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Emerging Potential of Cottonseed Oil Vis-à-Vis Other Major Edible Oils

Shri. Bajoria is the Chairman of the All India Cottonseed Crushers' Association, Mumbai. He was Past President, The Central Organisation for Oil Industry & Trade, New Delhi, Past President of the Solvent Extractors' Association of India, Mumbai. His business interest in India are in manufacturing and services globally. He has been on the Reserve Bank of India Sub-Committee on inventory norms on oilseed industry. He was Chairman of Organising Committee of IASC's Global Conference of Vegetable & Oilseed Industry held in Mumbai in January, 2005.



GUEST COLUMN

Shri. Sandeep Bajoria
*Chairman, All India Cottonseed Crushers'
Association (AICOSCA), Mumbai*

& Industry (FICCI) committee. He was on the Managing Committee of Indian Merchants Chamber. Due to his exemplary work, Shri. Bajoria was declared as the "Oil Man of the year" in the International Conference on Vegetable Oil (Globoil), Mumbai, in 2001.

He was nominated by the Government of India as Member of Managing Committee of "National Oilseeds & Oils Development Board" from 2005 to 2008. Also, He has been nominated on Consultative Committee

Shri. Bajoria has represented vegetable oil industries on the Confederation of Indian Industries (CII) and Federation of Indian Chamber of Commerce

of "Cotton Advisory Board" consecutively for four years by the Ministry of Textiles, Government of India.

Edible Oil Scenario of the Country:

India is one of the leading oilseeds producing countries in the world, producing a large number of commercial varieties of oilseeds like groundnut, rape & mustard, soyebean, sesame, sunflower, safflower, etc. In addition, there are other crops like cottonseed and coconut. Recently India has started producing rice bran oil from paddy husk and its current production is around one million tonnes, next only to the production of China and Japan.

AICOSCA 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 view of the above, this article highlights the significance, health benefits and other potentials of cottonseed oil vis-à-vis other edible oils.

Cotton Production – Indian Scenario:

India is now the leading cotton producing country in the world with a total production of 386 lakh bales (of 170 kgs. each) in the year 2014-15. Though cotton production in the subsequent two years i.e 2015-16 and 2016-17 declined, a bumper production of about 380 lakh bales (of 170 kgs. each) was estimated in the beginning of the current year that is 2017-18 due to about 12% increase in acreage under cotton cultivation and suitable weather conditions. However, as per recent indication, India's cotton output is likely to decline by 10 percent from the pre-harvest forecast of a bumper production of 377 lakh bales (of 170 kg each) for 2017-18. This is due to extensive attack of the pink bollworm in major cotton growing states of Maharashtra, Telangana, Andhra Pradesh and Karnataka.

Industry veterans gathered at the 9th Asian Textile Conference, organised by the Confederation of Indian Textile Industry on 14th March, 2018, estimated a massive impact on output this year due to the pink bollworm infestation in the four major cotton growing states of the country.

However, with higher production of cotton, there will also be higher availability of cottonseed and cottonseed oil.

Production of Oilseeds in India

The following table shows the production of major oilseeds in the country from 2014-15 to 2017-18 (expected)

From the data presented in Table 1, it will be seen that cotton seed production is now the highest in the country in terms of production tonnage, that is higher than even the production of popular oilseeds like soyabean, groundnut, rape and mustard seed.

Need for Edible Oils

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

Table -1
India: Production of Major Oilseeds

(In Million Tonnes)

Item	2014-15	2015-16	2016-17	2017-18 (F)
Soybean	8.50	7.10	10.50	8.90
Cottonseed	12.50	11.00	11.52	11.95
Groundnuts	3.40	3.20	4.80	4.00
Sunflower Seed	0.39	0.33	0.29	0.24
Rapeseed	5.00	5.70	7.00	6.40
Sesame Seed	0.81	0.73	0.65	0.63
Castor Seed	1.27	1.41	1.07	1.30
Others	0.82	0.75	0.62	0.78
Total	31.69	29.92	35.68	33.65

F=Forecast

Production of Major Edible Oils in India

The following table shows the production of major edible oils in India for the last three years i.e 2014-15, 2015-16 and 2016-17 and projections for the year 2017-18.

Data presented in Table 2 again corroborates the fact that production of cottonseed oil is quite significant in comparison to other edible oils and next only to rape and mustard seed oil. With increase in cotton production in future years and with scientific processing of cottonseed which AICOSCA has all along been propagating, the oil recovery from cottonseed can be increased to about 18-19% depending on the species/variety of cotton.

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 frying and baking. It is said to be ideal for frying. Because of its natural taste, cottonseed oil is said

to enhance the natural taste of food, unlike other oils. It is also used in a variety of ways such as salad dressing and deep frying of numerous food items. The enhancement of popularity of cottonseed oil is due to its cost advantage vis-à-vis other edible oils like groundnut oil. 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 lose its 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

Table - 2 India: Production of Major Oilseeds

(Figures in 000 MT)

Oils	2014-15	2015-16	2016-17	2017-18 (P)
Groundnut	230	212	573	623
Soybean	1,138	936	1,479	1,437
Rape	1,682	1,635	1,859	1,911
Sunflower	130	112	103	116
Sesame Seed	153	119	122	106
Safflower	12	6	12	12
Cottonseed	1,344	1,162	1,234	1,380
Copra	155	165	170	180
RBO-Edible	900	930	960	1,000

cottonseed oil may be thoroughly deodorised 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 "OK" 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 a 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 smoking point make it most desirable for cooking.

Refined cottonseed oil is considered to be 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 long.

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, winterisation, hydrogenation, deodorisation 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 decades for popularisation of cottonseed oil has achieved the desired results.

This oil is most popular in states like Gujarat, Maharashtra and Andhra Pradesh. And in Gujarat, Prime Minister, Shri. Narendra Modi's motherland, the locals 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 is of cottonseed oil. According to 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 that 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 the past decade or so.

Based on welcome speech circulated at the 1st Cottonseed Oil Conclave in Ahmedabad (Gujarat State) organised jointly by the Solvent Extractors Association of India (SEA), Mumbai and All India Cottonseed Crushers' Association (Mumbai) in December, 2017.

*Courtesy : Cotton India 2018 (Domestic)
(The views expressed in this column are of the author and not that of Cotton Association of India)*

Cotton - Pride of India

Shri. Atul Asher has been Director of SICA, (now Indian Cotton Federation-ICF) since 1988 and Hon. Secretary ICF since 2014.

As a the Secretary, he has attended Cotton Advisory Board Meetings, State Cotton Council Meetings as well as Policy related Meetings of both Central and State Governments. He has been a Member of various Committees like Daily Rate Committee, By-Law Committee, Arbitration Council. He has spoken at Trade Promotion Councils and International seminars and forums like ICAC and USDA. He also addresses students and researchers on cotton related subjects.

He has 40 years of experience in cotton as a Trader

Cotton, a warm climate crop is essentially produced for its fiber which is a raw material for the production of cotton yarn in the textile industry. Cotton is a very important part of the Agrarian landscape and provides sustainable livelihood to a sizeable population in India. Cotton is cultivated in 12 million hectares in India which accounts for 33% of global area and contributes 25% of global cotton produce. Almost 5.8 million farmers cultivate cotton and 50 to 55 million people are employed directly or indirectly by the cotton industry. Government initiatives like TMC, TUF schemes have improved marketability of cotton valued @ Rs.58000 crores. These schemes helped in quality of cotton and we could earn in exports too. Import and export of cotton is under OGL. Futures are also permitted. However, the value chain of cotton right from farmer level till the end user level is beset by problems of inefficiency, wastage, contamination in the term of trash and unsustainable input such as water, pesticides, fertilizers, etc. To meet the current demand as well as demand growth in future, the value chain has to be improved. In India most of the cotton is roller ginned. However, standardisation and classing need to be done bale to bale as done in the USA.



GUEST COLUMN

Shri. Atul P. Asher
Hon. Secretary, Indian Cotton Federation,
Coimbatore

and Agent, Exporter and Importer with leading Cotton producing countries like USA, Uzbekistan, CIS countries, Egypt West Africa, East Africa and Australia. He is widely travelled and associated with various cotton related as well philanthropic, social, National and International organisations.

He is a Director in Indian Cotton Association Ltd, Bathinda & Cotton Association of India, Mumbai. He is a Member and Officer Bearer of other Associations also.

He has organized Model Cotton Farms and FLD's for cotton farmers in different states and is involve in promoting cotton related activities. He offers advisory services to textile mills and is closely linked to cotton market happenings related to cotton futures & options.

History

Since time immemorial, cotton has been an important crop in the development of civilization. It played a particularly vital role in the history of the British Empire and thus in India. When the rest of the world knew little about the cotton flower, the Indian diaspora was thriving on clothes made from its fibre. Experts guess that the cultivation of cotton dates back to 4500 B.C. and that residents of the Indus Valley Civilization were growing cotton since at least 3000 B.C.

Cotton production was 30 lakh bales in pre-independence and in 1998-99, it was 9.28 ton/ha. With a production of 165 lakh bales and yield of 302 tons/ per ha. India also produces organic cotton which is in good demand. Different shades of colour cotton is also being produced.

India is the only country which produce 0 to 120 counts with various length ranging from Short staple 20mm and below, Medium staple 20.5mm to 24.5 mm, Superior medium staple 25-27 mm, Long staple 27.5mm to 32mm, Extra Long Staple 32.5mm and above. Suvin is the longest variety 40 + mm, competing with Egyptian and US Pima.

Latest CAB estimate

State	Area		Production		Yield	
	2016-17	2017-18	2016-17	2017-18	2016-17	2017-18
Punjab	2.85	3.85	15.30	20.40	536.84	529.87
Haryana	5.70	6.56	34.85	42.50	611.40	647.87
Rajasthan	4.71	5.03	28.05	37.40	595.54	743.54
Total North Zone	13.26	15.44	78.20	100.30	589.74	649.61
Gujarat	24.05	26.18	161.50	176.80	671.52	675.32
Maharashtra	38.00	41.98	150.45	144.50	395.92	344.21
Madhya Pradesh	5.99	5.99	34.85	34.00	581.80	567.61
Total Central Zone	68.04	74.15	346.80	355.30	509.70	479.16
Telangana	14.09	18.24	81.60	96.90	579.13	631.25
Andhra Pradesh	4.71	5.44	32.30	37.40	685.77	687.50
Karnataka	5.07	5.65	30.60	32.30	603.55	571.68
Tamil Nadu	1.42	1.48	8.50	10.20	598.59	689.19
Total South Zone	25.29	30.81	153.00	176.80	604.98	573.84
Odisha	1.36	1.45	5.10	5.10	375.00	351.72
Others	0.50	0.50	3.40	3.40	680.00	680.00
All-India	108.45	122.35	586.50	640.90	540.80	523.83

BT was introduced in 2002-03. Both import and export of cotton is under OGL to facilitate cotton consuming mills to choose their requirements. Cotton marketing is done by Government Federations, Regulated Markets and private agencies. Technology Mission was introduced in 1998-99 to improve the cotton practices and encourage modernisation. Government has planned for TMC-II to further strengthen the cotton economy.

Present

Today India is the largest producer of cotton with the highest acreage. Our yield is around 550 kgs. per ha which is less than the global average of 795 kgs. per ha. We produce around 380 lakh bales with 12 million lakh hectares. We have around 4000 ginning and pressing factories, ranging in size from small to large as well as around 900 TMC rated factories. Farmers can market their seed cotton through Regulated Markets, CCI and State Marketing Federations and private agencies.

Transportation is done by road and sea routes. After ginning and pressing the cotton is marketed to mills through traders and brokers.

Future

The textile industry has to grow on an average 20% in value tons to \$650 billion by 2024-25 to

achieve 10% of global textile trades. This need a work force of 35 million and more than 600 million bales of cotton. We have no dearth of cultivable area, which is now 180 million ha and we have waste land too.

The Central Government has taken it upon itself to double the income of farmers. It has waived off the farmers' loans to a large extent. The MSP has been made 1.5% of the cost of cultivation. Drip and sprinkler irrigation is being introduced. Solar power, availability of quality seeds, soil health analysis, pest management, nutrition management, introduction of implements for sowing, weeding, picking, etc. are some of the measures being considered to improve farmers' lives.

Hopefully all these measures will enable us to meet the growing demand for quality cotton. We are also net importer of ELS cotton as there is a growing demand for ELS lots from domestic textile mills.

Courtesy : Cotton India 2018 (Domestic)

(The views expressed in this column are of the author and not that of Cotton Association of India)



Since 1921,
we are dedicated to the cause of Indian cotton.
 Just one of the reasons, you should use our Laboratory Testing Services.

The Cotton Association of India (CAI) is respected as the chief trade body in the hierarchy of the Indian cotton economy. Since its origin in 1921, CAI's contribution has been unparalleled in the development of cotton across India.

The CAI is setting benchmarks across a wide spectrum of services targeting the entire cotton value chain. These range from research and development at the grass root level to education, providing an arbitration mechanism, maintaining Indian cotton grade standards, issuing Certificates of Origin to collecting and disseminating statistics and information. Moreover, CAI is an autonomous organization portraying professionalism and reliability in cotton testing.

The CAI's network of independent cotton testing & research laboratories are strategically spread across major cotton centres in India and are equipped with:

- State-of-the-art technology & world-class Premier and MAG cotton testing machines
- HVI test mode with trash% tested gravimetrically

LABORATORY LOCATIONS

Current locations : • Maharashtra : Mumbai; Yavatmal; Aurangabad • Gujarat : Rajkot; Kadi; Ahmedabad • Andhra Pradesh : Adoni
 • Madhya Pradesh : Khargone • Karnataka : Hubli • Punjab : Bathinda • Telangana: Warangal, Adilabad

UPCOMING LOCATIONS

• Telangana: Mahbubnagar



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UPCOUNTRY SPOT RATES (Rs./Qtl)												
Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [By law 66 (A) (a) (4)]							Spot Rate (Upcountry) 2018-19 Crop April 2019					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Strength /GPI	22nd	23rd	24th	25th	26th	27th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0-7.0	15	11923 (42400)	11923 (42400)	11923 (42400)	11923 (42400)	11923 (42400)	11923 (42400)
2	P/H/R	ICS-201	Fine	Below 22mm	5.0-7.0	15	12063 (42900)	12063 (42900)	12063 (42900)	12063 (42900)	12063 (42900)	12063 (42900)
3	GUJ	ICS-102	Fine	22mm	4.0-6.0	20	10208 (36300)	10264 (36500)	10208 (36300)	10208 (36300)	10151 (36100)	10123 (36000)
4	KAR	ICS-103	Fine	23mm	4.0-5.5	21	11473 (40800)	11501 (40900)	11473 (40800)	11473 (40800)	11445 (40700)	11417 (40600)
5	M/M	ICS-104	Fine	24mm	4.0-5.0	23	11923 (42400)	11951 (42500)	11951 (42500)	11951 (42500)	11923 (42400)	11895 (42300)
6	P/H/R	ICS-202	Fine	26mm	3.5-4.9	26	13160 (46800)	13160 (46800)	13160 (46800)	13160 (46800)	13244 (47100)	13244 (47100)
7	M/M/A	ICS-105	Fine	26mm	3.0-3.4	25	11670 (41500)	11670 (41500)	11670 (41500)	11670 (41500)	11642 (41400)	11614 (41300)
8	M/M/A	ICS-105	Fine	26mm	3.5-4.9	25	12035 (42800)	12035 (42800)	12035 (42800)	12035 (42800)	11979 (42600)	11951 (42500)
9	P/H/R	ICS-105	Fine	27mm	3.5-4.9	26	13413 (47700)	13413 (47700)	13357 (47500)	13329 (47400)	13385 (47600)	13385 (47600)
10	M/M/A	ICS-105	Fine	27mm	3.0-3.4	26	11951 (42500)	11951 (42500)	11951 (42500)	11951 (42500)	11923 (42400)	11895 (42300)
11	M/M/A	ICS-105	Fine	27mm	3.5-4.9	26	12317 (43800)	12317 (43800)	12317 (43800)	12317 (43800)	12260 (43600)	12232 (43500)
12	P/H/R	ICS-105	Fine	28mm	3.5-4.9	27	13469 (47900)	13469 (47900)	13413 (47700)	13357 (47500)	13413 (47700)	13413 (47700)
13	M/M/A	ICS-105	Fine	28mm	3.5-4.9	27	12710 (45200)	12710 (45200)	12710 (45200)	12682 (45100)	12738 (45300)	12710 (45200)
14	GUJ	ICS-105	Fine	28mm	3.5-4.9	27	12823 (45600)	12851 (45700)	12823 (45600)	12766 (45400)	12795 (45500)	12795 (45500)
15	M/M/A/K	ICS-105	Fine	29mm	3.5-4.9	28	13020 (46300)	13020 (46300)	12991 (46200)	12963 (46100)	12991 (46200)	12991 (46200)
16	GUJ	ICS-105	Fine	29mm	3.5-4.9	28	13048 (46400)	13104 (46600)	13048 (46400)	12991 (46200)	13020 (46300)	13020 (46300)
17	M/M/A/K	ICS-105	Fine	30mm	3.5-4.9	29	13273 (47200)	13329 (47400)	13357 (47500)	13357 (47500)	13357 (47500)	13357 (47500)
18	M/M/A/K/T/O	ICS-105	Fine	31mm	3.5-4.9	30	13469 (47900)	13526 (48100)	13554 (48200)	13554 (48200)	13554 (48200)	13554 (48200)
19	A/K/T/O	ICS-106	Fine	32mm	3.5-4.9	31	13723 (48800)	13779 (49000)	13835 (49200)	13835 (49200)	13835 (49200)	13835 (49200)
20	M(P)/K/T	ICS-107	Fine	34mm	3.0-3.8	33	15607 (55500)	15607 (55500)	15607 (55500)	15607 (55500)	15607 (55500)	15607 (55500)

(Note: Figures in bracket indicate prices in Rs./Candy)