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Production and Consumption of Edible Oils in India

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ABSTRACT

In India total production of edible oils, without copra oil, increased 142.67 per cent in 2017-18 over the year 1970-71, whereas, with copra the change during the same time period was 144.86 per cent. Soybean oil production over the entire study period increased to the tune of 9363.73 per cent, whereas, niger oil, safflower oil and sunflower oil production decreased as compared to the other edible oils. Total import of edible oil was quite high in all the specified periods, showing huge dependency on imported edible oil to meet out the domestic needs. Though India also exported edible oils but its proportion was less than 01 per cent to the total quantity imported in the years. Import increased of all the oilseeds except groundnut oil, niger oil and copra oil increased many folds from 1970-71 to 2017-18. Among all the edible oils with positive net import the soybean edible oil had lion's share in all the years. Consumption of groundnut and copra edible oils was less than the production due to their net imports, whereas, reverse picture emerged with respect to soybean edible oil in all the respective periods. Total production of oil from edible oilseeds fell short of about 39 per cent to the total consumption in 2017-18 of edible oil processed from the 07 edible oilseeds which was fulfilled by the import of these edible oils, whereas, when copra oil was also taken into account then this dependency to domestic consumption on owned produced edible oil increased to more than 75 per cent.

Keywords: Oilseeds, edible oils, Domestic Consumption, Copra oil, soybean edible oil, groundnut edible oil

Agriculture is the most important sector of Indian economy contributing around 16.50 per cent (NSSO, 2019-20) of the country's GDP and livelihood for more than one third population of the country. Indian agriculture has made considerable progress, particularly in respect of food crops such as wheat and rice in irrigated areas; however, performance has not been so good in case of other crops particularly oilseeds, pulses, and coarse cereals. Therefore, after achieving self-sufficiency in food grains the government is focusing attention on other agricultural commodities. In terms of area and production oilseeds play an important role in the economy after food grains. The oilseed group is having low productivity and fluctuations over the years in the production of the country (FAO 2012). This sector also has an important place in the Indian agricultural sector. Oilseeds are considered as the important source of cash crops in Indian agriculture. They are the important sources of edible oils supply in the country. In all, there are mainly nine annual oilseeds crops grown namely, groundnut, rapeseed, mustard, soybean, sunflower, linseed, sesame, castor, safflower and niger. From these nine, groundnut, rapeseed and mustard, soybean, sesame and

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sunflower are classified as major oilseeds accounting for 89 per cent of the area and 93 per cent of the total production in oilseeds in the country. The oilseeds are considered as the second largest crop group grown after the food grains in the country. Though India has one of the largest cultivated area under oilseeds in the world, but their performance during last few decades is quite disappointing. Domestic production of the oilseed is not according to the rising demand for oil in the country due to increase in the population, which is leading to considerable amount of increasing imports of oil over time. India is not producing even half of its edible oil requirements due to lesser yield, rainfed nature of production of oilseeds, lower seed replacement ratio. As a fact, the consumption levels of crucial nutrients like oils and fats are much below than the minimum required level prescribed by the Indian Council of Medical Research that 30 per cent of total daily energy intake should come from oils/fats. The economy of oilseeds has shown a greater risk of instability reflected by wide variations in their yield over the years. Yields remain less largely due to dependence on dry land farming. During early seventies shortages of edible oils led to considerable increase in the prices. Intra-year and intra-seasonal variations in the prices is a common feature of the oilseed economy. Edible oil prices contributed notably to the country's inflation levels during the recent years. Price variations in the edible oils and oilseeds were perceived as a result of demand-supply gaps. As the maximum oilseeds are sown in the dry and rain fed environment, there is a risk and uncertainty in oilseeds production associated with fluctuating weather conditions. Another reason for their low yield is that they are sown in marginal lands which results in lower yields and unstable production as well. Being an essential commodity, there is also considerable speculative trading in oilseeds which results in higher instability in prices.

LITERATURE REVIEW

Naidu *et al.* (2014) estimated trends on area, production and productivity of selected oil seed crops in Chitoor district of Andhra Pradesh from the period 1996-97 to 2011-12. The study revealed that the share of the state in net sown area of the country was 15.7 per cent of the major oilseeds in 2011-12. The total production was 2.95 lakh tones which was 9.93 per cent of the total oilseeds production in the country. It was further revealed from the study that groundnut and sesame area decreased during the study period. The yield of groundnut was stagnant but the yield of sesame and sunflower was much better than groundnut. It was also observed from the study that the area under the groundnut and sesame decreased at a rate of -3.23 and -7.60 per cent per annum respectively, and the growth rates for all the other oilseed crops was increased but not significant during the study period.

Narayan (2016) studied demand and supply of oilseeds in India from the year 2001 to 2015. The results showed that the demand for the edible oils in India has shown a steady growth at a CAGR of 4.96 per cent from 2001 to 2015and was driven by improvement in per capita consumption, which in turn increases the income level and improves the living standards. The results also showed that the per capita consumption level of India at 15.91 kg / year for 2015-16 was lower than global averages 25 kg/ year. Moreover, domestic consumption was also expected to increase with the increment in income level and population as well. Therefore, he suggested that India needs to produce 17.84 Mt of edible oils to meet the nutritional fat demand for projected population of 1685 million by 2025.

Sharma (2016) conducted a study on dynamics of growth of soybean in India during the year 1980-891 to 2011-12. The study revealed that soybean accounted for 54 per cent of area under kharif oilseeds and 37 per cent of total oilseeds area in the country during 2011-12. Further revelations from the study showed that it had contributed 40 per cent to the oilseeds production, nearly 25 per cent of the total vegetable oils and two-third of the oilcake meals supplies in the country. He found that soybean has grown at the rate 9.6 per cent of area and production of 11.5 per cent in the country during the period 1980 to 2012.

Hedge and Gurupad (2017) studied the status of oilseeds in India for the periods from 1985-86 to 2014-15 for its different phases of TMO. They reported that during period I (1985-86 to 1994-95) marked by the starting of Technology Mission on Oilseeds (TMO) showed an impressive growth in area, production and yield of all oilseeds by 4.23 per cent, 8.28 per cent and 3.89 per cent, respectively. Liberalization of oilseed sector in 1994 and subsequent move of

bringing the import of oilseeds under Open General License proved to have negative effect on the domestic oilseed economy and there was a decline in the oilseeds production, though not significant, during period II (1995-96 to 2004-05) but during period III (2005-06 to 2014-15), productivity increased significantly thereby production despite decline in area, however, these were non-significant. Significant growth in area, production and productivity was observed in case of groundnut, soybean, rapeseed-mustard, sunflower and castor in major growing states in period I. In case of sesame, niger seed, safflower and linseed, growth in area, production and productivity was not specifically confined to a particular period but it was only state specific. They further reported that in overall scenario, oilseeds like soybean, rapeseed-mustard and castor have shown a positive and significant growth in area, production and productivity, whereas, other oilseeds viz. groundnut, sesame, safflower and linseed have shown significant increase in productivity only. Niger didn't show any significant change in area, production and productivity during the entire study period.

Reddy *et al.* (2017) examined Status, Challenges and Strategies for increasing oilseeds production in India. The study showed that the per capita consumption of vegetable oil rose continuously surpassing 18 kg/ year during the year 2015-16. During the last two decades, the consumption of edible oil increased to a level of 4.3 per cent. The study further revealed that the edible oil demand in the country would increase up to 19.02 and 40.83 million tons by the years 2025 and 2050, respectively. The productivity in the country according to the study was also low due to sub optimal agro ecological growing conditions of major rain fed cultivation (64 per cent) and with inadequate and imbalanced nutrition especially of sulphur, boron and zinc, continuous biotic stresses and majority small and marginal farmers with low investment and management capacity.

Singh *et al.* (2017) examined oilseeds self-sufficiency in India and found that India is second largest importer and third largest consumer of edible oils as well as fourth largest producer of edible oils. Soybean, groundnut, rapeseed and mustard contribute 82 per cent of total inland oilseed production. Per capita consumption has been increasing and is projected to be around 24 kg by 2025. The study further revealed that there is a huge gap between the demand and the production of the edible oilseeds, which leads to the increasing dependency on imports.

Teja *et al.* (2017) conducted a study on performance of oilseeds in India- a temporal analysis from 1949-50 to 2014-15 and reported that there was noteworthy performance of oilseeds in total in respect of yield at the national level. Though there was an upward and significant growth in terms of area, production and yield of total oilseeds during the study period, it was sluggish. The study further revealed that a gap existed between domestic demand and supply of oilseeds, which forced to import edible oils.

Kumar *et al*. (2020) analysed trend, growth and B: C ratio in Bhind district of Madhya Pradesh with special reference to mustard crop during the period from 2003-04 to 2014-15. They observed that although India is the largest producer of oilseeds, per capita per annum consumption in India was only 10.6 kg which was low as compared to 112.5 kg in China, 20.8 kg in Japan , 21.3 kg in Brazil and 40.3 kg in USA.

Singh and Bansal (2020) estimated trend of Rapeseed and Mustard crop in India from 1992-93 to 2017-18 and found that positive and significant growth occurred in production (1.84 per cent) and yield (1.86 per cent). Wide fluctuations in area, production and productivity for rapeseed and mustard were also observed during the study period.

Laxmi and Sahu (2020) examined scenario of major oilseed crop in agro climatic zones of Madhya Pradesh during the year 1991-92 to 2007-08 and reported that oilseeds were ploughed over 26.67 million ha of field and produced around 30.06 million tons per year. They further found that among the different agro climatic regions, soybean recorded highest area in Malwa plateau and Gird region was registered with highest area under rapeseed and mustard, while Bundelkhand recorded maximum area under sesame and groundnut crop during the study period.

Objective of the study

The major objective of the study was to examine the status of production and consumption of edible oils.

MATERIALS AND METHODS

To accomplish the objective taken in the study i.e. to examine the status of production and consumption of major edible oils in the country, descriptive statistics was used.

Averages, percentages, etc. had been worked out for different periods under study. Oilseeds production data had been converted into edible oils (as oils are consumed instead of oilseed) on the basis of *conversion ratio of each oilseed*. Total availability of the edible oils excluding non-edible oils (castor and linseed) and copra oil, and total availability including copra oil (as copra oil is consumed as edible oil by majority of people in southern parts of the country, which affects the total consumption of edible oil in the country) had been worked out. During the review work, it was found that palm oil is also one of the major oil which is being consumed in many parts of the country. Palm oil is extracted from inner seed and seed kernel of the palm fruit. Mainly oil for consumption purpose is extracted from the inner part of the seed, whereas, kernel palm oil is used in various other processes like pharmaceuticals, cosmetics, soap industry, etc. In many places adulteration in oil is being practiced in which kernel oil is mixed with palm seed oil in variable proportions. Therefore, due to unavailability or variability in data on proportion of kernel oil mixed with palm oil, palm oil had not been included in the study.

Table 1: Oil content in Oilseeds (conversion factor)

Crop	Oil content (per cent)
Groundnut	45
Sesame	38-54 (46)
Castor	48-56 (52)
Rapeseed-mustard	37-49 (43)
Safflower	28-32 (30)
Sunflower	28-35 (31.50)
Niger	35-40 (37.50)
Soybean	20
Linseed	37-44 (40.50)

Source: Crop Production Volume II, Rajendra Prasad (2015). Figures in parentheses are averages of conversion factor which are used in the present study.

Total availability had been taken as proxy for the total consumption of edible oils taken under study, and was examined with and without copra oil produced in the country for the given periods. In total consumption, net import of edible oil was also added in the total production and it was assumed that total production and net import of edible oil in a year was being consumed in the same year, as data on oilseed stored for next year was not available.

Though few oilseeds were also being used consumed as other than oils but data on their uses was not available, therefore, all the production of various edible oilseeds are converted into edible oil to find the maximum availability of edible oil. However, to some extent this may overestimate the availability of edible oil in the country.

Production of respective edible oil has been worked out as,

Production of oilseed * Conversion factor = Production of oil (P*i*O)

Therefore,

Total production edible of oil = $\sum$ P*i*O

and hence,

Total consumption has been worked out as, $C_t = P_t + I_t - E_t$

Where,

C_t = *total consumption of edible oil in the country in* t^{th} *year*

P_t = *total production of edible oil in the country in* t^{th} *year*

I_t = *total import of edible oil in the country in* t^{th} *year*

E_t = *total export of edible oil from the country in* t^{th} *year*

i = production of i^{th} *edible oil where i* = 1, 2, 3, 4, 5, 6, 7, 8.

After examining total consumption, per capita consumption *(total consumption / total population)* for total edible oils with and without copra edible oil in the country for the given four time periods had been worked out.

All the major edible oilseeds namely groundnut, rapeseed and mustard, sesame, sunflower, safflower, soybean and niger as well as non-edible oilseeds namely castor and linseed were taken in the study,

which were grown in the country. The time series data on export, import, production of major oilseeds in the country was collected from various published and unpublished sources such as journals, official government records, department of agriculture, Directorate of Economics and Statistics, Ministry of Agriculture and Farmers' Welfare, commodities. cmie.com, etc. Period of the study had been taken from 1970-71 to 2017-18.

The phases of the period of the proposed study are specified as follows. Pre Technology Mission on Oilseeds (Pre TMO) Period from 1970-71 to 1985-86, Technology Mission on Oilseeds Phase one Period from 1986-87 to 2001-02, Technology Mission on Oilseeds Phase two Period from 2002-03 to 2017-18, Overall Period of Technology Mission on Oilseeds from 1986-87 to 2017-18, Overall Period from 1970-71 to 1985-86.

RESULTS AND DISCUSSION

To examine the present and past status of edible oils, the data was collected on production of edible oilseeds which was further converted into production of edible oil by multiplying the quantity of oilseed production with the conversion factor of respective oilseed. Trade data (import and export quantity) of edible oil was also collected for India. Consumption of edible oil was generated with the help of production of respective edible oil plus net import of oil. The status is shown in the table for the four years 1970-71(beginning year of the study), 1985-86 (beginning of TMO period), 2002-03 (mid of the TMO period) and 2017-18 (end year of the study). The findings are divided into two parts, first, total consumption of edible oils excluding non-edible oils (castor and linseed) and copra, second, total consumption of edible oils including copra (as copra is consumed as edible oil by majority of people in southern parts of the country and for various other purpose like in cosmetics, hair oils, medicinal purpose in major parts of the country which affects the total consumption of edible oil) had been calculated. The study aims to compute the share of respective edible oil in the total production and total consumption of oils. The percentage change in a particular year with respect to the previous year was also examined in the table.

Status of production of edible oils with and without copra

Total oil production is the sum total of the oil produced from various sources of oils namely, groundnut, rapeseed and mustard, safflower, sesame, soybean, sunflower and niger. Edible oil produced from various oilseeds is shown in the table 2 along with the percentage share of different oils in the total oil production.

The percentage share of different edible oils in the total oil production given in the table reveals that copra occupies higher percentage in total oil production in all the given four years followed by groundnut, which remained on the second position in all the four periods. Although groundnut production decreased by 3.80 per cent in 1985-86 as compared to 1970-71, increased by about 15 per cent in 2002-03 and more than 50 per cent in 2017-18 over the year 1970-71. Copra share in total production was highest during all the respective years. Copra edible oil production also increased by about 148 per cent in 2017-18 over its 1970-71 quantity.

Import, export and net import of edible oils

Import, export and net imports of respective edible oils during four (1970-71, 1985-86, 2002-03 and 2017-18) are shown in table 2. The table depicts that where net import is negative, export is exceeding imports and particular oil during that year was exported because of excess production of respective edible oil. India imports oil mainly from Iraq followed by Saudi Arab and UAE while India also exports edible oil to China, Afghanistan, etc. but still India is a net importer of edible oil to meet out the consumption demand of the country.

The table 3 reveals that total export of edible oil was quite high in all the specific years, showing huge dependency on imported oil to meet out the domestic needs. Though India also exported edible oils but its proportion was less than 01 per cent to the total quantity imported in the years under the study.

Status of net import of different edible oils and comparison thereof during the specified years are present in table 4. The table reveals that except groundnut oil, copra oil and niger oil the net import of all the edible oil increased many folds from 1970-

Table 2: Status of production of edible oils with and without copra

Sources of oil	Year						
	1970-71	1985-86		2002-03		2017-18	
	Production (000′tons)	Production (000′ tons)	Change over the year	Production (000′ tons)	Change over the year	Production (000′ tons)	Change over the year
Groundnut oil	2749.99 (76.01) {40.58}	2643.93 (57.07) {32.43}	#(-)3.80	3162.37 (42.89) {23.22}	#14.99 @19.60	4163.67 (47.43) {25.08}	#51.40 @57.48 $31.66
Rapeseed and Mustard oil	424.68 (11.73) {6.27}	560.01 (12.08) {6.87}	#31.86	1092.75 (14.83) {8.02}	#157.31 @95.13	1812.40 (20.65) {10.93}	#326.76 @223.27 $65.85
Safflower oil	46.17 (1.27) {0.68}	105.56 (2.28) {1.30}	#128.63	66.18 (0.89) {0.49}	#43.33 @ (-)37.30	16.59 (0.18) {0.09}	#(-)64.06 @(-)84.28 $(-)74.93
Sesame oil	281.15 (7.77) {4.14}	223.85 (4.84) {2.75}	#(-)20.38	348.90 (4.73) {2.57}	#24.09 @55.86	377.70 (4.30) {2.28}	#34.34 @68.72 $8.25
Soybean oil	24.68 (0.69) {0.36}	677.38 (14.63) {8.30}	#2644.65	2193.64 (29.75) {16.10}	#8788.33 @223.84	2335.65 (26.60) {14.08}	#9363.73 @244.80 $6.47
Sunflower oil	43.34 (1.19) {0.64}	372.23 (8.03) {4.57}	#758.86	460.84 (6.25) {3.39}	#963.31 @23.80	47.34 (0.54) {0.29}	#9.22 @(-)87.28 $(-)89.72
Niger oil	47.88 (1.34) {0.70}	49.20 (1.07) {0.60}	#2.75	48.71 (0.66) {0.35}	#1.73 @ (-)0.99	26.35 (0.30) {0.15}	#(-)44.90 @(-)46.44 $(-)45.90
Copra oil	3159.8 {46.63}	3521 {43.18}	#11.43	6244 {45.86}	#97.60 @85.00	7816.74 {47.10}	#147.98 @122.00 $25.18
Total production without Copra	3617.89 (100)	4632.16 (100)	#28.03	7373.39 (100)	#103.80 @59.18	8779.70 (100)	#142.67 @89.53 $19.07
Total production with copra	6777.69 {100}	8153.16 {100}	#20.29	13617.39 {100}	#100.91 @67.01	16596.44 {100}	#144.86 @103.55 $21.87

Figures in parentheses () indicate share in total production without copra;

Figures in parentheses {} indicate share in total production with copra;

Figures in parentheses # indicate change over the year 1970-71;

Figures in parentheses @ indicate change over the year 1985-86;

Figures in parentheses $ indicate change over the year 2002-03.

Table 3: Status of import and export edible oils

States	Time period	Import (000'tonnes)	Export (000'tonnes)	Net import (000'tons)
Groundnut	1970-71	0	0.17	(-)0.17
	1985-86	0.46	0	0.46
	2002-03	0	0.13	(-)0.13
	2017-18	0.02	1.74	(-)1.72
Sunflower	1970-71	3.70	0	3.70
	1985-86	0	0	0
	2002-03	37.41	0.12	37.29
	2017-18	2255.88	4.02	2251.86
Sesame	1970-71	0	0.01	(-)0.01
	1985-86	0	0	0
	2002-03	0.03	0.14	(-)0.11
	2017-18	0.26	0.08	0.18
Niger	1970-71	1.08	0	1.08
	1985-86	1.60	0	1.60
	2002-03	0.30	0.13	0.17
	2017-18	5.63	5.61	0.02
Soybean	1970-71	78.50	0	78.50
	1985-86	422.00	4.33	417.67
	2002-03	1196.53	2.55	1193.98
	2017-18	2971.26	7.48	2963.78
Safflower	1970-71	0	0	0
	1985-86	0	0	0
	2002-03	0	0	0
	2017-18	8.59	0.13	8.46
Rapeseed and mustard	1970-71	0.92	0.21	0.71
	1985-86	265.44	0	265.44
	2002-03	0.75	0.88	(-)0.13
	2017-18	302.39	0.09	302.30
Copra	1970-71	1.47	0.10	1.37
	1985-86	9.50	0.02	9.48
	2002-03	30.41	5.67	24.74
	2017-18	0.01	1.27	(-)1.26
Total without copra	1970-71	84.20	0.39	83.81
	1985-86	689.50	4.33	685.17
	2002-03	1235.02	3.95	1228.07
	2017-18	5911.50	19.15	5892.35
Total with copra	1970-71	85.67	0.49	85.18
	1985-86	699.00	4.35	694.65
	2002-03	1265.43	9.62	1255.81
	2017-18	5911.51	20.42	5891.09

Table 4: Status of net imports of edible oils with and without copra

Sources of oil	Year						
	1970-71	1985-86		2002-03		2017-18	
	Net imports (import – export) (000'tons)	Net imports (import – export) (000'tons)	Change over the years	Net imports (import – export) (000'tons)	Change over the years	Net imports (import – export) (000'tons)	Change over the years
Groundnut oil	(-)0.17 [-0.20] {-0.19}	0.46 [0.06] {0.06}	#370.15	(-)0.13 [-0.01] {-0.01}	#-23.52 @-128.26	(-)1.72 [-0.02] {-0.02}	#-911.76 @-473.91 $-1223.03
Rapeseed and Mustard oil	0.71 [0.81] {0.83}	265.44 [38.74] {38.21}	#37285.91	(-)0.13 [-0.01] {-0.01}	#-81.69 @100.00	302.30 [5.13] {5.13}	#42477.00 @13.88 $232638.46
Safflower oil	0 [0] {0}	0 [0] {0}	#0	0 [0] {0}	#0 @0	8.47 [0.14] {0.14}	#100.00 @100.00 $100.00
Sesame oil	(-)0.01 [-0.01] {-0.01}	0 [0] {0}	#0	(-)0.11 [0] {0}	#0 @0	0.18 [0] {0}	#1900.00 @100.00 $100.00
Soybean oil	78.50 [93.68] {92.15}	417.67 [60.95] {60.13}	#432.03	1193.98 [97.21] {95.07}	#1420.99 @185.86	2963.78 [50.29] {50.30}	#3675.51 @596.66 $148.22
Sunflower oil	3.70 [4.42] {4.34}	0 [0] {0}	#-100	37.29 [3.03] {2.96}	#907.83 @100.00	2251.86 [38.21] {38.22}	#60761.05 @100.00 $5938.77
Niger oil	1.08 [1.29] {1.26}	1.60 [0.24] {0.23}	#48.14	0.17 [0.01] {0.01}	#-84.25 @-89.37	0.02 [0] {0}	#-98.14 @-98.75 $-88.23
Copra oil	1.37 {1.60}	9.48 {1.37}	#591.97	24.74 {1.97}	#1705.83 @160.97	(-)1.26 {-0.02}	#-191.97 @-113.29 $-105.09
Net import without copra	83.81 [100]	685.17 [100]	#717.52	1228.17 [100]	#1365.42 @79.25	5892.35 [100]	#6930.60 @759.98 $379.76
Net import with copra	85.18 {100}	694.65 {100}	#715.50	1255.81 {100}	#1374.30 @80.78	5891.09 {100}	#6816.04 @748.06 $369.10

Figures in parentheses [] indicate share in total net import without copra;

Figures in parentheses {} indicate share in total net import with copra;

Figures in parentheses # indicate change over the year 1970-71;

Figures in parentheses @ indicate change over the year 1985-86;

Figures in parentheses $ indicate change over the year 2002-03.

Table 5: Status total and per capita consumption of edible oils with and without copra

Sources of oil	Year						
	1970-71	1985-86		2002-03		2017-18	
	Consumption (000′ tons)	Consumption (000′ tons)	Change over the year	Consumption (000′ tons)	Change over the year	Consumption (000′ tons)	Change over the year
Groundnut oil	2749.80 (74.29) {40.06}	2644.40 (49.74) {29.89}	#(-)3.83	3162.20 (36.76) {21.26}	#14.99 @19.58	4162.00 (29.10) {18.82}	#51.35 @57.38 $31.61
Rapeseed and Mustard oil	425.39 (11.50) {6.20}	825.45 (15.53) {9.33}	#94.04	1092.60 (12.70) {7.35}	#156.84 @32.36	2114.70 (14.75) {9.57}	#397.12 @156.18 $93.54
Safflower oil	46.17 (1.24) {0.68}	105.56 (1.99) {1.19}	#128.63	66.18 (0.76) {0.44}	#43.33 @(-)37.30	25.05 (0.17) {0.11}	#(-)45.74 @(-)76.26 $(-)62.14
Sesame oil	281.14 (7.60) {4.09}	223.85 (4.20) {2.53}	#(-)20.37	348.79 (4.05) {2.36}	#24.06 @55.81	377.88 (2.66) {1.70}	#34.40 @68.80 $8.34
Soybean oil	103.18 (2.78) {1.51}	1095.10 (20.59) {12.38}	#961.34	3387.60 (39.38) {22.77}	#3183.19 @209.34	5299.43 (37.05) {23.96}	#5036.10 @383.92 $56.43
Sunflower oil	47.04 (1.27) {0.69}	372.23 (7.00) {4.20}	#691.30	498.13 (5.79) {3.35}	#958.94 @33.82	2299.20 (16.09) {10.39}	#4787.75 @517.68 $361.56
Niger oil	48.96 (1.32) {0.71}	50.80 (0.95) {0.58}	#3.75	48.88 (0.56) {0.32}	#(-)0.16 @(-)3.77	26.37 (0.18) {0.11}	#(-)46.13 @(-)48.09 $(-)46.05
Copra oil	3161.20 {46.06}	3530.50 {39.90}	#11.68	6268.70 {42.15}	#98.30 @77.55	7815.50 {35.34}	#147.23 @121.37 $24.67
Total without copra oil	3701.70 (100)	5317.33 (100)	#43.64	8601.46 (100)	#132.36 @61.76	14304.63 (100)	#243.46 @139.10 $47.81
Total with copra oil	6862.57 {100}	8847.81 {100}	#28.92	14873.20 {100}	#116.72 @68.10	22120.13 {100}	#199.15 @132.03 $38.03
Per capita consumption without copra (kg/yr)	6.51	7.43	#14.13	8.01	#23.04 @7.80	11.43	#75.57 @53.83 $42.69
Per capita consumption with copra (kg/yr)	12.08	12.36	#2.31	13.83	#14.48 @11.89	17.68	#46.35 @43.04 $27.83

Figures in parentheses () indicate share in total production without copra; Figures in parentheses {} indicate share in total production with copra; Figures in parentheses # indicate change over the year 1970-71; Figures in parentheses @ indicate change over the year 1985-86; Figures in parentheses $ indicate change over the year 2002-03.

71 to the year 20017-18. Among the edible oils with positive net import, the soybean edible oil had lion's share in all the years. In the year 2017-18 its share reduced to almost 50 per cent as compared to that of more than 90 per cent in 2002-03 and 1970-71 because of the huge increase in the share of sunflower oil in 2017-18 compared to that of the previous years under study.

Status of total and per capita consumption of edible oils with and without copra

Consumption data of different oils were generated by adding net import data because deficit is supported through import of the oils to fulfil the domestic consumption requirement. Consumption of different oil with and without copra along with per capita consumption is given in the table 5.

The table depicts that total consumption of copra for all the four periods was highest among all the edible oils followed by groundnut. This was because of the fact that copra is not only used as cooking oil in southern parts but also consumed in various other ways like in cosmetics, as hair oils, medicinal purposes in major parts of the country, which leads to the consumption of copra in maximum quantity as compared to other crops.

After copra, groundnut is consumed more among all other edible oils. Groundnut oil is consumed majorly in southern and western parts of the country like Karnataka, Tamil Nadu, Andhra Pradesh, Rajasthan, Gujarat, etc. Production and consumption status of different edible oils. The figures clearly show that during all the aforesaid four periods' consumption of groundnut and copra edible oil was less than production due to their net imports. Whereas, reversed picture emerged with respect to soybean edible oil in all the respective years.

Total production of oil from edible oilseeds fell short of about 39 per cent to the total consumption in 2017-18 of edible oil processed from the 07 edible oilseeds which was fulfilled by import of these edible oils. Whereas, when copra oil was also taken into account then this dependency to domestic consumption on owned produced edible oil increased to more than 75 per cent.

CONCLUSION

- India total production of edible oils without copra figured an increase of 28.03 per cent from the year 1970-71 to 1985-86, whereas, from 1985-86 to 2002-03 an increase observed is 59.18 per cent.
- Total edible oils along with copra oil figured an increase of 20.29 per cent from the year 1970-71 to 1985-86. From the year 1985-86 to 2002-03, total production with copra increased by the amount of 67.01 per cent.
- The change in the production of edible oils during the whole study period without copra oil i.e. from 1970-71 to 2017-18 increased by the amount of 142.67 per cent, whereas, with copra oil this change is figured at 144.86 per cent.
- From 1970-71 to 1985-86 groundnut oil decreased by the amount of 3.80 per cent, whereas, copra oil increased by 11.43 per cent during that period. Soybean oil has shown maximum amount of increase in its production by the amount of 2644.65 per cent.
- Highest amount of positive change in the total production of edible oil is shown by soybean oil at the rate of 223.84 per cent from the year 1985-86 to 2002-03, copra oil during this period has shown a change of 85.00 per cent. Niger and safflower oil production decreased by the amount of 0.99 and 37.30 per cent, respectively.
- From the period, 2002-03 to 2017-18, decrease observed in the production of sunflower, niger and safflower oil at 89.72, 45.90 and 74.93 per cent, respectively, whereas, during this period rapeseed and mustard has shown highest amount of change in the production of its oil at 65.85 per cent. Copra oil registered with a change of 25.18 per cent.
- Net import of edible oil without copra oil during the whole study period i.e. from 1970-71 to 2017-18, increased by the amount of 319.76 per cent, whereas, a change of 369.10 per cent is observed in the net import of edible oil along with copra oil.
- During the whole study period, from 1970-71 to 2017-18, net imports decreased in the groundnut oil (911.76 per cent), niger (98.14 per cent) and copra oil (191.97 per cent), whereas,

highest increase is shown in the net imports of sunflower oil (60761.00 per cent).

- From the year 1970-71 to 1985-86, total consumption in the groundnut and sesame oil decreased by the amount of 3.83 and 20.37 per cent respectively, whereas, soybean oil is consumed maximally among all the other edible oils which recorded a change of 961.34 per cent. Copra oil consumption increased by the amount of 11.68 per cent during this period.
- During the year 1985-86 to 2002-03, total consumption of safflower (37.30 per cent) and niger oil (3.77 per cent) is decreased. Consumption of soybean oil increased by the per cent of 209.34 which is highest among the consumption of all the edible oils. Copra oil recorded a change in the total consumption at 98.30 per cent.
- From 2002-03 to 2017-18, maximum change is observed in the consumption of sunflower oil (361.56 per cent), whereas, total consumption of safflower and niger oil is decreased by the amount of 62.14 and 46.05 per cent. Copra oil recorded an increase of 24.67 per cent. During the whole study period i.e. from 1970-71 to 2017-18, total consumption of each edible oil increased except safflower (45.74 per cent) and niger (46.13 per cent) wherein consumption of these oils decreased.

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