



4th SEA -AICOSCA Cottonseed, Oil and Meal Conclave – 2023

**Prospects and Issues of Cottonseed Oil in the Country –
Road Map by 2030**

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Edible Oil Scenario of the Country:

India is one of the leading oilseeds producing country in the world, producing large number of commercial varieties of oilseeds viz. groundnut, rape and mustard, soybean, sesame, sunflower, safflower etc. In addition, there are other edible oil bearing crops like cottonseed and coconut. Recently, India has started producing Rice Bran Oil from paddy husk and its current production is about 10 lakh tonnes next only to the production of China and Japan.

The following table gives the production of major oilseeds in the country for the years 2019-20, 2020-21, 2021-22 and the current year i.e. 2022-23.

Table - 1
India's Production of Major Oilseeds

(In Thousand Tonnes)

Item	2019/20	2020/21	2021/22	2022/23 (P)
Soybean	9,300	10,450	11,900	12,000
Rapeseed	7,400	8,500	11,000	11,500
Cottonseed	12,100	11,718	10,359	10,401
Groundnut	6,255	6,700	6,800	6,650
Copra	928	927	940	936
Sunflower	140	185	190	215

P = Projection

From the above data it will be seen that among all major oilseeds produced in the country, production of cottonseed is the highest, surpassing production of even prominent oilseeds, like soybean, rape and mustard and groundnut, except in the last 2 years due to extreme low production of cotton due to adverse factors.

Cotton/Cottonseed Production – Indian Scenario:

A couple of years back India became the leading cotton producing country in the world with production reaching 370 lakh bales in the year 2017-18. However, in the next couple of years i.e. 2020-21 and 2021-22, production of cotton again fell and India became next to China.

According to the latest estimates of the Committee on Cotton Production and Consumption (COCPC), in their meeting held on 20-4-2023 the production of cotton in the country for four years (2019-20, 2020-21, 2021-22 and 2022-23) are as under:

Table - 2
Production of Cotton in the Country for four years

(In Lakh bales of 170 Kgs. each)

Years	2019-20	2020-21	2021-22	2022-23 (E)
Cotton Production	365.00	352.48	311.17	343.47

E = Estimated

Cottonseed Processing in India and Production of Cottonseed:

Cottonseed is a by-product of cotton plant and is a valuable source of edible oil. It is also an important commodity like cotton fibre. Like-wise, cake, cotton linters, hulls all of which are also by-products of cottonseed have several industrial and other applications. These are also excellent source of cattle, poultry and fish feed and can replace soymeal. Cottonseed forms 2/3rd portion of seed cotton, while lint forms remaining 1/3rd portion. Since all parts of cottonseed provide food, feed and valuable industrial products, cottonseed is rightly termed as a “Golden Goose”. Cottonseed has also export demand and can earn valuable foreign exchange for the country.

However, while cotton managed to survive through the centuries, cottonseed somehow did not receive its due importance. It remained as the direct feed for livestock for many years. Even now a significant percentage of cottonseed production is directly fed to livestock.

Cottonseed: Utilisation Pattern:

Cottonseed is generally utilized for the following purposes:

1. Feeding whole cottonseed to the cattle
2. Sowing purpose
3. Processing for obtaining oil as well as by-products like linters, hulls, cottonseed oilcake and cottonseed extraction DOC

Based on the latest production estimates of cotton for 2019-20, 2020-21, 2021-22 and the ongoing season 2022-23, the production of cottonseed and cottonseed oil are shown below in Table - 3

Table - 3
Availability of Cottonseed for Processing and Production of Cottonseed Oil:

No.	Particulars	2019-20	2020-21	2021-22	2022-23 (E)
1	Cotton Production (lakh bales of 170 kgs. each)	365.00	352.48	311.17	343.47
2	Present Cotton Seed Production	121.55	117.38	103.62	114.38
3	Retained for sowing & direct Consumption	5.00	5.00	5.00	5.00
4	Availability of cottonseed for Processing	116.55	112.38	98.62	109.38
5	Production of washed Cottonseed oil (12%)	14.00	13.49	11.83	13.13

E= Estimated

(Source: Cotton Production as estimated by the Committee on Cotton Production and Consumption (COCPC), formed by the Central Government in September, 2020, replacing former Cotton Advisory Board (CAB), in their meeting held on 1-6-2023)

What is Cottonseed Oil ?

Unlike other major edible oils where the seeds are grown mainly for oil, cottonseed oil although obtained from cottonseeds, the cotton crop is not grown mainly for oilseeds but for fibre, the single largest source of fibre in the world. Thus, cottonseed oil is a vegetable oil extracted from the seeds of the cotton plants of various species, after the cotton lint has been removed.

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

Uses of Cottonseed Oil:

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

Other Lesser Known Facts About Cottonseed Oil

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

Different nutritional components of Cottonseed Oil:

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

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

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

Health Benefits of Cottonseed Oil:

Cottonseed oil has been termed as 'Heart oil' and is among the most unsaturated edible oils. It contains about 50% essential poly unsaturated fatty acids against about 30% in traditional oil. This prevents coronary arteries from hardening. **It is one of the few oils in American Heart Association's list of 'O.K.' food.**

Public health advisories promote cottonseed oil as a "healthy" alternative to tropical oils because of its high unsaturated fat levels, which, findings show, has cholesterol-lowering properties-particularly LDL cholesterol.

It is also free of cholesterol and has low levels of saturated fat, both of which are promoted by mainstream media and medical advice as culprits in heart disease.

Apart from this so-called cholesterol-lowering action, cottonseed oil, along with almond oil and wheat germ oil, has high concentration of vitamin E. Of the three, cottonseed oil is the most practical choice due to almond oil's expensive price and wheat germ oil's bitter flavor.

Vitamin E is potent antioxidant that plays a role in the prevention of diseases, such as Alzheimer's disease, cardiovascular disease and prostate cancer.

Conventional health experts advise getting vitamin E from vegetable oils like cottonseed oil, because people do not eat vitamin E-rich foods on a daily basis. It is also believed that vitamin E contributes to the long shelf-life of cottonseed oil.

Cottonseed oil is also termed as house wife's friendly aid as it has high level of natural antioxidants that contribute to its long frying life and also long shelf life. This oil is easily digested by normal people and its digestibility coefficient is about 98%, according to S.N. Pandey former Director, CIRCOT, (ICAR) Mumbai. This is cholesterol free as oils are extracted from plants. Cottonseed oil is light, and its non-oily consistency and high smoke point make it most desirable for cooking.

Refined cottonseed oil is considered as one of the most popular cooking oils in kitchens all over the world. It is golden yellow in colour and has no odour and its shelf life is extremely longer.

However, crude cottonseed oil has to undergo a series of steps for refining and before it is used for edible oil purpose, such as alkali refining, bleaching, winterization, hydrogenation, deodorization and interest-reification. Once processed, cottonseed oil has a mild taste and appears generally clear with a light golden colour. Refined cottonseed oil has now become the second most preferred oil for frying in India, as the shelf life of food prepared in cottonseed oil is much longer than other

edible oils. AICOSCA takes pride in this, as efforts over the decades for popularization of cottonseed oil has achieved the desired results.

Popularity of Cottonseed Oil:

This oil is most popular in States like Gujarat, Maharashtra and Andhra Pradesh. And in Gujarat, Prime Minister, Shri Narendra Modi's motherland, the Gujaratis are loving it. Cottonseed or

'Kapasiya Oil', as they call it, is ruling the kitchens of Gujarat, the highest cotton growing State in India. Out of every two bottles of edible oil consumed in Gujarat, one bottle contains cottonseed oil. According to late Shri Govindbhai Patel, of GGN Research, a Consultancy Firm based in Gujarat, of the 11-12 lakh tonnes of cottonseed oil produced in India annually, almost half is consumed in Gujarat alone. Shri Patel, believes demand for this oil can grow potentially by 10% annually, provided the cotton crop keeps pace simultaneously. And cotton is an extremely versatile crop whose production has increased remarkably in past decade or so.

However, though cotton is an extremely versatile crop whose production has increased remarkably in the past decade or so, its production is also subject to fluctuation, based on determinants like weather i.e. (rainfall), area sown, price of cotton and other related crops in India as well as global prices, export prospects, infestation of pest attacks etc.

AICOSCA's Role:

The Association of Cottonseed Processors (AICOSCA) in brief, represents scientific processing of cottonseed which puts cottonseed to its maximum use by subjecting it to the process of delinting, de-hulling, decortications, crushing and extraction and obtains from it maximum oil (Cottonseed Oil) apart from linters, hulls and cake/extraction as by-products. In other words, AICOSCA propagates scientific processing of cottonseed vis-à-vis traditional processing, which results in enormous national gain of several thousand crores of rupees.

Road Map for 2025 – Achievable Target of Cottonseed/Cottonseed Oil:

Dr. M. Sabesh, a Senior Scientist working in the Central Institute for Cotton Research (CICR), Nagpur (Maharashtra), in an Article Published on the topic "Fibres for Future – an Indian Perspective" has projected cotton production in the country for next 5-6 years as under:

Table - 4

Years	Cotton Production (lakh bales of 170 kgs. each)
2020	368.21
2021	374.49
2022	381.37
2023	388.38
2024	395.51
2025	402.70

(The above data are based on OECD-FAO Agriculture Outlook 2019-20)

(As per the FAO Agriculture Outlook 2019-20, world production of cotton is expected to reach 29.2 million metric tonnes by the year 2028 and India will remain the world's largest cotton producer with production of 7.21 million metric tonnes (424 lakh bales by the year 2028.)

With cotton production in the country expected to touch above 400 lakh bales by the year 2025, the achievable production of cottonseed and cottonseed oil will be as under:

Cottonseed and Cottonseed Oil production in India from the year 2020 to 2025:

Table - 5
Cottonseed and Cottonseed Oil Production from 2020 to 2025

No.	Particulars	2020	2021	2022	2023	2024	2025
1.	Cotton Production (In Lakh bales of 170 Kg. each)	368.21	374.49	381.37	388.38	395.51	402.70
2.	Cottonseed Production (In Lakh Tonnes)	122.61	124.70	127.00	129.33	131.70	134.10
3.	Cottonseed Oil Production (In Lakh Tonnes)	14.11	14.36	14.64	14.92	15.20	15.49

Note: Cottonseed Oil Production has been estimated after considering that 5 Lakh Tonnes of Cottonseed will be retained /used for sowing and direct consumption.

Road Map for Prospect of Cottonseed Oil - Production and Economies of Production - AICOSCA Efforts :

The present availability of washed cottonseed oil is about 13-14 Lakh tonnes. However with substantial increase in production of cotton by the year 2025, as shown above, Cottonseed oil production would go upto 15-16 Lakh tonnes. Further, with scientific processing of Cottonseed, which AICOSCA has been propagating for many years, the availability of washed Cottonseed oil can be substantially increased, say up to 19-20 Lakh tonnes. Having regard to the numerous attributes of Cottonseed oil vis-à-vis other major edible oils, described earlier, this oil can certainly become one of the primary sources of edible oil in the near future, thus assisting a further boost in its production.

Conclusion:

According to the Solvent Extractors' Association of India, Mumbai the domestic consumption of edible oil is expected to touch 240 lakh tons in the current oil year i.e. 2022-23 which is likely to increase further with growing population and per capita income currently, India produces around 100 lakh tons of edible oil. Thus the gap between demand and supply of edible oils is about 140 lakh tons which has to be met through imports.

Since India is a net importer of edible oil, currently importing about 70% of its annual consumption of 24 million tonnes of edible oil, amounting to nearly Rs.75000 crores, the improvement in

processing technology of extraction of Cottonseed oil needs urgent attention. This is possible only through adoption of scientific processing of Cottonseed vis-à-vis traditional processing, as traditional processing results in tremendous loss of valuable cottonseed oil and other important by-products like linters, hulls etc. valuing crores of Rupees. It is felt the deliberation in the Cottonseed Seminar in Aurangabad and presentation of views by experts will be extremely useful in achieving the aforesaid objectives.

