for the members.**
- ❖ He is entitled to have a **free copy of the annual souvenir**, when published. It contains articles written by eminent persons in the field of oils & fats and gives a rare insight into the operations of the industry for leveraging his own performance to greater heights.
- ❖ He will be apprised of the latest government notifications and orders concerning operations of the vanaspati industry. He can seek clarification on any aspect of the order for effective implementation.

The above list is only illustrative and not exhaustive of the multifarious advantages which will accrue to the member of the association.

## Power of Information

The most essential requirement for running edible oils and vanaspati business successfully, is to be well up with the latest and precise information. **The IVPA makes it a point to keep its members abreast with the day to day and latest developments & policy changes in the edible oils and fats sector through fax, telephone, e-mail and post.** Quick and timely decisions based on authentic information are the keynote for success in this industry.



For further details regarding the association, its membership etc. get in touch with the Secretary General at the following address:

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**IVPA constantly endeavours to promote, protect and safeguard the interests of the domestic industry and enables its members to seek out new initiatives and frontiers to take better informed decisions to promote its future growth and development.**





A large, ornate, light-brown decorative frame with intricate scrollwork and floral patterns surrounds the central text. The frame is centered on the page and has a classic, elegant design.

# Product & Services Information Directory

# Product & Services Information Directory

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# परेशें.. एक भाशेरा



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**VANASPATI**



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## National Initiatives for Sustainability in Palm Oil Industry

### Pioneering the Fourth Generation of Sustainability Standards

In the last four decades, Solidaridad has played a prominent role in developing Voluntary Sustainability Standards (VSS) labels for the primary global commodity markets and certification programmes for producers. It has pioneered the concept of Fair Trade and co-developed CSR concepts like UTZ Certified as well as Round Table concepts like RSPO, RTRS and Bonsucro.

In the last decade, Solidaridad Asia office have pioneered the development of National Sustainability Standards which could be considered as Fourth Generation Standards. These standards are driven, developed and owned by the producing countries stakeholders. The fundamental shift to the fourth generation of national standards reflects the fact that we are moving from a western agenda to a global agenda of sustainability.

**1**

**INCLUSIVE VALUE CHAINS**

Train excluded smallholder to produce and trade as per the national sustainability framework

**2**

**DIGITAL ASSURANCE**

From a square route driven third party audit system to digital assurance system for continuous improvement

**3**

**REGIONAL APPROACH**

Facilitate a common approach in Asia including mutual recognition of national sustainability frameworks



**Malaysian Sustainable Palm Oil**

Partnering with Malaysian Palm Oil Board



**Indonesian Sustainable Palm Oil**

Partnering with Indonesian Palm Oil Board



**Indian Palm Oil Sustainability Framework**

Partnering with the Solvent Extractors' Association of India & Govt. of India

### The National Sustainability Standards and Solidaridad's Approach

It is now amply evident that the certification driven by compliance does not stimulate continual improvements. Ticking the boxes, just complying with the criteria can be sufficient to become a certified producer. But sustainability requires a continual process of innovation that addresses the real issues of poverty, exclusion, unsustainable practices, low productivity and quality and lack of access to inputs, knowledge, credit, investments and markets. Keeping these aspects in mind, the national sustainability initiatives have introduced three major innovations.





### **Three major innovations introduced by national sustainability initiatives**

**Firstly**, the national frameworks focus on excluded smallholders. Most of the international standards have found it difficult to include these smallholders because they do not supply to large export-oriented businesses. They have also found it expensive to implement these international standards in the absence of a clear business case. Farmers receive technical assistance, work plans and ongoing support with the goal of increasing yields while increasing the quality while taking care of the labour and environment leading to better price realization for the smallholders. Eventually, with the support of the national government and stakeholders, these standards can become norm in the production system.

**Secondly**, the new national sustainability frameworks move away from the third-party assurance models. It uses the power of the digital revolution for creating the more transparent and more sustainable sector transformation. It offers new perspectives for continuous improvements at producer level and the copious amount of data available will boot innovation in the market.

**Thirdly**, for long there were no regional platform for Asian tea and palm oil producers and buyers as well as policy makers to deliberate on sustainable production and trade at a regional level. In this context, Solidaridad has facilitated the formation of a negotiation and dialogue-based platform for the Asian producers and buyers in the form of ASPN (Asian Sustainable Palm Oil Network) and Asian Tea Alliance (ATA) to create Asian consensus on key sustainability issues in the sector.

### **Solidaridad and the Solvent Extractors' Association of India (SEA) working together Towards Sustainability in Edible Oil Sector**

Solidaridad together with the Solvent Extractors' Association of India, premier vegetable oil industry and trade association in India is facilitating the agenda of sustainability in edible oil sector in Asia. Together the organizations are facilitating enabling environment for joint actions and fostering cross country cooperation for sustainable production and trade of palm oil. In the past few years, many milestones have been achieved towards enhancing overall sustainability and growth of edible oil sector.



**India- Indonesia Joint Working Committee for Sustainable Palm Oil**



**Panel of experts and founding members of all major national sustainability standards from Asia and South America**



## “चैंपियन बनने से ज़्यादा मुश्किल है...चैंपियन बनाना!”

पेश है नया महाकोष रिफाइन्ड सोयाबीन ऑयल.

सपर लम्बा है, और राह आसान नहीं. बच्चों को न जाने क्या क्या सहना पड़ेगा - नंबरों की होड़, खेल-कूद में प्रतिस्पर्धा, जंक फूड का सेहत पर पड़ता बुरा असर, और भी बहुत कुछ. ऐसे में एक माँ को चाहिए की वह अपने बच्चों को हर चुनौती के लिए फिट रखे. नये महाकोष रिफाइन्ड सोयाबीन ऑयल में है PUFA जो मेंटेन करें हार्ट हेल्थ और विटामिन A और D जो करें आँखें तन्दुरुस्त और हड्डियाँ मज़बूत. ताकि आपके बच्चे रहें हमेशा फ्यूचर फिट.



रिफाइन्ड सोयाबीन ऑयल

फिट हैं तो फ्यूचर है

\*विटामिन A और D का एकमात्र स्रोत किसी दुग्धिय अंडित ही नहीं. एक संतुलित आहार के साथ नियमित व्यायाम शारीरिक और मानसिक बेहारी के लिए बहुत जरूरी है. विटामिन A और D अभाव: आंखों की बीमारी और हड्डियों की सेहत को बेहारी के लिए जाने जाते हैं. पूरा दिन की सेहत को बनाए रखता है. NABH, धर्मशास्त्र प्रमाणित और प्रमाणित तैय में जांचा गया.

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- ▶ 41% of India's edible oil consumption\*
- ▶ 97.93% imported
- ▶ High price volatility

## Need to protect against volatile crude palm oil prices

During the last oil season (Nov 2017 to Oct 2018), India imported 64.60 Lakh MT<sup>#</sup> of Crude Palm Oil (CPO) valued at approximately ₹39,000 Crore. During this period, the annualised volatility in CPO spot prices was 17%.

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# Source: Solvent Extractors' Association of India  
\*Palm oil and its derivatives for 2018-19, USDA July 2019 Estimates

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