Gokhale Institute of Politics and Economics
(Deemed to be University)
Pune – 411 004

AERC Report

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Trade Policy and the Edible Oilseed Sector of India

Jayanti Kajale

August 2018

Submitted to
Department of Agriculture, Cooperation and Farmers Welfare
Ministry of Agriculture and Farmers Welfare
Government of India

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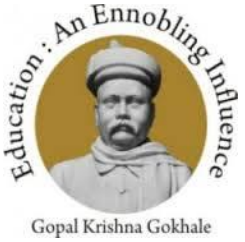

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Foreword

The edible oilseed sector of India has been increasingly relying on international markets for import of edible oil. As per the figures given by the Solvent Extraction Association of India, around 66 percent of the domestic requirement of edible oil was met through imports in 2016-17. Due to the declining self-sufficiency in oil production, growing concern has been expressed about increasing magnitude of imports and impact of the international factors on the oilseed economy that would ultimately adversely affect profitability and incomes of producers of oilseeds.

Considering the importance of the oilseed sector in the economy and magnitude of imports, government from time has been bringing about changes in the trade policy for regulating trade flows of edible oilseeds, oil and oil meal in the interest of consumers and producers of oilseeds and oil. In case of imports, this primarily involves changes in the import duty on edible oils and a change in tariff rate of the imported oils is thought to be affecting prices of the oilseeds in the economy.

In view of this, study seeks to observe the relationship between trade policy changes and performance of the oilseed sector. It discusses trade policy changes relating to this sector and the trade flows in the post liberalization (i.e. post 1994) period. It analyses correlation between tariff rate changes and changes in various indicators of performance of the oilseed sector for the period between 1994-95 and 2017-18. It also discusses perceptions of farmers and oilseed processors about impact of changes in tariffs mainly on prices and production of oilseeds and edible oil and suggests policy measures for improving profitability of the oilseed growers and overall performance of the oilseed sector.

Analysis of the data during 1994 - 95 and 2017-18 indicates that increase in import duties of various edible oils with a view to protect oilseed growers may not necessarily lead to increase in the prices of oilseeds. Discussions with oilseed cultivators and processors revealed that domestic policies would play a major role in increasing productivity and production of oilseeds so as to satisfy the demand of the processing industry. The study also brings out importance of export promotion of oilseeds, oil and oil for maintaining profitability of the oilseed cultivators.

It is hoped that the results of the study would be useful for the researchers and policymakers as well.

I thank Jayanti Kajale for undertaking this study on behalf of the centre.

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Rajas Parchure, Professor and
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August 2018.

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The study could be completed due to the co-operation and support received from many in the Institute. I would like to thank Prof. Rajas Parchure, Officiating Director, for giving me an opportunity to undertake this project. I also thank Dr. Rath, Registrar, for providing necessary infrastructure throughout the completion of the project. I sincerely thank Prof. Sangeeta Shroff, In-Charge, AERC, Pune for guidance and support provided for completing the work.

Information and data had to be collected from various sources for completion of the study. I thank Dr. B.V. Mehta, Executive Director, Solvent Extraction Association of India, Mumbai and his staff. I am grateful to them for all the support and information provided for the study. I also thank officials of the Kolhapur Oil Mills Owners Association, Kolhapur. Data was also collected from various oilseed processing units. My sincere thanks to the officials of these units for providing useful information during discussions. I am also grateful to the District Superintending Agriculture Officers of the sample districts viz. Latur and Kolhapur for the field survey for their cooperation. I also thank the Taluka Agricultural Officers, staff of the Panchayat Samitis and Gram Panchayats of the sample districts. I thank all the respondent households for patiently responding to our questionnaire.

My sincere thanks to Mrs. Vrushali Wankhede for providing statistical assistance. I also thank field investigators Mr. Anil Memane and Mr. S. S. Dete collected the primary data. Finally, I thank all my colleagues and staff of the office, computer centre and library for their co-operation.

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Executive Summary

Trade Policy and the Edible Oilseed Sector of India

The edible oilseed sector of India that includes oilseed growers as well as processors of oilseeds and producers of vegetable oils has been increasingly relying on international trade for satisfying domestic as well as international demand for the edible oilseeds, oil and oil meal. The major characteristic feature of the Indian oilseed sector trade is the growing domestic demand for edible oils and increasing import dependency on the oil exporting countries. In fact, India today has become the largest importer of edible oils.

Whereas domestic performance of the sector to a certain extent determines its trade flow, the latter in turn is considered to be affecting the former through trade policy of the government. Studies based on the measures of competitiveness have indicated that oilseed production and processing has always remained inefficient when compared with cheaper imports. However, with declining in self-sufficiency in edible oil production from 97 percent in 1992-93 to 42 percent in 2016-17, growing concern has been expressed about increasing magnitude of imports and impact of the international factors on the oilseed economy that is considered to be adversely affecting profitability and incomes of producers of oilseeds.

Considering importance of the oilseed sector in the economy and magnitude of imports, government from time to time has been bringing about changes in the trade policy for regulating trade flows of edible oilseeds, oil and oil meal in the interest of consumers and producers of oilseeds and oil. Whereas an increase in tariff rate of the imported oils is expected to positively affect derived demand for oilseeds and support their prices, a reduction in tariffs is expected to increase quantity of imports and adversely affect prices of the oilseed seeds.

In view of this, analysis of the performance of the edible oilseed/ oil sector in the context of trade policy followed in the post liberalization (1994) period was considered important. Since 1994, trade policy of India relating to edible oils has exhibited various phases depending upon the tariff rates applied and market access granted to the imports. Therefore, the study makes an attempt to present an overview of the tariff policy followed during 1994-95 and 2017-18 and analyses correlation between tariff rates of

imported oil and the performance indicators of the sector in terms of quantity of imports, prices and production of oilseeds and oil during 1994-95 and 2017-18 and its sub periods. It also discusses perceptions of farmers and oilseed processors regarding tariff rate changes.

Objectives of the Study

1. To study the performance of the oilseed and edible oil sector in India in the post 1985 period.
2. To present an overview of the trade policy changes for the edible oil sector in the post liberalization i.e. post 1994 period and discuss its features.
3. To analyse correlation between tariff rates on imported edible oils and various indicators of performance of the oilseed sector during 1994-95 and 2017-18 and its sub periods.
4. To study the perceptions of the cultivators and processors of oilseeds about impact of changes in tariffs mainly on prices and production in of oilseeds and edible oil.
5. To suggest policy measures in the light of secondary and primary data analysis.

Methodology and Sampling

The study is based on secondary as well as primary data collection. Secondary data was collected from various government as well as non-government sources. Information relating to trade policy changes (specifically relating to tariffs rates) and other information about the edible oil sector was collected from the office of Solvent Extraction Association of India, Mumbai.

Maharashtra occupied around 16 percent of total oilseed area in 2016-17 and its contribution to total major oilseed production was 15 percent in this year. The major oilseed crop of state is soybean. Maharashtra is also a state with important ports on the west cost of India and received around 10 percent of total imports of edible oils in 2016-17. It has highest number solvent extraction units (39 or 14 percent of a total of 272 units in India). The daily capacity of these units is highest (21555 MMT.) as compared to other states as on August 1, 2017. In view of the importance of the state in the oilseed economy, Maharashtra was selected for selecting sample farmers as well as traders and manufacturers.

For understanding perceptions of the farmers about impact of trade policy changes on farmers on variables such as their cropping pattern and market prices, a survey of farmers was undertaken in oilseed growing regions of Maharashtra. Two oilseed growing districts viz. Kolhapur which is agriculturally developed and Latur which belongs to drought prone region of the state were selected. In all, 25 farmers in each of the districts and a total of 50 farmers were selected from the selected districts.

For understanding the perception of importers and oilseed processors, about impact of trade policy changes on the edible oil sector, discussions with associations of processors of edible oil as well as individual processors were conducted. Accordingly, focused group discussions were held with the officials of the Solvent Extraction Association of India, Mumbai and Kolhapur Oil Mills Owners Association, Kolhapur. Discussions were also held with individual importers of crude oil, refineries and exporters of oil meal.

Major findings from the study

Major finding emerging from analysis of the secondary data are as follows

- **Performance of Edible Oilseed and Oil Sector**

- In 2016-17, the total production of edible oilseeds was around 34MMT. As per an estimate, for satisfying the annual domestic requirement of edible oils of around 20MMT in 2020, the annual requirement from total oilseeds would be 67.37 MMT in 2020. Thus, it is unlikely that the domestic production of edible oilseeds and oil would rise to 67 MMT and 20MMT respectively in by 2020 as per the above estimate. Hence, the oil industry has to depend upon import oil for satisfying domestic demand. As per the figures given by the Solvent Extraction Association of India, around 66 percent of the domestic requirement of edible oil was met through imports in 2016-17.
- The data reveals that though at all India level the area, production and yield of oilseeds were increasing significantly during 1985-86 to 2016-17, growth rates of these variables during the sub period 2003-04 to 2016-17 were non-significant.
- It was observed that annual average prices of oilseeds were growing at positive and significant growth rates ranging between around 5 and 8 percent during 2002 to 2016 Similarly, the net returns in absolute as well in percentage (of costs) terms were positive

during TE 2010-11 and TE 2014-15. Growth rates of MSPs of oilseeds were marginally lower than those in case of food grains.

- The data on imports shows that 81 percent of total imports consist of crude oil which supports the oil processing industry. Among the crude oils, mainly palm oil, soybean oil and sunflower oil are imported. The imports of refined oils consist only of refined, RBD palm oil.
- The growth rates of domestic production and yield of oilseeds (1985-86 to 2016-17) were 3.6 percent and 2.52 percent respectively. Growth rate of production of oil (1987-88 to 2016-17) was and 1.95 percent. In comparison, growth rate of imports of edible oil (1985-86 to 2016-17) was 12 percent and was much higher than that of production of oilseeds and oil. Whereas the domestic edible oil production increased by around 1.8 times, the imports increased by around 33 times during 1985-86 and 2016-17.

➢ Analysis of the secondary data brings out stagnancy in the domestic oilseed production and inability of the oilseed sector to satisfy input requirements of the processing sector in spite of profitability of the oilseed production and increasing demand for edible oil. Domestic oil production has also stagnated leading to higher import dependency.

Tariff Rate Changes for the Edible Oil Sector, 1994-95 to 2017-18

Before 1994, trade in edible oil sector in India was largely controlled by the government. With liberlisation of Indian trade policy in 1994, restrictions on imports of edible oil were reduced. The policy change coupled with high potential demand for cheaper imported edible oils led to increase in the volume of imports of palm oil, especially from Malaysia and Indonesia. With a surge of imports due to policy change and later due to worldwide recession on account of the East Asian crisis, domestic prices of edible oils were also adversely affected. As a result, custom duties on different edible oils imported were raised gradually from 1998 onwards. Tariff rates remained at a higher level till 2006.Post 2006 period was marked not only by declining tariff rates but also by reduction in spread in the tariff rate structure. The tariff rates again started increasing 2013 onwards.

- The period during 1994 and 2017 thus can be classified into four phases based on the levels of tariffs - 1. 1994-95 to 1997-98: Period of falling or lower tariff rates. This was a period of adoption of liberal trade policy and the lowest tariff rate in the tariff rate

structure was 15 percent in 1998. 2. 1998-99 to 2006-07 was a period of increasing or higher tariff rates -This was also a period of declining prices due to East Asian crisis. Highest tariff rate during this period was 90 percent(for palm oil) 3. 2007-08 to 2012-13: Period of declining or lower tariff rates. During this post east Asian crisis recovery period of liberal trade regime, tariff rates were lowered and palm oil atracted and 4. 2013-14 to 2017-18: This has been a period of increasing tariff rates due to increasing imports.

- The bound duties, which are the maximum permissible duties that could be applied under agreement on agriculture under WTO are very high (300 percent) for all the edible oils except soybean oil (45 percent). However, the actual applied tariff rates are very low and India has the flexibility to increase the tariff rates upto the bound rates.
- In the recent past, i.e. during the period of September 23, 2016 and March 1, 2018, the duties were revised and increased 4 times with an objective of limiting overseas purchases of edible oils and making the crushing of local oilseeds profitable. With this revision, palm oil now attracts highest (RBD 54 percent and crude oil 44 percent) tariff rate. This is followed by other major imported oils (crude soybean and crude sunflower oil 30 percent and 25 percent respectively).
- As per the reports, duty hikes that were implemented 2013-14 onwards, were expected to reduce quantity of imports and increase the demand for domestic oilseeds and hence support prices of oilseeds.
- The data however shows that that quantity imported kept on increasing. It increased from 11.62 MMT in 2013-14 to 15.08 MMT in 2016-17.
- As per the India ASEAN Comprehensive Economic Cooperation Agreement which became operational from January 10, 2010, crude and refined palm oils were placed in India's list of special products and the applied MFN tariff rates for Indonesian and Malaysian palm oil were to be reduced gradually to 37.5 percent by December 2019. However, the above analysis shows that the basic customs duties of palm oil have been increasing and were 54 percent and 44 percent for crude and refined oil respectively on March 1, 2018. However, it is not clear whether the current MFN rates would be reduced in 2019.

➢ **Tariff Rate and its Correlates**

An increase in the tariff rate is likely to affect quantum of imports adversely. It is expected to affect other variables such as domestic production of oilseeds and oils and their respective prices positively through increased demand. Prices would get affected depending upon the extent of transmission of marginal change in imported oil price. For observing the nature of correlation, coefficient of correlation (CC) between the tariff rate and the quantity of imports and domestic production and prices of respective oil and oilseed were calculated for the period during 1994-95 and 2017-18.

- Correlation of tariff rates with quantity of respective oil imported was significant and had expected negative sign indicating that with rise in tariff rates, the latter would decline. This is observed for all types of oil except refined sunflower oil. CC in case of other variables- domestic production of oilseed and of oil did not exhibit expected sign and did not comply with the expectation of a positive (negative) correlation due to protection offered (removed) during high (low) tariff regime to the domestic oilseeds and oils production.
- The data showed that the CC with price of oil were positive. However, that with oilseed prices was negative. This indicated that with tariff rate changes, domestic prices of oil also move in similar direction, however, this may not translate into increasing demand for domestic oilseeds and oilseed prices.
- In view of existence of multiple tariff rates and substitutability between oils, simple annual average tariff rate was also calculated for each financial year and its CC with other variables such as quantity of total imports and total production of oils and oilseeds and the wholesale price indices (WPI) of oils and oilseeds during 1996-97 and 2016-17 were found out.
- Almost all the variables were negatively correlated with average tariff rate. Among all the variables, correlation of tariff rate with the quantity of imports was relatively stronger and had expected signs.
- The coefficients were significant with negative signs as far as production of edible oils and oilseeds are concerned indicating that with increase (decrease) in the tariff rate, these variables also decline (rise).Again, this does not comply with the expectation of a positive(negative) correlation due to protection offered (removed) during high (low)

tariff regime to the domestic oilseeds and oil production. WPI of oilseeds is also negatively correlated with annual average tariff as against the expectation. Thus, when tariff rate increases, oilseed prices do not seem to be increasing. This indicates that factors other than tariff rates may be largely affecting production and prices of oilseeds.

- The plot of tariff rates of the major oil imported - crude and refined palm oil along with available WPI of oilseeds and edible oils shows that tariff rates were declining since 2005-06 and again started rising since 2014-15.The price indices however have shown an increasing trend over the concerned period. Thus, a one to one relationship between tariff rates and price indices doesn't seem obvious from the movement of variables.
- Phase wise percentage change in simple average tariff rate as well as in other variables was found out and compared. However, there does not appear to be any phase wise pattern indicating that there may not be any one to one and direct relationship between tariff rates and performance variables of the oil/ oilseed sector. Especially, the production and prices of oilseeds do not seem to be correlated with changes in annual average tariff rate positively during the overall period and during phases.

Major finding emerging from analysis of the primary data are as follows

- **Perceptions of the Farmer Households**

- Majority of the farmers were not aware about import of edible oil for satisfying domestic demand. Only three percent of the households were aware about impact of cheaper imports and its adverse impact on are under the crop.
- 66 percent of the farmers reported that the major problem faced by them was higher cost of inputs as compared to the prices received. The responses also revealed that prices received were comparatively lower than the costs incurred due to higher labour costs, lower price paid by the intermediaries and also due higher production.

Therefore, the major suggestion given by the farmers related to monitoring of the local distributors of the inputs for ensuring timely and adequate supply of quality inputs at lower costs.

- **Perceptions of the Oil Processors regarding Trade Policy Changes and their Impact**

The interests of processors vary and are conflicting, a wide range of policy suggestions emerged from the discussions. Whereas the solvent extraction units supported tariff hikes for refined oil and duty differential between crude and refined oil, for processors especially agro-food industries dependent on import of crude palm oil, maintaining a stable import policy and implementation of other domestic policies were more important than the tariff rate hike.

Policy implications

Following are the policy implications emerging from the study

1. It is observed that the yield gap in case of oilseeds is very high. In view of the increasing demand and dependence on imports of edible oil, efforts should be made to bridge the yield gaps. As mentioned in the CACP reports of 2017-18, there is a need to study farming practices of the benchmarking countries as well as benchmarking states and emulate those practices which are suitable at the micro level so as to increase crop yields, reduce production cost and increase income of farmers.
2. As suggested by oil processors, provision of adequate and quality inputs including seeds and water is extremely important. It is observed that the marginal return from provision of water is very high in case of oilseeds.
3. Extension machinery should be used to create awareness among farmers about seeds of high-yielding varieties.
4. As palm oil is widely consumed in India, the government should focus on increasing cultivation of palm and encourage investment therein.
5. Cultivation and export of traditional / indigenous ( ) oilseeds and those which have unique properties and niche demand in the international markets ( )needs to be promoted.
6. Given the need for higher edible oil imports in the short run, government policy should focus on exports of oilseeds, oil and oil meal. based products.
7. Import of oilseeds needs to be allowed at lower rates.
8. One of the strategies of the Foreign Trade Policy of India 2017 is to provide for a stable and sustainable policy environment for merchandise trade so as to reduce

operational complexity and uncertainty for the stakeholders involved in production and trade of edible oilseeds and oils. Therefore it is important to have a stable export as well as import policy.

Overall, the analysis revealed that tariff rate changes might not be able to bring about desired changes in the production and prices of oilseeds. Domestic policies would play a major role in increasing the productivity and production of oilseeds so as to satisfy the demand of the processing industry. It was revealed from the discussions that only tariff rate changes may not lead to increase in production if necessary inputs are not provided for increasing oilseed production as it would reduce the imports temporarily and starve the oil processing industry of the raw material. Similarly frequent changes in tariff rates would add to administrative costs and complexities. Hence, strengthening the domestic oilseed sector and encouraging exports remain the most important policy implications.

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Chapter 1

Introduction

1.1 Background of the Study

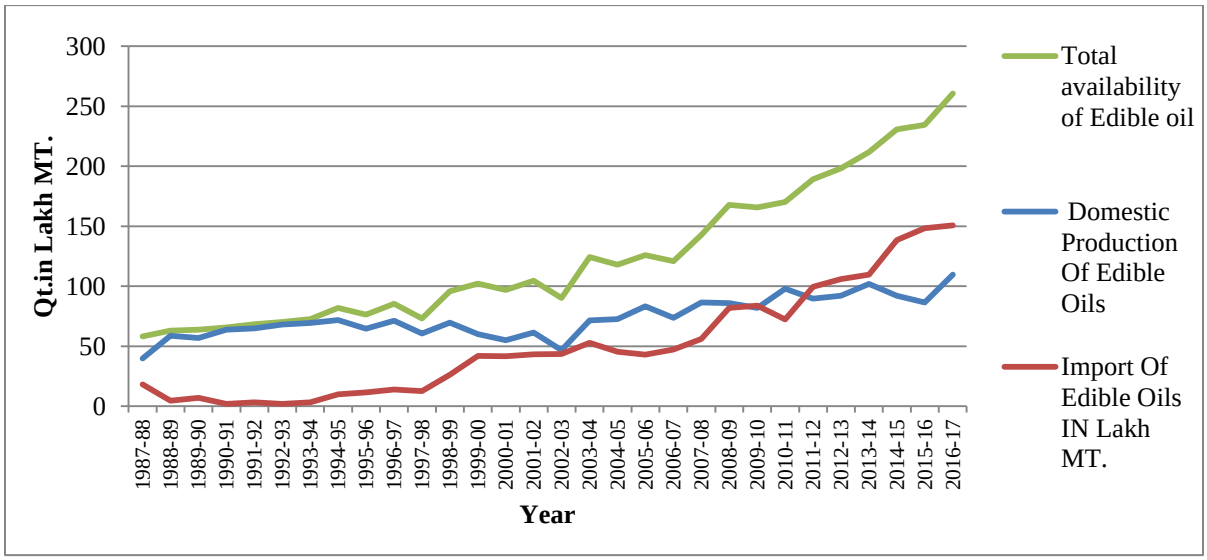
The agricultural sector in India is getting increasingly integrated with the world economy. With increasing incomes, changing consumption pattern and increasing production of a number of agricultural commodities, dependence of the sector on trade for satisfying domestic demand through imports and international demand through exports is increasing and has been one of the important features of our agricultural sector. Whereas In this context, trade policy is considered to be playing an important role in shaping performance of the agricultural sector. Trade policy for a particular agricultural commodity mainly includes usage of various trade instruments like tariffs/ tariff values/minimum export prices (MEPs), export subsidies etc. that regulate the market access provided in the domestic economy to the imports and also to the exports of the domestic economy in the international markets. The policies based on these instruments mainly make an attempt to provide price signals (e.g. tariffs and MEP) and subsidies (e.g. export subsidies) to the commodity sector concerned and bring about desired changes in that sector.

The edible oilseed sector of India that includes oilseed growers as well as processors of oilseeds and producers of vegetable oils has also been increasingly relying on international trade for satisfying domestic as well as international demand for the oilseed sector products. The sector has been increasingly relying on international markets for import of edible oil and export of oilseed, oil and oil meal. Imports constitute major part of total foreign trade of the oilseed sector. As per the figures given by the Solvent Extraction Association of India (SEAI), around 66 percent of the domestic requirement of edible oil was met through imports in 2016-17. Edible oils is the third most important item in India's import basket after crude petroleum and gold and the government has been spending around 70,000 crores per annum for their import (Chaturvedi, 2017). In fact, India today has become the largest importer of edible oils. As far as exports are concerned, India is a major exporter of oil meal. The contribution of India to the exports

of world oil meal market was 6 percent in 2012-13(SEAI, 2014).The data shows that exports of edible oilseeds as well as edible oil are also increasing.

The Technology Mission on Oilseeds (TMO) was launched by the central government in 1986 (which was converted into a National Mission on Oilseeds and Oil Palm (NMOOP) in 2014) to increase production and reduce dependence on imports. Market intervention operations were also initiated by the National Dairy Development Board (NDDB) to stabilize prices (Srinivasan, 2005). As a result, area under oilseeds increased by around 33 percent during 1985-86 to 1995-96 and in 2013-14, it contributed around 13 percent to the gross cropped area (GCA). Globally, India accounts for about 8 percent of the world oilseeds production (SEAI, 2014). The demand for majority of the oilseeds is derived demand for production of edible oils. It is observed that due to the inability of the of the oilseed sector to meet the input supply requirements of the domestic edible oil sector, edible oil (crude/ refined) has to be imported. With liberlisation of Indian trade policy in 1994, restrictions on imports of edible were reduced. Due to cheaper imports and growing domestic demand, India's import dependence started increasing. Figure 1.1 shows increasing domestic availability of edible oils, which is mainly driven by imports. The figure depicts increasing trend in imports 1993-94 onwards and stagnancy in the production of domestic edible oils.

Figure 1.1: Domestic Production, Import and Total Availability of Edible Oil in India- 1987-88 to 2016-17

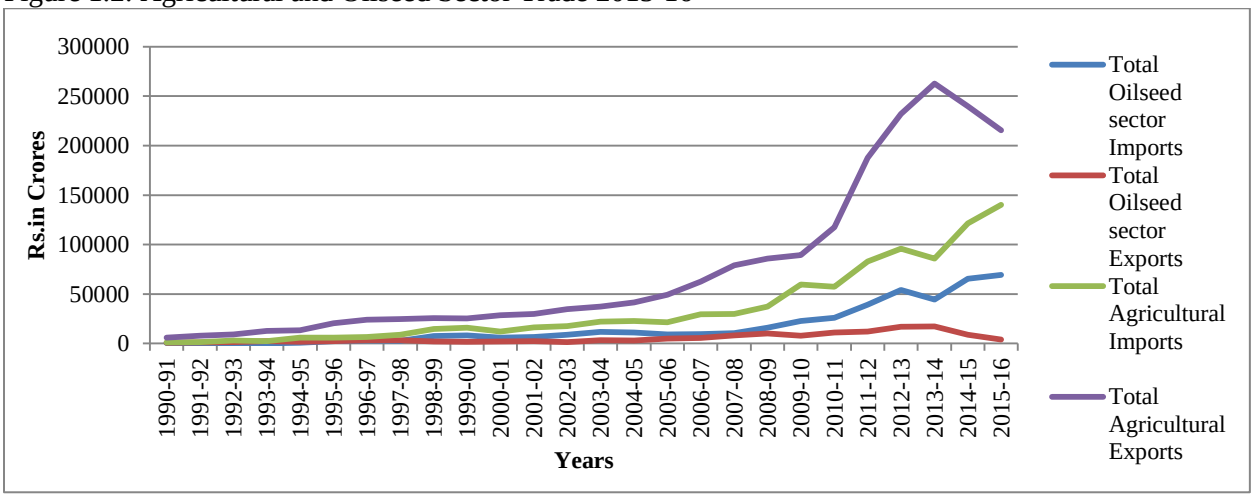


Source: 1.Based on data published in Agricultural statistics at a Glance, GoI (Various issues), 2. Import of Edible Oils, www.seaofindia.com, 3.Domestic Production of Edible Oils, Commodity Profile of Edible Oil for August - 2017,www.agricoop.gov.in.

Figure 1.2 shows trends in agricultural and oilseed sector exports and imports. It depicts trade surplus as far as total agricultural trade is concerned. However, as a result of rising imports of edible oil, total imports (of edible oilseeds, oil and oil meal) of the oilseed sector have taken over total exports (of edible oilseeds, oil and oil meal) from the sector. In 2015-16, value of imports of the sector was almost 16 times higher than the value of exports from the sector and thus could not be paid through the export earnings. The figure shows increasing gap between oilseed sector imports and exports especially after around 2007-08 and increasing magnitude of trade deficit for the sector.

It can be seen from figure 1.3 that the share of oilseed sector imports has been increasing gradually after 1994-95 and constituted around 50 percent of the total agricultural imports in 2015-16. The exports from the oilseed sector however showed a declining trend since 2008-09 and constituted only 2 percent of the total agricultural exports in 2015-16.

Figure 1.2: Agricultural and Oilseed Sector Trade 2015-16

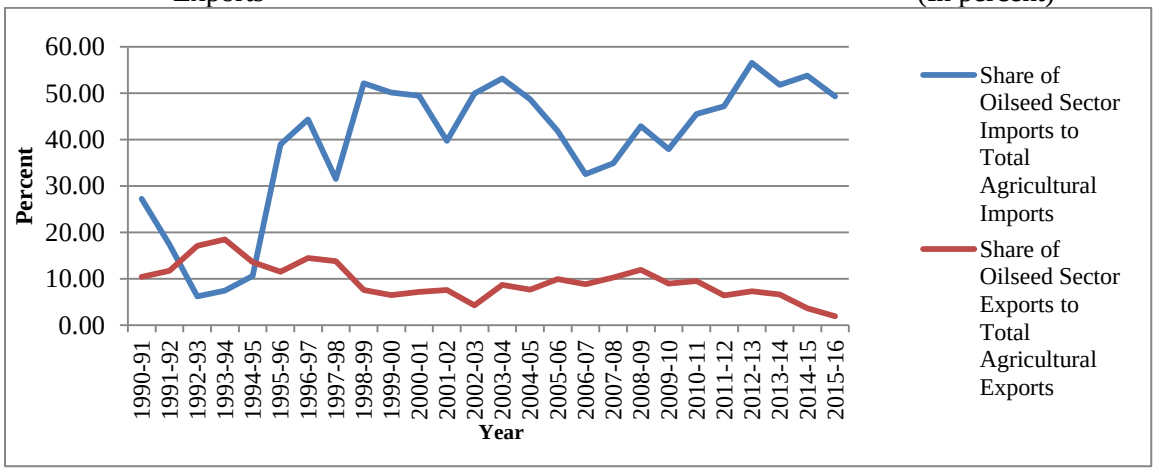


Note: Trade includes exports and imports of oilseeds, edible oil and oil cake/ meal
Source: Based on data published in Agricultural Statistics at a Glance, GoI (Various issues)

The major characteristic feature of India's oilseed sector therefore is the growing domestic demand for edible oils and increasing import dependency on the oil exporting countries. This suggests the importance of impact of international factors such as fluctuations in international supply of oilseeds and oil, their prices and exchange rate on the domestic edible oilseed and oil sector. Changes in theses factors under liberal trade regime would have an adverse impact on the derived demand for various oilseeds and their domestic prices and in the process affect profitability and incomes of producers and

processors of oilseeds and positively affect real incomes of consumers of edible oils. E.g. After opening up of edible oil trade in 1994, the government followed a relatively liberal import policy by keeping the actual tariff rates (basic customs duties) lower than the bound rates (or ceiling rates) that were negotiated in the Agreement on Agriculture under WTO in 1995. Cheaper imports and a liberal trade regime proved to be beneficial for the consumers of edible oil during the post 1995 period. Similarly, a restricted trade policy on the other hand is expected to positively affect edible oil and oilseed prices.

Figure 1.3: Share of Oilseed Sector Imports and Exports in Total Agricultural Imports and Exports (In percent)



Note: Oilseed sector includes exports and imports of oilseeds, edible oil and oil cake/ meal
Source: Based on data published in Agricultural statistics at a Glance, GoI (Various issues).

The major export policy followed by the government in case of oilseeds and edible oil has been that of discouraging their exports with the help of export bans and minimum export prices whenever there are supply shortages and higher ruling prices at international level. An export ban ensures adequate supply for the domestic economy. Similarly a higher level of minimum export price discourages exports of oilseeds or edible oil due to non-competitiveness at the international level. However, this takes away opportunity of the farmers to get remunerative prices.

Studies based on the measures of competitiveness have indicated that oilseed production and processing has always remained inefficient (Gulati and Hooda, 2009; Bhalla 2004) when compared with cheaper imports mainly due to technological factors and due to underutilization of existing capacity. For such commodities, imports are considered to be an efficient option to satisfy domestic demand. However, in the recent

past, import dependency in case of edible oils is increasing which increases the risks arising out of variability in prices.

Under such circumstances, it becomes important to study the role of trade policy in affecting the interests of various stakeholders and sending price signals through changes in instruments such as tariff rate and its impact on performance of the edible oil seed sector.

1.2. Review of Literature

Edible oil being an important commodity in the consumption basket of the consumers, a number of studies have been carried out focusing on various issues concerning the oilseed economy. It is observed that the demand for vegetable oils is estimated to rise at 3 to 4 percent per annum to reach 26.78 MT in 2025 (GIST and GCP, 2014). Though the yields of oilseeds are increasing and positive, still a large gap exists between supply and the demand (consumption).Therefore, growing concern has been expressed about declining self-sufficiency in edible oils and role of various factors in boosting the performance of oilseeds and edible oils. Trade policy is considered to be an important factor which attempts at regulating trade and affecting domestic production of edible oil and oilseeds. It has been observed that the protection provided to the oilseed and oil sector through restrictive trade policy and also through relative price support policies had ensured robust growth rates of area, production productivity of oilseed crop in the pre 1995 period (Thomas et al, 2013). As mentioned earlier, the government removed restrictions on imports of oil and put them on OGL.A number of studies have analysed the impact of liberal trade policy on edible oil sector, the oilseed economy of India as well as on the consumers of edible oil. Studies carried out for the post 2000 period have observed that the consumers as well as crude oil processors were the major beneficiaries of liberal trade policy since 1994 when edible oils imports were put on OGL (Persaud and Landes, 2006; Srinivasan, 2005; Shivkumar et al,2007).

The study by Gosh (2009) that analyses effects of trade policy changes under different tariff rate scenarios concluded that the net impact of high tariff regime would be negative though the farmers would be gaining due to restricted imports. Any movement towards liberalization of trade would benefit producers of oil and consumers. Under such policy regime, oilseed farmers would benefit if a right competing crop is

cultivated. The study by Thomas et al which estimates overall impact of tariff increase using simultaneous equation system also indicates overall negative impact of tariff rise on edible oil economy due to reduction in consumer surplus. It also concludes that higher tariffs would positively impact producers of oilseeds. However, it is also concluded that with an expanding market for edible oil, imports need not be restricted through tariff increases so long as the net returns of the oilseed oilseeds are positive. It points out that reduced dependence on oil imports could be brought about by stronger price incentives and yield improvements based on supply of improved inputs such as water and improved cultivation practices (Thomas et al, 2013). Also higher oil recovery and processing efficiency were considered to be factors which could reduce import dependency (Dolhman et al, 2003).

Overall, the studies find that tariff increases are likely to generate limited gains for producers of oil seeds and oil and affect the edible oilseed economy adversely due to reduction in consumer surplus. It is pointed out that the net welfare gains would be more when liberal trade policy is implemented. The studies recognize the need to balance interests of producers and processors of oilseeds and oil and the consumers of oil and also point out the need to strengthen the oilseed sector by alternative domestic policies which will reduce excessive dependence on oil import and effects of price volatility at the international levels.

The Lahiri Committee on Rationalisation of Customs and Excise Duties on Edible Oils and Oilseeds (Lahiri, 2006) underlined the need for reconciliation of interests of farmers, consumers, oilseed processors and the government. It suggested rationalization of duty structure by reduction in duty rates. However, the Department of Agricultural and Cooperation took objection to reduction of duty rates as it would adversely affect the oilseed farmers as well as the revenue and recommended upward revision particularly in import duty of palm oil.

Recent reports suggest that there was a long pending demand from various organisations/ associations in the oilseed/ oil sector to increase tariff rates in view of increasing imports of palm oil from Malaysia and Indonesia as it was believed that a restricted policy would have a positive impact on farmers besides the processors. The follow up from these organisations resulted in the recent hikes in tariff rates in August

and November 2017 and March 2018. It was believed that these hikes would restrict the imports in the country and support the oilseed prices (discussions with the officials of SEAI).

1.3. Need for the Study

It is observed from the review of literature that the growing demand for edible oils and oil meal has not converted into adequate oilseed production for ensuring self-sufficiency in oilseed production and efficient processing of oilseeds and edible oil production and because of which, the country heavily depends on imports to satisfy the total domestic demand for edible oil. As mentioned above, the government has been intervening in the trade sector of oilseeds / edible oils in an effort to ensure adequate supplies and manage prices.

In order to harmonize the interests of farmers, oil processors and consumers and at the same time, regulate large import of edible oils to the extent possible, changes in trade policy are carried out by the government (www.agricoop.gov.in). This primarily involves changes in the import duty structure or tariff rates on edible oils. An increase in tariff rate of the imported oils would increase the landed cost of the oil imported oil and the price paid by the consumers of the imported oil. Given the domestic prices of the competing edible oils, this would increase the price differential between imported and domestic oils and make the former relatively expensive than before and in turn may affect positively derived demand as well as prices of the oilseeds in the economy. Similarly, increase in tariffs on crude oil would affect the costs of crude oil processors. Also, changes in the relative tariff rates on crude and refined edible oils would change the relative prices of crude and refined imported oils and hence change relative demand for them. This in turn would affect domestic production of oilseeds and edible oils accordingly. Similarly, reduction in tariffs rates of edible oils raises concerns about the prices received by the cultivators of oilseeds as the reduced tariffs are expected to adversely impact the domestic prices of oilseeds and economic status of the farmers.

In view of this, an analysis of the performance of the edible oilseed/ oil sector in the context of trade policy changes was considered important. Trade policy of India relating to edible oils has exhibited various phases depending upon the tariff rates applied and market access granted to the imports. The liberal trade regime that began in 1994 was

followed by restrictive trade policy till 2008. The period during 2008 to 2013 was marked by declining tariff rates. However, tariffs on edible oils again started increasing in the post 2013 period. In view of this, the study makes an attempt to examine various phases of tariff rate regimes and analyses phase wise relationship between changes in tariffs rates for imported edible oil and the performance of the edible oilseed sector.

1.4 Objectives of the Study

1. To study the performance of the oilseed and edible oil sector in India in the post 1985 period.
2. To present an overview of the trade policy changes for the edible oil sector in the post liberalization i.e. post 1994 period and discuss its features
3. To analyse, in the light of tariff rate changes, phase wise correlation between tariff rate changes and changes in various indicators of performance of the oilseed sector
4. To study the perceptions of the farmers and manufacturers/traders/exporters about impact of changes in tariffs mainly on prices and production in of oilseeds and edible oil.
5. To suggest policy measures in the light of secondary and primary data analysis.

1.5 Methodology and Sampling

The study is based on secondary as well as primary data collection. Secondary data on area, production, yield and foreign trade of edible oil sector was collected from various government as well as non-government sources. Information relating to trade policy changes (specifically relating to tariffs rates) and other information about the edible oil sector was collected from the office of SEA. An attempt was made to observe relationship between changes in tariff rates on performance of oilseed sector in terms of production and prices of the major oilseed crops and foreign trade performance of oil sector in various time periods. Trends in prices of oilseeds were compared with that of imported oils as well as the tariff rates to understand the extent and direction of change and correlation. The data for area production and productivity has been collected 1985-86 onwards. Data for other variables has been collected and used depending upon its continuous availability.

At all India level, soybean, rape seed mustard and ground nut are the major oilseeds cultivated. Maharashtra occupied around 16 percent of total oilseed area in

2016-17 and its contribution to total oilseed production was 15 percent in this year (Economic Survey of India, GoI, 2018 and Economic Survey of Maharashtra, GoM, 2018). Major oilseed crop of state is soybean. It is the second highest state in terms of area (around one third of the of total soybean area in the year 2016-17) and production (around half of the total soybean production in the year 2016-17) of soybean. Similarly, Maharashtra is a state with important ports on the west cost of India which received around 10 percent of total imports of edible oils in 2016-17 (www.seaofindia.com). Maharashtra has highest number solvent extraction units (39 or 14 percent of a total of 272 units in India). The daily capacity of these units is highest (21555 MMT.) as compared to other states as on August 1, 2017 (SEAI, 2017). In view of the importance of the state in the oilseed economy, Maharashtra was considered for selecting sample farmers as well as traders and manufacturers.

For understanding the perceptions about impact of trade policy changes on farmers on variables such as their cropping pattern and market prices, a quick survey of farmers was undertaken in oilseed growing regions of Maharashtra. Two oilseed growing districts viz. Kolhapur which is agriculturally developed and Latur which belongs to drought prone region of the state were selected. In all, 25 farmers in each of the districts and a total of 50 farmers were selected from the selected districts. Table 1.1 shows details of the sample selection.

It can be seen that 57 percent of the district area in Latur was under oilseeds as compared to 19 percent in Kolhapur in the year 2016-17. However, the yield levels were higher in case of Kolhapur.

For understanding the perception of importers and oilseed processors, about impact of trade policy changes on the edible oil sector, it was decided to conduct discussions with associations of processors of edible oil as well as individual processors. Accordingly, focused group discussions were held with the officials of SEA of India, Mumbai and Kolhapur Oil Mills Owners Association, Kolhapur. Discussions were also held with individual importers of crude oil, refineries and exporters of oil meal.

Table 1.1: Selection of Sample, 2016-17

	Particulars	Kolhapur		Latur		Maharashtra		India	
1	Share of Oilseeds in district/state/all India GCA (%)	17.62		57.47		19.28		12.90	
2	Share of major oilseed crop in total district/state/ all India oilseed area (%)	Soybean	50.53	Soybean	89.27	Soybean	87.12	Soybean	43.17
		Groundnut	46.88	Groundnut	1.01	Groundnut	8.05	Groundnut	20.27
		Sunflower	1.69	Sunflower	0.52	Sunflower	0.48	Sunflower	1.41
		Rapeseed Mustard	-	Rapeseed Mustard	-	Rapeseed Mustard	-	Rapeseed Mustard	22.98
3	Share of major oilseed crop in total district/state/ all India oilseed production (%)	Soybean	56.89	Soybean	89.97	Soybean	89.70	Soybean	43.07
		Groundnut	42.43	Groundnut	1.18	Groundnut	8.22	Groundnut	23.53
		Sunflower	0.28	Sunflower	0.21	Sunflower	0.12	Sunflower	0.92
		Rapeseed Mustard		Rapeseed Mustard		Rapeseed Mustard		Rapeseed Mustard	24.53
4	Yield of major oilseed crop (Kg/ha)	Soybean	2361	Soybean	804	Soybean	1194	Soybean	1245
		Groundnut	1896	Groundnut	928	Groundnut	1184	Groundnut	1592
		Sunflower	349	Sunflower	317	Sunflower	279	Sunflower	650
		Rapeseed Mustard		Rapeseed Mustard		Rapeseed Mustard		Rapeseed Mustard	1257
5	Taluka selected	Gadhinglaj		Nilanga					
6	Villages Selected	Kadgaon		Dhanora				-	
		Bhadgaon		Nanand					
7	Number of farmers selected in village	Kadgaon	14	Dhanora	10			-	
		Bhadgaon	11	Nanand	15				
	Total size of Samples	25		25		50		-	

Source: Agricultural Statistical Information of Maharashtra, Ministry of Agriculture, Economic Survey of Maharashtra, 2018.

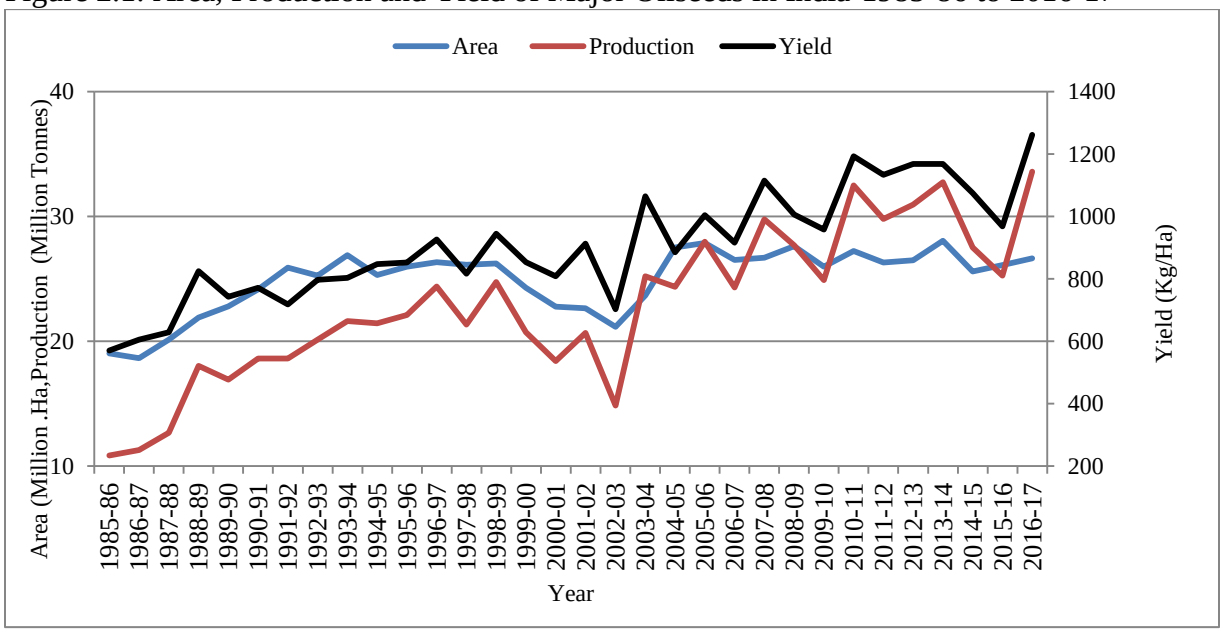
Chapter II

Indian Oilseed Sector: The profile

2.1 The Oilseed Sector of India – Status and Performance

Oilseeds are one of the most import crop categories in the cropping pattern at all India level. With the establishment of Technology Mission on Oilseeds (TMO) in 1986 with the objective of attaining self-sufficiency in edible oils, production of oilseeds started increasing. Oilseeds occupied 19.02 million hac in 1985-86. By 1995-96, it increased to 25 million hac. The production of oilseeds which was 10.83 MT in 1985-86, more than doubled to reach figure of 22 MMT. in 1995-96. By 2014, India was among the first five countries as far as production of various oilseeds except sunflower was concerned (Sarada, C. et al, 2015). The yield of total oilseeds increased by around 1.5 times from 570 kg per hac in 1985-86 to 852 kg per hectare in 1995-96. The movement of major oilseed area, production and productivity can be observed from figure 2.1.

Figure 2.1: Area, Production and Yield of Major Oilseeds in India-1985-86 to 2016-17



Source: Based on data published in Agricultural statistics at a Glance, GoI (Various issues), Data Base of Indian Economy, www.rbi.org.in for data for the year 2016-17.

It can be observed that after an initial increase, area, production and yield of major oilseeds started declining since 1998-99 and reached all time low figures in 2002-03. The year 2002-03 was a severe drought year (Economic Survey of India, 2004). However, the

succeeding year was a normal year and hence this was followed by a recovery and increase in production and yield. The area under oilseeds showed stagnation in the post 2002-03 period. Table 2.1 shows the growth rates of area, production and yield of major edible oilseeds during various sub periods. Growth rates during 1985-86 to 2002-03 were found out (though this time period overlaps with the earlier period) so as to observe the impact of declining area and production during 1998-99 and 2002-03. It is observed that during 1985-86 to1997-98, rates of growth of area, production and yield were positive as well significant and were higher than the respective growth rates during 2003-04 and 2016-17. Due to the inclusion of time period 1998-99 and 2002-03, growth rates were found to be low as well as non-significant. Growth rates were non-significant also for the period between 2003-04 and 2016-17. For the total period however, the growth rates in production as well as in yield was positive and significant.

Table 2.1: Compound Annual Growth Rates of Area, Production and Yield of Oilseeds in India (In Percent)

Time Period	Area	Production	Yield
1985-86 to 1997-98	2.46**	5.35**	2.81***
1985-86 to 2002-03	0.59	1.77	1.17
2003-04 to 2016-17	0.85	2.08	1.22
Total period	1.06	3.60***	2.52**

Note: 1.*** and ** indicate significance at 1percent and 5 percent respectively
Source: Based on data published in Agricultural statistics at a Glance, GoI (Various issues), Data Base of Indian Economy, www.rbi.org.in for data for the year 2016-17.

To capture the extent of change in the sub periods before 2002-03, percentage change in area, production and yield as well as coefficient of variation (CV) was found out. It can be seen from table 2.2 that till 1997-98, the area and production of oilseeds increased by 37 and 97 percent respectively and yield also registered an increase of 43 percent. This period was followed by a short period of decline till 2003. Thereafter, all the three variables have registered an increase. It can be noted that the CV as well as percentage change for the period between 2003-04 and 2016-17 for all the three variables was lower than in the earlier period I indicating slowdown in the performance of oilseed sector. During the total time period, it is observed that area under oilseeds has increased

by 40 percent during 1985-86 to 2016-17. During the same period, production and yield increased by 210 percent and 121 percent respectively.

Table 2.2: Percentage Change and CV of Area, Production and Productivity of Oilseeds in India

Year	Area		Production		Yield	
	% Change	CV	% Change	CV	% Change	CV
Period I 1985-86/1997-98	37.33	12.32	96.86	23.61	43.16	13.85
Period II 1998-99/2002-03	-19.37	8.22	-40.04	18.25	-25.64	11.29
Period III 2003-04/2016-17	12.52	4.21	33.37	11.59	18.52	10.60
Total period	40.03	10.25	210.21	26.55	121.23	19.61

Source: Based on data published in Agricultural statistics at a Glance, GoI (Various issues), Data Base of Indian Economy, www.rbi.org.in for data for the year 2016-17.

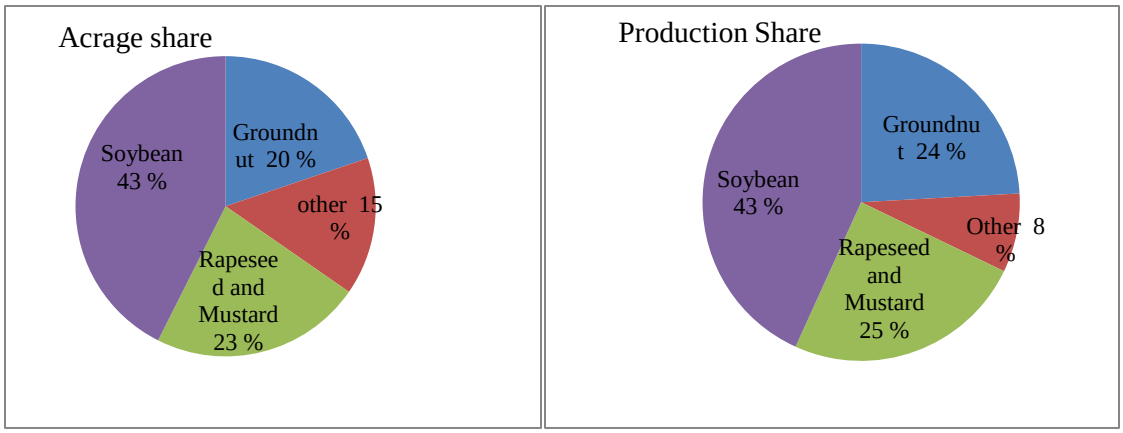
Though the yield has been increasing at a rate of around 2.5 percent (table 2.1) during total period under consideration, India lags behind as compared to the world average yield of oilseeds. In 2014-15, the yield of nine major oilseeds at all India level was 1037 kg/hac. However, it was only half of the world average yield which was 2154 kg per hac (Sarada, C. et al, 2015). Both the tables reveal that the performance of the oilseed sector was better during during 1985-86 and 1997-98 than the latter period.

Out of the major nine oilseeds, groundnut and rapeseed mustard have been the major traditional oilseeds cultivated in India. The oilseeds which gained popularity in the post 1990 period were sunflower and soybean. Out of the nine major edible oilseeds, which are the primary source of edible oil, rapeseed mustard, soybean, groundnut, sunflower, safflower are major oilseeds used for producing cooking oils. Castor seed, linseed, niger seed and sesame are other major edible oilseeds. Figure 2.2 shows the share of various edible oilseeds in total area and production of oilseeds respectively. It can be seen that around 86 percent of the total oilseed area and 92 percent of total oilseed production is contributed by 3 oilseeds viz. soybean, rape seed - mustard and groundnut with soybean as the most important oilseed crop occupying 43 percent of the total oilseed area as well as production.

Figures 2.3 to 2.5 show the trends in area, production and yield of three major oilseeds since 1985-86. It is observed that rapeseed mustard and ground nut were the major oilseeds area wise in the late 1980s and early 1990s. With entry of new oilseeds such as soybean, the area under groundnut however started declining and it is now the third most

important oilseed crop area wise at all India level. It is observed that the area under soybean has been increasing continuously. In contrast, area under groundnut has been declining and that under rapeseed – mustard has almost remained stagnant. It is observed that after an initial increase, the production of these oilseeds started declining and reached the lowest level in 2002-03.The figure reveals that in the post recovery period, production trends of rapeseed mustard and groundnut were characterized by fluctuations and overall stagnancy.

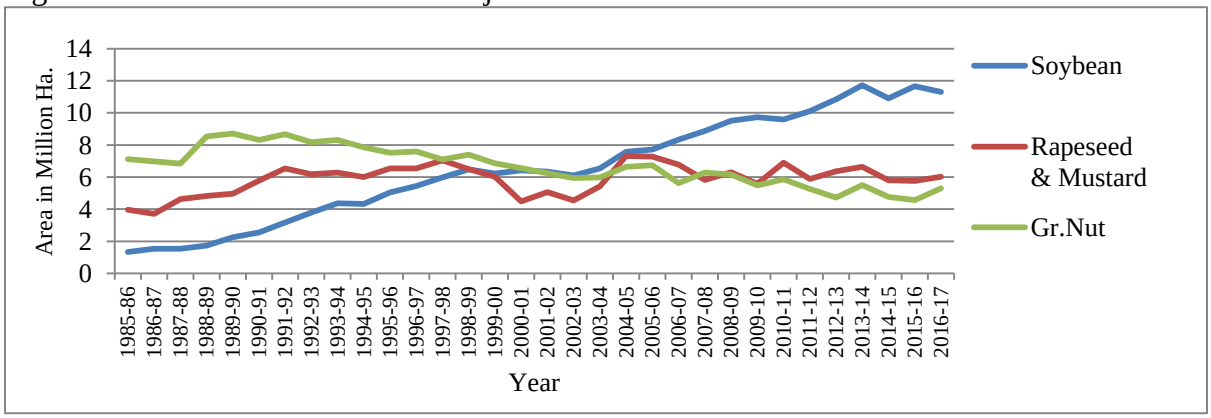
Figure 2.2: Share of Major Edible Oilseeds in Total Acreage and Production of Oilseeds in India: 2016-17



Source : Data Base of Indian Economy,RBI, www. rbi.org.in

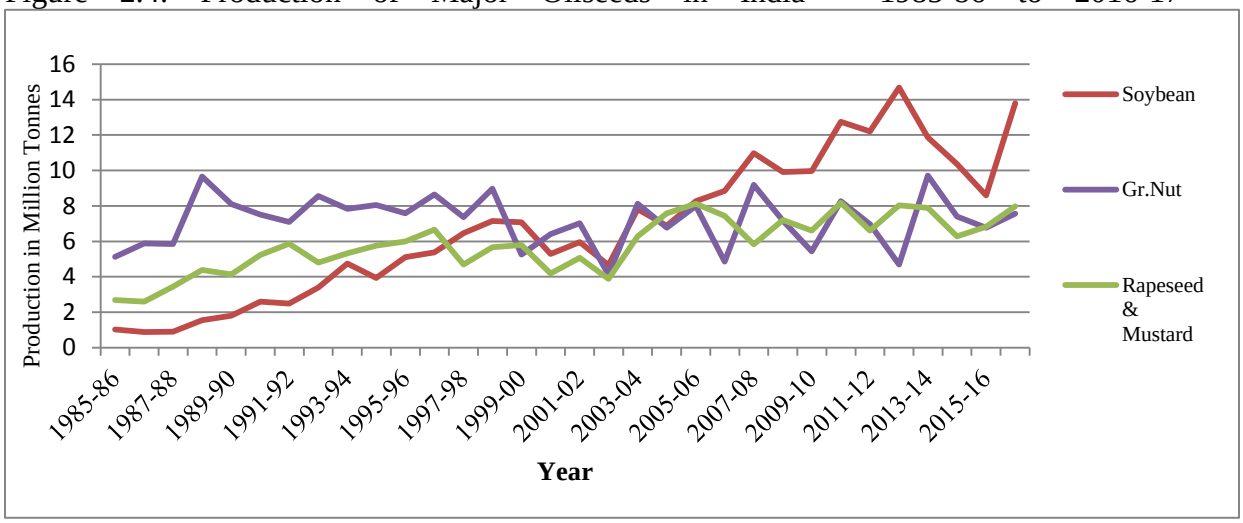
It can be seen that over the period of time, yields of the above mentioned oilseeds were around 700 kg/ha in 1985-86. These have increased and have gone above 1000 kg / ha. As mentioned earlier, as compared to world yield of 2154 kg/ha of total oilseeds, the corresponding yield in case of India was less than half i.e. 1037 kg/ha in 2014-15.

Figure 2.3: Area under Major Oilseeds in India-1985-86 to 2016-17



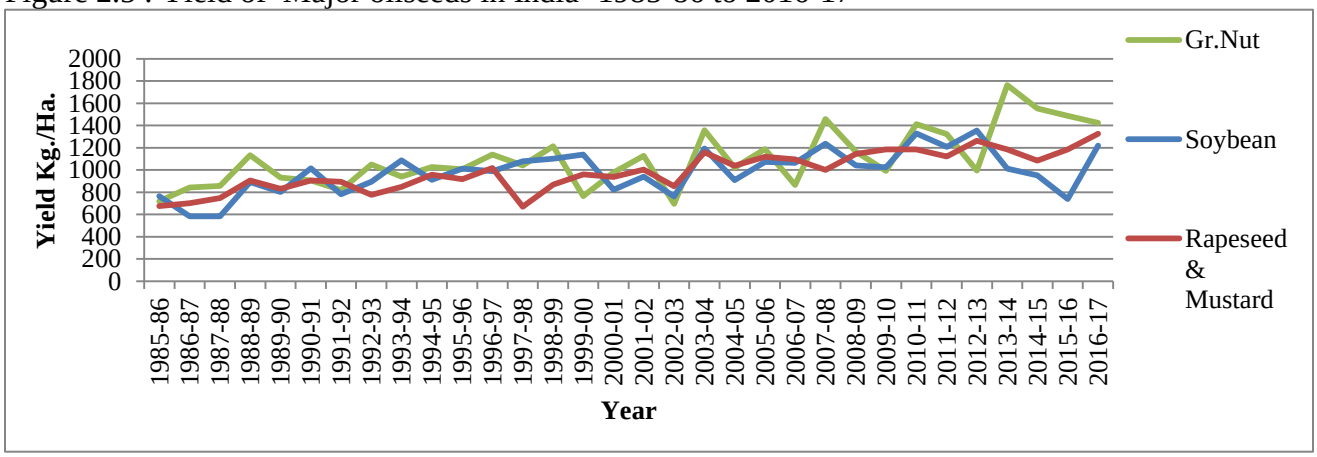
Source: Based on data published in Agricultural Statistics at a Glance, GoI (Various issues), Data Base of Indian Economy , RBI, www.rbi.org.in for data for the year 2016-17.

Figure 2.4: Production of Major Oilseeds in India - 1985-86 to 2016-17



Source: Based on data published in Agricultural Statistics at a Glance, GoI (various issues), Data Base of Indian Economy, RBI, www.rbi.org.in for data for the year 2016-17.

Figure 2.5 : Yield of Major oilseeds in India -1985-86 to 2016-17



Source: Based on data published in Agricultural statistics at a Glance, GoM (Various issues), Data Base of Indian Economy, RBI, www.rbi.org.in for data for the year 2016-17.

2.2 Prices of Oilseeds and Net Returns from Cultivation of Oilseeds

Table 2.3 shows the percentage net returns over cost A2+FL and over cost C2 for various crops during TE 2011 and TE 2015-16. It is observed that except in case of Jowar, percentage net returns for all crops including oilseeds were positive and increasing till TE 2012-13. Thereafter, net returns have declined due to drought, however, are still positive for the oilseed crops.

Table 2.3: Net Returns of Major Kharif and Rabi Crops, TE 2014-15

		Percentage Net Returns over C2					
		TE 2010-11	TE 2011-12	TE 2012-13	TE 2013-14	TE 2014-15	TE 2015-16
1	Groundnut	7.35	10.86	14.34	10.9	10.03	
2	Soybean	18.71	20.23	28.88	21	11.83	
3	Paddy	14.97	12.06	10.26	11.98	7.97	
4	Jowar	1.93	8.3	-0.24	-2.9	-10.54	
5	Tur	30.08	28.09	16.19	20.5	15.68	
6	Cotton	36.33	31.73	22.08	14.77	5.68	
7	R&M	52.08	55.49	51.95	40.1	28.38	21.07
8	Gram	23.37	28.83	29.14	23.48	15.06	14.02
9	Wheat	36.17	35.59	36.47	36	27.34	22.06
10	Sugarcane	47	51	47	47	34	16
		Percentage Net Returns over A2 +FL					
1	Groundnut	48.09	55.12	62.16	54.19	51.39	
2	Soybean	73.38	76.26	91.48	73.77	56.86	
3	Paddy	68.55	58.93	55.63	58.31	54.34	
4	Jowar	43.39	53.62	40.65	36.95	24.44	
5	Tur	102.62	98.34	71.75	79.54	70.2	
6	Cotton	102.65	95.35	76.07	61.27	44.81	
7	R&M	165.22	172.99	158.39	127.15	101.22	87.01
8	Gram	92.92	104.78	103.44	89.91	72.03	69.86
9	Wheat	127.45	125.16	123.12	118.62	102.02	93.97
10	Sugarcane	130	131	114	110	86	56

Source: CACP Reports on Price Policy for Kharif and Rabi Crops and Sugarcane, various years

Table 2.4 shows growth rates of average annual monthly prices of oilseeds in India. The growth rates were positive and significant and were increasing at 6 to 7 percent per annum. Highest growth rate was recorded by rapeseed and mustard (7.74 percent) followed by soybean (7.35 percent). Growth rates of minimum support prices (MSP) of major oilseeds were also calculated over a longer period of time i.e. 1985-86 to 2016-17. These prices have grown at a higher rate than the monthly average prices. It is observed that the growth rates of MSPs of food grains registered marginally higher growth rate than the oilseeds and indicates preference of the government for sustaining the production of food grains for food security purposes.

It can be seen from table 2.5 that the growth rate of MSPs of majority of the oilseeds was lower than that of the food grains such as wheat, jowar and gram during1985-86 to 2016-17.

Table 2.4: Growth Rate of Annual Average Monthly Prices of Oilseeds in India, 2002 to 2016 (In percent)

Oilseed	Groundnut Crushing Quality (Saurashtra)	Soybean (Indore)	Rape/Mustard (Jaipur)	Sunflower (Karnataka)	Castor (Gujarat)	Seasame Saurashtra (White 98/2)
Growth rate	6.77	7.35	7.74	5.74	6.36	5.41

Note: All values significant at 1 percent
Source: SEAi, 2017

Table 2.5: Compound Annual Growth Rates of MSPs of various Crops, 1985-86 to2016-17

	Oilseeds	Growth rate (%)		Food grains	Growth rate(%)
1	Groundnut(in shell)	12.29	1	Jowar (Hybrid)	13.36
2	Rape/ Mustard	11.14	2	Jowar (Maldandi)	14.25
3	Soybean Yellow	11.20	3	Wheat	11.99
4	Soybean Black	11.88	4	Gram(common)	13.24
5	Safflower	11.33	5	Paddy	12.09
6	Sunflower	11.86	6	Paddy (FQ)	9.51
7	Sesame	12.83*			
	Niger seed	12.83*			

Note: Significant at 1 percent level, FQ=Fair quality
Source: 1. Agriculture Statistics at a Glance 2004, 2016, 2. Data from 2007-08 to 2016-17 Hand book of SEA, 2014 3. Economic Survey of India (1986-87 to 1998-99), * 1995-96 to 2016-17.

The data reveals that the area, production and yield of oilseeds were increasing significantly over the total period. However, the data also shows that growth rates of production and yield during 1985-86 to 1997-98 were higher than those during 2003-04 to 2016-17. In fact, the latter were non-significant. Among the oilseeds, soybean has come to occupy 43 percent of area and production of total oilseeds in 2016-17. The figures reveal stagnating production and yield of other major oilseeds at all India level. This was in spite of positive growth rate of average monthly prices of oilseeds (of around 6 to 7 percent p.a.).The data also reveals that growth rates of MSPs were positive for oilseeds (11 to 12 percent) and were marginally less than those in case of food grains. This clearly underlines need for various policies for encouraging growth of the oilseed sector.

Chapter III

Edible oil Sector in India

3.1. Profile of the Oil Processing Industry in India

The edible oil industry of India consists of various types of units such as firstly, the oil mills that crush oilseeds, expel oil therefrom and produce filtered oil, secondly the solvent extraction units that chemically extract oil and thirdly the refineries that refine the solvent extracted oils. The other processing units are the vanaspati and feed production units. The composition of the oil industry can be seen from seen from table 3.1

Table 3.1 Oilseed Processing Industry in India

	Type of units	No of units	Annual Capacity Mn/T	Capacity utilization (%)
1	Oil Mills	15000	36	20-30
2	Solvent extraction plants	600	31	30-40
3	Vegetable oil Refineries	650	30	40-45
4	Vanaspati units	250	3	40
5	Feed units	125	66	45

Source: SEAI, 2014 and SEAI documents, December 2017.

As mentioned earlier, rapeseed mustard, soybean, groundnut, sunflower, safflower are major oilseeds used for producing cooking oils. Apart from the above five major edible oils, rice bran oil, cottonseed oil and coconut oil are the other cooking oils or oils of secondary importance in terms of production/ consumption. In the 1970s, ground nut oil (53 percent) and rapeseed mustard oil (25 percent) along with cottonseed oil (9) were the major oils that dominated the traditional oil consumption basket of the Indian population. Palm, soybean and sunflower accounted for less than 4 percent of the total oil consumed (www.ers.usda.gov). Over a period of time however, the consumption basket has undergone drastic change with soybean oil and rapeseed mustard oil occupying dominant position.

The production and availability of edible oils is determined primarily by the percentage of oil recovery and the marketable surplus of the oilseeds. Table 3.2 shows the domestic availability of major edible oils in the recent years.

It is observed that though the percentage of recovery is higher (40 percent) in case of groundnut than that of other oilseeds, its marketable surplus is lower as compared to its own production and to the marketable surplus of other oilseeds. It is observed that over a period of time, soybean and rapeseed mustard with higher marketable surplus, are the two major edible oils produced domestically.

Table 3.2: Domestic Availability of Major Edible Oils in India, 2015-16 and 2016-17

(Lakh tonnes)

		Oil recovery (%)	Oilseed production		Marketable surplus		Total oil availability	
			2015-16	2016-17	2015-16	2016-17	2015-16	2016-17
1	Ground nut (in shell)	40	44.70	69.20	5.80	20.10	2.32	8.04
2	Soybean	17	72.10	105.75	56.10	88.75	9.54	15.09
3	Rape seed Mustard	33	59.20	70.91	56.20	67.41	18.55	22.25
4	Sunflower	35	3.20	2.75	3.20	2.75	1.12	0.96
5	Sesame	45	7.25	6.45	2.75	2.00	1.24	0.90
6	Castor	45	14.00	10.60	14.00	10.60	6.30	4.77
7	Niger	30	0.60	0.65	0.25	0.35	0.08	0.11
8	Safflower	30	0.26	0.60	0.20	0.50	0.06	0.15
9	Linseed	43	2.10	2.40	2.10	2.40	0.90	1.03
	Total		203.41	269.31	140.60	194.86	40.11	53.30

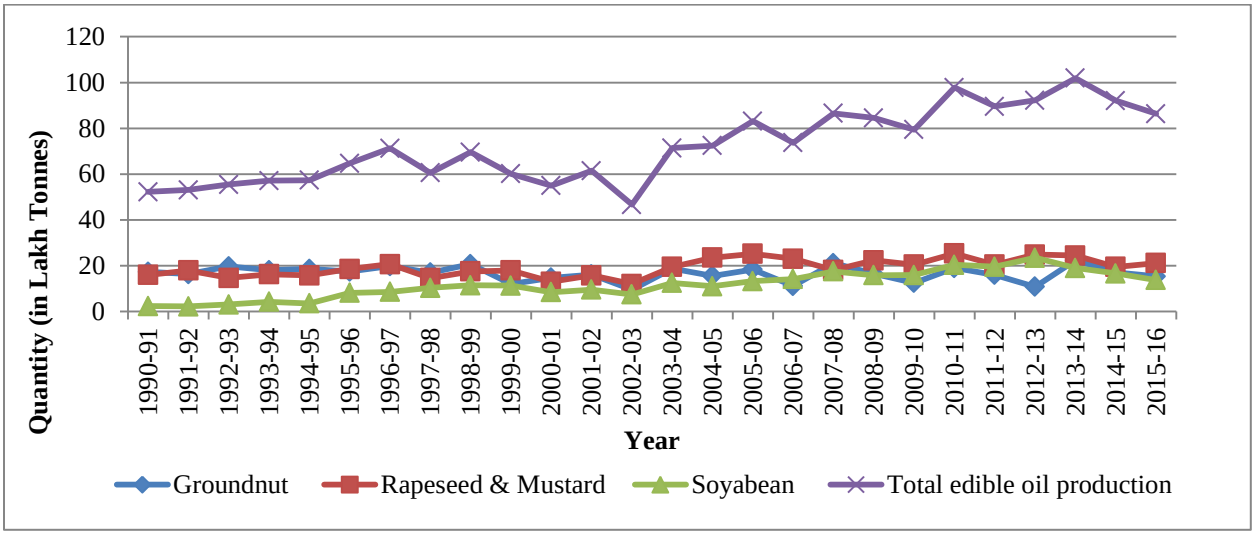
Source: SEAI, 2014

3.2 Edible Oil Production in India

Figure 3.1 shows the trend in domestic oil production from major oilseeds during 1990-91 to 2016-17. It is seen that edible oil production was around 52 lakh tonnes 5.2MMT) in 1990- 91. It touched all time low figure of 46 lakh tonnes (4.6 MMT) in 2002-03 and reached a level of 86 lakh tonnes (8.6 MMT). Thus, it increased by around 66% percent since 1990.

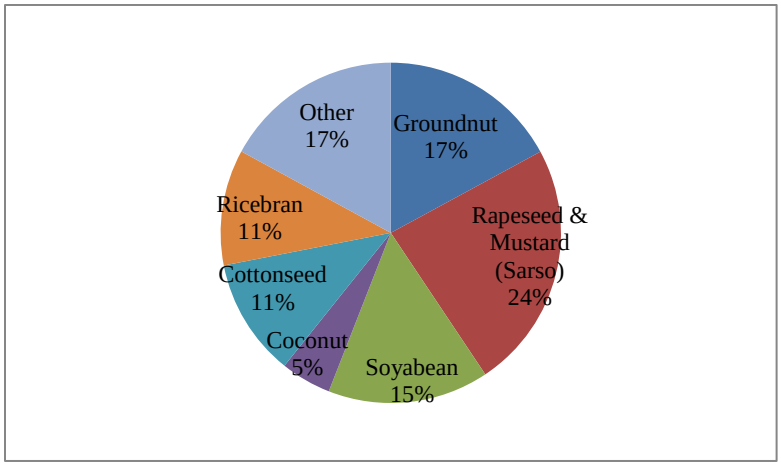
Figure 3.2 shows dominant position of rapeseed mustard, groundnut and soybean oils in the total production of edible oil in India in the year 2015-16.

Figure 3.1: Trend in Domestic Oil Production from Major Oilseeds during 1990- 91 to 2015-16.



Source: Based on data published in Agricultural Statistics at a Glance, GoI (various issues)

Figure 3. 2: Share of Various Oils in Total Domestic Edible Oil Production in India 2015-16



Source: Based on data published in Agricultural Statistics at a Glance, GoI (various issues)

Table 3.3 presents growth rates of production of major edible oils in India. It is observed that the growth rates in case of ground nut and sunflower were negative throughout the period. Rapeseed mustard exhibited negative and significant growth rates in the first phase followed by positive but non significant growth rates. As for the total production of oil, growth rate was significant (but only 2 percent) only in total time period.

Table 3.3:Compound Annual Growth Rates of Production of Major Edible Oil in India

(In percent)

Time Period	Groundnut	Rapeseed & Mustered	Soybean	Sunflower	Total Edible Oils
1990-91 to 2002-03	-4.5***	-2.17**	9.32***	-0.66	-0.87
2003-04 to 2015-16	-1.39	0.59	0.68	-7.07***	1.47
Overall	-0.46	1.08	7.05***	-3.95***	1.88** (1987-88 to 2016-17)

Note: ***, ** indicates Significance at 1% and 5 % respectively

Source: Based on data published in Agricultural Statistics at a Glance, GoM (various issues)

The per capita consumption of edible oils is currently 14.kg. The world average is 25kg.In view of the rising incomes and changing consumption patterns, the per capita and total demand for oils would be increasing at a fast rate in future. As per an estimate, for satisfying the annual domestic requirement of edible oils of around 20MMT in 2020 and 23MMT in 2030, the annual requirement from total oilseeds would be 67.37 MMT in 2020 and 71.45 MMT in 2030 (http://www.icar-iior.org.in/media/docs/Vision%202050.pdf). In 2016-17 however, the oilseed production from 9 major oilseeds was only around 33 MMT (table 2.1) and that of edible oils was around 8 MMT (figure 3.1). It is unlikely that the production of edible oilseeds and oil would rise to 67 MMT and 20 MMT respectively in by 2020 as per the above estimate even after considering oil availability from secondary sources.

3.3 Trade Performance of Edible Oil Sector in India

The Imports

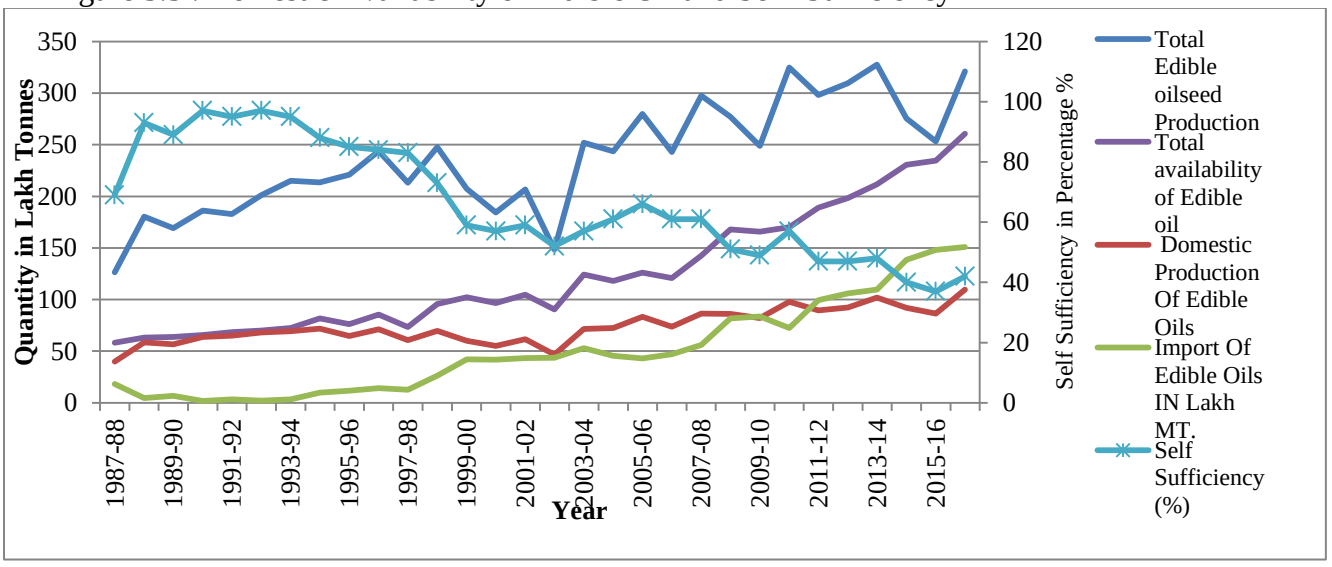
Out of the total value of imports of oilseeds and oilseed products, share of edible oil imports is 99 percent. Thus, value of imports of oilseeds and oil meal is insignificant (Agricultural Statistics at a Glane, various issues, GoI). In case oilseeds, India has been following restricted trade policy. Import of oilseeds is permitted subject to phytosanitary restrictions and an import duty of 30 per cent. At this rate, import of oilseeds has become unviable. In view of this, import of oilseeds is negligible.

India's share in the international oil meal market which was around six per cent in 2012-13, reduced to less than two per cent in 2014-15. India's oil meal exports

declined by 51 per cent to one MMT between April and January of FY 2016 as compared to 2.05 MMT for the same period a year ago. It was felt in view of this that India would soon start importing oil meals to support the livestock sector (https://www.business-standard.com/article/markets/india-to-start-oilmeal-import-soon-as-domestic-production-becomes-unviable-116020600151_1.html). The data shows that the quantity of oil meal/ cake imported by India was 3.8 lakh tonnes in 2015-16.This increased to 8.4 lakh tonnes in 2016-17(SEA, 2017)

India imports substantial amount of edible oils for its domestic consumption. It is the largest importer of palm oil, soybean oil and sunflower oil and 6th largest importer of mustard oil in 2016-17 (http://agricoop.gov.in/sites/default/files/Edible%20oil%20Profile%2005-02-2018.pdf). The dependence of the country on imports of edible oils can be observed from figure 3.3.The figure clearly shows slower growth of domestic production of edible oils as compared to imports. Self-sufficiency, which was 97 percent in the 1992- 93 has come down to around 42 percent in 2016-17 due to increasing gap between demand and supply of oilseeds.

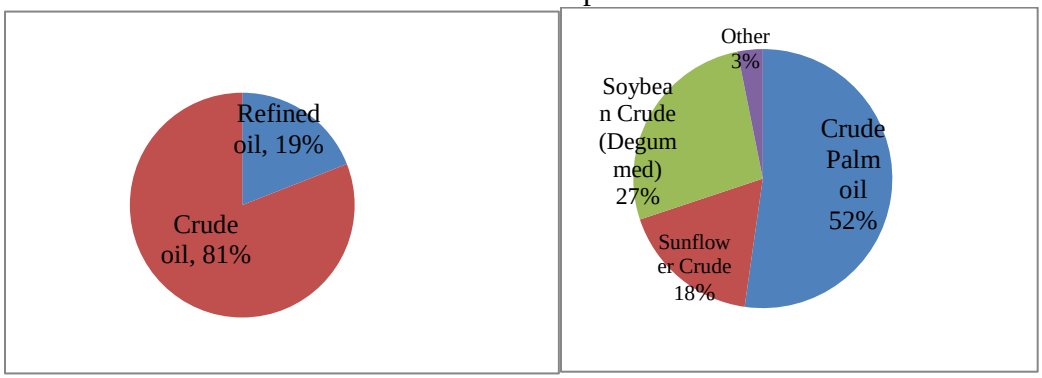
Figure 3.3 : Domestic Availability of Edible Oil and Self Sufficiency



Source : 1.For 2016-17- Import of edible oils, www. seaofindia.com 2. Domestic Production of Edible Oils -Commodity Profile of Edible Oil for August – 2017,www.agricoop.gov.in 3. DES (4th Advance Estimates .Oilseed production 2016-17, www.agricoop.gov.in

Figure 3.4 shows that around 81 percent of total imports consist of crude oil which supports the oil processing industry. The imports of refined oils consist only of refined, bleached and deodorized (RBD) palm oil. Among the crude oils, mainly palm oil, soybean oil and sunflower oil are imported. This can also be observed from figure 3.4.

Figure 3.4: Share of Crude and Refined Oil in Total Imported Oil and Share of Crude Oils in Total Crude Oil Import: 2016-17



Note: Imports pertain to oil year (November to October)
Source: www.seaofindia.com

Table 3.4 shows growth rates of quantity imported of various edible oils. It is observed that the growth rate of total quantity of imported oil was 12 percent for the period 1985-86 to 2016-17. Table 3.4 also shows higher growth rate in case of refined as well as crude palm oil as compared to other oil. Overall, it is observed that the imports of total imported edible oil increased at a rate of 12 percent over the concerned period.

Table: 3.4: Growth Rates of Quantity of Edible Oils Imported in India, 2001-02 to 2016-17 (In percent)

Palmolein		Sunflower		Soybean		Other crude oil	Total imported oil (1985-86 to 2016-17)
Refined oil	Crude oil	Refined oil	Crude oil	Refined oil	Crude oil		
20**	3***	NA	3*	NA	3***	19**	12**

Note: *** , **,* indicate significance at 1, 5,and 10 percent respectively (level of significance), NA= not available,

Source: SEAI Handbook and Annual Report, 2014 and 2017respectively

The data from the earlier sections has revealed that the growth rates of domestic production of oilseeds (1985-86 to 2016-17) and oil (1987-88 to 2016-17) were 3.6 percent and 1.88 percent respectively. Comparing these values with the that of the

quantity imported of edible oil (1985-86 to 2016-17) shows that its growth rate which was 12 percent (table 3.4) was much higher than that of production of oilseeds and oil. Whereas the domestic edible oil production increased by around 1.8 times, the imports increased by around 33 times during 1985-86 and 2016-17.

It also needs to be mentioned here that the due to the aggressive duty structure in Indonesia, tax rate on export of crude palm oil is higher than that of refined palm oil, making the refined palm oil relatively cheaper. Hence it was observed that the imports of RBD palm oil sharply increased since the introduction of inverted duty structure. Its share in total palm oil imports increased from around 13 percent in oil year 2009-10 to 19 percent in oil year 2016-17 (SEAI documents, December 2017).

Estimates of SEA reveal that, 14.27 million tonnes of vegetable oil was imported for the 11-month period ending in September 2017. This was higher than the 13.57 million tonnes of oil that was imported during the corresponding period, last year. As per their estimate, another 1.2-1.3 million tonnes of import in October would take the import of oil to 15.5 million tonnes, thereby creating a record high. The report also reveals that India had to rely on more imports due to scarcity in domestic edible oil production especially in soybean crop due to flood in the major soybean growing regions (https://www.indiainfoline.com).

The data relating to recent years shows that the imports have been increasing continuously. This is clear from table 3.5. It also shows that the import was highest during November 2017 to February 2018 as compared to the corresponding period of the earlier years.

Table 3.5: Import of Edible Oil in India (MMT)

Oil year	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 (Nov to Feb)
November to October	8.82	8.37	9.98	10.38	11.62	14.42	14.57	15.08	4.66
November to February	2.97	2.61	3.00	3.65	3.42	4.20	5.09	4.58	4.66

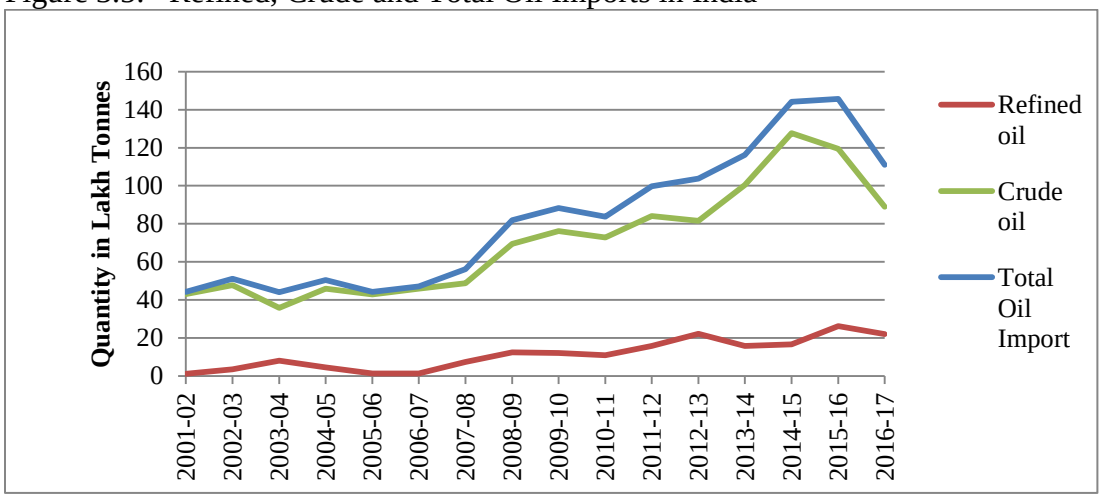
Source: www.seaofindia.com

As per the industry sources, therefore, to prop up domestic oilseed prices (as discussed in the earlier chapter) and to limit overseas purchases of edible oils and to make the crushing of local oilseeds profitable it was essential to increase the import duty on edible oils, which would limit further import of oil (https://in.reuters.com). It was

feared that with reduced overseas purchases, if the domestic production does not increase, the domestic crushing industry would become unprofitable. The data however reveals and as would be discussed in the next chapter, in spite of the recent increases in the tariff rates, import of edible oil has been increasing indicating rising and inelastic demand for imports and inability of the domestic sector to provide adequate supply oilseeds to the industry.

Figure 3.5 shows quantum of edible oil imports by type since 2001-02. Increase in the imports is mainly driven by crude oil component of the total imports. Figure 3.5 shows that around 81 percent of total imports consist of crude oil imports which supports the oil processing industry. The imports of refined oils consist only of RBD palm oil. Among the crude oils, mainly palm oil, soybean oil and sunflower oil are imported. This can be observed from figure 3.5.Figure 3.6 shows imports of various types of oil. It reveals important contribution of crude palm oil in total imports. Crude oil imports have been increasing since 2001-02. In recent years, i.e. 2014-15 onwards, these imports started declining.

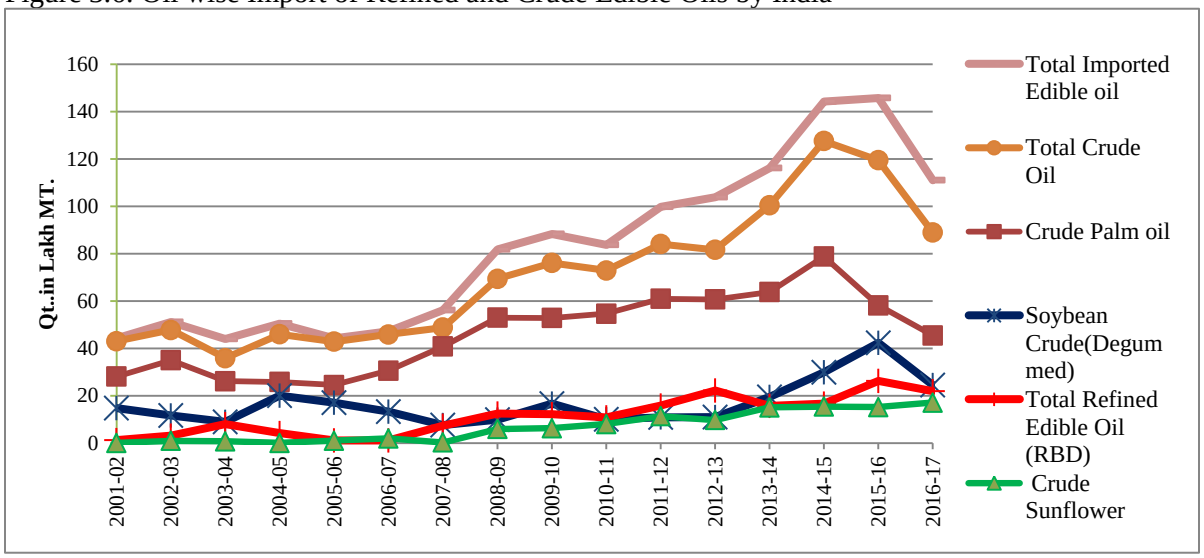
Figure 3.5: Refined, Crude and Total Oil Imports in India



Imports pertain to oil year (November to October)

Source: SEA Handbook and Annual Report, 2014 and 2017 respectively and www.seaofindia.com for 2016-17

Figure 3.6: Oil wise Import of Refined and Crude Edible Oils by India



Note: Imports pertain to oil year (November to October)
Source: Solvent Extractors' Association of India (SEA)

The Exports

The major export policy followed by the government in case of edible oil has been that of discouraging their exports with the help of export bans and MEPs. An export ban ensures adequate supply of edible oil for the domestic economy. Similarly a higher level of MEP discourages exports of edible oil due to non-competitiveness at the international level. Earlier, the policy allowed export of castor oil only and there was a ban on export of other oils. As per the recent reports however (March 28, 2018), the Cabinet Committee on Economic Affairs allowed bulk exports of all edible oils except mustard oil which will continue to be exported in the pack of 5kgs and with MEP of $900/ton (https://economictimes.indiatimes.com).

The available data on export of oilseed shows that the exports are mainly of traditional oilseeds of groundnut and sesame seeds and India is amongst their largest exporters in the world (Ramrakhiani, 2018).

As mentioned earlier, India has also been one of the important exporters of oil meal. Mainly, it has been exporting oil meals from soybean, rice bran, castor seed and rapeseed. It can be seen from table 3.6 that in terms of quantity as well as value, export of oil meal has been higher than that of oilseeds and oils till 2013-14. It is however observed that 2014-15 onwards, both value as well as quantity of oil meal exported have been declining leading to decline in the total value of exports and hence is a cause of

concern. The table also shows gradually increasing exports of oilseeds and oils and indicates potential for increasing the same. In fact, their combined share in total value of exports has increased from around 36 percent in 20008-09 to around 79 percent in 2016-17. However, this has not been able to arrest the fall in total value of exports.

Table 3.6: Exports of Oil meals, Oilseeds and Oils 2008-09 to 2016-17

(Qty in 000 MT and value in Rs. Cr)

Year	Oil meals		Oilseeds		Oils, fats		Total value of exports
	Quantity	Value	Quantity	Value	Quantity	Value	
2008-09	5428.0	8347.29	566.6	2966.91	310.8	1851.43	13165.63
2009-10	3312.2	5259.29	582.9	3007.46	346.9	1793.41	10060.16
2010-11	5181.4	8311.17	873.5	4619.92	431.0	3026.06	15957.15
2011-12	5610.3	8447.73	1307.5	8213.04	499.6	4636.69	21297.46
2012-13	4855.7	11824.7	902.1	7270.47	591.0	4603.69	23698.86
2013-14	4378.4	11509.25	838.8	7097.13	512.6	4072.77	22679.15
2014-15	2484.6	4326.55	1227.4	9687.64	530.7	4405.09	18419.28
2015-16	1538.4	2612.50	913.5	7331.36	552.8	4253.58	14197.44
2016-17	1885.5	3219.65	1073.6	8390.07	551.3	3955.35	15565.07
% Change	-65.26	-61.43	89.48	182.79	77.38	113.64	13165.63
% Share in value of exports in 2008		63.40		22.54		14.06	
% Share in value of exports in 2016-17		20.69		53.90		25.41	

Source: SEA, 2014, 2017

The above analysis reveals that the oilseed processing industry has to largely depend on the imported oil for satisfying its input requirements for satisfying domestic demand for edible oils. On the other hand, in the recent years, quantity of oil meal exported and its value have been declining. In view of this, it is extremely important to focus on increasing oilseed production by improving yield and increase exports of value added oilseed products so that the demand for domestic oilseeds is maintained and import dependence is reduced.

Chapter IV

Import Policy and the Edible Oilseeds Sector in India

4.1 Overview of the Import Policy for the Edible Oil Sector in India

Before 1994, trade in edible oil sector in India was largely controlled by the government and only state trading corporations and National Agricultural Cooperative Marketing Federation of India (NAFED) were allowed to import edible oil. Similarly, the trade was governed by quantitative restrictions or quotas. The economic reforms that followed the financial crisis in India in 1991 led to liberalization of the domestic economy and opened up our gates for a liberal trade regime. Edible oil was one of the commodity groups, the profile of which changed due to liberal import policy. Beginning with 1994, the import of all edible oils (except coconut oil, palm kernel oil, RBD palm oil, RBD palm stearin) was placed on OGL. This meant that license was not required for importing edible oil. The initial tariff (imposed after the policy change) of 65 percent was significantly below the implied tariff when imports were under quantitative restrictions. In 1995, India as a signatory to the Agreement of Agriculture under WTO, agreed to bound its tariff rates for several imported commodities. The bound rates were 45 percent for crude or refined soybean oil imports. Tariffs on all other edible oil imports were bound at 300 percent except refined rapeseed oil and crude sunflower-safflower oils, which were subject to over-quota tariffs of 75 and 85 percent, respectively (www.ers.usda.gov).After 1995 till 1998, India's tariff structure was relatively simple and increasingly liberal (www.ers.usda.gov). The declining trend of import dependency in edible oils during the preceding years played a part in the decision to liberalize edible oil imports as much as the commitments under WTO agreement (Thomas et al, 2013).

The policy change coupled with high potential demand for cheaper imported edible oils, led to increase in the volume of imports of edible oils, especially from Malaysia and Indonesia. Total vegetable oil imports—mostly palm and soybean oils—increased from an annual average of about 0.3 MMT in 1988/89-1993/94 to 5.2 MMT in 1998/99-2001/02 (https://naldc.nal.usda.gov/download/38957/PDF). With a surge of imports due to policy change and later due to worldwide recession on account of the East

Asian crisis, domestic prices of edible oils were also adversely affected. As a result, customs duties on different edible oils imported were raised gradually from 1998 onwards. Similarly, trade policy was used to create a tariff structure with different rates for different types of oil (e.g. palm, soybean, sunflower oil and refined and crude oil) (www.ers.usda.gov). Tariff rates remained at a higher level (maximum rate of tariff being 90 percent refined palm oil) till 2006.

Post 2006 period was marked not only by declining tariff rates but also by reduction in spread in the tariff rate structure. As a result of decline in tariff rates, imports increased sharply from 5.6 MMT in 2007-08 to 8.1MMT in 2008-09 and have been continuously increasing since then despite gradual increase in the tariff rates 2013 onwards.

Figures 4.1 to 4.6 depict changes in the trade policy (tariffs) for crude and refined palm oil, sunflower oil and total edible oil during 1994 to 2017. The information relating to tariff rates is taken mainly from SEA Handbook, 2014, documents provided by the SEA office and the notifications available on their website. Tariff rates of refined and crude oil are plotted in the same figure.

Firstly, it is clearly observed from the figures below that the period during 1994 and 2017 can be classified into four phases-

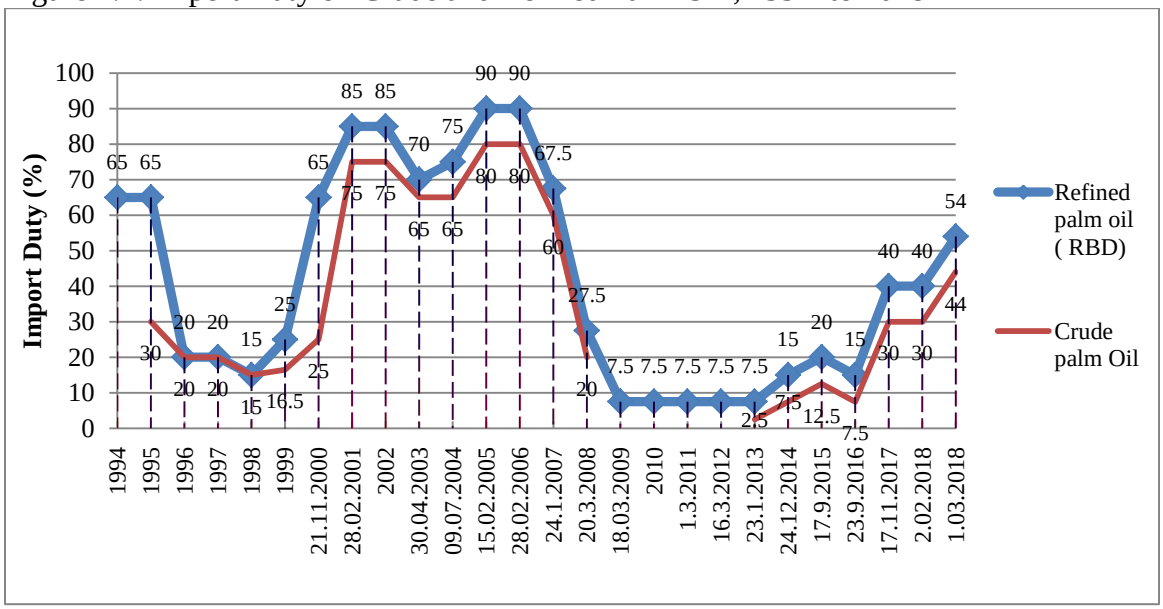
1. 1994-95 to 1997-98: Period of falling or lower tariff rates (Declining from highest rate of 65 percent to lowest of 15 percent)
2. 1998-99 to 2006-07 : Period of increasing or higher tariff rates (Increasing from 15 percent up to 90 percent)
3. 2007-08 to 2012-13: Period of declining or lower tariff rates (Declining from 90 percent to 7.5 percent)
4. 2013-14 to 2017-18: period of increasing tariff rates (Increasing from 7.5 percent to 54 percent).

Secondly, it is observed that tariff rates are higher for the refined oils than the respective crude oils.

Thirdly, it can also be observed that during the period of 1998-2007, the tariff rate structure became more complex with the introduction of duty differential between various oils.

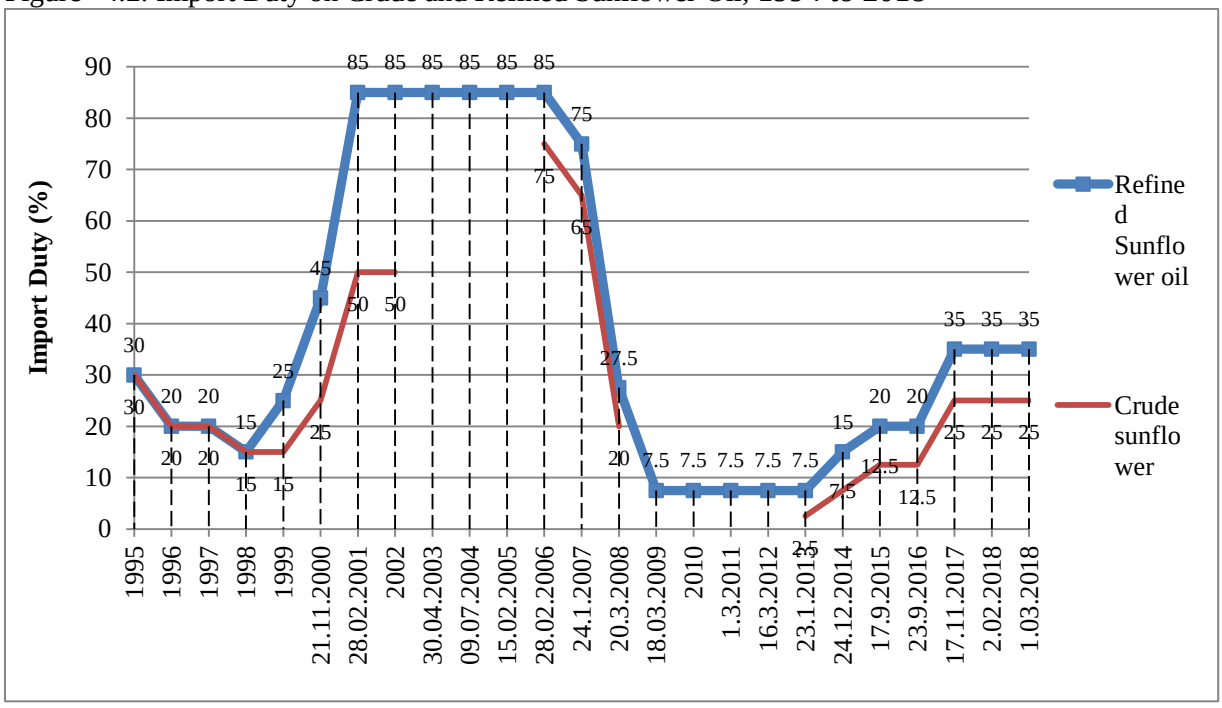
Fourthly, it is observed that the tariff rates are highest for RBD palm oil among refined oils and for crude palm oil among crude oils.

Figure 4.1: Import Duty on Crude and Refined Palm Oil , 1994 to 2018



Note : Broken crude palm oil line indicates non availability of data for that period.
Source: Based on information provided by Solvent Extractors' Association of India (SEA)

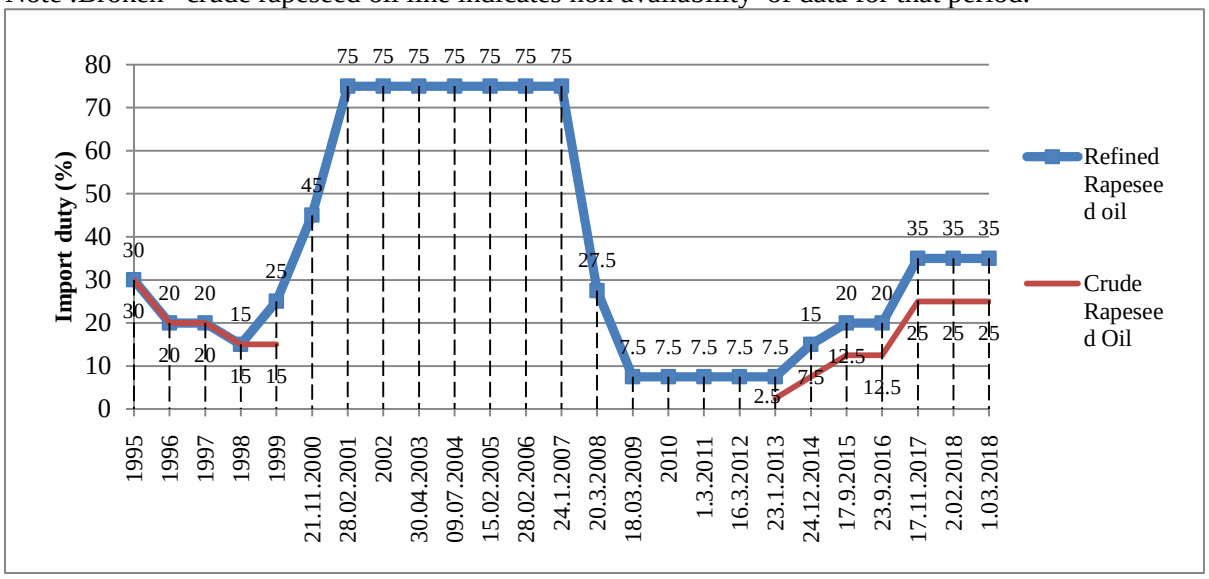
Figure 4.2: Import Duty on Crude and Refined Sunflower Oil, 1994 to 2018



Note : Broken crude sunflower oil line indicates non availability of data for that period.
Source : Based on information provided by Solvent Extractors' Association of India (SEA)

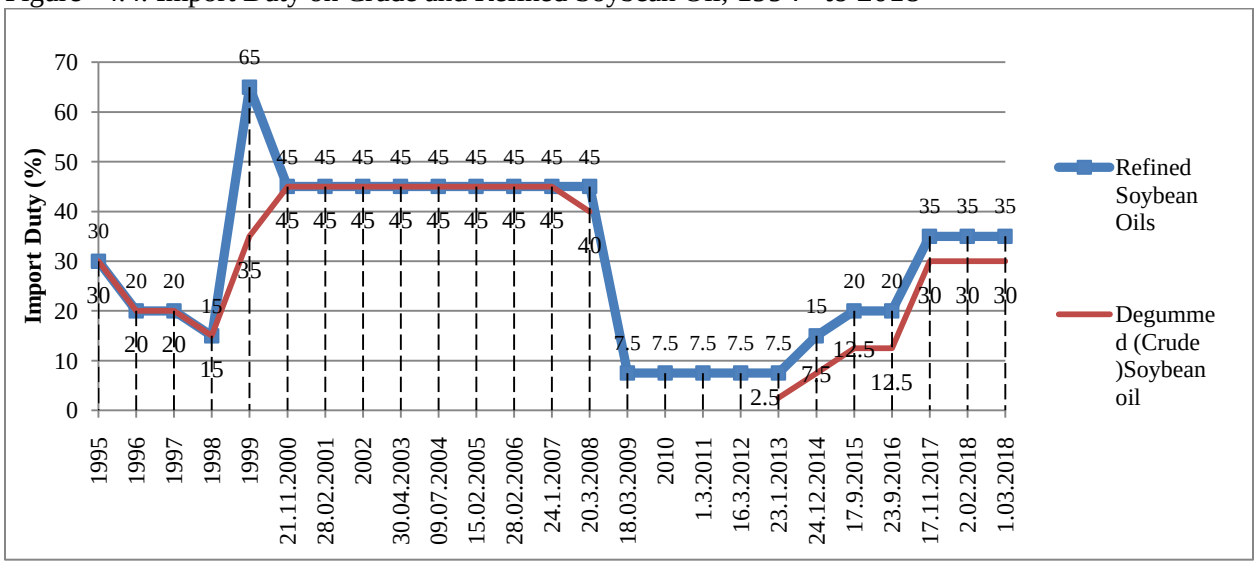
Figure 4.3: Import Duty on Crude and Refined Rape Oil, 1994 to 2018

Note :Broken crude rapeseed oil line indicates non availability of data for that period.



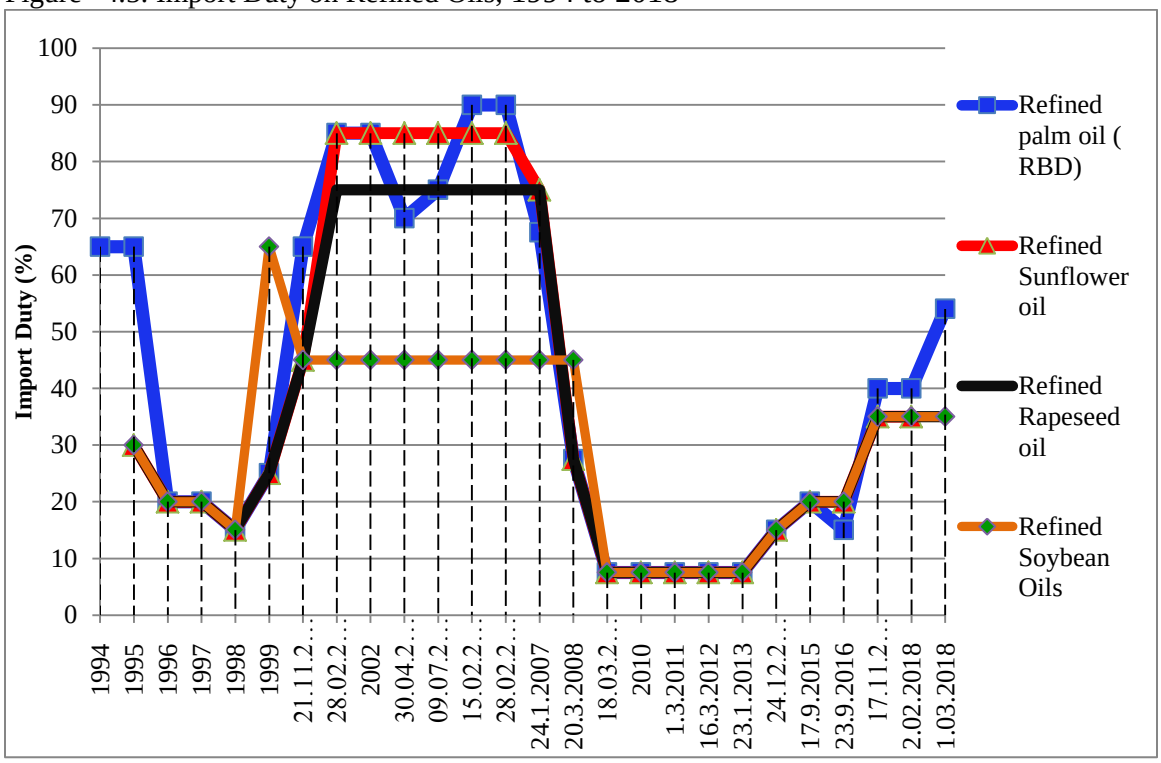
Source : Based on information provided by Solvent Extractors' Association of India (SEA)

Figure 4.4: Import Duty on Crude and Refined Soybean Oil, 1994 to 2018



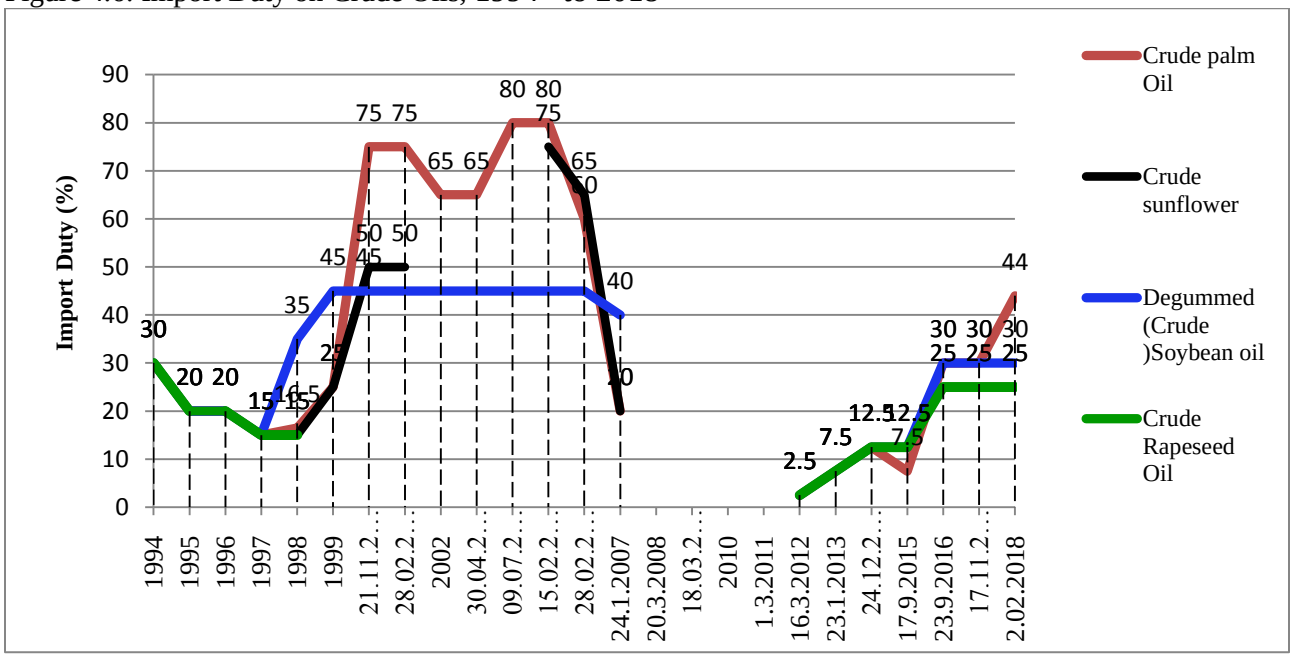
Note : Broken crude soybean oil line indicates non availability of data for that period.
Source: Based on information provided by Solvent Extractors' Association of India (SEA)

Figure 4.5: Import Duty on Refined Oils, 1994 to 2018



Note : Broken crude oil line indicates non availability of data for that period.
Source: Solvent Extractors' Association of India (SEA)

Figure 4.6: Import Duty on Crude Oils, 1994 to 2018



Note : Broken crude oils line indicates non availability of data for that period.
Source: Solvent Extractors' Association of India (SEA)

Table 4.1 shows the recent changes in import duty structure and effective duties after inclusion of education cess / social welfare cess September 2016 onwards. As mentioned earlier, it can be observed that the import duties are higher for refined oils than the respective crude oils. Among all the refined oils, tariff rate is highest for palm oil. Similarly, it is highest for crude palm oil among the crude oils. The bound duties, which are the maximum permissible duties that could be applied under AoA under WTO are very high (300%) for all the oils except soybean oil (45%) and Rapeseed oil (75%).The table shows that compared to these bound rates, actual applied tariff rates are very low and that after signing the Uruguay round agreement in 1995, India has not raised its actual tariff rates up to the bound rates. It also indicates that India has flexibility to raise tariff rates up to the bound rates. It is observed that tariff rates of all the imported edible oils have increased and the percentage change over the period in tariff rates is highest for crude palm oil followed by refined palm oil. It is also noticed that the duty differential between crude palm oil and RBD palm oil is highest i.e. 10 percent as compared to other oils. The data clearly reveals that the major objective of the trade policy in this case has been to discourage import of crude palm oil relative to other crude oils and refined palm oil.

In the recent past, i.e. during the period of September 23, 2016 and March 1, 2018, the duties were revised and increased 4 times. The recent duty hike was announced on March 1, 2018. As per the reports, this duty hike was implemented to protect the oilseed processors and as well as the oilseed producers from cheap imports from Malyasia, Indonesia, Brazil and Argentina which had been reducing demand for local soybean and rapeseed. Similarly, higher export duty on crude palm oil and a lower duty on RBD palmolein had been discouraging export of crude palm oil depriving the Indian refineries to use their installed capacity. Therefore it was expected that duty hike and hike in duty differential between crude and refined palm oil would lead to increase in the demand for domestic oilseeds and hence increase in prices of oilseeds (http://www.livemint.com/Politics/415MsvdCkxbLka0GpIwJ6K/Government-doubles-import-tax-on-edible-oils.html, revised pre budget memorandum for vegetable oil and oilseeds sector 2018-19, SEA documents, December 2017).

Table 4.1: Changes in the Tariff Rates on Imported Edible Oil (%)

Imported Oil	Bound duty	23rd Sept. 2016	Effec-tive Duty	11th Aug. 2017	Effec-tive Duty	17th Nov. 2017	Effec-tive Duty	1st March 2018	Effec-tive Duty	% change in tariff rates
Crude Palm Oil	300	7.50	7.73	15.00	15.45	30.00	30.90	44.00	48.40	487
RBD Palmolein	300	15.00	15.45	25.00	25.75	40.00	41.20	54.00	59.40	260
RBD Palm Oil	300	15.00	15.45	25.00	25.75	40.00	41.20	54.00	59.40	260
Crude Soybean Oil	45	12.50	12.87	17.50	18.03	30.00	30.90	30.00	33.00	140
Crude Sunflower Oil	300	12.50	12.87	12.50	12.87	25.00	25.75	25.00	27.50	100
Crude Rapeseed Oil	75	12.50	12.87	12.50	12.87	25.00	25.75	25.00	27.50	100
Refined Soybean Oil	45	20.00	20.60	20	20.60	35.00	36.05	35.00	38.50	75
Refined Sunflower Oil	300	20.00	20.60	20	20.60	35.00	36.05	33.00	38.50	65
Refined Rapeseed Oil	75	20.00	20.60	20	20.60	35.00	36.05	35.00	38.5	75

Note: Effective duty includes 3 % Edu. cess till 17th Nov 2017 Revision. Other next 2 revisions, Edu. Cess replaced by Social welfare cess, 10%

Source: Import duty on edible oils as on 8th March 2018 of vegetable oils, SEA data bank, seaofindia.com, for bound duties- Commodity Profile of Edible Oils for February 2018, http://agricoop.gov.in/sites/default/files/Edible%20oil%20Feb%2018.pdf

4.2 Tariff Rate Changes and the Domestic Oilseed Sector

An attempt is made here to study whether there is any correlation between changes in trade policy (tariff rates) for various edible oils and variables such as respective quantum of imports and variables such as production and prices of oilseeds and edible oils during various phases. A change in the tariff rate is likely to affect quantum of imports adversely. It is expected to affect other variables such as domestic production of oilseeds and oils and their respective prices positively. Prices would get affected depending upon the extent of transmission of marginal change in imported oil price.

Table 4.3 shows coefficient of correlation (CC) between the tariff rate and the quantity of imports and domestic production of respective oil and oilseed for the period

between 1995-96 and 2016-17. It is seen that among all the variables, correlation of tariff rate with quantity of respective oil imported is significant and has expected negative sign indicating that with rise in tariff rates, the latter would decline. This is observed for all types of oil except refined sunflower oil. CC in case of other variables- domestic production of oilseed and of oil do not exhibit expected sign. This indicates that with increasing (decreasing) tariff rate, these variables registered a decline (rise). This does not comply with the expectation of a positive correlation due to protection offered (removed) during high (low) tariff regime to the domestic oilseeds and oils production. As far as prices of oilseeds and oil are concerned, it is expected that these would be positively correlated with the respective tariff rate. Thus, when tariff rate increases (decreases), depending upon the extent of transmission and substitutability between oils, demand for domestic oil and oilseed would increase (decrease).The data shows that the CC with price of oil are positive. However, that with oilseed prices is negative. This indicates that with tariff rate changes, domestic prices of oil also move in similar direction, however, this may not translate into increasing demand for domestic oilseeds and oilseed prices.

Table 4.2: Coefficient of Correlation between Tariff Rates and other Variables 1994-95 to 2017-18

Crop/ oil	Coefficient of correlation of respective tariff rates with				
	Quantity imported of oil	Domestic Production of oilseed	Price of oilseed	Domestic Production of oil	Price of oil
RBD Palm	-0.73**	-	-	-	0.26**
Crude palm	-0.67**	-	-	-	0.31**
Refined soybean	-0.49**	-0.58*	-0.76**	-0.58*	0.21*
Crude soybean	-0.26*	-0.58*	-	-	0.21*
Refined Sunflower	0.71*	0.41**	-0.68*	0.36**	0.30**
Crude Sunflower	-0.20*	0.40*	-	-	-
Refined Rapeseed Mustard	-	-0.21*	-0.45**	-0.22*	0.47**
Crude Rapeseed Mustard	-	-	-	-	-

Notes: Data relating to quantity of edible oil imported as per oil year, data availability –Palm (1996-97 to 2016-17), Soybean, Sunflower 1995-96 to 2015-16.

Quantity of imported oil was available oil year (November to October) wise. Due to non availability of monthly data, quantity of imports could not be found out per financial year. ## Financial year wise imported quantity could be calculated due to availability of monthly import data. * indicates significance at 5 percent level

Source: SEA Handbook 2014 and notifications and documents made available by SEA.

In view of existence of multiple tariff rates and substitutability between oils, simple annual average tariff rates were also calculated for each financial and its CC with other variables during 1996-97 and 2016-17 were found out. These figures are presented in table 4.4. It shows the CC between annual simple average tariff rate on one hand and quantity of imports, production of oils and oilseeds and the prices during 1994-95 and 2017-18.

It is seen that almost all the variables are negatively correlated with average tariff rate. Figures indicate that among all the variables, correlation of tariff rate with the quantity of imports is relatively stronger and has expected signs. However, the coefficient is positive when data during 2010-11 and 2017-18 is considered.

The coefficients are significant with negative signs as far as production of edible oils and oilseeds are concerned indicating that with increasing (decreasing) tariff rate, these variables a decline(rise).Again, this does not comply with the expectation of a positive correlation due to protection offered(removed) during high (low) tariff regime to the domestic oilseeds and oil production. WPI of oilseeds is also negatively correlated with annual average tariff as against the expectation. Thus, when tariff rate increases, oilseed prices do not seem to be increasing. This indicates that factors other than tariff rates may be largely affecting production and prices of oilseeds.

Table 4.3: Coefficient of Correlation between Annual Average Tariff Rate and other Variables during 1994-95 and 2017-18

1a	Quantity of edible oil imported (1994-95 and 2017-18 considering oil year)#	-0.64*
b	Quantity of edible oil imported(2010-11 and 2017-18, considering financial year)##	0.75*
2	Domestic production of edible oils	-0.54*
3	Domestic production of edible oilseed	-0.58*
4	WPI (base year 1993-94) of edible oil (1994-95 to 2009-10)	-0.28*
5	WPI (base year 1993-94) of edible oilseeds (1994-95 to 2009-10)	-0.40*
	WPI (base year 2004-05) of edible oil (2010-11 to 2017-18)	-0.45*
	WPI (base year 2004-05) of edible oilseeds (2010-11 to 2017-18)	-0.27*

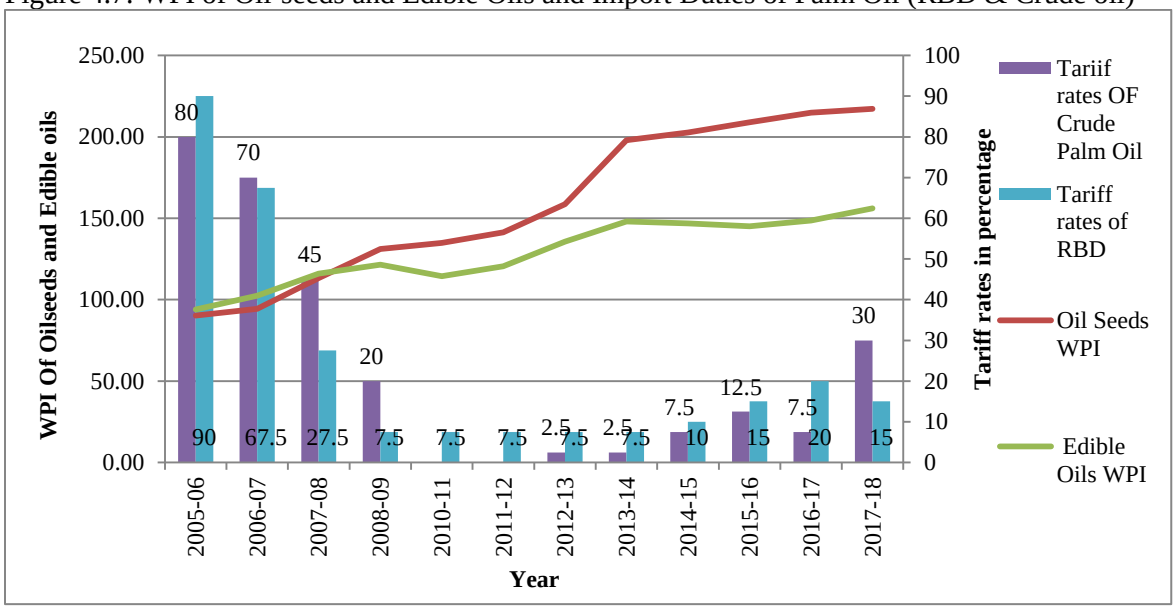
Note: # Quantity of imported oil was available oil year (November to October) wise. Due to non availability of monthly data, quantity of imports could not be found out per financial year. ## Financial year wise imported quantity could be calculated due to availability of monthly import data. * indicates significance at 5 percent level

Source: tariff rates-SEAI, WPI – RBI website, imported oil quantity-SEAI, oilseed production- Agricultural Statistics at A Glance, 2016,GoI, oil production-SEAi estimate.

It is observed that WPI of oil is also negatively correlated with annual average tariff rate. This is in contrast to what is observed in table 4.3, wherein CC between individual tariff rates and respective prices of edible oils were found out. The difference in the result may be indicative of underlying methodological issues.

Figure 4.7 plots tariff rates of the major oil imported - crude and refined palm oil along with available WPI of oilseeds and edible oils. As is observed before, tariff rates were declining since 2005-06 and again started rising since 2014-15.The price indices however have shown an increasing trend over the concerned period. While the tariff rates were declining in the initial period, the price indices however were increasing. Thus, a one to one relationship between tariff rates and price indices doesn't seem obvious from the movement of variables.

Figure 4.7: WPI of Oil-seeds and Edible Oils and Import Duties of Palm Oil (RBD & Crude oil)



Note: Tariff Duties of crude Palm Oil are Nil for the period 2008 to 2011, Base year 2004-05.
Source : 1. Office of the Economic Adviser Govt. of India, Ministry of Commerce & Industry Department of Industrial Policy & Promotion (DIPP).2.Duty Structure :SEAI Office.

An attempt was made to find out phase wise movement of simple average tariff rate as well as other variables relating to the oilseed/ oil sector by calculating percentage change during that particular phase. This can be seen from table 4.5.It can be seen that in phase I, due to the reduction in tariff on account of policy shift, the percentage change in the quantity of oil imported was very high, higher than in phase III. Percentage change in in production of oil and oilseed was negative. Percentage change in WPI was positive. During phase II, i.e. when tariffs increased by 114 percent, change (increase) in the

quantity of imports was very low. i.e. 7 percent. In the last phase, tariffs increased by 410 percent, however, the quantity imported of edible oils declined by a very small percent. The table does not indicate any particular phase wise pattern as far as other variables are concerned. This indicates that there may not be any one to one and direct relationship between tariff rates and performance variables of the oil/ oilseed sector. Especially, the production of oilseeds does not seem to be correlated with changes in tariff rates positively over the total period and through various phases.

Table 4.4 : Phase wise Percentage Change in Simple Average Tariff Rates and Other Variables

Phases	Simple average tariff rates	Quantity of Edible oil imported	Edible Oilseed WPI	Edible Oil WPI	Production of Edible Oilseed	Production of Edible Oil
1: Falling or lower tariff rates (1994-95 to1997-98)	-69.23	500.79	8.27	2.34	-0.08	-15.74
2.Increasing or higher tariff rates (1998-99 to 2006-07)	114.45	7.31	18.32	11.14	-1.85	5.89
3.: Declining or lower tariff rates (2007-08 to 2012-13)	-88.49	85.16	-9.04	-15.41	3.99	6.53
4.: Increasing tariff rates* 2013-14 to 2017-18 (Oil year)	410.08*	-59.93***	-36.30**	-25.87**	-8.75#	-42.92^
2010-11 to 2017-18 (Financial year)		38				

Note:* As on 17/11/2017,** provisional figures from April 2017 to Jan. 2018, *** actual figures from April 2017 to February 2018,# last 2 years data are estimates, ^ figure of 2017-18 estimate by SEA

Source: tariff rates-SEA, WPI – RBI website, imported oil quantity-SEAi, oilseed production-DES, oil production-SEAI estimate.

The analysis of the available data indicates that during various phases and during the overall period, oilseed production and oilseed prices are not positively correlated with trade policy changes i.e. tariff rate changes. This therefore indicates important role of other factors- domestic factors - such as supply conditions in determining performance of the oilseed sector.

Tariff rate changes primarily seem to affect quantity of edible oil imported over the post liberalization period. However, the analysis of the data reveals limits of the tariff rates changes in substantially affecting oilseed production. Therefore as per the expectations of the processing industry, recent increases in tariff rates may lead to

reduction in quantity of edible oil imported and support the demand for domestic crude oil. This however may not translate into increase in the production of oilseeds and hence may lead to reduction in import dependency.

Chapter V

Perceptions of Farmer Households and Processors

In order to understand the perceptions of oilseed growers and processors regarding impact of tariff rate changes on the oilseed/ oil sector, primary data was collected from farmers and information was collected from oilseed processors. The chapter also discusses responses of the farmers relating to relative profitability of the oilseed crops, problems faced by the oilseed cultivators and the suggestions. Responses of the oil processors are analysed and their suggestions regarding trade policies and domestic policies are discussed.

5.1 Perceptions of the Farmer Households regarding Tariff Rate Changes

It is observed from table 5.1 that majority of the households in both the districts had agriculture as the major source of income. In Kolhapur, 80 percent of the households had secondary sources of income. In Latur however, this percentage was very low i.e. 24 percent.

Table 5. 1: General Characteristics of Sample Households (%)

Sr..No	Particulars	Kolhapur	Latur	Overall
1	Average Age Respondents (Years)	47	51	49
2	Number of Male respondents	100	96	98
3	Number of Male Decision	100	96	98
4	Average Family Size(Number.)	6	8	7
5	Average Annual Income (Rs)	1,38,200	2,41,842	1,82,955
6	Major Sources of Income of the households			
	1. Agriculture	96	100	98
	2. Agriculture and Dairy	4	-	2
7	Subsidiary Source of income			
	1. Dairy	52	12	32
	2. Agricultural Labour	12		6
	3.Painting	4		2
	4.Agriculture	4		2
	5.Bycycle shop	4		2
	6.Poultry	4		2
	7 Grocery Shop	-	8	4
	8.Auto Riksha	-	4	2
	% of Farmers having no Allied activities	20	76	48

Source: Field survey

From table 2.2, it can be seen that 8 and 12 percent of the household heads were illiterate in Kolhapur and Latur respectively. It was also noted that higher proportion (70 percent) of farmers (heads/ decision makers) had completed matriculation as well as pre university education in Kolhapur. This proportion was lower in Latur. Table 5.3 shows that majority of the overall households belonged to the general category (72 percent) and OBC category (22 percent).

Table 5. 2: Education Level of the Head/ Decision maker of the Sample Households

(% of Households)

Sl.No	Education Level	Kolhapur	Latur	Overall
1	Illiterate	8	12	6
2	Primary (1 to 4)	8	20	14
3	Higher Primary (5 to 9)	12	8	10
4	Matriculation (10)	32	36	34
5	Pre University (10+2) & above	40	24	32
	Total	100	100	100

Source: Field survey

Table 5. 3: Distribution of Sample Farmers Based on their Social Category

(% of Farmers)

Sl.No	Particulars	Kolhapur	Latur	Overall
1	General	64	80	72
2	OBC	28	16	22
3	SC	4	4	4
4	NT	4	0	2
	Total	100	100	100

Table 5.4 shows the landholding pattern of the households. Average size of landholding is lower for Kolhapur than in case of Latur. Overall, around 58 percent of the land was irrigated.

Table 5. 4: Land Holding Patterns of the Sample Farmers (In acres)

Sl.No	Particulars	Kolhapur	Latur	Overall
1	Owned Land	2.88	8.84	5.86
2	Uncultivated/Fallow	0.50	0.97	0.74
3	Leased –in	3.83	5.0	4.41
4	Leased- Out	0	0	0
5	Net Operational Area (1-2+3-4)	6.21	12.87	9.54
6	Irrigated Area (%)	34	51	42.5
7	Unirrigated (%)	66	49	57.5

Source: Field survey

It can be observed from table 5.5 that overall, around 65 percent and 28 percent of the land was under kharif and rabi crops respectively. Under kharif crops, 65 percent of land was under soybean. Groundnut and sunflower were other minor oilseeds cultivated. Gram and Jowar were the major rabi crops occupying 90 percent of the rabi area.

Table 5.5: Cropping Pattern of Sample Farmers (%)

Sl. No	Crops	Kolhapur			Latur			Overall		
		Irr	Unirr	Total	Irr	Unirr	Total	Irr	Unirr	Total
	Kharif									
1	Soybean	60	37	42	76	54	64	75.17	49.39	59.87
2	Gr.Nut	12	23	21	1	1	1	1.69	6.76	4.70
3	Sunflower				4	1	2	3.38	0.66	1.77
4	Paddy	25	30	29				2.53	7.74	5.62
5	Tur				11	27	20	9.65	19.83	15.69
6	Moog				1	6	4	1.21	4.13	2.94
7	Udid				7	6	6	6.03	4.46	5.10
8	Bajara	0	2	2				0.00	1.16	0.69
9	Chilly	3	4	4				0.34	1.07	0.77
10	Jowar	0	4	3	0	5	3	0.00	4.79	2.84
	Total	100	100	100	100	100	100	100	100	100
	Rabi									
1	Gram	23.53	21.62	23	60.98	68.18	63.49	56.43	57.99	57.02
2	Jowar	52.94	64.86	59	19.51	31.82	23.81	23.57	39.05	29.40
3	Wheat	8.82	0	4	17.89	0.00	11.64	16.79	0.00	10.46
4	Onion	14.71	13.51	14	0.81	0.00	0.53	2.50	2.96	2.67
5	Sunflower	-	-	-	0.81	0.00	0.53	0.71	0.00	0.45
	Total	100	100	100	100	100	100	100	100	100
	Other Crops									
1	Sugarcane	100	00	100	100	00	100	100	00	100
	Total other crops	100	00	100	100	00	100	100	00	100
A.	Total Kharif	26.73	81.03	56.64	56.88	77.20	66.42	50.98	78.17	64.24
B.	Total Rabi	21.38	18.97	20.06	37.61	22.80	30.66	34.44	21.83	28.29
C.	Other	51.89	00	23.30	5.20	00.00	2.76	14.58	0.00	7.47
	K+R+O	100	100	100	100	100	100	100	100	100

Source: Field survey

In order to find out relative profitability of the oilseed crops cultivated, the farmers were asked to report the competing crops (crops which they would have taken if oilseed crops were not cultivated) of the oilseed crops grown. Soybean and groundnut were major oilseed crops in Kolapur and paddy, sugarcane, onion and jowar were the competing crops. In Latur, soybean was the major oilseed crop grown and tur and udid

were the competing crops. Information relating to these crops was collected for the period 2014-15 to 2016-17.In case of Kolhapur, it was observed that for soybean, all the variables have registered an increase over the concerned period. The net income had increased by 40 percent. In case of groundnut however, area and production registered a decline over that period. Though percentage change was positive in case of price and net income, it was nevertheless lower than in case of soybean.

Table 5.6a: Details of Oilseed Crops and their Competing Crops in Kolhapur District (Per acre)

	Production Year	Oilseed Crops		Competing Crop			
		Soyaben	Groundnut	Paddy	Sugarcane	Onion	Jowar
A	Area (Acres)						
	2014-15	10.00	20.00	20.00	4.00	1.50	3.00
	2015-16	15.75	13.75	13.75	4.00	1.00	2.50
	2016-17	20.65	10.35	10.35	7.38	0.75	4.00
	% Change	**106.50**	**-48.25**	**-48.25**	**84.38**	**-50.00**	**33.33**
B	Production (Qtl.)						
	2014-15	94.50	127.30	127.30	238.00	70.00	27.00
	2015-16	164.00	91.00	91.00	205.00	60.00	25.50
	2016-17	250.00	67.50	67.50	353.00	80.00	41.50
	% Change	**164.55**	**-46.98**	**-46.98**	**48.32**	**14.29**	**53.70**
C	Yield (Qt./Acre)						
	2014-15	9.45	6.37	6.37	59.50	46.67	9.00
	2015-16	10.41	6.62	6.62	51.25	60.00	10.20
	2016-17	12.11	6.52	6.52	47.86	106.67	10.38
	% Change	**28.11**	**2.46**	**2.46**	**-19.56**	**128.57**	**15.28**
D	Total Income						
	2014-15	26073	25575	25575	150238	37333	17400
	2015-16	29416	26976	26976	134275	39000	17510
	2016-17	35194	28017	28017	130000	80000	19367
	% Change	**34.98**	**9.55**	**9.55**	**-13.47**	**114.29**	**11.30**
E	Total Cost						
	2014-15	10500.00	10952.00	10952.00	84166.67	15000.00	7500.00
	2015-16	12400.00	11736.80	11736.80	40000.00	16000.00	8333.33
	2016-17	13375.00	12720.00	12720.00	38833.33	20000.00	8333.33
	% Change	**27.38**	**16.14**	**16.14**	**-53.86**	**33.33**	**11.11**
F	Net Income						
	2014-15	15573	14623	14623	66071	22333	9900
	2015-16	17016	15239	15239	94275	23000	9177
	2016-17	21819	15297	15297	91166	60000	11033
	% Change	**40.11**	**4.61**	**4.61**	**37.98**	**168.66**	**11.45**
G	Price (Rs./Qtl.)						
	2014-15	2759.00	4018.00	4018.00	2525.00	800.00	1933.33
	2015-16	2825.00	4076.00	4076.00	2620.00	650.00	1716.67
	2016-17	2907.00	4296.00	4296.00	2716.00	750.00	1866.67
	% Change	**5.36**	**6.92**	**6.92**	**7.56**	**-6.25**	**-3.45**

Source: Field survey

Among the competing crops, change in net income was higher only for onion than soybean. Inspite of this, soybean has been the major kharif crop of the sample farmers. The table reveals relative profitability of soybean based on the data collected and explains preference of the farmers for soybean.

In Latur also, area and production of soybean has been increasing as against that of its competing crops.

Table 5.6b: Details of Oilseed Crops and its Competing crops in Latur District.

	Production Year	Oilseed Crop	Competing Crop	
		Soybean	Tur	Udid
A	Area (Acres)			
	2014-15	96	44.5	6.50
	2015-16	106.5	38.75	4.50
	2016-17	130.75	37.5	3.00
	% Change	**36.20**	**-15.73**	**-53.85**
B	Production (Qtl.)			
	2014-15	611	181.25	16.00
	2015-16	870	227	17.50
	2016-17	1147	228.5	15.00
	% Change	**87.73**	**26.07**	**-6.25**
C	Yield (Qt./Acre)			
	2014-15	6.36	4.07	2.46
	2015-16	8.17	5.86	3.89
	2016-17	8.77	6.09	5.00
	% Change	**37.83**	**49.60**	**103.13**
D	Total Income			
	2014-15	17630	18716	12636
	2015-16	22841	26203	20093
	2016-17	25528	26628	24500
	% Change	**44.80**	**42.28**	**93.89**
E	Total Cost			
	2014-15	8668.00	7954.55	8333.33
	2015-16	11060.00	10272.73	10000.00
	2016-17	12120.00	10931.82	11666.67
	% Change	**39.82**	**37.43**	**40.00**
F	Net Income			
	2014-15	8962	10761	4303
	2015-16	11781	15930	10093
	2016-17	13408	15696	12833
	% Change	**49.61**	**45.86**	**198.27**
G	Price (Rs/ Qtl.)			
	2014-15	2770.00	4595.00	5133.33
	2015-16	2796.00	4473.00	5166.67
	2016-17	2910.00	4370.00	4900.00
	% Change	**5.05**	**-4.90**	**-4.55**

Source: Field survey

The change in net income was higher in case of soybean than in case of tur. It is higher for udid. Still, it is observed that soybean is the major crop cultivated by the sample farmers.

Farmers were asked to report the reasons for cultivating current oilseed crops. Majority of the farmers reported that they cultivated soybean as it is a short duration crop and its marketing was relatively easy.78 percent of the farmers also reported that it was more profitable as compared to other crops.

Table 5.7: Reasons for Cultivating Current Oilseed Crop in Place of Other Crops

(% Farmers)

Sr.No	Reasons	Kolhapur	Latur	Overall
1	More Profitable as Compared to other crops	56	100	78
2	Short Duration (soybean)	96	100	98
3	Easy Marketing (soybean)	92	92	92
4	Cultivation Easy	48	72	60
5	Remunerative Prices	44	48	46
6	MSP is higher	0	20	10

Source: Field survey

Table 5.8 shows the responses of the farmers regarding awareness about MSP and changes in tariff rates of edible oils. It was observed that though the farmers were aware about the concept of MSP, only 24 percent of the farmers reported procurement of the oilseeds by the government. Majority of the farmers were not aware about import of edible oil for satisfying domestic demand. Overall, only three percent of the households were aware about impact of cheaper imports and its adverse impact on are under the crop.

Table 5. 8: Awareness about MSP and Trade Policy (% of farmers responding Yes)

Sr No.	Particulars	Kolhapur	Latur	Overall
1	Awareness of oilseed farmers about MSP of the oilseed crop	72	80	76
2	Instance of reduction in market price of oilseeds and hence procurement of oilseeds by Govt.in the recent years.	36	12	24
3	If Yes ,When	2016-17	2016-17	2016-17
4	Awareness of Imports of Edible oil	97	99	98
5	If Yes, Awareness of impact of cheaper imports of oil on area under oilseeds	3	2	3
6	Affected by Cheaper Import of Edible Oil	-	-	-

Source: Field survey

Table 5.9 shows that 66 percent of the farmers reported that the major problem faced by them was higher cost of inputs as compared to prices received. The responses also revealed that prices received were comparatively lower due to higher labour costs, lower price paid by the intermediaries and also due higher production.

Table 5. 9: Problems Faced by the Oilseed Growers (% farmers to total sample)

Sr No	Problems	Kolhapur	Latur	Overall
1	**Availability of inputs**			
	Fertilizers not available in time	8	28	18
	Shortage of inputs during peak season	-	8	4
2	**Higher input costs**			
	Inputs (seeds, fertilizers, insecticides and labour cost) are expensive compared to prices received for oilseeds	64	68	66
3	**Inferior quality of inputs**			
	Seed germination percent not as promised on the packet. No guarantee about seed quality	8	-	4
	Cheaper quality fertilizers distributed at high price	-	4	2
4	**Lower prices received by the farmers**			
	Many times, cost of harvesting, transportation and handling higher than price received for the produce, farmers not able to recover cost of production	24	36	30
	Intermediaries buying at a low price	5	4	4.5
	Reduction in price when production increases	19	16	17.5
5	**Problems in Marketing**			
	High transportation cost	10	9	9.5
	Existence of intermediaries	27	34	30.5

Source: Field survey

Therefore, the major suggestion given by the farmers related to monitoring of the local distributors of the inputs for ensuring timely and adequate supply of quality inputs at lower costs.

5.2 Perceptions of the Edible Oilseed Processors regarding Tariff Rate Changes

In order to understand perceptions of various oil processors about impact of trade policy changes on oilseed sector, discussions were held with processors of oil. As the interests of processors vary and are conflicting, a wide range of policy suggestions emerged from the discussions. The solvent extraction units supported tariff hikes. For the processors, especially agro-food industries dependent on crude palm oil imports, stability in import duties was most important.

I. *According to the officials of SEA,* all prices move together. Increase in the landed cost would lead to increase in oilseed prices also.

Major policy recommendation from SEA were as follows

- Import duties on refined as well as crude oil and the duty differential should be increased so that the domestic producers are protected from cheap imports of crude and refined oil.
- Productivity of oilseeds being half of world oilseed productivity, the government needs to focus on improvement in the productivity.
- Import of oilseeds should be allowed at lower duty in lean periods so as to utilize the excess capacity in the processing industry.
- The central and state governments should encourage the private entrepreneurs and farmers into seed production business.
- Governments should use the extension machinery to create awareness among farmers about seeds of high-yielding varieties.
- It is observed that marginal return to water is very high in case of oilseeds. With provision of irrigation, oilseeds would compete with other crops for getting profitable returns.

II . *Discussions with the officials of a crude oil processing company operating in the food industry* revealed that frequent changes in import duties leads to increase in the operational complexity and uncertainty for the domestic oil processing industry. Hence in its view, instead of changing import duties on edible oil, focus should be on increasing value addition in the edible oil sector. The government should focus on a stable import policy and promotion of exports.

Major Strategies suggested by the officials were as follows-

- In view of increasing demand for edible oils and rising imports productivity of oilseeds should be increased.
- As palm oil is widely consumed in India, the government should focus on increasing cultivation of palm and encourage investment therein.
- Marketing network should be improved so that the farmers are benefitted. Similarly, efforts should be directed towards improving export linkages
- Given the need for higher imports in the short run, government policy should focus on value addition to imported oil and exports of such value added oil based products.
- Infrastructural facilities should be improved which would lead to overall improvement in productivity.
- Government can focus on promotion of traditional / indigenous which have unique properties and niche demand in the international markets

III. *Discussions with officials of one of the oil mills which imports crude oil and refines it,* revealed that imports are essential as domestic production of oilseeds does not ensure their supply throughout the year. Hence there is a large scale dependence on imports of crude oil.

- In view of very low price differential between imported crude oil and refined oil, profit margin is only around 50 paisa /kg , hence duty differential needs to be increased.

IV. Discussions with the officials of *Kolhapur Oil mills Owners Association , Kolhapur* revealed that traditionally, groundnut was the major oilseed crop of the region that supported oilseed processing units. However, due to the expansion in area under oilseed crops like soybean, area under groundnut started declining. It was also claimed by the members that campaign against consumption of groundnut oil was also responsible for reduction in the demand for ground nut oil. As a result, local ground nut expelling units could not get enough supply raw material. Around 10 years ago, 30-40 oilseed processing units existed in and around district Kolhapur. However, owing to the problems faced by the units such as reduced supply and relatively higher cost of processing of groundnut, profitability of units producing oil was adversely affected and currently only 4 mills are surviving.

- The members suggested that the import duty on palm oil should be increased so that prices of oilseeds and oils are supported.

V. *Owner of a soybean processing and oil meal export unit* suggested following measures-

- Government should focus on promoting export of soybean meal
- Government should provide transport subsidy for soy meal exports as most of the processing units are located in the remote areas.

Overall, the analysis revealed profitability of soybean cultivation in Maharashtra. It also indicated that the farmers were not aware of import duty changes and its impact on oilseed prices. The major problem faced by the farmers was higher cost of cultivation of the oilseed crops.

Discussions with oilseed processors revealed that tariff rate changes might lead to changes in prices of oilseeds as the prices tend to move together. However, domestic policies would play a major role in increasing the productivity and production of oilseeds so as to satisfy the demand of the processing industry. It was revealed from the discussions that only tariff rate changes may not lead to increase in production if necessary inputs are not provided for increasing oilseed production as it would reduce the imports temporarily and starve the oil processing industry of the raw material. Similarly frequent changes in tariff rates would add to administrative costs and complexities. Instead of increasing import duty, exports of oil meal should be promoted.

Chapter VI

Summary Conclusions and Policy Suggestions

6.1 Background of the Study

The edible oilseed sector of India that includes oilseed growers as well as processors of oilseeds and producers of vegetable oils, has been growing due to increasing domestic demand for edible oils. The launch of technology mission on oilseeds (TMO) by the central government in 1986 (which was converted into a National Mission on Oilseeds and Oil Palm (NMOOP) in 2014) gave the needed boost to the oilseed production in India. The area under oilseeds increased by around 33 percent during 1985-86 to 1995-96. Globally, India now accounts for about 8 percent of the world oilseeds production. The demand for majority of the oilseeds is derived demand for production of edible oils. With the liberlisation of Indian trade policy in 1994, restrictions on imports of edible oil were reduced and this lead to its increasing imports

In fact, India today has become the largest importer of the edible oils. As per the figures given by the Solvent Extraction Association of India (SEA), around 66 percent of the domestic requirement of edible oil was met through imports in 2016-17. In 2015-16, value of imports of the sector was almost 16 times higher than the value of exports from the sector and thus could not be paid through the export earnings

The major characteristic feature of India's oilseed sector therefore is the growing domestic demand for edible oils, surging cheaper imports and increasing import dependency on the oil exporting countries. In this context, trade policy is considered to be playing an important role in shaping performance of the agricultural sector. Trade policy for a particular agricultural commodity mainly includes usage of various trade instruments like tariffs/ tariff values/minimum export prices, export subsidies etc. that control the market access provided in the domestic economy to the imports and also to the exports of the domestic economy in the international markets. The policies based on these instruments mainly make an attempt to provide price signals (e.g. tariffs and MEP) and subsidies (e.g. export subsidies) to the commodity sector concerned in the short run and bring about desired changes in that sector.

6.2. Review of Literature

The literature relating to trade policy (tariffs) and the edible oil sector suggests varying impact of trade liberalization through reduction/ increase in tariff rates on the stakeholders involved such as farmers, processors and consumers. The studies estimating welfare gains under hypothetical tariff regimes suggest positive impact of liberal trade policy on consumers and negative impact on processors and oilseed growers. The literature also reveals overall negative impact of tariff rise on edible oil economy though oilseed cultivators would benefit from tariff rise. It also points out the need to strengthen the oilseed sector by alternative domestic policies which will reduce excessive dependence on oil import and effects of price volatility at the international levels.

6.3. Need for the Study

Trade policy of India relating to edible oils has exhibited various phases depending upon the tariff rates applied and market access granted to the imports. The liberal trade regime that began in 1994 was followed by restrictive trade policy till 2008. The period during 2008 to 2013 was marked by declining tariff rates. However, tariffs on edible oils again started increasing in the post 2013 period. In view of this, the study makes an attempt to analyses phase wise relationship between changes in trade policies of the government for imported oil and the performance of the sector

6.4 Objectives of the Study

1. To study the performance of the oilseed and edible oil sector in India in the post 1985 period.
2. To present an overview of the trade policy changes for the edible oil sector in the post liberalization i.e. post 1994 period and discuss its features.
3. To analyse, in the light of tariff rate changes, phase wise correlation between tariff rate changes and changes in various indicators of performance of the oilseed sector.
4. To study the perceptions of the manufacturers/ traders and farmers exporters about impact of changes in tariffs mainly on prices and production in of oilseeds and edible oil.
5. To suggest policy measures in the light of secondary and primary data analysis.

6.5 Methodology and Sampling

The study is based on secondary as well as primary data collection. Secondary data was collected from various government as well as non-government sources. Information relating to trade policy changes (specifically relating to tariffs rates) and other information about the edible oil sector was collected from the office of SEA.

Maharashtra occupied around 16 percent of total oilseed area in 2016-17 and its contribution to total major oilseed production was 15 percent in this year. The major oilseed crop of state is soybean. It is the second highest state in case of area (around one third of the of total soybean area in the year 2016-17) and production (around half of the total soybean production in the year 2016-17) of soybean. Similarly, Maharashtra is a state with important ports on the west cost of India which received around 10 percent of total imports of edible oils in 2016-17. It has highest number solvent extraction units (39 or 14 percent of a total of 272 units in India). The daily capacity of these units is highest (21555 MMT.) as compared to other states as on August 1, 2017. In view of the importance of the state in the oilseed economy, Maharashtra was selected for selecting sample farmers as well as traders and manufacturers.

For understanding perceptions of the farmers about impact of trade policy changes on farmers on variables such as their cropping pattern and market prices, a quick survey of farmers was undertaken in oilseed growing regions of Maharashtra. Two oilseed growing districts viz. Kolhapur which is agriculturally developed and Latur which belongs to drought prone region of the state were selected. In all, 25 farmers in each of the districts and a total of 50 farmers were selected from the selected districts.

For understanding the perception of importers and oilseed processors, about impact of trade policy changes on the edible oil sector, discussions with associations of processors of edible oil as well as individual processors were conducted. Accordingly, focused group discussions were held with the officials of SEA of India, Mumbai and Kolhapur Oil Mills Owners Association, Kolhapur. Discussions were also held with individual importers of crude oil, refineries and exporters of oil meal.

6.6 Major findings from the study

Major finding emerging from analysis of the secondary data are as follows

The Oilseed Sector

- The data reveals that though at all India level the area, production and yield of oilseeds were increasing significantly during 1985-86 to 2016-17, growth rates of these variables during the sub period 2003-04 to 2016-17 were non-significant.
- Among the oilseeds, soybean contributed 43 percent of area and production of total oilseeds in 2016-17. The analysis revealed higher growth rate of area, production and yield in case of soybean and stagnating production and yield of other major oilseeds such as groundnut and rapeseed mustard.
- Prices of oilseeds have been growing at positive and significant growth rates ranging between around 5 and 8 percent during 2002 to 2016 as demand for oilseeds is increasing. It is observed that net returns in absolute as well in percentage (of costs) terms were positive and were comparable with alternative crops in kharif and rabi seasons and reveals preference of the farmers for cultivating oilseed crops during TE 2014-15
- Gowth rates of MSPs were marginally higher in case of food grains than the oilseeds. It is well known that the two most important crops for which a strong extension machinery exist are wheat and rice. As per the news reports, due to the normal monsoon and bumper production in the last two years, the weighted average mandi prices of oilseeds were lower than respective MSPs. This underlines need for government procurement in case of oilseeds.

The Edible Oil Industry

- The edible oil industry of India consists of various types of units such as the oil mills, the solvent extraction units, refineries, vanaspati units and feed units. In all, there are 16625 such units. However the capacity utilization in various types of units ranges between 20 to 45 percent.

Edible Oil Production in India

- Rapeseed mustard, soybean, groundnut, sunflower, safflower are major oilseeds used for producing cooking oils.
- Over a period of time, the consumption basket has undergone drastic change with rapeseed mustard oil (24 percent) soybean oil (17 percent) and groundnut oil (15 percent) occupying dominant position.

- Though the percentage of recovery is higher (40 percent) in case of groundnut than that of other oilseeds, its marketable surplus is lower as compared to its own production and to the marketable surplus of other oilseeds. Therefore, soybean and rapeseed mustard with higher marketable surplus, are the two major edible oils produced domestically.
- During 1987-88 to 2016-17, growth rate of total production of oil was 1.88. In case of only soybean oil, the growth rate of production was higher i.e. 7 percent during this period
- As per an estimate, for satisfying the annual domestic requirement of edible oils of around 20MMT in 2020 and 23 MMT in 2030, the annual requirement from total oilseeds would be 67.37 MMT in 2020 and 71.45 MMT in 2030. In 2016-17 however, the oilseed production from 9 major oilseeds was only around 33 MMT and that of edible oils was around 8 MMT. Thus, it is unlikely that the production of edible oilseeds and oil would rise to 67 MMT and 20MMT respectively in by 2020 as per the above estimate.

Trade Performance of Edible Oil Sector

- India imports substantial amount of edible oils for its domestic consumption. It is the largest importer of palm oil, soybean oil and sunflower oil and 6th largest importer of mustard oil in 2016-17.
- Self-sufficiency, which was 97 percent in the 1992- 93 has come down to around 42 percent in 2016-17 due to the increasing gap between demand and supply of oilseeds.
- It was observed that 81 percent of total imports consist of crude oil which supports the oil processing industry. Among the crude oils, mainly palm oil, soybean oil and sunflower oil are imported. The imports of refined oils consist only of refined, RBD palm oil.
- The data revealed that the growth rates of domestic production of oilseeds (1985-86 to 2016-17) and oil (1987-88 to 2016-17) were 3.6 percent and 1.95 percent respectively. In comparison, growth rate of imports of edible oil (1985-86 to 2016-17) was 12 percent and was much higher than that of production of oilseeds and oil. Whereas the domestic edible oil production increased by around 1.8 times, the imports increased by around 33 times during 1985-86 and 2016-17.

- As per the industry sources, therefore, to prop up domestic oilseed prices and to limit overseas purchases of edible oils and to make the crushing of local oilseeds profitable it was essential to increase the import duty on edible oils, which would limit further import of oil .
- It is feared that with reduced overseas purchases, if the domestic production does not increase, the domestic crushing industry would become unprofitable. The data however reveals, in spite of the recent increases in the tariff rates, import of edible oil has been increasing indicating rising and inelastic demand for imports and inability of the domestic sector to provide adequate supply oilseeds to the industry.

Tariff Rate Changes for the Edible Oil Sector, 1994-95 to 2017-18 : Features

Analysis of the tariff rate changes reveals following features of import policy-

- The bound duties, which are the maximum permissible duties that could be applied under AoA under WTO are very high (300 percent) for all the edible oils except soybean oil (45 percent) and Rapeseed oil (75 percent). It is observed that as compared to these bound rates, actual applied tariff rates are very low and that after signing the Uruguay round agreement in 1995, India has not raised its actual tariff rates up to the bound rates. It also indicates that India has flexibility to raise tariff rates up to the bound rates.
- The period during 1994 and 2017 can be classified into four phases- 1. 1994-95 to 1997-98: Period of falling or lower tariff rates 2. 1998-99 to 2006-07 : Period of increasing or higher tariff rates 3. 2007-08 to 2012-13: Period of declining or lower tariff rates and 4. 2013-14 to 2017-18: period of increasing tariff rates.
- During this period, it is observed that tariff rates are higher for the refined oils than the respective crude oils.
- During 1998-2007, the tariff rate structure became more complex with the introduction of duty differential between various oils.
- Tariff rates are highest for RBD palm oil among refined oils and for crude palm oil among crude oils.
- In the recent past, i.e. during the period of September 23, 2016 and March 1, 2018, the duties were revised and increased 4 times. The recent duty hike was announced on March 1, 2018. During this period, tariff rates of all the imported edible oils have

increased and the percentage change over the period in tariff rates is highest for crude palm oil (487 percent) followed by refined palm oil(260 percent).

- It is also noticed that the duty differential between crude palm oil and RBD palm oil is highest i.e. 10 percent. The data clearly reveals that the major objective of the trade policy in this case has been to discourage import of RBD palm as compared to crude palm oil and of other oils relative to palm oil.
- As per the reports, this duty hike was implemented to protect the oilseed processors as well as the producers from cheap imports from Malyasia, Indonesia, Brazil and Argentina which had been reducing demand for local soybean and rapeseed. Similarly, higher export duty on crude palm oil and a lower duty on RBD palmolein had been discouraging export of crude palm oil depriving the Indian refineries to use their installed capacity. Therefore it was expected that duty hike and hike in duty differential between crude and refined palm oil would lead to increase in the demand for domestic oilseeds and hence increase in prices of oilseeds

Tariff Rate Changes and its Correlates

An increase in the tariff rate is likely to affect quantum of imports adversely. It is expected to affect other variables such as domestic production of oilseeds and oils and their respective prices positively through increased demand. Prices would get affected depending upon the extent of transmission of marginal change in imported oil price. Therefore coefficient of correlation (CC) between the tariff rate and the quantity of imports and domestic production and prices of respective oil and oilseed were calculated for the period during 1994-95 and 2017-18.

- Correlation of tariff rates with quantity of respective oil imported is significant and has expected negative sign indicating that with rise in tariff rates, the latter would decline. This is observed for all types of oil except refined sunflower oil. CC in case of other variables- domestic production of oilseed and of oil do not exhibit expected sign. This indicates that with increasing (decreasing) tariff rate, these variables registered a decline (rise). This does not comply with the expectation of a positive correlation due to protection offered (removed) during high (low) tariff regime to the domestic oilseeds and oils production.

- As far as prices of oilseeds and oil are concerned, it is expected that these would be positively correlated with the respective tariff rate. Thus, when tariff rate increases (decreases), depending upon the extent of transmission and substitutability between oils, demand for domestic oil and oilseed would increase (decrease).The data shows that the CC with price of oil are positive. However, that with oilseed prices is negative. This indicates that with tariff rate changes, domestic prices of oil also move in similar direction, however, this may not translate into increasing demand for domestic oilseeds and oilseed prices.

In view of existence of multiple tariff rates and substitutability between oils, simple annual average tariff rates were also calculated for each financial year and its CC with other variables such as quantity of imports, total production of oils and oilseeds and the wholesale price indices (WPI) of oils and oilseeds during 1996-97 and 2016-17 were found out

- It was observed that almost all the variables were negatively correlated with average tariff rate. Among all the variables, correlation of tariff rate with the quantity of imports was relatively stronger and had expected signs.
- The coefficients are significant with negative signs as far as production of edible oils and oilseeds are concerned indicating that with increasing (decreasing) tariff rate, these variables a decline(rise).Again, this does not comply with the expectation of a positive correlation due to protection offered (removed) during high (low) tariff regime to the domestic oilseeds and oil production. WPI of oilseeds is also negatively correlated with annual average tariff as against the expectation. Thus, when tariff rate increases, oilseed prices do not seem to be increasing. This indicates that factors other than tariff rates may be largely affecting production and prices of oilseeds.

Phase wise Percentage in Average Annual Tariff Rate and Imports, Production and Prices of Oilseeds

An attempt was made to observe relationship between changing tariff rates and changes in oil and oilseed price indices.

- The plot of tariff rates of the major oil imported - crude and refined palm oil along with available WPI of oilseeds and edible oils shows that tariff rates were declining since

2005-06 and again started rising since 2014-15.The price indices however have shown an increasing trend over the concerned period. Thus, a one to one relationship between tariff rates and price indices doesn't seem obvious from the movement of variables.

Phase wise movement of simple average tariff rate as well as other variables relating to the oilseed/ oil sector was observed by calculating percentage change during a particular phase.

- It was observed that in phase I, due to the reduction in tariff on account of policy shift, the percentage change in the quantity of oil imported was very high, higher than in phase III. Accordingly, percentage change in quantity of oil imported was very high, that in production of (oil and oilseed) was negative. Percentage change in WPI was positive. During phase II, i.e. when tariffs increased by 114 percent, change (increase) in the quantity of imports was very low. i.e. 7 percent. In the last phase, tariffs increased by 410 percent, however, the quantity imported of edible oils declined by a very small percent. The table does not indicate any particular phase wise pattern as far as other variables are concerned. This indicates that there may not be any one to one and direct relationship between tariff rates and performance variables of the oil/ oilseed sector. Especially, the production of oilseeds is very low and does not seem to be correlated with changes in tariff rates positively during the overall period and during phases.

Major finding emerging from analysis of the primary data are as follows

Perceptions of the Farmer Households

In order to find out relative profitability of the oilseed crops cultivated, the farmers were asked to report the competing crops (crops which they would have taken if oilseed crops were not cultivated) of the oilseed crops grown. Soybean and groundnut were major oilseed crops in Kolapur. In Latur, soybean was the major oilseed crop grown. Information relating to these crops was collected for the period 2014-15 to 2016-17.

- The analysis of the data reveals relative profitability of soybean based on the data collected and explains preference of the farmers for soybean in Kolhapur and Latur.
- Sample farmers were asked to report the reasons for cultivating the current oilseed crops. Majority of them reported that they cultivated soybean as it was a short duration

crop and its marketing was relatively easy.78 percent of the farmers also reported that it was more profitable as compared to other crops.

- It was observed that though the farmers were aware about the concept of MSP, only 24 percent of the farmers reported procurement of the oilseeds by the government. Majority of the farmers were not aware about import of edible oil for satisfying domestic demand. Overall, only three percent of the households were aware about impact of cheaper imports and its adverse impact on are under the crop.
- 66 percent of the farmers reported that the major problem faced by them was higher cost of inputs as compared to the prices received. The responses also revealed that prices received were comparatively lower due to higher labour costs, lower price paid by the intermediaries and also due higher production.

Therefore, the major suggestion given by the farmers related to monitoring of the local distributors of the inputs for ensuring timely and adequate supply of quality inputs at lower costs.

Perceptions of the Oil Processors regarding Trade Policy Changes and their Impact

- In order to understand perceptions of various oil processors about impact of trade policy changes on oilseed sector, discussions were held with processors of oil.
- As the interests of processors vary and are conflicting, a wide range of policy suggestions emerged from the discussions. Whereas the solvent extraction units supported tariff hikes, for processors especially agro-food industries dependent on import of crude palm oil, maintaining a stable import policy was more important. were against tariff rate hike.
- *According to the officials of the SEA*, domestic producers of oil should be protected from import of refined oil, for which the duty differential between crude and refined oil needs to be increased.
- As the basic problem in case of oilseed sector is the shortage of oilseed supply relative to the demand, efforts should be focused on improvement in oilseed productivity, production of quality seeds and provision of adequate water.
- Import of oilseeds should be allowed at lower duty in lean periods so as to utilize the excess capacity in the processing induatry.

- *Discussions with the officials of a crude oil processing company operating in the food industry revealed* that frequent changes in import duties leads to increase in the operational complexity and uncertainty for the domestic oil processing industry. Hence in its view, instead of frequently changing import duties on edible oil, the government should focus on a stable import policy and promotion of exports by increasing value addition in the edible oil sector. It was revealed through the discussion that promotion of imports of oilseeds, cultivation of palm and traditional oilseeds as well as new sources of oils would play a major role in improving the performance of the oilseed sector.
- *Discussions with officials of one of the oil mills which imports crude oil and refines it*, revealed that imports are essential as domestic production of oilseeds does not ensure their supply throughout the year. Hence there is a large scale dependence on imports of crude oil.

  In view of very low price differential between imported crude oil and refined oil, profit margin is only around 50 paisa /kg , hence duty differential needs to be increased.
- *Discussions with the officials Kolhapur Oil mills Owners Association, Kolhapur* revealed that traditionally, groundnut was the major oilseed crop of the region that supported oilseed processing units. However, due to the expansion in area under oilseed crops like soybean, area under groundnut started declining. It was also claimed by the members that campaign against consumption of groundnut oil was also responsible for reduction in the demand for ground nut oil. As a result, local ground nut expelling units could not get enough supply raw material. Around 10 years ago, 30-40 oilseed processing units existed in and around district Kolhapur. However, owing to the problems faced by the units such as reduced supply and relatively higher cost of processing of groundnut, profitability of units producing oil was adversely affected and currently only 4 mills are surviving. The members were of the view that that the import duty on palm oil should be increased so that prices of oilseeds and oils are supported.

. Discussion with the *Owner of a soybean processing and soymeal export unit felt that* it was extremely essential to focus on promoting export of soybean meal by providing transport subsidy for soy meal exports

6.7 Conclusions

Analysis of the secondary data revealed that tariff rate changes might not lead to changes in prices and production of oilseeds. Analysis of the information collected from the field also revealed that only tariff rate increases may not provide incentive to the oilseed growers to increase production. Domestic policies would play a major role in increasing the productivity and production of oilseeds so as to satisfy the demand of the processing industry. It was revealed from the discussions with the processing industry that if necessary inputs/ resources are not provided for increasing oilseed production it would reduce the only imports temporarily and starve the oil processing industry of the raw material. Similarly frequent changes in tariff rates would add to administrative costs and complexities. Instead of increasing import duty, exports of oil meal should be promoted.

6.8 Policy implications

Following are the policy implications emerging from the study

1. It is observed that the yield gap in case of oilseeds is very high. In view of the increasing demand and dependence on imports of edible oil, efforts should be made to bridge the yield gaps. As mentioned in the CACP reports of 2017-18, there is a need to study farming practices of the benchmarking countries as well as benchmarking states and emulate those practices which are suitable at the micro level so as to increase crop yields, reduce production cost and increase income of farmers.
2. As suggested by oil processors, provision of adequate and quality inputs including seeds and water is extremely important. It is observed that the marginal return from provision of water is very high in case of oilseeds.
3. Extension machinery should be used to create awareness among farmers about seeds of high-yielding varieties.
4. As palm oil is widely consumed in India, the government should focus on increasing cultivation of palm and encourage investment therein.

5. Cultivation and export of traditional / indigenous oilseeds and those which have unique properties and niche demand in the international markets needs to be promoted.
6. Efforts should be made to promote production and exports of oil meal.
7. Given the need for higher edible oil imports in the short run, government policy should focus on value addition to imported oil and exports of such value added oil based products.
8. Import of oilseeds needs to be allowed at lower rates.
9. One of the strategies of the Foreign Trade Policy of India 2017 is to provide for a stable and sustainable policy environment for merchandise trade so as to reduce operational complexity and uncertainty for the stakeholders involved in production and trade of edible oilseeds and oils. Therefore it is important to have a stable export as well as import policy.

Overall, the analysis revealed that tariff rate changes might lead to changes in prices of oilseeds as the prices tend to move together. However, domestic policies would play a major role in increasing the productivity and production of oilseeds so as to satisfy the demand of the processing industry. It was revealed from the discussions that only tariff rate changes may not lead to increase in production if necessary inputs are not provided for increasing oilseed production as it would reduce the imports temporarily and starve the oil processing industry of the raw material. Similarly frequent changes in tariff rates would add to administrative costs and complexities. Hence, strengthening the domestic oilseed sector and encouraging exports remains the most important policy implications.

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Annexure I

Comments on the Draft Report
Trade Policy and the Edible Oilseed Sector of India

Comments received from

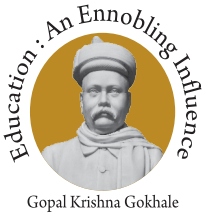
AERC, Sardar Patel University, Vallabh Vidyanagar, Anand, Gujrat

1.	Title of Report	"Trade Policy and the Edible Oilseed Sector of India"
2.	Date of receipt of the Draft Report	22.06.2018
3.	Date of dispatch of the comments	19.07.2018
4.	Comments on the Objectives	Objectives of the study have been satisfied.
5.	Comments on the methodology	The study is based on both secondary and primary level data. The methodology used for collection of primary data and tabulation of results is adequate and proper.
6.	Comments on analysis, organization, presentation etc.	The report is presented in six chapters. All chapters are well written and focused. Discussion and interpretation of data is adequate and proper In figures, line style can be put up with different marker options to differentiate with each other (as figures would be printed in black shade lines)
7	References:	Cited properly
8	General remarks:	This is a good research work and it is able to address all the issues raised in the objectives of the research.
9	Overall view on acceptability of report:	The report is acceptable in present form.

Annexure II
Action Taken Report

Suggestion regarding figures has been accommodated.

Jayanti Kajale



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