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Trans-Fats Regulation and Oil Seeds Self-Sufficiency in India

Possible Impacts and Way forward

The initiatives taken by the Food Safety and Standards Authority of India (FSSAI) to eliminate trans-fat should be seen not just as an opportunity to improve citizens' health but should also be seen as an opportunity for increased demand for vegetable oil, and even more, an opportunity for the agriculture sector and our farmers.

Food manufacturers and health-conscious consumers have already begun to shift their preference towards healthier oils to fill the gap left by the slow removal of PHOs. This increase in demand for such oils eventually leads to an increase in demand for oilseeds.

This Briefing Paper looks into how well the country would be prepared to address this growing demand and suggest ways for improvement.

Introduction

Trans-fats or trans-fatty acids (TFA) increase the risk of cardiovascular diseases and many other serious and lethal illnesses. In other words, it is a slow but steady killer. These TFA can have harmful health effects when consumed even in small amounts. According to the Harvard School of Public Health for each extra 2 percent of calories from TFA consumed daily, the risk of coronary heart disease increases by 23 percent.

Various other studies have also shown that increased artificial trans-fat intake is causally associated with an increased risk of heart disease and the medical and scientific studies have proved that any reduction in consumption, if not complete elimination of artificial trans-fat, therefore, will lead to lower risks of developing heart disease.

Why TFAs need to be eliminated?

- Aggravates inflammation and damage healthy cells, tissues and organs.
- Increase risk of heart disease and stroke
- Lowers HDL (good) cholesterol
- Raise LDL (bad) cholesterol causing them to build up in the arteries
- Increase risk of type 2 – diabetes, certain cancers and Alzheimer's disease, etc.
- Increase weight gain and belly fat
- Irreversibly change brain functions

Such artificial TFAs are usually present in partially hydrogenated vegetable oils (PHOs) that are commonly found in baked and deep frying food products.

In India, Vanaspati has been one of the main sources, though bakery margarine, shortening, and margarine for consumers all contain TFAs. Oils are converted into solid fats such as shortening and hard margarine, through partial hydrogenation of their unsaturated fatty acids. In this process, hydrogen is added to polyunsaturated oil to fill some but not all of the unsaturated bonds. Trans-fats are thus found in foods containing PHOs or cooked in such oils.

Trans-Fats Regulation in India

The World Health Organisation (WHO) Population Nutrient Intake Goal recommends that trans-fat consumption should be less than one percent of total energy intake. WHO has appealed to the global food supply for the elimination of trans-fats and many countries like Canada, Denmark, the United States, and few other European countries have taken measures to provide a statutory framework for regulating the TFA intake.

India, too, passed regulations in 2011 to set the TFA limit to 10 percent in oils and fats. This was further reduced to five percent in 2015. In December 2018, the FSSAI proposed reducing this limit to two percent and eliminating industrially produced TFA in the food supply by 2022, a year ahead of the global target. In August 2019, the FSSAI proposed aligning India's regulations with global best practice and notified for public comment draft regulations that apply a two percent TFA limit to all food products by January 2022.

However, implementation challenges including prioritisation of food safety issues and lack of laboratory capacity to measure artificial trans-fats are the main reasons behind the lack of progress in this direction.

Possible Impact of Regulation

Other Country Experiences

In Denmark, after the introduction of the trans-fat ban, saturated fatty acids (SFAs) have been found to constitute the main replacement in 66 percent of products. Indeed, while unsaturated fats are normally

used to replace artificial trans-fats in reformulating fried foods, SFAs like palm oil are typically used in reformulating bakery foods.

It is thus important to support the development of trans-fat alternatives that both have the properties required by industry (like texture, taste, shelf-life) and are not associated with adverse health effects.[1]

Such increased dependence on vegetable oils was also witnessed in countries like Canada and the United States. Palm oil imports in the United States grew dramatically since the early 2000s when many companies began to restrict the use of trans-fats and thus PHOs.

In 2012, the United States imported around seven times as much palm oil as it had in 1999 when the FDA first proposed mandatory labeling. While the increase can likely be attributed to numerous factors, the restricted use of PHOs by the companies also played a role.[2]

It should, therefore, be remembered that the use of trans-fat alternatives in major consumer products, such as fast foods, requires a large supply. In these countries, one could witness an increase in demand for not just palm oil but even other vegetable oils.

Not Just Any Alternative

Consumers are distracted and are bombarded with choices when it comes to purchasing cooking oils. However, even purchasing cooking oil requires some basic awareness. Cooking oil has three different types of fatty acids -- monounsaturated fats, polyunsaturated fats, and saturated fats. Each type of oil is classified, based on which type of fatty acid is the most prominent in it.

For instance, olive oil, avocado oil, and canola oils contain mostly monounsaturated fat; sunflower and vegetable oils predominantly contain polyunsaturated fat; and coconut oil have about 90 percent saturated fat, which is a higher percentage than butter or ghee that has almost 64 percent saturated fat.

However, the main point to remember is to use cooking oils, whatever it is, in moderation. A small amount of oils in our diets is vital to ensure the presence of essential fatty acids as our body cannot produce it by itself.

It would be ideal to replace saturated fats with unsaturated fats, which include polyunsaturated fats and monounsaturated fats as it reduces the risk of heart diseases. Consumers should, therefore, learn to adapt and encourage the use of healthy fats in the diet by replacing animal fats with vegetable fats.

Is India Prepared?

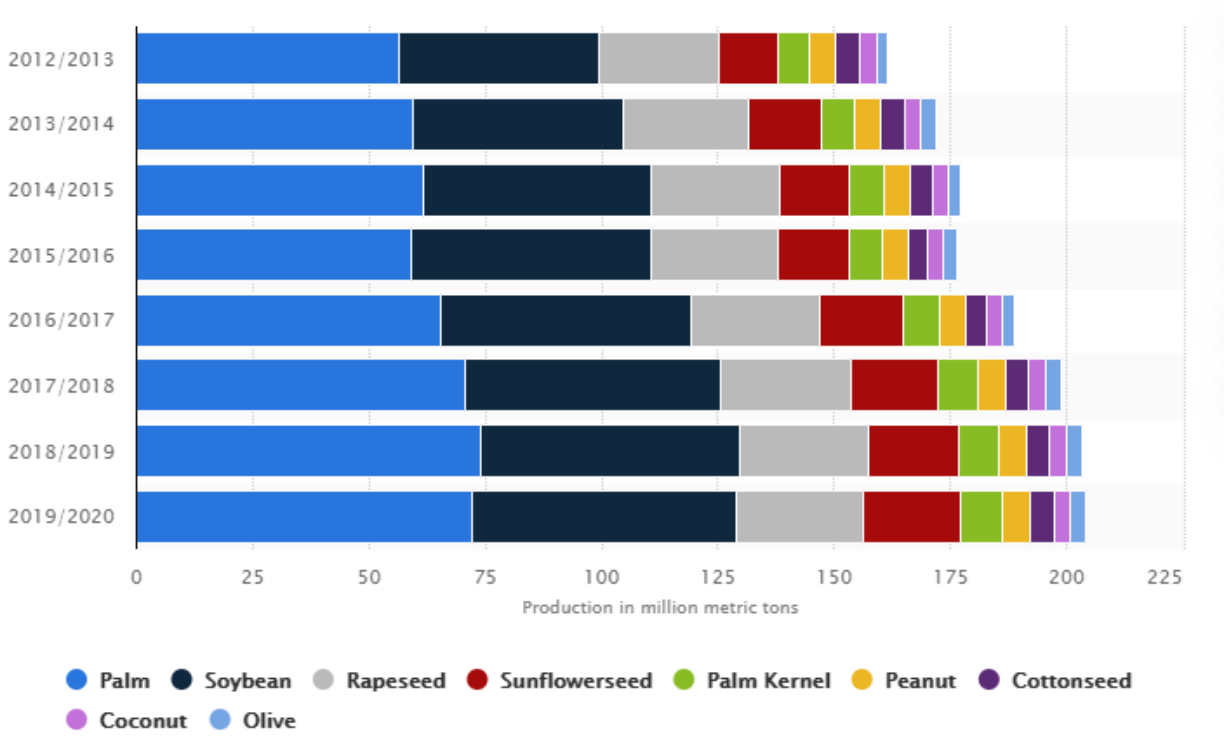
The initiatives taken by FSSAI to eliminate trans-fat should be seen not just as an opportunity to improve citizens' health but should also be seen as an opportunity for increased demand for vegetable oil and even more, an opportunity for the agriculture sector and our farmers.

Food manufacturers and health-conscious consumers have already begun to shift their preference towards healthier oils to fill the gap left by the slow removal of PHOs. This increase in demand for such oils eventually leads to an increase in demand for oilseeds.

Availability of Oil Seeds

The global oilseeds market is estimated to be valued at US$250bn in 2019 and is projected to reach a value of US$335bn by 2025, growing at a rate of five percent during the forecast period.[3] Copra, cottonseed, palm kernel, peanut, rapeseed, soybean, and sunflower seeds are largely cultivated for obtaining oil.

Figure 1: Production of Major Vegetable Oils Worldwide from 2012-13 to 2019-20
(in million metric tonnes)



Source: Vegetable Oil Production World Wide 2012-2020. Accessible at: <www.statista.com/statistics/263933/production-of-vegetable-oils-worldwide-since-2000/>

Among the major categories of vegetable oil, palm oil had the highest volume of production, at 72.27 million metric tonnes. Soybean oil is the most consumed type of edible oil. It is often found in fried foods, canned fish, salad dressing, and margarine. Having a major share in the global market, Brazil is seen as the most lucrative market for oilseeds, whereas India, Argentina, Paraguay, and various nations are other lucrative markets for sector players.

India plays an important role in the global edible oil market, accounting for approximately 10.2 percent share of consumption; seven percent share of oilseed production; five percent share of edible oil production, and 16 percent share of world edible oil imports.[4]

Impact of COVID-19 on Global Oilseeds Market

In the world over the agriculture sector has been hit hard due to the ongoing pandemic. Even if the production of oilseed might not experience a significant negative impact but the demand for oilseeds is expected to decrease from the vegetable oil manufacturers as the production facilities were affected due to lockdown and restrictions.

Small and medium enterprises across the globe are forced to stop or limit their production owing to significant financial crunches after the lockdown. However, the market is anticipated to witness the spike in the demand very soon as people have started to realise the importance of healthier food options to raise one's immunity.

Indian Scenario

The edible oil market in India is projected to grow from around US$21.5bn in 2019 to US$35.2bn by 2025 due to increasing disposable income and rising consumer awareness about healthy lifestyle & wellness.[5]

Table 1: Global & India Production of Major Edible Oil, 2019-2020

Edible Oil	Global Production	India's Production
Ground nut oil	5.93	1.13
Mustard Oil	27.43	2.58
Sunflower Oil	19.86	0.07
Soyabean Oil	57.20	1.75
Palm Oil	76.01	0.20

Source: Commodity Profile of Edible Oil for September – 2019. Accessible at: http://agricoop.gov.in/sites/default/files/Edible-oil-Profile-21-11-2019.pdf

According to reports, the country needs 25 million tonnes of edible oils to meet its requirement at the current consumption level of 19 kg per person per year.[6]

Unfortunately, the country does not even produce half of its requirements, largely due to rainfed conditions, high seed cost, smallholding with limited resources, low seed replacement rate, and low productivity. Out of the total requirement, only 10.50 million tonnes are produced domestically from primary and secondary sources and the remaining 60 percent is met through imports.[7]

India imports a substantial amount of edible oil for its domestic consumption and spends over Rs 700 billion to import about 15 million tonnes of edible oil to meet its annual requirement of 25 million tonnes, making it one of the biggest buyers of the cooking medium.[8]

At the same time, India has never been a big exporter of edible oils. India's export basket is comprised of premium oils with higher value realisation like refined coconut, groundnut, and sesame oil. According to the Solvent Extractors' Association of India (SEA), the country exported 80,765 tonnes of various edible oils valued at Rs 9,555 million during 2019-20, against 52,490 tonnes valued at Rs 6,271 million during the previous year 2018-19.

Likewise, the oilseed production of the country is seen growing gradually but slowly. Total oilseeds production in the country during 2018-19 is estimated at 32.26 million tonnes, which is higher than the production of 31.46 million tonnes during 2017-18.[9] According to a status paper prepared under National Food Security Mission' (NFSM),[10] in India, annual oilseeds are cultivated over 26.67 million hectares of area and almost 70-72 percent of them are cultivated under rainfed ecosystem.

However, the area under oilseeds cultivation has experienced a deceleration in general, and this is due to their relatively lower profitability against competing for crops like maize, cotton, and chickpea, under the prevailing crop growing and marketing situations.

It is high time that the government seriously shifts its focus to promote oilseed cultivation given 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 does not need over-emphasis in the current scenario, because the trans-fat elimination efforts by the government would only increase demand for oilseeds further, with no doubt.

Oilseed Cultivation & Policies in India

Nine oilseeds are the major source of vegetable oil in the country. Among nine major oilseeds soybean (39 percent), groundnut (26 percent), and rapeseed and mustard (24 percent), contribute to more than 88

percent of the total oilseeds production in the country. However, in terms of vegetable oil production mustard, soybean and groundnut contribute 31 percent, 26 percent, and 25 percent respectively.[11]

The highest ever production of oilseeds was achieved during 2013-14, which declined during the subsequent two years due to deficient and erratic rainfall.

However, despite the reduction in area coverage of about 2 million ha from 2013- 14 to 2017-18, oilseeds production of 31.30 million tonnes was achieved during the latter and was largely driven by an increase in productivity.

During 2017-18, the area under oilseed crops decreased by more than 1.60 million ha over 2016-17. However, production was maintained at 31.30 million tonnes with increased productivity of 1270 kg/ha. During 2018-19, production further increased to 32.25 million tonnes from an area of 25.50 million ha yielding 1,265 kg per ha (Refer Table 2). Madhya Pradesh, Rajasthan, Maharashtra, and Gujarat are the major oilseeds producing states contributing more than 78 percent of the oilseeds production in the country.

Table 2: Area, Production and Yield of Oilseed Crops in India

Year	Area (in mn ha)	Production (mn tonnes)	Yield (Kg/ha)
2012-13	26.48	30.94	1168
2013-14	28.05	32.74	1167
2014-15	25.59	27.51	1074
2015-16	26.08	25.25	968
2016-17	26.17	31.27	1194
2017-18	24.64	31.30	1270
2018-19	25.50	32.25	1265
2019-20	17.83	22.38	1255

Source: Annual Report 2019-20, Ministry of Agriculture & Farmers Welfare

National Food Security Mission (Oilseeds & Oil Palm)

From the year 2018-19, the National Mission on Oilseeds and Oil Palm (NMOOP) scheme has been merged with the NFSM and is being implemented as NFSM (OS&OP).[12]

This scheme comprises of three sub-missions namely, NFSM-Oilseeds, NFSM-Oil Palm, and NFSM- Tree-borne oilseeds. One of the main objectives of the scheme during 2019-20 was to augment the availability of vegetable oils and to reduce the import of edible oils by increasing the production and productivity of oilseeds.

Oilseeds and Oil Production Target 2022

Considering the growing domestic demand for edible oils, it has been planned to achieve a production of 45.64 million tonnes from nine annual oilseed crops by 2022-23, expecting an additional production of about 15.58 million tonnes over and above the 30.06 million tonnes production (2016-17).

Thus, the availability of total vegetable oil from domestic production of nine annual oilseed crops would be about 13.69 million tonnes by 2022 (at 30 percent recovery) as against the current annual output of 7 million tonnes.[13]

At the same time, vegetable oil availability from secondary sources such as coconut, cottonseed, rice bran, solvent extracted oil has been estimated at 5.22 million tonnes by 2022.

National Mission on Edible Oils

To increase domestic availability and reduce import, National Mission on Edible Oils (NMEO) is proposed for the next five years (2020-21 to 2024-25). It aims to cover three sub-missions to increase the production of oilseeds and edible oils from (i) Primary Sources (Annual Crops, Plantation Crops, and Edible TBOs), (ii) Secondary Sources (Rice bran oil and Cottonseed oil), and (iii) Consumer Awareness for maintaining edible oil consumption constant at 19 kg per person per annum.[14]

Through the proposed mission government aim to increase production from 30.88 to 47.80 million tonnes of oilseeds, which will produce 7 to 11 million tonnes of edible oils from Primary Sources by 2024-25. Similarly, edible oils from secondary sources will be doubled from 3.50 to 7.00 million tonnes.

Strategies for Enhancing Productivity

Strategies for enhancing the productivity of oilseed based production systems are prepared for oilseeds and oil palm in the country. It has been targeted to achieve both horizontal (area expansion) and vertical (productivity increase) expansion of oilseeds crop; increase seed production and distribution of newly released varieties; develop low-cost technologies with high impact on productivity resulting in higher income; technologies with high impact that involve reasonable investment with a high return on investment, with emphasis on eco-friendliness and high input use efficiency; strategies with an emphasis on quality improvement and value addition leveraging technologies with a bearing on employment through skill/entrepreneurship development; strategies to increase additional area and production of oilseeds through rice fallow, intercropping and crop diversification.

Newer opportunities to explore non-traditional seasons and regions for crops are also projected which has proven a success for area expansion and integration into the major cropping systems.

Measures to Improve Oilseed Production

- ✓ Encourage and support farmers to widen oilseed areas under irrigation.
- ✓ Promote oilseed and pulses cultivation.
- ✓ Use biotechnology to produce better quality, high yielding varieties of seeds.
- ✓ Enlarge the scope of research, technology diffusion and institutional intervention to re-energize the seed oil sector.
- ✓ Promote modern crop technology and improved dry farming.
- ✓ Provide incentives to private sector participation in processing and value addition in the oilseed crops.
- ✓ Strengthen the oilseed crop seed chain.
- ✓ Formulate favourable policies
- ✓ Adopt best practices of the other major oilseed producing nations.

Compiled from various sources

Challenges

As the demand for a primary dietary source for trans-fats like Vanaspati, Margarine, and bakery shortenings will get further reduced in the coming years, the pressure for increased production of oilseeds will only increase. But the major challenge in oilseed production in India is largely because of rainfed conditions.

More than two-thirds of total oilseed production is dependent on monsoon rainfall, inadequate and erratic rainfall has typically resulted in lower than anticipated oilseed production. High seed cost of varieties like groundnut and Soybean, a smallholding with limited resources, low seed replacement rate, and low productivity are also a cause of concern according to the reports by the Ministry of Agriculture.

These crops are highly affected by pests, diseases, and weeds infestations. Pests like aphids and diseases like powdery mildew and rust cause severe loss in production, which can reach as much as 50 percent in most areas under cultivation. The level of application of plant protection chemicals is also not sufficient.

Conclusion

As the country slowly eases the lockdown measures used to slow the spread of COVID-19, consumers have heightened awareness of health, wellness, food safety, and hygiene values. Consumers are showing eagerness to improve their overall immunity and naturally opt for healthier vegetable oils. But it should be remembered that even vegetable oils are healthier only when consumed in moderation.

According to research studies, the nutritional requirement of vegetable oil is only about 12-13 kg per annum per person while in India most consumers consume more than 19 kg per annum per capita. This excess consumption can be rectified by educating the consumers through electronic and print media, social media platforms, advertisement, and nutritional camps.

Any amount of reduction in oil consumption by the majority of the population can help in a large way to reduce the demand for vegetable oil in the country. So it lies not just in the hands of the government or the farmers to bring self-sufficiency in oilseed production in the country, but even a right move by us, the consumers could do much.

Endnotes

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