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Dear Readers,

Greetings and best wishes from sesameinformation.com!



We are happy to present to you the World Sesame Handbook 2019 (WSH2019) at the inaugural edition of the World Sesame Convention 2019. The WSH2019 is a modest beginning from our side to compile and present to you the information on sesame crop-production, processing, cross-border trade and consumption trends of leading countries. Given the short time, we have covered only major origins in this edition. At this juncture, I place on record our sincere thanks to all the experts who have spared their valuable time and have readily shared their insights on the sesame market.

Like-wise, I also thank all the sponsors and patrons of the WSH2019 for providing us the financial support to complete the project on time and help to reach out to all those who are in need of such information on sesame seed.

At this juncture, I would like to share with you that www.sesameinformation.com is bringing out fortnightly market intelligence. The Fortnightly, reviews global sesame market scenario and also provides important clues in terms of where the market is headed. It would be a value-added information for sesame market participants.

Making authentic information on markets available and accessible to the market participants is one of our objectives. We truly believe that empowering the market participants with information would make the market more organised, reduce risks and increase investment flows from organised sector such as banks and financial institutions. We are open to talking to organisations and individuals who share this vision to explore mutually synergistic opportunities. Please do write to us at gsv@fbspl.com

Last, I thank the team at Foretell for working on this project at short notice and ensuring timely completion. Hope you as readers like the WSH2019.

Best wishes and good luck

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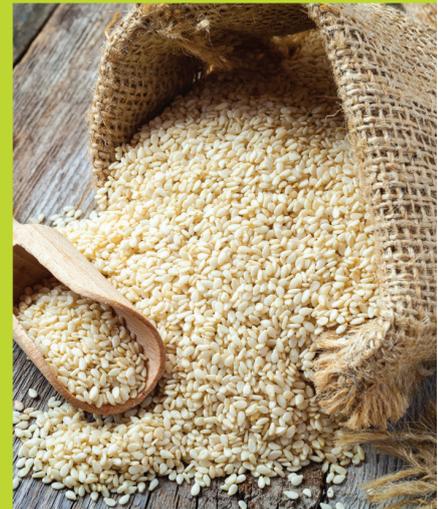


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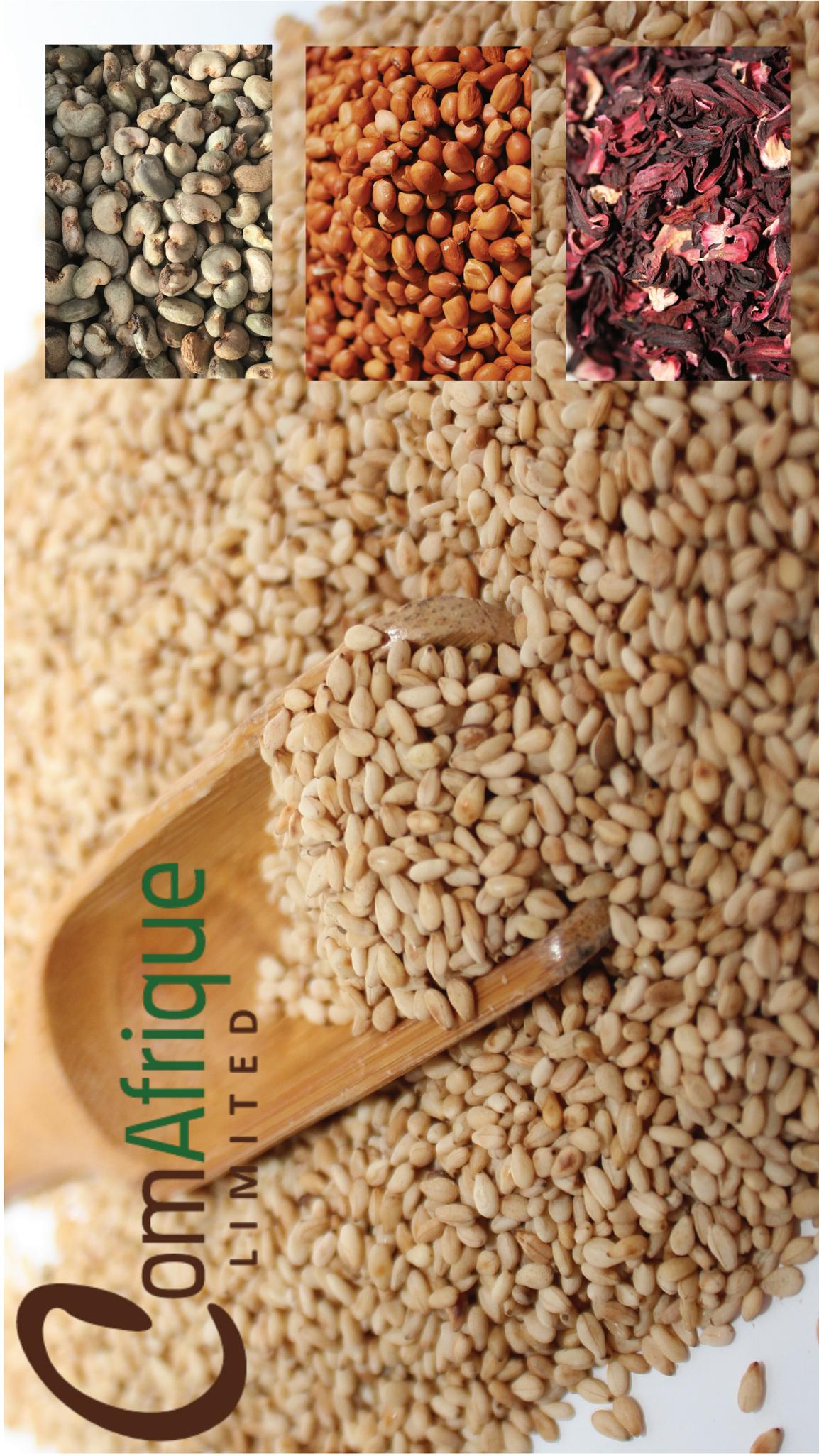
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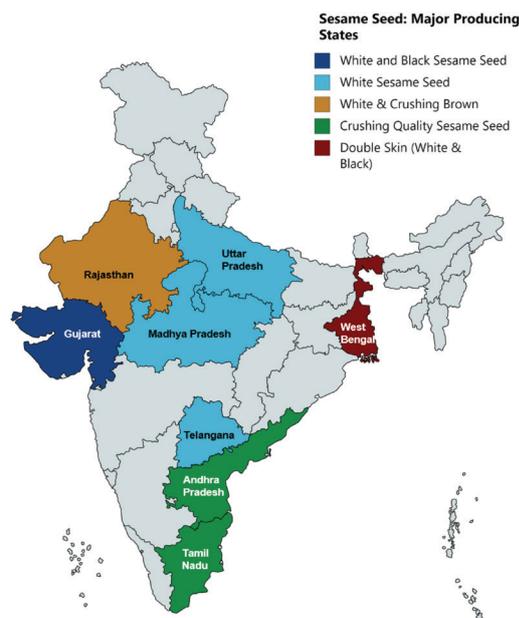
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Indian Sesame Production, Processing and Export Trends

Kishor Bheda, Partner, Bheda Brothers



Major sesame seed producing states are:



The sesame harvest chart in chronological order (September/October onwards) is as follows:

State	Location in India	Harvest Period	Quality Harvested
Gujarat	Western India	Sept/Oct	Edible White, Black, Yellow
Rajasthan	Western India	Oct/Nov	Edible White and Brown/Black (crushing)
Madhya Pradesh (MP)	Central India	Oct/Nov	Edible White
Uttar Pradesh (UP)	North-Central India	Oct/Nov	Edible White
Telangana	Southern India	March/April	Edible White
Tamil Nadu	Southern India	March/April	Brown (crushing)
Andhra Pradesh (AP)	Southern India	April/May	Brown (crushing)
Gujarat	Western India	May	Edible White Edible Black
West Bengal	Eastern India	May/June	Double Skin Brown, Double Skin Black

India has had a long connect with sesame seed dating several thousand years. The first recorded evidence of sesame cultivation was found in the Harappa civilization of the Indus valley about 3,500 years ago. Historically, sesame was used for religious ceremonies, medicinal purposes (applications can be found in the ancient medical science of Ayurveda), and in food preparations. While some of these applications continue, the production and usage of sesame have undergone a sea change with the evolution of time.

Production of Sesame Seed

Today, India is one of the largest producers of sesame seed, growing different varieties of sesame in regions spanning from the western to the eastern states, and from the southern to the north-central states of the country. Due to varying soil and climatic conditions, sesame is harvested in different regions at different times, beginning from September/October until May/June of each year.

A major shortcoming of the Indian sesame seed crop is its low yield due to poor farming practices, small farm holdings and over-reliance on monsoon patterns. Yields of the non-irrigated crop usually vary from a low of 150 Kgs to about 450 kgs per hectare. In sharp contrast, the yield for the irrigated summer crop in Gujarat (harvested in May) with better farming care is more than 1,000 kgs per hectare.

Sub-standard yields resulting in poor remuneration to farmers are unlikely to lead to any appreciable acreage expansion going forward. At the same time, there is a good scope for yield betterment through improved farming practices.

In the last few years, the total production of sesame seed in India has varied between 650,000 and 725,000 MT with an approximate quantity of each variety as follows:

Edible White	350,000 - 400,000 MT
Edible Black	15,000 – 25,000MT
Yellow	3,000 MT
Brown/Black (Crushing)	50,000-65,000MT
Double Skin (White/ Black)	250,000 MT

Processing of Sesame Seed

Until 1987/88, India's export policy was sporadic, permitting exports at the time of surplus and restricting the same when crops were small. At that time, oilseeds were also part of the Essential Commodities Act, inviting rigid storage controls and financial restrictions. Therefore, India had virtually no exposure to the international sesame trade and its domestic sesame industry was antique and inward-looking.

The Indian economy started opening up beginning 1987/88, and exports also opened up with a clear commitment towards continuity of export policy irrespective of crop size.

As the Indian industry started aligning with buyers' needs, challenges cropped up in relation to the modernization of technology, improvement of hygiene standards, food safety, and installation of higher capacities. These were successfully met over the next twenty years; the

Indian sesame processing industry today comprises of over 100 cleaning and grading factories equipped with modern colour sorting machines, 40-50 hulling factories with mechanical drying machines, multiple roasting factories, and oil extracting companies. All factories are well equipped to handle seed from raw farm produce to exportable cargoes. Shipments of high purity, uniform coloured seeds have now become a norm.

Exporters enjoy high shipment flexibilities due to the presence of several ocean ports, inland container depots, good road connectivity and major shipping lines. These allow a high degree of shipment reliability and cost effectiveness.

Domestic Consumption

India consumes about 115,000 MT of edible white and hulled sesame seed for domestic use. The Indian domestic market is price sensitive and at reasonable prices can grow at 10 percent a year. Peak consumption season is in winter months - November through mid-January. Several delicacies are made, popular among which are :



Domestic crushing for oil: Besides the above, about 50,000 MT of brown/black seed and 100,000 MT of double-skinned brown seed are crushed for sesame oil.

Import of Sesame Seed

Since 2012/2013, the import of sesame seed has been permitted on a duty-free basis against export obligations

for hulled sesame seed. This initiative has helped Indian exporters augment any short domestic supply to meet international demand for hulled seed at competitive prices. Exporters normally look at seed available at about 15-20 percent below Indian edible white prices. Import quantity has varied from year to year based on the Indian supply situation and relative prices of different origins.

Sesame Seed: Import Quantities

	April'19	Apr-March 2018/19	Apr-March 2017/18	Apr-March 2016/17	Apr-March 2015/16	Apr-March 2014/15	Apr-March 2013/14
MTons	21,812	87,538	26,270	69,028	23,597	34,768	73,000

Source: DGCIS, India

Export Trends

The export of sesame seed that started primarily as natural white sesame seed has gradually shifted to hulled sesame seed. Over the last few years, India's sesame export has lost its sheen due to various challenges, with export volume stagnating at about 300,000 - 350,000 MT. With the expansion of sesame production in Africa over the last decade, India has lost the leadership position that it once enjoyed in the international sesame trade.

Different sesame seed grades being exported from India are

Sesame seed Grades -Export Quantities	MT
Natural White	80,000 - 100,000
Hulled	185,000 - 200,000
Crushing	25,000 - 30,000
Black	5,000 - 7,000
Yellowish	500 - 700
Sesame seed oil export	7,500 to 9,000 MTons

All types of sesame seed are exported under the same HS Code hence the break-up on the basis of grades is based on the trade assessment

While India continues to dominate hulled sesame seed exports, its undisputed position has been threatened by new processing capacities coming up in Nigeria, Sudan, and Pakistan.

Additionally, serious challenges are being faced due to un-favourable tariffs which have cut-off Indian exports to major buying countries. For example, China, the world's largest sesame importer, has a preferential treaty with African countries (Ethiopia, Sudan, Niger, Togo, Mali, Uganda, Tanzania, and Mozambique) putting Indian

exports at a disadvantage by nine percent in value terms. Similarly, Turkey has a high import duty of 10 percent on hulled seed as compared to none for natural seed. This is discouraging exports of Indian hulled seed to the Turkish market.

What Next?

Significant resources have been invested in the Indian sesame industry over the past 20 years. India needs to be innovative to protect and expand its market share. While there are no easy answers, India can regain the glory as it did by increasing exports from 60,000 MT in the early 1990s to 300,000 MT in recent years. There is scope for improvement of yields by adopting better farming practices leading to export competitive prices. There are better quality seeds such as high lignan, that need to be developed and cultivated. On the value addition front, not much has been explored beyond hulled sesame seed. As the world consumes more of Tahini, it is time for Indian exporters to seriously consider this opportunity.

Profile

Kishor Bheda is a Partner at Bheda Brothers, a company involved in the processing and export/import of Sesame seed, Peanuts, Spices, Pulses & Lentils. Mr. Bheda possesses rich experience in the sesame industry, spanning over thirty years. He has served as the Chairman of the Indian Oilseeds & Produce Exporters Association (now IOPEPC) between 2001/03 and has led official delegations to Japan and Vietnam. He currently serves as a special invitee on the IOPEPC board. Contact: bheda@mtnl.net.in

Sesame Seeds – Turkey: Transforming Tradition into Nutrition

Hakan Bahceci, Chairman & Group CEO, Hakan Agro DMCC



Sesame seeds have been a tradition of a typical Anatolian Cuisine for thousands of years, used mainly as a cheap energy booster for the middle class. Halva which is 50 percent tahini (sesame paste) and 50 percent sugar and other additives is put placed inside a hot bread and consumed like a burger.

The increasing price from USD 500-600 level to 1500 levels after Chinese becoming a net importer of sesame, made it far too expensive for the middle class to afford it.

Turkey used to be a self-sufficient producer and consumer of sesame seeds up until mid-80's; however, turned into a net importer starting early 1990's importing 30-40,000 MT initially has consistently increased the demand now close to 160,000 MT just on imports.

However, Turkey does produce the best quality of “golden sesame” on the south west coastal of Koycegiz and Fethiye and export the same to mainly Japan at almost the twice value of imported sesame seeds.

Starting from 2000's, Turkey has successfully transformed this traditional, small business into a huge industry on bakery ingredients and nutrition value addition.

Simit (Turkish Sesame Bagel) is produced by in stone oven of bakery and sold as a street food for ages. Simit is not only consumed by poor or middle class but also consumed by rich class as well. This is the only product that is consumed by the poor and the rich of the country.



Due to the fact that simit is consumed every day, every 24 hours and by millions of people, initially supplied as street food, triggered some entrepreneurs to successfully penetrate the market creating a value chain and chain of cafes, franchises offering consumers very hygiene and tasty products with lots of options. Companies like Simit

Sarayi are the pioneer of such initiation today have over millions of clients.

Close to 10,000 employees, overseas branches in North America, Europe to Middle East aim to create a 34,000+1 chain store crossing McDonald's 34,000 stores.

Humus story: Replacing the dip with health choice
History tells us that the earliest known recipes for "humus bi tahini" are recorded in 13th century cookbooks. Humus is a popular dish in Middle East, North Africa and the Mediterranean. Humus is becoming more popular in the western world. Sabra, for example, is a well-known Middle Eastern style food product company that produces over 14 different hummus flavours. The company has been very successful in promoting this product as a healthier dip sauce.

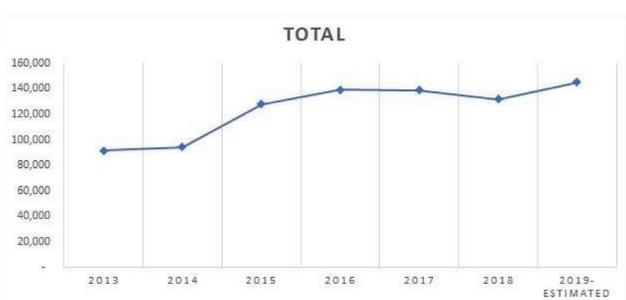
This gluten-free, nut-free and dairy free spread pairs perfectly with snacks such as wheat thins, pretzels, carrots, celery, and pita bread and pita chips.

This new trend of healthy foods, healthy snacks especially in the West increased the demand for chickpeas and tahini (sesame seeds).

The whole sesame industry benefited from the trend so did some successful Turkish companies setting up production in the states, some increased their production capacity in Turkey to cater this increasing demand.

Despite exports of sesame products, the majority of the consumption still remains within the country and have directly impacted by the volatility of the currency.

The devaluation of August 18 had a direct impact on import volume despite a steep reduction of import duty. Below chart demonstrates the Turkish imports over the years.



(Turkish customs data)

Turkey shall continue to remain world third largest importer of sesame seeds after China and Japan, might eventually surpass Japan's never changing import quantity.

The application of sesame seeds will continue to increase on bakery ingredients but also on many other healthier spread options that will consistently grow with Turkish consumers.

Turkey's 82 million population, majority between 18-35 years old offers unique opportunities for the industry and the first global conference on sesame seeds "World Sesame Convention" that shall be held between 18 and 20 August 2019, offers an ideal platform to our industry members.

I congratulate the organizers for their choice of venue and the fantastic content of the convention and I look forward to meeting you all in beautiful city of Istanbul.

Profile

Mr. Hakan Bahceci is the Chairman & Group CEO of Hakan Agro DMCC, a multinational agri-soft commodities supply company based in Dubai, UAE with 26 offices and processing facilities in 24 countries. Mr. Hakan has over 25 years' of experience in global agri-soft commodities supply chain management.

Mr. Hakan notably served as a Board Member of GAFTA (Grain And Feed Trade Association); President of Global Pulse Confederation (CICILS IPTIC) between 2011-2015, as President of International Agri Food Network and as Chairperson of the Private Sector Mechanism at the UN Committee on World Food Security. He also was the Chairman of the Turkish Business Council in Dubai from 2011 till 2017.

Mr. Hakan holds a Bachelor's degree in English Literature and an MBA from Wollongong University, Australia.

Global Sesame Scenario

Tarun Chawla, Business Head, Export Trading Group

Supply:

Global Trade in - "1000 MT"						
Origins/Year	2013-14	2014-15	2015-16	2016-17	2017-18	Est 2018-19
India	300	331	323	292	278	250
Ethiopia	291	284	424	290	320	250
Sudan	107	190	170	292	385	280
Nigeria	182	220	272	277	265	280
West Africa/Burkina	127	185	200	126	120	195
Uganda	40	39	30	16	20	25
Tanzania	115	134	140	95	75	140
Mozambique	54	51	47	47	65	60
China	38	32	24	35	32	35
Total Global Trade	1,254	1,466	1,630	1,470	1,560	1,515

Global trade (Major origins) is likely to be 1.5-1.55 million tons in 2018/19. There is an additional 200,000 MT of the trade from other Sesame growing countries. In the MY 15-16, supply ballooned owing to Ethiopia and West Africa. In the ongoing marketing year India and Ethiopia exports are likely to shrink and Southern hemisphere exports likely to be 200,000 MT. Apart from the above major origins, Somalia crop is now approximately 40,000 MT and the exports to India, Middle East and Japan have increased in the last two years.

If we list the factors influencing global sesame acreages, the African dynamics are different from the Asian factors. Farmers have few alternative crop options owing to lack of infrastructure and Government policies. In the last few years' supply has been primarily influenced by weather anomalies and not much due to farm returns.

Demand:

China: Price maker in Sesame world.

Origins	2,014	2,015	2,016	2,017	2,018
Ethiopia	174,009	187,228	300,965	209,528	160,945
Sudan	47,946	92,629	114,551	181,633	254,935
Niger/Nigeria	20,214	90,334	131,629	105,908	144,017
Bukina,Mali & Togo	74,590	183,339	185,657	72,427	118,987
Tanzania	84,062	106,306	107,895	69,135	57,750
Mozambique	48,550	47,702	34,536	35,093	52,617
Uganda	33,785	34,060	12,179	7,061	13,558
Others	85,761	64,328	45,727	32,138	24,782
Total Imports	568,916	805,927	933,139	712,925	827,591

China's Estimated SND

Supply	
Carry in	70,000
Imports	8,00,000
Local Crop	2,50,000
Border Trade	1,40,000
Total Supply	12,60,000
Demand	
RM for Hulling	4,25,000
RM for Crush	4,75,000
RM for Edible	1,25,000
RM for Paste & Others	1,30,000
RM for Exports	35,000
Total Demand	11,90,000
Carry Out/Ending Stocks	70,000



China is the largest consumer of the Sesame in the world with the total demand estimated to be 1.2 million tons. Out of which almost 800,000 MT is imported through main ports, the local crop is almost 250,000 MT and border trade also adds to the supply. So far SPT/DFT benefit is driving the total imports from African countries.

China is the biggest and one of the most stable sesame oil markets with market size of 240,000 to 260,000 MT. Industry projects a steady three percent CAGR for the next five years. (300,000+ by 2021)

The industry believes that China has overcapacity for both Hulled and Edible Sesame seeds. In the last few years, environmental norms made it difficult for aqua hullers and in these changing dynamics, edible demand grew in China, but overall the consumption has been stable.

Rest of the World:

Country	Est Demand
Japan	155,000
Middle East	140,000
Turkey	140,000
Israel	70,000
EU	120,000
Vietnam	60,000
S.E Asia	45,000
Korea	75,000
Others	105,000
ROW Total	910,000

Japan: Japanese market follows a sustainable supply model and does not rely on a few major origins. Estimated import quantity of 150,000-160,000 MT/Annum. The breakup of 150,000 is Crush grade 65 percent and Edible 35 percent. There is a decrease in the edible grade imports from Middle/South America and an increase in African Edible grade. Sesame Oil is an inelastic demand, showing signs of growth with major crushers expanding capacity.

Korea: Sesame is a restricted commodity in Korea. The total quantity of Sesame Seeds imported into Korea is roughly about 75,000-80,000 MT. State tender contributes to 36,000 to 40,000 MT/Year and the rest is under a Private quota. Since 2016, 24,000 MT is under China FTA. Africa's share has increased steadily in Korea Market. Also, Sesame powder trade flow from Vietnam continues to grow in Korea.

Turkey: Sesame is an important ingredient for the culinary customs in Turkey. The total quantity of Sesame Seeds imported into Turkey ranges from 130,000 to 145,000 MT. Dependence on Nigeria is more than 50 percent owing to a mix of cost advantage and preference.

Middle East region largely imports from Sudan, India and Ethiopia. Europe largely imports from India, but in the last few years, Africa Hulled market share has steadily increased.

Overall, the rest of the world combined imports from all Sesame growing origins does not exceed one million metric tons.

Open Sesame - Africa's Growth Engine

Sanjeev Sharma, Senior Vice President & BU Head –
Sesame & Super Foods, Olam International



Sesame is one of the oldest crops known to mankind. The tiny seed, first used in the Middle East in 2000BC, also commands a billion-dollar export revenue for Africa. China used to be the world's biggest exporter of sesame, but now the country's farming habits have changed – and Africa is filling the void. The continent's production of sesame seeds is rocketing, with some countries experiencing up to 20% growth

Sesame is used in various forms, the most common being toppings on burger buns and bakery products. Many traditional Asian dishes have sesame as an important ingredient, while sesame oil is used as a garnish in various eastern dishes and for frying Japanese dishes such as tempura. It also has the highest oil content among all oil seeds.

The farming landscape in Africa

Many of Africa's farmers are smallholders, often farming between one and three hectares of land with limited technical assistance. Typically, a smallholder might choose between cotton, sorghum, maize, groundnuts and sesame. The farmer's choices are governed by how much money they can make from their limited resources. If they have enough land and resources, they could grow more than one crop.

Why grow sesame

Sesame is a tough crop, growing in areas where most other crops would find it hard to flourish. It is a 90- to 120-day annual crop that grows best in dry conditions, so it does not suffer in draught.

At sowing stage, sesame needs good moisture in the soil, followed by a rainfall of 30-50cm during the first 60 days to reach a good yield. Towards the later stages of plant growth, rainfall is not good for yield. However, the yield per hectare for sesame is low, usually ranging between 150 and 350kg.

Surprisingly, the crop output does not increase significantly with the application of fertilisers. Half a crop can be lost by mechanised harvesting, so the sesame seeds are collected manually. This means a farmer needs a worker threshing the crop with a machete. Given this, labour costs are an important consideration as to where one would set up a sesame production unit.

For a farmer with enough low-cost hands for the harvest and enough land to take care of lower yields, sesame can be a very good option.

Advantage Africa

The constraints of large farmland and high manpower requirements give an edge to African farmers. The only place in the world where arable land and manpower is available for expansion is in Africa. While large agricultural producers like Argentina and Brazil have attempted industrial-scale sesame production, they haven't had the success that African growers have.

African production has grown at a compound annual growth rate (CAGR) of 9.5 percent over the last eight years. During the same period, global consumption has increased by 2 percent.

Growing consumer demand and reduced domestic production made China – the world's biggest exporter in 2005 – the biggest importer of sesame seeds in 2011. The land usage and changing priorities of Chinese farmers have led to this change, and the African farmer has picked up where the Chinese farmer left off. Had this not happened, sesame would have become a very expensive delicacy.

Unlocking mutual value

Commercial opportunities could not have been possible without the companies who worked closely with both farmers and end users to increase volumes for customers. Olam is one contributor in this success story. We ran campaigns educating farmers on how to grow sesame and preserve the quality in the limited infrastructure of Africa and hosted training programs using model farms. This 'Train the Trainer' programme helped some of the countries achieve a CAGR as high as 20 percent.

While the production of traditional sesame growers like Ethiopia and Sudan also increased, the major growth came from other countries – Nigeria, Burkina Faso, Mali, Tanzania and Mozambique, where the production has grown up to four times in eight years. Sudan is the largest producer of sesame in Africa, with more than 2.1 million hectares of production area.

Apart from providing liquidity to farmers in the form of working capital, Olam also set them up with end-users who were looking for reliable suppliers.

There are many crops helping to grow Africa bit by bit and the role of sesame is clear. There are challenges – but there are also opportunities. One day all these will add up and for Africa the magic words will be, "Open Sesame".

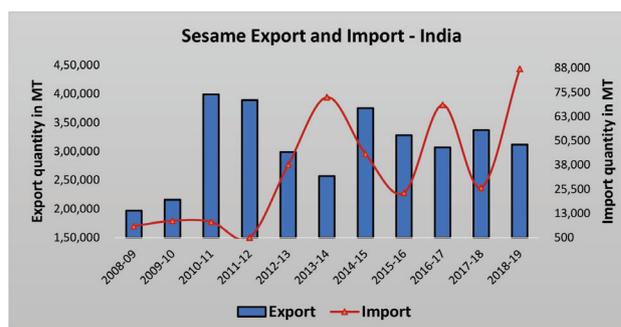
Profile

I am responsible for the Global sesame seeds business of Olam spread across various markets and origins. I am working with Olam, Singapore since September 2009. As a head of this business I am responsible for Top line & bottom line of P&L (and everything in between). Supported by a team of highly qualified and experienced professionals I have to keep driving business to next level of performance, this requires a constant hunt for opportunities, finding a suitable fit of opportunities with our strength, devising a strategy to capitalise on that opportunity and finally getting it executed to perfection. I have steered this business to leadership position in various highly attractive Niches!

Superfoods is another interesting area. With changing diet preferences, the demand for Superfoods (densely packed in nutrients) is increasing and that increases the scope of business expansion.

Sesame Export Trends, Processing Growth and Food Safety in India

Mukul Gupta, CEO & Director – Shakumbhri Expo Impo Ltd



The Indian hulling industry thus is always on a look out for the cheapest raw material globally. I have a feeling this trend will continue and India will import bigger quantities as the domestic consumption increases or if local production reduces even marginally. This also creates a challenge to capacity buildups in producing nations as they have to compete with India for the cheaper grade sesame.

Indian exports now, are 100% value added or processed. Even the basic 99/1/1 grade goes through a processing line for grading and cleaning.

The growth of Indian hulling industry

In India, the Hulling Industry has been in existence since forever but after liberalization of Indian economy in 1990's newer and bigger factories started to come up for exports. The real expansion started around 2002-2003 when China slowly started to convert itself into a consuming nation from an exporting one. India saw the opportunity of being the principal supplier to the growing demand of the world.

From about 4-5 true exporting units (which had Cleaning/Hulling/Sorting machines) with limited capacity in early 2000's, we have now developed into a nation of about

The Indian Sesame Industry has been a very consistent exporter barring one season, since 2010-11 when the country's exports having crossed the threshold of 300,000 tons.

The consistency shown in exports is phenomenal despite the fact that we have lost a lot of market share of Natural Sesame Exports and in recent past faced stiff competition in Hulled from African origins as well.

From the below chart, it is clear that Indian imports have risen drastically over the past few years even though the export numbers are constant, this could be attributed due to a significant growth in domestic demand and static or poor crop growth rate. We now heavily rely on imports to sustain our exports, which again is mainly Hulled.

30-35 units with average capacities over 35-40 MT per day. That's about 1000 MT on a daily basis and over 300,000 MT installed capacity for Hulling alone annually. An industry with large size and scale always find ways to survive and flourish despite all obstacles.

Classification

Indian Hulling units can be classified into 3 categories

- 1- EU compliant which have all necessary certifications such as HACCP, BRC, IFS SEDEX etc. These units process and export directly and also import when need arises and when import prices are attractive.
- 2- Basic units which process only local raw material and are serving the merchant exporters who then re clean/repack the cargo for exports.
- 3- Units which process only for domestic demand periodically or process Bengal Double Skins cargo which is also being exported to certain destinations.
- I specifically mention Bengal Double Skin as this quality now has a parallel market which is oblivious to the global prices and trade volumes which were traditionally taken into consideration of global Hulled supply. Bengal Hulled is a reality and is here to stay. Comparing crudely, it is like the Street Food, its cheap so it moves faster but it's not for everyone.

Usage of Sesame seeds

- As of now food industry dominates the sesame seeds market. Growing acceptance of sesame seed-based sauces, marinades, and seasonings in developed/developing economies owing to penetration of Chinese- Arab-African food culture on a domestic level is expected to contribute significant growth.
- Pharmaceutical is expected to emerge as a prominent application in the market. Sesame seeds are natural laxatives that are useful for treating diseases including, constipation and digestive problems.
- Sesamin is a lignin extracted from sesame oil. It has been used as a dietary fat-reduction supplement, one of the two highest sources of lignin's in the human diet (the other being flax seed). Sesamin could be the next big thing which could change Sesame industry in

the coming years as there is little or no competition with unmatched potential of being a mass product.

- Medical tourism is on a rise and use of Sesame oil is bound to pick up too as medicinal.

Food Safety

- The new Age Agri Business are "Farm to Fork" or "Soil to Stomach" personified. That means we have to know what our farmers grow, how they grow it, how it's being processed and what the final end use of that product will be. We must know what Quality suits best for which destinations and have a basket of product range to suit all needs.
- Food Safety in terms of pesticides and microbiological limits remain a challenge for the industry with norms getting tighter by the year and rising consumer awareness.
- **I. Contaminants:** To avoid negative impact on the quality of food and risks to human health, countries have set limits for several contaminants as heavy metals, mycotoxins and cross contaminations. We must get awareness about these.
- **II. Labelling:** Food placed on the market must conform to the many legislations with regards to food labelling. Wrong declarations can cost a fortune these days.
- **III. Traceability:** Although it is difficult but we must work towards proper traceability systems, this specially helps us identify the Pesticide residue problems to a large extent.
- **IV. Food safety certification:** Many buyers now require standards which go beyond HACCP. These include BRC, IFS, ISO22000, GMP+ and SEDEX etc. Sooner or later we must invest in these.
- **V. Social compliance and sustainability:** Social compliance is a continuous process in which organizations endeavour to protect the health, safety, and rights of their employees, the community and environment in which they operate, and the lives and communities of workers in their supply and distribution chains. Apart from the CAPEX, it is imperative that we invest in human resources too for

long term sustainability.

- **VI. Fairtrade:** Fair trade is an institutional arrangement designed to help producers in developing countries achieve better trading conditions. Farmers must be shielded and given a fair price for their produce as well.

Challenges and way forward

- **Environmental impact:** - Hulling industry which uses a lot of water and energy in future might need to invest more in conservation which can push up prices.
- **Finance:** - Now being an expensive commodity, it is imperative that we find bigger pools of finances to sustain the growth.
- **Stagnated growth:** - In developed nations such as the USA, the EU, Japan etc., the growth has practically stagnated which is a concern.
- **Carry-overs:-** In the last few years, we have seen carryover stocks worldwide reach all time low. Unless every producing nation has a good harvest in a cyclic year these will be hard to fill again which means markets will continue to have dramatic up's and down's which is not good for trade.
- Finally, to conclude, we failed to market Sesame as real health food or a niche product, while other fancy

seeds like Chia, Quinoa etc have been marketed well and have managed to catch the attention of consumers.

- The other oilseed which competes Sesame in usage (i.e., Raw, Oil, Paste) is Mustard where we have Dijon Mustard like product which fetches not just a premium but has commercialized Mustard Sauce worldwide. Tahina despite being a far superior product still has limited reach and usage. As vegan diet gets popular, I hope that more growth is achievable.

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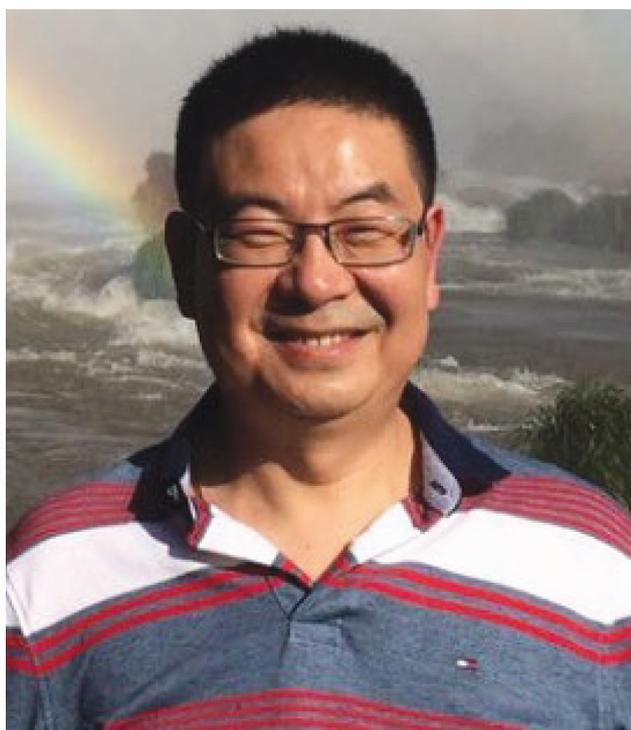
Profile

Mr Mukul Gupta is an experienced Director of a Limited company with a demonstrated history of working in the food production industry. Skilled in Fast-Moving Consumer Goods (FMCG), Business Planning, Business Development, Business Strategy, and Change Management. Core strengths being Production and QC related with special focus on Food Safety standards. Strong business development professional graduated from S D Management. MBA from Punjab Technical University.

His blog on Sesame Seed Market report is probably the most read blog on Sesame news and trends.

A Historical Perspective of Chinese Sesame Market Evolved Over the Years and Their Consumption Pattern

Zhang Wenxin, General manager, Henan Yixin Industry Co. Ltd



In China, sesame has been cultivated and eaten for more than 2,000 years and is also one of the main traditional oil crops. After reforms and markets opening up, China quickly became one of the world's largest countries for sesame cultivation, consumption and trade.

In the 1980s and 1990s, China was the world's largest producer and exporter of sesame, with annual output of more than 800,000 tons, accounting for nearly 30 percent of the global production. It has an export volume of 160,000 tons, accounting for about 20 percent of the global trade.

Since the beginning of this century, with significant

development in China economy, there has been a fast phase of urbanization, considerable reduction in agricultural population with increase of labour costs, there has been a gradual decline in sesame planting year by year. Based on this there has been a dramatic change in consumption and trade pattern of sesame in China

During 2003, affected by bad weather, sesame production in China witnessed a drastic reduction of more than 30 percent, forcing China to urgently import more than 60,000 tons of sesame from India, Myanmar, Sudan and Tanzania in that year. Of the total imports around 66% came from India

From January 1st, 2005, the Chinese government granted duty-free treatment to some commodities exported to China from the 25 least developed countries in Africa, which greatly stimulated the market for African countries thereby providing incentives for those origins to go in for more sesame planting

Having said the above since 2005, China has changed from a sesame exporting country to the world's largest sesame importing and consuming country.

From 2008 to 2016, sesame imports into China witnessed an annual growth rate of more than 20 percent. In 2016, sesame imports reached a record high volume of 930,000 tons, accounting for half of the total sesame imports in the world. Interestingly the share of sesame supply from African countries touched more than 95 percent of China's total imports.

Increase in domestic production costs and the reduction of rural labour, China's domestic sesame dropped to about 300,000 tons, accounting for less than 10 percent of the world's total output.

The annual export volume was less than 40,000 tons, accounting for about two percent of the world's total export volume. Domestic sesame prices are higher by USD 100 than imported sesame

Although domestically grown sesame is of high variety with good taste which is preferred by Chinese, Korean and Japanese consumers, the price is facing unprecedented challenges.

At present, China consumes about 1.3 million tons of sesame per year, and its import dependence has reached more than 70 percent. Imported sesame has an absolute advantage in the Chinese consumer market. At the same time, in line with huge demand from China there has been significant expansion of sesame in African countries which has helped those countries to earn valuable foreign exchange earnings and improve the farmer's income level.

In the Chinese market, sesame is traditionally used for oil extraction, preparation of cakes, candies, baking, sauces, seasonings, traditional Chinese medicine formulas, etc., and the usage of sesame in the above is highly irreplaceable.

In the long run, sesame, as a traditional food, has a very solid consumer group. As a modern health food, sesame is favored by vegetarians and young people as well. For example, sesame is used as a seasoning for salsa, hot pot, fast food and beverage. With the progress of science and technology, sesame is more and more used in industry fields such as medicine and beauty industry. It can be predicted that the consumption of sesame in China still has huge development potential.

Lastly, I wish the conference a great success.

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Zhang Wenxin

General Manager

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Profile

Zhang Wenxin, Founder and general manager of Henan Yixin Industry Co., Ltd and Kaifeng Mayda Foodstuffs Co., Ltd.

Graduated in 1999 with master degree of oil engineering, at present, he has one sesame food processing plant and one of the most advanced garlic finished products processing plant in China. Meanwhile, he has more than 20 years' trading experience in sesame and other agricultural products. With a strong and professional team specialized in both processing and trading, Yixin is one of the main importers of sesame in China.

Profile Of Henan Yixin Industry Co., Ltd

Henan Yixin founded in 2003 is an importer and processor of sesame seeds as well as producer of dehydrated garlic products.

The enterprise has a strong and professional team specialized in both processing and trading. With more than 10 years' of development, Henan Yixin Industry Co., Ltd. has become the main importer of sesame seeds in China, the quantity of import of sesame seeds was more than 10,000 tons each year.

An Overview of Japanese Sesame Market

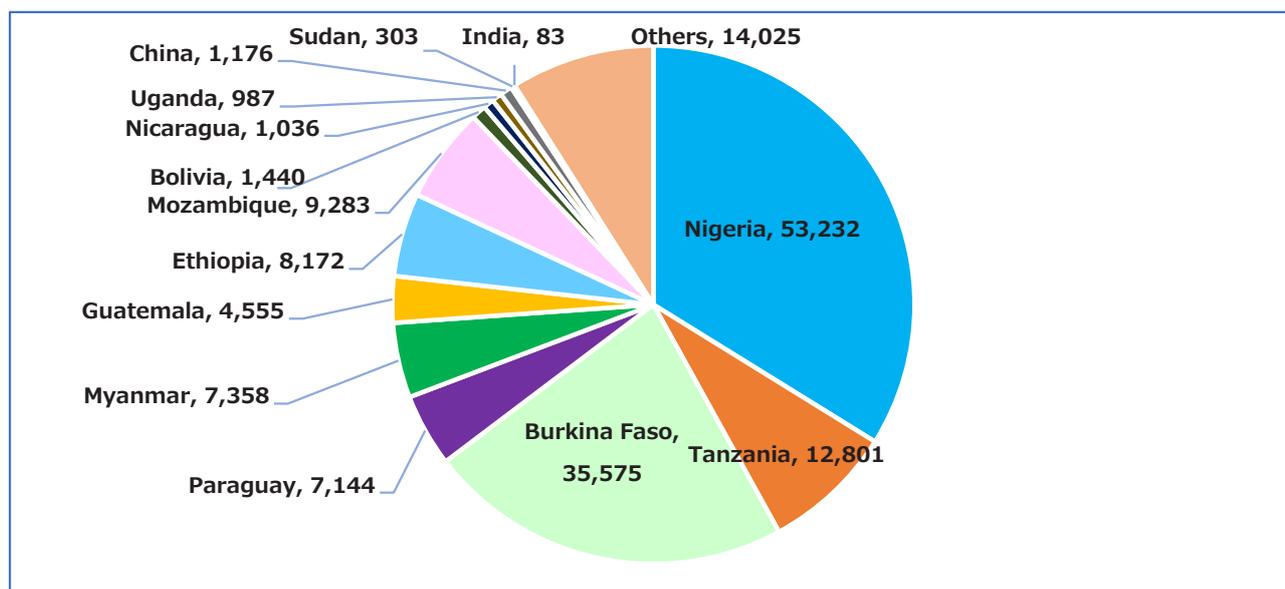
Tomohisa Fujimoto, Mitsui & Co. Ltd

Japanese people are among the biggest consumers of sesame seeds. Japan relies largely on imports and the total amount imported annually comes to approximately 160,000 tons per year. Sesame seed is used for mainly two ways. One is for sesame oil that is called crushing grade, and other one is for making roasted sesame and paste that is called edible grade. The ratio of crushing grade and edible is 60 percent- 40 percent.

White and mixed sesame seed has arrived mainly from African countries like a Nigeria, Burkina Faso, Tanzania and Ethiopia, apart from Latin America. Black is imported mainly from Myanmar; golden sesame seed has been

from Turkey. Below is import quantities from each origin of 2018.

Recently sesame oil consumption has growing up due to market expansion. Raw material of dressing and source demand has growing up, in addition each sesame manufacture is promoting the health image of sesame oil and development of the new sesame seed market. By knowing the high antioxidant effect of sesame oil and sesame seeds, the nutritional image has increased and consumption has been expanding. But of course sesame seed is one of traditional food in Japan and hence consumed regardless of age.



About Mitsui

Utilizing our global operating locations, network and information resources, we are multilaterally pursuing business that ranges from product sales, worldwide logistics and financing, through to the development of major international infrastructure and other projects in the following fields: Iron & Steel Products, Mineral & Metal Resources, Infrastructure Projects, Mobility, Chemicals, Energy, Food, Food & Retail Management, Healthcare & Service, IT & Communication Business, Corporate Development Business.

Ethiopian Sesame Production and Export Trend

Haile Berhe, President, EPOSPEA



As detailed in world bank and IMF reports, the Ethiopian economy has continued to experience a respectful growth for over several years and is under transformation where the centuries old dominance of the agriculture and related activities in the economy is seen declining from year-to-year while that of industry and services share is rising; despite the continuous economic growth, the export sector, over the past seven years, has continued to show a dismal performance. Annual commodities export income has fallen short of expectations for years hovering around USD 2.67 billion.

The sector has continued to be dominated by agricultural commodities supply namely, coffee, oilseeds, leather and leather products, pulses, meat and meat products, fruits and vegetables, live animals, chat and flower. These primary goods are characterized as the most volatile commodities in the global market. Their market price and

demand is mostly determined by the economic situations and consumption behavior the importing countries.

These agricultural export produces constituting the bulk of the nation's export comprised nearly 78 percent of 2018/19 commodities export earnings of the economy generating about USD 2.1 billion, where as total goods export proceeds is reported to reach USD 2.91 billion. This tells that the country at present is predominantly dependent upon the primary agricultural commodities to generate the foreign exchange. Amongst the agricultural export products, oilseed is the most important export crop in terms of volume and export value, trailing coffee export value. It plays a vital role on the well-being of the millions of agrarian community as it is a significant source of livelihood income.

Oilseeds which constitute Sesame seed, Niger seed, Groundnut, Castor seed, linseed, Pumpkin seed, Sunflower, Canola seed and others engage over 3 million small, medium and large scale farmers producing annually average of over 800,000 tons.

Amongst the oilseeds crops Sesame seed production taking the lion's share of oilseeds export crops with average annual production of more than 300, 000 tons. It is currently quite extensively cultivated in North Western and Western part of the country and it is also observed that in recent years regions such as Southern Nations and Nationalities, Gambela and Somali are now coming with big potential into the picture of the production of sesame seed which is expected to change the topography of Ethiopian sesame production in the coming few years

Table 1: Ethiopian sesame production trend (2014/15-2018/18) in 000 tons

Year	2014/15	2015/16	2016/17	2017/18	2018/19
Volume	297.4	417	270	259	280

During the past five years, 2014/15-2018/19, Ethiopian Sesame production and export volume has exhibited fall and rise, where the volume that was 393,968 tons in 2015/2016 has slumped to 228,214 tons in 2018/19. As a result, the export value reflecting the quantity exported and the international market price volatility showed a similar trend coming down from USD 482.8 million in 2014/2015 to USD 364.6 million in 2018/19. Sesame seed which comprising 94 percent of the country's oilseeds export value and 88 percent in volume, was mainly exported to China, Israel, Turkey, Vietnam and United Arab Emirates, which accounted for 41,21, 7, 5, and 5 percent, respectively. These five countries accounted for 80 percent of the total sesame seed export income for 2017 /18. And the remaining 20 percent sesame export income is covered by other 29 destination countries

Table2:Ethiopian Sesame exporttrend (2014/15-2018/18) in 000 tons and USD

2014/15		2015/16		2016/17		2017/18		2018/19	
Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
292.2	483	394	432	280.4	307.5	309.5	394.5	228.2	364.5

Given the country's high agricultural potential, high emphasis is given by the government to boost the productivity of the small holder farmers and commercial farming. The development of agro industrial parks in main

sesame growing areas and the favorable policy context and attractive incentive scheme in Ethiopia suggest that, there are now excellent opportunities for the actors of the sector in tackling constraints that are common in sesame production and product diversifications and in so doing move Ethiopia position up in global sesame production and in the value added ladder through agro-processing which is, in fact, mandatory for successful global market expansion.

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Profile

Mr.Haile Berhe got his first degree in Economics from Addis Abba University and his MBA from Open University. He has been working in government banking sector, he was a marketing manager of Guna Trading house and he owns an export company called HAKAK TRADING COMPANY. Since 2009 he was chosen as Board of Directors member in Ethiopian Pulses, oilseeds & spices processors Exporters association and is serving the association as a President. He is also the Board Member of Ethiopian commodity exchange (ECX) and Board Member of Lion International Bank Share Company.

Warehouse Infrastructure Have Transformed the Chinese Sesame Trade

Kevin Wang, CEO of Qingdao Changhe Golden Seeds Trading Limited

Doing sesame seeds trading is never easy. China started to import sesame seeds since 2004. However, a lot of Chinese traders could not survive during the past 15 years. There are some reasons. Basically, Chinese traders no matter large company or individual players more or less doing Africa sesame seeds. However, only few corporation has scale to collect sesame seeds from Africa directly. Hundreds of individual traders buy from international or Africa traders. Therefore, there are four main problems that most of the Chinese traders ever suffered 1. Default 2. Quality problem 3. China market price upside down (lower than origin) and 4. High cost of interest on loan.

Warehouse infrastructure must be the basis so as to find out the solution of the above mentioned problems. DECX as a B2B online transaction platform have its subsidiary company Wu Tong Century supply chain co., Ltd., to start setting warehouses in Sudan, Nigeria, Djibouti...etc. Meanwhile, DECX encourages payment versus warehouse delivery to avoid default and quality problems. What DECX do is having Chinese buyers find suppliers by themselves or DECX help to map seller and buyer in Africa. Then, Wu Tong as the third party issue official cargo receipt of warehouse after checking quantity and quality and eventually buyer make payment against warehouse delivery. By doing this, Chinese individual buyers can ensure no default and no quality problem without personally going to Africa to check the same. Suppliers also can get quick money rotation and avoid any quality debate and ensure no default from buyer side which is win-win for both supplier and buyer.

However, it is a heavy capital burden for Chinese individual buyers to making early payment. High cost of interest on loan is the issue. Normally, Chinese buyers pay up to 0.1 percent monthly interest for loan. Recently, more and

more companies take advantage of lower interest from overseas bank instead of Chinese bank and start to offer lower interest for their buyers or clients. Long capital chain and heavy interest cost now doesn't really matter to individual buyers any more while making payment against Africa warehouse delivery.

For Chinese market price upside down issue, very often that China market price becomes the lowest in the world and even lower than origin. For example, China local price of Sudan sesame seeds during May 2018. Even if Chinese traders add shipment and clearance cost shipped cargo back to Sudan, the price is still ridiculously lower than Sudan's original price. The reason is because all of cargo suddenly arrive to China. Players, who have heavy financial burden are forced to sell no matter what price is, which makes Chinese market crazily fluctuate. However, China's neighbouring countries such as Korea, Japan and Taiwan's market price usually follow international price. These neighbours at least take up around 300 thousand tons of demand.

Therefore, there is definitely an option of re-export to nearby countries while China domestic market at low level. These nearby countries only within three hours of flight to Qingdao making buyers can come to check quality easily, and ready cargo is there along with only few days of shipment to destination and third party's inspection quick test result for checking pesticide residue which extremely important for these countries is also available. But again, warehouse infrastructure is still the basis to re-export. Wu Tong Century supply chain co. Ltd., has set warehouse in Qingdao free trade zone. Traders have options to decide whether sell to domestic market or re-export when they put stock in bonded warehouse.

However, not only warehouse is needed, but also factory. Only sortex sesame seeds workable for market such as Korea. Qingdao Changhe Golden Seeds Trading Ltd built a clean and sortex factory in 2018 and open for clients to produce sortex products. Changhe can serve the clients to make their own brand and sell china local market and also can help to re-export.

In the past, individual traders purchased cargo and then bring to their hometown warehouse selling locally. Theoretically, much closer to end users, the better price will be. However, market does not always work that way due to retailers, who has also to reserve stock in their local warehouse. When the stock at that area piled up at high level, local price also possible lower than Qingdao port. Therefore, more and more Chinese individual traders now put their stock in Qingdao. Their hometown shop still has stock, but gradually becomes display window function. Put cargo at Qingdao port as said earlier has more options no matter selling to other domestic markets or export to overseas.

Due to above mentioned situation and now with bonded warehouse infrastructure and factory in free trade zone making Qingdao becomes the pivot to distribute 90 percent of china domestic market and able to supply its nearby countries. The total demand is around 1.2 million tons and take up around 70 percent of world market trading market share for China, Japan, Korea and Taiwan all together. And even foreign international traders bring cargo and put stock at Qingdao port. Qingdao now is qualified to be said as the world sesame trading centre.

Fig 1: The sesame seeds covering market of Qingdao free trade zone

Another related issue worthwhile to discuss is sesame seeds product's standardization. Here is not about arguing purity of two percent or one percent, but about to have each bag and each lot all the same. Only having highly standardized product can make Qingdao work out its trading centre role and completely make other domestic local retail store becomes display window, because final

buyers can check sesame seeds at display window and they trust that the product in Qingdao warehouse is no difference without coming to Qingdao for checking.

What is more, buyers can purchase sesame seeds on-line just as easy as buying mobile phone on-line. B2B website platform such as DECX on-line website platform business now is prosperous since mentioned warehouse infrastructure, factory and standard product are now much more mature.

Fig 2 DECX ON-LINE B2B platform.

In conclusion, sesame seeds end price is supposed to be higher than origin price logically. Due to above mentioned issues, Chinese traders suffered and could get margin. With warehouse infrastructure and other basis combined all together. It is expected China market be healthier.

Profile

Kevin Wang is the CEO of Qingdao Changhe Golden Seeds Trading Limited. The company is located in Qingdao free trade zone doing sesame seeds trading, clean and sortex for clients.

Sesame Production Trends, Export Trends, Government Policies in Sudan

Satyam Batra, Director-Operations, Agro-Power Group, Sudan

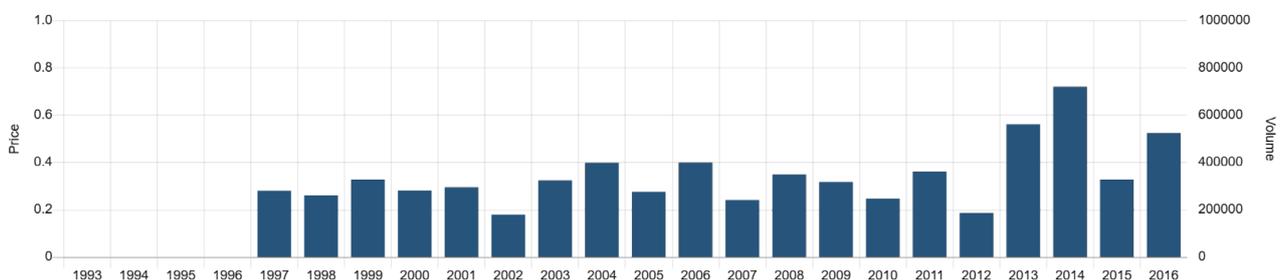


Sesame seed, one of the oldest oilseed crops known to mankind, is native to Sub-Saharan Africa. With high temperature tolerance and dry weather requirements, Sudan’s weather profile provides excellent growing conditions to the crop.

With over 2.5 million hectares of arable land under Sesame production primarily in South-Eastern region of Sudan, sesame is one of the hard currency earners after Gold and Gum Arabica.

With 600,000 tons of production (approx..) in 2016-2017, Sudan ranked fifth largest producer of Sesame seeds globally, exporting about 10 percent of the global Sesame seed market.

Production of Sesame seeds in Sudan has been moving from rain-fed traditional cultivation to modern mechanised agriculture methodology. However, erratic weather conditions do contribute to a highly inconsistent production graph for the crop.

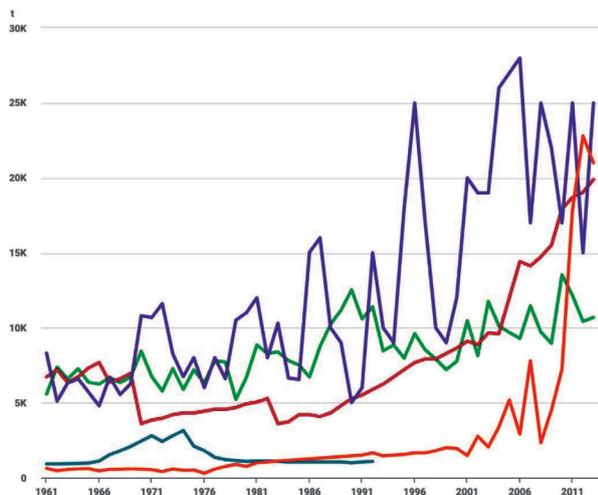


Source: www.tridge.com

Referring to the Graph which displays production of Sesame in Sudan for past 10 years. Production has picked up pace in 2013, with a 300 percent growth recorded from 2012, and further 150 percent growth recorded from 2014.

Introduction of mechanised agriculture, further induction of Sesame cropping land and improved climatic conditions led to a continuous growth pattern until 2015, when lower crop prices have resulted shift in land usage.

Sudan Loses More Sesame Seeds Than Other Major Producers



Source: FAO

Pests are a major issue plaguing Sudan’s sesame seed production. The lygaeid bug, or sesame seed bug—found prominently in the clay soils of central Sudan—depletes the seed’s oil content thus reducing overall quality and quantity. Of the seeds that make it to harvest, losses may occur from poor threshing and storage.

Losses may also occur when the capsule housing the seeds bursts as a result of non-uniform maturation, a process known as dehiscence. Additionally, the small seeds are susceptible to spoilage caused by air circulation. As a result of these vulnerabilities, the seeds are especially labour intensive during the harvest.

Even though Sudan ranks as the fifth largest global exporter of Sesame in a three billion USD market, it only accounts for 10 percent of its export revenue.

With the imposition of US Trade Sanctions since 1997, Sudan has not been able to export to a large number of potential countries, such as Japan, Korea, EU and the United States of America. This also contributed to absence of newer cultivation technology, restricted shipping routes, and rigid banking procedures.

China, Saudi Arabia, Lebanon and Turkey account for over 60 percent of Sesame clientele of Sudan, contributing over 200 million USD in its export revenue.

Sudan has managed to sustain its sesame seed export industry despite famine, civil war, secession, and trade sanctions. It’s an impressive story of resilience and adaptability to unfavourable weather conditions, but the country’s yields have remained well below the global average, and are only a fraction of the Sub-Saharan average.

Any increase in production is attributed to expansion in cultivated area rather than improvement of seed breeding and farming techniques. Sudan remains a net exporter of the commodity, but continued fluctuations in production and lower yields reduce the competitiveness of its oilseeds. As global demand for the protein-rich seed continues to rise, with uses in baked products, animal feed, lactose-free milk, cosmetics, and medicines, other producers have stepped in to meet the demand. Tanzania and Nigeria are steadily increasing production and exports. Perhaps the heyday of the Sudanese oilseed may be coming to an end.

Oilseed exports in the 1970s were monopolized by four companies, which later formed the now-defunct Sudanese Oil Seeds Company. The government has allowed the privatization of the agricultural sector with the intent to join the World Trade Organization in 1992. The current fluctuation in production could be attributed to this decision to reduce subsidies, set prices, and privatize. Even after liberalization, select principal commodities such as gum arabic, hides, livestock, and oilseeds were given minimum floor prices. However, price regulation has, over time, lacked sufficient government support in the form of infrastructure, human resources, and institutional capacity. Currently, there are no policies on exports of oilseeds that protect and support the producers or regulate middlemen and exporters.

Year after year, resilient tiny sesame seeds continue to blossom in war-torn Sudan. However, the crop may lose its competitiveness against rising producers altogether unless the government takes necessary action.

Profile

Mr Satyam Batra is the Director of Operations for Agropower Group in Sudan. Mr Satyam completed his education in Singapore and India. He has been based in Africa for over 10 years with enriched entrepreneurial experience and multi-sector operation skills, with Agro-Processing being the latest stint in his work profile.

Overview of Sesame Market in Senegal, Guinea Bissau, The Gambia and Guinea Conakry

AmrithKurien, CEO, ComAfrique Group



The Western-most countries of West Africa are not as known for sesame production as their more famous neighbours such as Burkina Faso, Nigeria and Mali.

the way as cashew did. As a result, production is still low.

2. Until five years ago, sesame from West Africa (except Burkina/Nigeria) was highly discounted and sold to East Africa. This gap is now reducing.
3. The number of buyers for sesame is much lower than those for cashews.
4. High price volatility, coupled with fewer buyers, resulted in a sharp fall in production in the years when prices were very low.
5. There is hardly any local consumption of sesame in the region.

Senegal

Senegal produces about 20,000MT of sesame a year, bulk of which is exported to China, Turkey and the Middle East.

Sesame started becoming a stable crop in Senegal in the early 2000's and was managed mainly by farmer associations with the support of US Agency for International Development (USAID) agencies like Catholic Relief Services (CRS). The produce was mostly exported to

Country	Commercial Season	Production (Of 23,000 metric ton or MT for Jan-Apr 2019)	Variety of Sesame	Oil Content	Destination Market	DFT Status
Senegal	December to March	15,000	Whitish, Mixed, Brownish	52%+	China, Turkey, Middle East	Yes
Gambia	February to April	1,000	Mixed	52%+	China, Turkey, Middle East	Yes
Guinea Bissau	February to March	2,000	Brownish	52%+	Turkey	No
Guinea Conakry	January to March	5,000	Whitish	50%+	Turkey	No

A quick look at the West Africa sesame market:

1. While sesame farming is relatively old and known to farmers here, its planting/marketing never caught on

Japan and Europe initially. However, the quality standards of Japan were very high, and the relevant testing had to be done in Europe.

Production rose steadily, from a paltry 1000MT in 2000 to 10,000MT in late 2010. Enters the Dragon around the year 2005. From being an exporter of sesame, China has suddenly become a net importer. Growing domestic demand saw China sourcing sesame from wherever possible.

China changed the rules of the game. It kept the quality specifications simple, unlike Japan, and thus rapidly grew into an important as well as an approachable market.

China also accorded Senegal the much-sought-after Special Preferential Tariff (SPT) Status, which was later renamed DFT Status. This, simply put, means that import of sesame into China will get a duty waiver of about 10 percent over imports from countries that do not enjoy DFT Status.

Essentially, China used the DFT Status as an economic/political tool. This has benefited countries like Senegal that were unknown in the market till recently.

Senegal has a variety of sesame. It mainly produces "Mixed" sesame that is bought by the Chinese and at times by the Turkish. It also has a small percentage of "Whitish" seeds growing from December to January that are preferred by the Turkish.

The Gambia

The sesame production in Gambia is about 1,000MT.

As in Senegal, the sesame farming was promoted by USAID agencies, such as CRS and later ActionAid, through support to farmer-based organizations like National Women's Federation Association (NAWFA). The difference between the Senegal and Gambia sesame markets is that the former is managed much better.

Senegal and Gambia were traditionally groundnut-growing countries that tried diversifying into other crops, including sesame. Ultimately, cashew won.

Gambia's sesame production never really grew. It may, in fact, have declined as cashew became the preferred crop from the early 2000s onwards. Moreover, for the best part of the last 15 years, Senegal, with which Gambia shares

borders on three sides, had the DFT Status. This made most of its sesame go into Senegal due to the higher prices being offered there.

China has now accorded DFT Status to sesame exports from The Gambia. This should change the dynamics of the trade.

Guinea Bissau

Bissau produces barely 2,000MT of sesame a year. Almost all of it is imported by Turkey.

The colour and flavour of these sesame seeds is suitable for Turkish Tahini and other foods.

The Guinea Bissau sesame market suffers mainly due to the no-DFT Status, an inefficient port, frequent Government changes, and nil support from NGOs. Whatever crop the country has is due to farmers' initiative. As with Gambia, a lot of Guinea Bissau's sesame moves into Senegal, where prices are more attractive due to the country's DFT Status.

Guinea Conakry

Conakry produces about 5,000MT of sesame. Most, if not all, of it gets imported into Turkey.

The seeds are smaller and more white. They are more like Humera just that they are smaller seeds.

Profile

Mr Amrith Kurien, CEO of ComAfrique Group – Senegal, Gambia, Guinea Bissau & Guinea Conakry.

A Law & Management Graduate, Amrith has more than two decades of experience as the Group's principal trader of Raw cashews/ Sesame/peanuts & Hibiscus.

ComAfrique is a 20-year old Group that originates and exports Agro commodities (sesame/raw cashew nuts/hibiscus) from Senegal, Gambia, Guinea Bissau & Guinea Conakry.

Sesame Seed Processing - An Overview

Rajiv Iyer, Senior Seed Technologist, Petkus Technologie GmbH



Sesame seed is a high-value cash crop and sells across a wide price range. Quality perception, particularly how the final processed seed looks, is a major pricing factor. Japan, China and the Middle East are the major importers of Sesame seed. Most importers who supply to importers in the Food Industry, only want to purchase scientifically treated, properly cleaned, washed, dried, colour-sorted, size-graded, and impurity-free seeds with a guaranteed minimum oil content (not less than 40%) packed according to international standards.

PETKUS TECHNOLOGIE GmbH is a German multinational, manufacturing the most modern equipment for seed and grain processing and has supplied sesame cleaning machines to many clients in the African continent.

At PETKUS Technologie GmbH, we have the required technology to process Sesame and provide our customers with 99.99% pure seed, which would easily conform to their Export Quality Standards.

The main equipment needed to get to a 99.99% quality is listed below:

Sesame (*Sesamum Indicum* L.) is one of the oldest oilseed crops known, and domesticated about 3000 years ago. It is widely cultivated in Africa and Asia for its high quality nutritional seeds.

Despite its economic and nutritional importance, sesame was considered as an orphan crop and it has received very little attention from science. As a consequence, it lagged behind the other major oil crops as far as genetic improvement is concerned.

But recently, the scenario has considerably changed and the decoding of the sesame nuclear genome has led to the development of various genomic resources including molecular markers, comprehensive genetic maps, high-quality transcriptome assemblies, web-based functional databases and diverse draft genome sequences.

Consequently, sesame has graduated from an “orphan crop” to a genomic resource-rich crop.

Fluid Bed Dryers



As sesame seed is a small, flat seed, drying it after harvest is a difficult task, because the small seed makes movement of air around the seed difficult. Too wet seeds heat up very fast and become rancid. Thus, with our Fluid bed Dryers, we can ensure the best drying method, with hot air circulating all around the fluidised sesame seed and ensuring a uniform drying effect.

Precleaner

Precleaners, with sufficient sieving area, and an efficient aspiration system ensures that the major impurities are removed from sesame. All big and smaller stones are also eliminated at this stage. The seed coming out of the Precleaner is bereft of any impurities (to ensure 100% precleaning, we might need to lose some sesame in the impurities, which can be reclaimed later)



Fine Cleaner

Fine Cleaners or Graders are flat screen machines that clean / grade the sesame to a very fine level on their width and thickness. We can also remove very thick and immature sesame seeds, depending upon the requirement of the final product. A very close tolerance is used to attain proper grading of sesame seed. Thus a laboratory test of the seed sample is necessary to decide the sieve sizes for this operation.



Length Grader

The Indented Cylinders or Length Graders are very important to remove sticks and twigs that escape through the sieves and can be removed only in the Indented Cylinder. Even here some big stones that escape along with the seed through the sieves can be eliminated. The Indented Cylinders picks up the small sesame seed and puts them in a trough, and leaves the long impurities behind.



Gravity Separator

Once all the impurities are removed from the sesame seed, we can use the gravity separator to do a very efficient grading based on the specific gravity of the seed. This gives sesame seed a very uniform look and the visual appeal of the seed in terms of size and shape gets really alleviated. The Gravity Separator separates the seed mainly into three fractions, the heavy, the light and the midlings (which is

a combination of the heavy and the light). To get a very good Heavy Fraction, it is advised to lose a very small percentage of the heavy seed in the midlings, which can be recirculated to reclaim the heavy seed.

Destoner

The heavy fraction of the Gravity separator, might still contain stones of the same size as of the sesame seed and also some mud balls. These can be eliminated only on a destoner.



Full RGB Color Sorter

After all the operations are carried out on the sesame seed, the last and only impurity that needs to be addressed is the discoloured grain as compared to the final sesame seed needed. A Colour Sorter that works on a full RGB spectrum is what is needed to be able to detect all such impurities and make the seed free of the contaminations.



Integrated Dust Control System

The complete plant should be connected to a central Aspiration System that shall keep the processing environment clean and dust proof. This enhances the working quality for the workers as well as the machines in the plant.

Efficient Conveying Equipment

All the best equipment in the world would not be able to salvage the seed being processed in them, if the interconnecting conveying elements are not carefully designed and chosen. Gentle Conveying systems are very much a necessity in any sesame processing facility.

At PETKUS, we have just the right solution for every sesame processing plant.

We have conducted live trials and have achieved 99.95% purity in Sesame Cleaning, Grading and Sorting.

At PETKUS, we have the complete resources, to plan, engineer, manufacture, install and commission a turnkey Sesame processing line for our customers and we also can work on adding value added processes like Peeling and Tahini making, to give our customers the fully value added food chain.

For further enquiries, please do contact us at the address mentioned below.

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Profile

The author of this article, is a technocrat, involved majorly in Sales and marketing, with a wide experience of more than 25 years in the field of seed and grain processing. Equipped with engineering degrees in Mechanical and production, and management degrees, in International Trade and Marketing, he has been able to establish business for Multinationals in difficult markets (India, South East Asia and Africa), and had an in-depth knowledge of seed processing, drying and storage applications and has been able to provide turnkey solutions to his customers with optimisation of technology and resources.

An Overview of the Sesame Seed Market Trends Across Europe

Eelco Keizer, Dipasa



This article will give an in-depth review of the sesame seed market in Europe. We will discuss available import digits, the consumption behavior across Europe and the different forms of consumption. The content of this article is based on recent articles and several reliable sources. We will focus on fiscal year 2017, no reliable and or comparison digits are available for the years 2018-2019. The trends and sources although are from 2019.

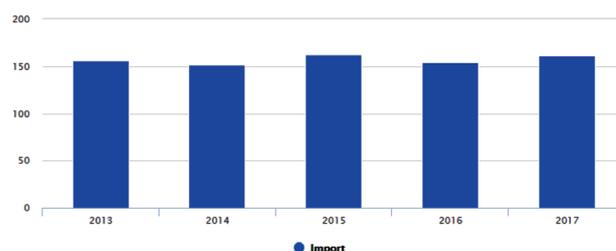
Import of sesame seed in the Europe

To get a clear view of the total import of sesame seed in Europe we will start with some digits regarding the total import of oil seeds. The total import of oil seeds in Europe during 2017 is 553,000 Metric tons) (Opendatacbn.nl. (2019).The number is very low if we compare the total import of fruit and vegetables in Europe during 2017, which was 5,115,000 Metric tons.

Of the 553,000 Metric tonsof imported oil seeds, 161,000Metric tons is accountable for sesame seeds, Fig:1

will clarify some of these digits (Cbi. (2019).161,000 Metric tonsof sesame seeds is almost 30 percent of the total imported oil seeds in Europe. The country that imports the most sesame seeds is Germany, with 21 percent of the total imported during 2017. The Netherlands imports 15 percentof the total sesame market and holds a third place. The Netherlands is one among the top importer of sesame seed, mainly because of the strategic positions, like Rotterdam.

Figure 1: Imports of sesame seeds to Europe 2013-2017
in 1.000 tonnes



(Cbi. (2019). CBI. Retrieved 19 July, 2019, from /market-information/oilseeds/sesame-seeds/Europe).

Around 77 percent of the imported sesame seed in Europe was sourced directly from production countries, like Nigeria, Sudan, Ethiopia, Mexico, Paraguay and India.

Main consumption of sesame seed in Europe

Who and where is the main consumption of sesame seed in Europe? According to Businesswire.com (2019) the sesame market will grow in the coming years with the healthy eating trend. The expectation is that this trend will continue in the coming decade.

Not only the organic sesame seed market is growing, the global production of sesame seeds has increased during the last decade, along with its demand. More awareness across Europe and other continents push sesame demand even further up. Awareness about the functional applications of sesame seed for the

pharmaceutical industry is also increasing. Two global market drivers that will push the sesame market even further up are:

- Production of hybrid sesame seeds. In India, hybrid sesame seeds are being produced and developed. This will probably drive the demand up even further.
- Niche segments. A trend of non-traditional foods is fueling the European and Indian market lately. More niche segments are arising in several continents; the Asian market is very popular in Europe for example. One of the main ingredients of Tahini is sesame seed. Tahini is also one of the main ingredients of hummus, which is becoming very popular amongst Europeans (Hlagro., 2019).

Consumers are becoming more and more aware of organic products, fair trade products and a clean supply chain. The three most important European market trends in the coming years according to Businesswire.com (2019) will be:

- Soaring demand for organic sesame seeds
- Growing interest in sesame seeds among retailers
- Greater demand for sustainable and fair-trade products

Recapitulating these three trends, the most growth will probably come from the food application industry. More retailers are looking for organic, healthy and fair-trade products. Sesame seed has some great application and can be classified as a healthy product from nature.

Forms of consumption of sesame seed in Europe

The consumption of sesame seed in Europe can be divided into three categories. 1. The food application industry 2. The cosmetic industry and 3. The pharmaceutical industry. Although there are more cosmetic products and also pharma products which contain healthy ingredients like sesame seeds, the biggest consumption is (still) from the food application industry.

Sesame seeds can be eaten, toasted, processed into oil, flour or paste. Because there are so many ways to consume sesame seed, the food application still consumes a large part. This means that it is directly related to the end

consumer. Whenever there is a bigger demand from the end consumers, production facilities are eager to produce more.

In Europe, sesame seeds are increasingly being used in vegan, vegetarian and cuisine dishes. This is one the biggest and most important trends of the increased sesame consumption in Europe.

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About Dipasa

With over 40 years of experience, we are recognized as the world's most reliable sesame processor and supplier. Based in Mexico with sister companies in Europe and the USA, we are dedicated to globally exporting some of the world's best food & cuisine ingredients (conventional and organic). Health and wellbeing lie at the heart of all we stand for.

Global Market Trends and Forecasts for Indian Sesame Seeds 2018-2022

Adeeb Siddiqui, HL Agro Products



HL Agro Products, one of the prime suppliers and exporters of sesame seeds broadcasts its study on the Indian sesame crop and gives a review of the key patterns rising in the national and global markets. The market intelligence report imparts analytical insights into the sesame production, price trends, essential market development drivers/constraints, with all the observations and forecasts for 2020.

Sesame seeds production has been increasing over the years along with its demand. The edible oilseeds coming in the assorted range of white, black and brown are one of the most favoured crops to farmers for its resistance to withstand unfavourable weather conditions and to grow with minimum attention. Growing popularity of sesame seeds as a functional ingredient in several foods on account of its ability to facilitate digestion and reduce hypertension

is a key driving factor in the market. Furthermore, rising application of the product as an antioxidant in various pharmaceutical formulations is expected to drive the market.

Sesame Seeds Market Dynamics: Drivers and Restraints

Market Drivers

- **Call for natural and clean label foods:** Changing consumer consumption patterns and increasing health awareness are driving growth and innovation to the varieties of sesame seeds.
- **Sesame trend in CPG Categories:** The burgeoning demand for authentic Mediterranean and Arabic food items like Tahini, Hummus, increased consumer inclination toward seed-based spreads, and upgraded technology to produce innovative products to meet consumer demand, are another set of factors contributing to the demand for Indian sesame seeds worldwide.
- **Soaring demand for organic sesame:** Expanding vegan population base and online grocery trends are laying forward a promising market for the organic sesame seeds of India.
- **Advancement in hybrid varieties:** Nine hybrid varieties of sesame seeds are currently produced in India. Advancements and innovations in terms of hybrid varieties are expected to further drive the demand for Indian sesame seeds in the future.
- **Opportunities in niche segments:** The mainstreaming of non-traditional foods seems to fuel the European demand for Indian sesame seeds.
- **Weather-tolerant and Lower-risk crop:** Sesame farming does not require advanced resources for cultivation, irrigation and fertilization. It is a versatile crop, which is highly preferred for cultivation owing to its unique attributes of rapid phenological development and drought/ heat tolerance.

Market Restraints

- 1.) **International Price Fluctuations:** Price levels for sesame seeds from different origins show similar developments and indicate a price inter-dependency between the various global suppliers. Sesame has an annual price volatility of around 25 to 30 percent and this is mainly due to the supply issues rather than the crop failures. Following the price inter-dependency, the global market is made to rest on the annual volumes produced in India and China.

- 2.) **Strong International Competition:** African sesame seeds with a notch under prices are seamlessly giving a stiff competition to the sesame seeds of Indian origin. With a poor harvest yield, the sesame crop failed to commensurate with the domestic and global demands last year. The deficient supply has apparently triggered the price rise and has chiefly attributed to the consumers shift towards the alternative markets in Africa.

- 3.) **Salmonella risk in sesame seeds:** Allergies associated with the commodity are also holding back the growth of Indian sesame varieties in international markets.

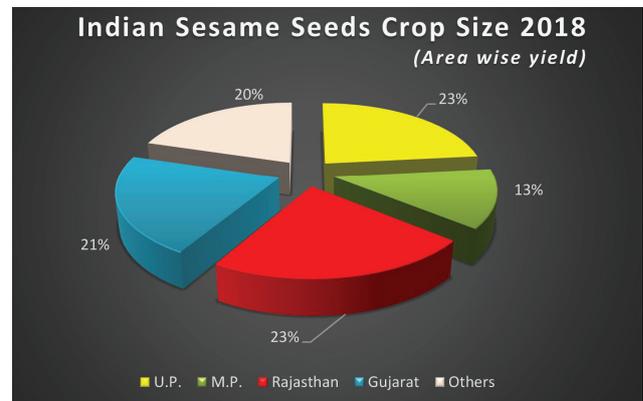
Indian Sesame seeds crop and market status 2018-2019

India produces a wide range of sesame seed varieties and grades each peculiar to the region where they are grown. For years, India has been one of the forerunners in the global sesame market.

However, the production volume of India has been lagging since its major plunge in 2016. This is mainly due to the poor climatic conditions in production regions in India. The Eastern and Western regions, which are known for their production of sesame seeds, were severely hit by floods and monsoons. With the detrimental weather conditions, crop damage was inevitable, causing a bleak turnout to produce the crop.

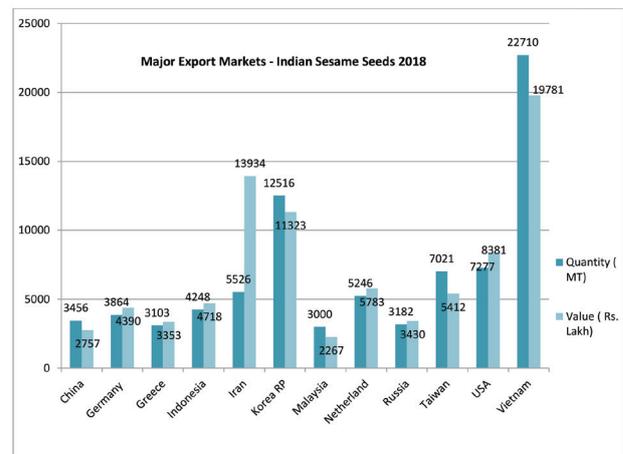
The Indian crop of sesame seeds was short by 60 percent this year. As against 418,000 MT last year, the harvest yield of sesame seeds was estimated at around 178,000 MT during 2018.

Figure 1- Sesame yield in India 2018 (Reference: IOPEPC Trade Estimates)



Indian Sesame Export Volume and Revenue 2018

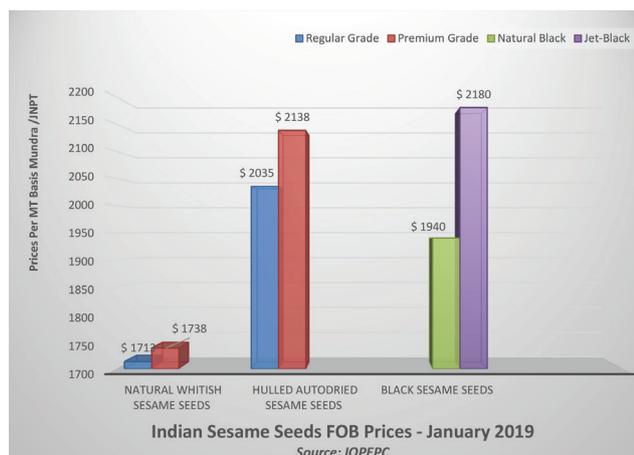
Sesame seed exports during April-November 2018 increased marginally to 2,25,606 tons in comparison to 2,24,376 tons during corresponding period previous year. In value terms, Sesame seed exports increased to 2524.72 crores from 1852.57 crores during the FY 2017-2018.



India, however imported a record high volume of 70,000-80,000 MT of sesame seeds in the year 2018. The import from Sudan accounted to 40,000 MT while the remaining lot was sourced from the regions of Nigeria and Ethiopia.

Indian Sesame Seeds Average Prices (USD/ MT)

At the onset of 2019, the prices of various oilseeds in India were hovering around the levels as follows:



Gleanings and Market Forecasts

- An underneath crop of Indian sesame seeds culminated with a meagre yield of 178,000 MT and carryover of around 15,000 MT in the year 2018.
- The sharp increase in sesame seed prices owing to crop failure has put exporters in a tight spot. While most of them have made forward contracts at lower prices, they are now facing difficulty in meeting their export obligation as prices have almost doubled in the last year.
- The African imports have started to trickle in which will keep the global supply chain well lubricated for the months to come
- With recent occurrences of natural disasters damaging sesame seed farms in India, however, consumers are now turning toward alternative markets in Sudan, Nigeria.
- India will have to import Sesame Seed from Africa in large quantities to keep its Hulling factories running.
- The African countries are expected to dominate the sesame seed market both in terms of production and export while the Asian imports are expected to increase in the coming years.
- Sudan was a major contributor to the global production of sesame seeds in the year 2018. The sesame production of Sudan is projected to be highest around 700,000 MT.
- The latest Korean tender reveals that the supply of Indian sesame seeds will be limited this year regardless of the higher prices.
- Increasing demand for sesame-based foods and rising

health awareness on the same are forcing various sesame seed producing companies to introduce seeds with high yield and better weather tolerance.

- Cereal bars like Sesame Honey Energy Bars are high on demand in Europe. Innovations like ready-to-use (organic) tahini, snack options with black sesame and sesame milk also expected to boost the market for sesame seeds.
- Sesame seeds are trendy in new product launches across the CPG categories. The mainstreaming of non-traditional foods is gradually fuelling the European demand for sesame seeds of India.
- Greece was the largest importer of sesame seeds in Europe followed by Germany, the Netherlands and Poland in 2018.
- The growth of sesame seeds imports in Europe is noteworthy: the import rates are on a constant increase of 3% annual rise. Europe is emerging as another major market for Indian sesame seeds with the increasing health awareness and change in diet pattern among the European consumers.
- With the outbreak of the 'trade war' between China and the U.S, the sesame seeds prices are becoming highly volatile.
- The Asia-pacific has been the leading importer of sesame seeds for years. This, however, may change in the future as Europe is stepping up their imports of sesame seeds with Greece as their forerunner.
- Although Ethiopia and Tanzania have been the most dominant suppliers of sesame seeds, the two countries are not in the process of harvesting for the rest of the year. Egypt and Kyrgyzstan, on the other hand, will begin their harvest for the fourth quarter, making them a favourable alternative for sesame seed consumers for the rest of the year.
- The market for Indian sesame seeds is forecasted to surge during the coming years, with Europe growing as the newly rising market.
- Better mechanism to forecast the production of sesame seed accurately may significantly boost India's exports apart from the measures to boost its yield.
- An upward trend is manifested for future productions, the global sesame market is expected to grow 9.5 million tonnes by 2025.

- The global sesame seeds market will be growing at 4.2 percent CAGR during 2019-2024 owing to the increasing demand from the food, medical and pharmaceutical and confectionary industries because of the cancer prevention, diabetes treatment, to boost bones health, improve digestion and skin and hair care attributes.
- Indian sesame seed export during 2019 is likely to take a hit owing to shortfall in kharif season crop and on higher price as well as competition from African countries.
- Indian rupee is expected to appreciate in the short term, which is good news for importers as Indian sesame imports are likely to double when compared with last year.

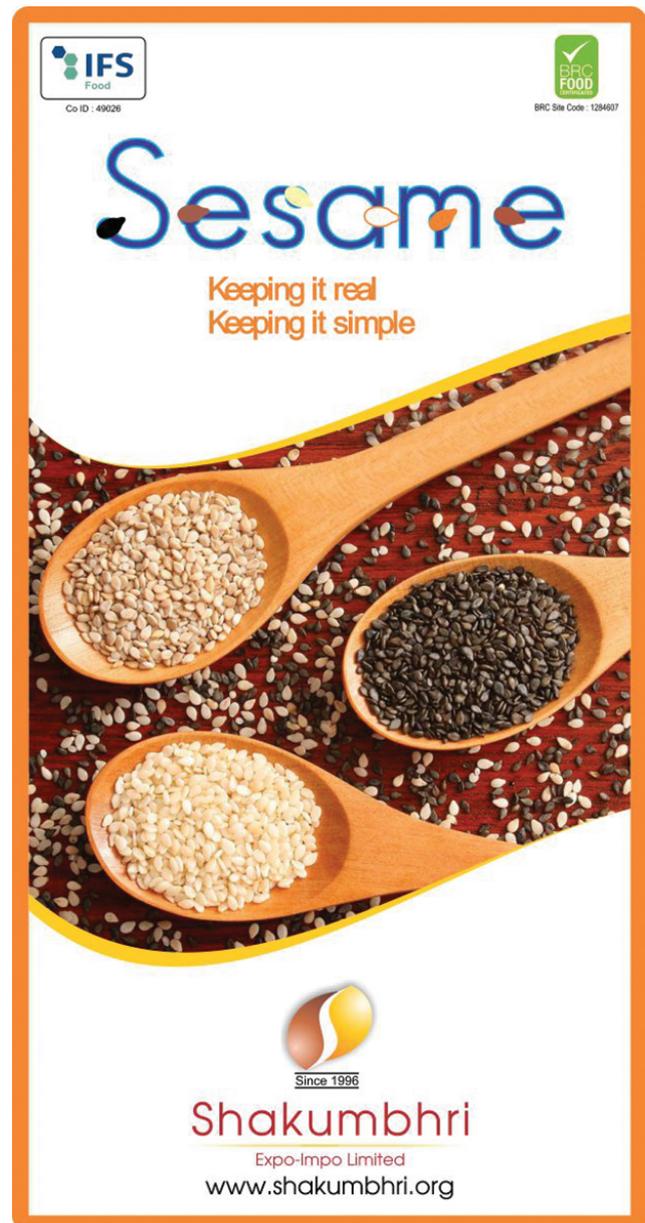
..... About H.L. Agro Products

HL Agro Products Pvt. Ltd is the flagbearer of six decades old HL Group of companies headquartered in Kanpur, India. HL Agro Products Pvt. Ltd. is a HACCP & ISO22000:2005 certified industrial entity and the noted exporter of sesame seeds, corn starch, liquid glucose & other corn derivatives in India.

Winner of the “Agri-Company of the Year” at the 2019 News Corp VCCircle awards, HL Agro Products has earned special accolades for its contribution to the agricultural economy and its efforts towards enhancing the market share of the oilseeds and corn starch commodities at the national and global levels.

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Importance of Sesame Seed Cultivation in Mexico

Sesajal S.A. de C.V., Javier Aranda, Supply Chain Management

Abstract

The increased global consumption of sesame seeds is mainly due to the heightened demand for the product from the growing Asian and African populations. This increase is being reinforced by the spread of African and Asian cuisine worldwide. It is expected that the consumption of sesame seeds will grow at a rate of two percent per year in the next nine years, which will lead the market to 9.5 million tonnes in 2025.

Keywords: Sesame, *sesamum indicum*

Introduction

According to data from the Food and Agriculture Organization of the United Nations (FAO) total production of sesame seed in recent years is 3,877,569 tons, of which about 96 percent is concentrated in four countries: India, China, Myanmar and Sudan. India produces approximately 18 percent of the world total production of sesame seed.

Mexican farmers contribute 0.8 percent of the sesame harvested in the world, its performance is 1.9 times higher than the world leader, placing Mexico in the 15th place as a world producer.

This statistic shows the production of sesame seed in Mexico from 2012 to 2017. In 2017, the production of sesame seed in Mexico reached up to 68,000 tons compared to 52000 tons produced in 2016.

With the annual production of sesame seed in Mexico, around 20 million liters of oil can be generated.

Global sesame seed production

Sesame seeds are one of the main seed crops in the Asian and African regions, particularly in India, Tanzania, China, Sudan, Myanmar, Ethiopia, and Nigeria, etc.

Table 1. World production history

WORLD PRODUCTION HISTORY (Unit: 1000MT)						
	12/13	13/14	14/15	15/16	16/17	Behavior
Myanmar	635	650	665	670	670	
India	685	636	811	730	650	
China	640	624	560	540	630	
Tanzania	456	420	460	470	470	
Sudan	187	300	310	270	340	
Ethiopia	240	265	289	420	250	
Burkina faso	101	137	322	235	230	
Nigeria	158	169	170	185	180	
Niger	56	47	80	138	130	
Uganda	124	124	145	120	130	
México	42	42	65	52	68	
Paraguay	30	41	44	22	41	
Guatemala	38	40	30	35	36	
Thailand	30	29	29	30	30	
Central Africa	28	28	30	29	30	
Others	706	763	848	827	846	
TOTAL	4156	4315	4858	4773	4731	

Sesame production in Mexico

In Mexico there are around 200 agricultural products that are growing within the country and among the most relevant for their importance in consumption are corn, beans, wheat, rice, sorghum, sugar cane, tomato, chili and sesame seed.

The production of sesame seeds in Mexico is obtained preferably in those entities where climatic conditions are generally dry, mainly in the spring- summer cycle and therefore its cultivation is oriented during the rainy season.

Sesame is an annual plant, the cycle can vary between 80 and 130 days. The harvest is usually done in October in the beginning of the month.

It should be noted that the states of Sinaloa, Guerrero and Michoacán are the largest producers of this oilseed to which more than 82 thousand hectares are destined to grow it the fields of our country.

Figure 1. Main producers of sesame in Mexico



The commercialization of sesame seeds is intended to be carried out in a direct with the producers, industry and final consumer and with this eliminate intermediaries who are the main actors at present, for what will be done through the distribution channels through wholesalers, retailers and the same distributors.

Table 2. Mexican production of sesame seed

MEXICAN PRODUCTION of sesame seeds						
STATES	PRODUCTION (MT) SEASON					CULTIVATED (HA)
	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	
SINALOA	12,000	30,000	19,600	21,800	23,400	43636.36
OAXACA	6,000	8,400	5,700	8,820	9,600	7,586.21
GUERRERO	8,000	8,000	7,000	9,000	9,000	9,333.33
CHIAPAS	5,600	5,000	8,000	6,900	6,000	5,842.70
MICHOACAN	7,000	10,000	9,200	12,000	5,700	6,153.85
JALISCO	1,400	2,000	1,600	1,140	900	1,600
SONORA	600	4,000	1960	1,800	900	2,000
TAMAULIPAS	100	100	200	360	180	4,776.12
OTHERS	1200	0	0	5,910	850	-
TOTAL ACOUNT	41,900	67,500	53,260	67,730	56,530	80,928

Sesame production in Sesajal

Sesajal is a company that was founded by a visionary mind who believed that in Mexico, some of the best oily seeds, including sesame, could be harvested and processed to deliver high quality products to the local and international markets

Sesajal works hand in hand with each of the members of its value chain, because for the company the duty to be with society is an indisputable priority and avoid working with brokers and middle men, in order to be able to provide financing to farmers and pay them a fair price for their crop.

Sesajal harvest around 50 percent of the total sesame production in Mexico

Figure 2. Percent Sesajal purchasing in total Mexico production

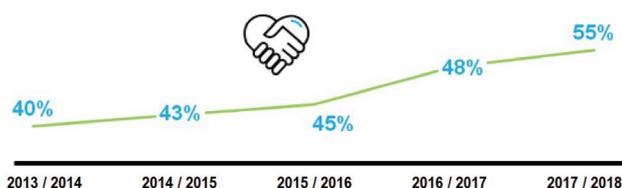


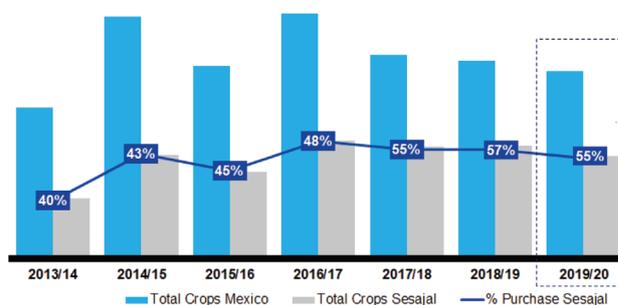
Table 3. Sesajal purchase of sesame seed in Mexico

SESAJAL PURCHASE OF SESAME SEED IN MEXICO					
STATES	PRODUCTION (MT)				
	SEASON				
	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018
SINALOA	5,000	13,128	10,400	12,644	13,131
OAXACA	1,400	3,678	1,144	3,528	5,910
GUERRERO	1,054	-	442	3,285	4,500
CHIAPAS	3,200	2,456	4,496	3,000	3,300
MICHOACAN	3,220	6,800	5,566	8,757	3,981
JALISCO	900	1,300	900	528	429
SONORA	32	1,870	686	450	150
TAMAULIPAS	-	22	140	318	138
OTHERS	2,000	0	0	340	0
TOTAL ACCOUNT	16,806	29,254	23,774	32,850	31,539

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- Historical data Sesajal

Figure 3. Behavior sesame seed production of Mexico vs Sesajal



Conclusion

A wealth of knowledge and experience is available to maintain and improve a successful sesame production in this country.

Sesame seed has enough competitive advantages to ensure the persistence of its crop and its contribution to agricultural production in different regions.

And finally it has been determinate that it is viable to carry out the strategies for the commercialization of this seed, eradicating a figure called intermediaries.

Annexure 1: Country-wise Sesame seed Production

1. Country-wise Sesame seed Production ('000') Metric Tons														
Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	CAGR%	% Share (2017)
United Republic of Tanzania	48.0	155.8	46.8	90.0	144.4	357.2	456.0	1050.0	1114.0	1174.6	943.3	805.7	36.30	15.14
Myanmar	613.5	701.1	840.0	790.1	787.4	832.1	794.6	817.1	801.6	828.3	813.0	764.3	1.33	14.36
India	618.0	756.9	640.3	588.4	893.0	810.0	685.0	715.0	828.0	850.0	747.0	751.0	1.72	14.11
Sudan	400.0	242.0	350.0	318.0	248.0	363.0	187.0	562.0	721.0	329.0	525.0	550.0	5.73	10.34
Nigeria	100.0	117.7	121.6	119.7	149.4	229.2	994.8	585.0	167.0	171.9	450.0	550.0	15.20	10.34
China	662.6	557.5	586.7	622.9	587.9	605.8	640.0	624.8	632.1	452.0	353.5	367.1	-4.15	6.90
Ethiopia	148.9	149.4	186.8	260.5	327.7	244.8	181.4	220.2	288.8	302.3	267.9	231.2	4.46	4.34
Burkina Faso	22.9	18.8	51.9	56.3	90.6	84.8	100.5	137.3	321.8	235.1	163.9	163.8	24.14	3.08
Chad	62.1	40.0	40.5	61.4	126.0	72.6	124.6	125.9	204.8	152.6	153.6	158.7	14.32	2.98
Uganda	166.0	168.0	99.0	115.0	119.0	141.9	124.0	124.2	145.0	120.0	120.0	135.0	-0.98	2.54
Cameroon	7.6	9.8	10.1	11.6	12.5	44.6	50.8	49.1	56.6	61.0	68.4	65.0	25.90	1.22
Mozambique	20.6	28.8	40.7	43.0	63.1	104.7	117.0	39.4	54.0	60.6	60.0	60.0	7.63	1.13
Guatemala	36.9	35.8	31.4	38.0	49.9	39.5	51.1	52.9	54.8	60.8	55.6	55.0	5.47	1.03
Mexico	21.3	29.1	29.7	28.5	37.3	40.6	42.0	41.5	64.9	51.6	59.4	54.8	9.21	1.03
Niger	31.5	21.5	46.9	75.6	85.7	88.5	54.0	55.6	55.2	34.1	66.7	49.3	3.38	0.93
Egypt	41.5	42.2	36.9	51.0	46.1	44.4	32.7	32.8	38.8	49.8	40.4	44.0	-0.12	0.83
Bangladesh	29.2	27.0	28.5	32.3	32.0	33.0	30.0	31.0	30.4	35.8	36.9	34.0	1.97	0.64
Pakistan	30.4	32.8	41.0	33.4	31.0	30.2	29.2	32.4	33.1	31.8	32.4	33.6	-0.25	0.63
Afghanistan	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	0.00	0.60
Paraguay	50.0	50.0	50.0	65.0	40.1	50.4	28.0	30.0	41.4	43.8	21.5	30.3	-6.03	0.57
Thailand	41.1	42.9	44.3	46.0	47.5	48.8	30.1	29.1	28.8	28.6	30.0	30.0	-4.79	0.56
Cambodia	34.9	31.9	27.3	34.5	29.9	33.5	26.8	26.0	29.0	28.0	29.0	30.0	-1.35	0.56
Viet Nam	22.0	22.0	23.0	24.0	17.0	31.9	30.2	33.2	34.7	46.7	43.4	29.8	6.58	0.56
Iran (Islamic Republic of)	24.2	27.9	34.2	51.3	45.5	66.6	66.4	69.3	32.0	28.0	29.0	29.0	-0.05	0.54
Mali	4.5	2.2	5.9	7.0	13.3	15.2	39.0	19.7	22.6	43.4	37.6	27.8	26.75	0.52
Somalia	29.8	28.7	26.3	26.4	26.4	26.4	26.3	26.3	26.3	26.3	26.2	26.2	-0.79	0.49
Yemen	22.0	23.2	23.9	24.3	25.5	23.0	25.0	25.1	24.7	22.8	22.6	22.9	0.00	0.43
Turkey	26.5	20.0	20.3	21.0	23.5	18.0	16.2	15.5	17.7	18.5	19.5	18.4	-2.46	0.35
Lao People's Democratic Republic	7.5	7.6	7.7	8.3	9.6	14.5	13.9	11.7	15.4	16.8	16.8	16.3	9.08	0.31
Republic of Korea	15.5	17.5	19.5	12.8	12.7	9.5	9.7	12.4	12.2	11.7	13.6	14.3	-2.45	0.27
Brazil	16.0	7.0	7.0	6.0	5.0	6.0	6.0	8.0	14.0	10.0	12.0	13.0	3.82	0.24
Senegal	25.6	4.3	11.1	6.8	5.3	3.7	5.3	3.7	7.4	10.4	12.0	13.0	0.33	0.24
Venezuela (Bolivarian Republic of)	25.9	17.0	18.9	14.8	15.4	20.4	17.6	12.3	25.7	38.6	18.7	12.0	-0.23	0.23
Bolivia (Plurinational State of)	22.5	14.7	5.6	15.0	10.0	12.0	13.0	8.6	8.0	9.7	11.5	11.7	-3.12	0.22
Central African Republic	42.0	48.1	49.0	50.0	29.0	29.6	28.1	28.0	12.8	10.2	11.6	11.5	-14.56	0.22
Kenya	10.3	10.4	10.8	11.1	11.3	11.6	12.0	12.2	12.2	11.4	11.4	11.4	1.06	0.21
Benin	7.1	10.0	11.0	9.0	10.0	10.0	10.2	10.0	10.0	10.0	10.0	10.0	1.29	0.19
Sri Lanka	6.0	6.3	6.3	8.5	17.0	11.3	12.5	14.2	14.1	12.0	13.0	7.8	5.73	0.15
Uzbekistan	2.6	1.7	2.2	3.6	3.9	3.3	4.0	4.3	5.2	6.1	5.9	6.0	10.99	0.11
Eritrea	5.5	10.9	0.5	0.2	4.4	4.8	5.3	5.3	5.3	5.3	5.3	5.3	10.28	0.10
Democratic Republic of the Congo	4.9	5.0	5.0	5.0	5.0	4.7	4.6	4.7	4.6	4.6	4.6	4.5	-1.01	0.08
Nicaragua	6.6	4.7	5.0	5.1	3.6	4.6	4.8	6.1	5.0	4.6	2.3	4.3	-3.55	0.08
Haiti	4.2	4.2	4.0	3.9	4.1	4.1	4.1	4.2	4.2	4.2	4.3	4.3	0.39	0.08
Iraq	18.0	16.3	18.2	4.6	13.3	19.6	11.8	7.8	7.4	2.0	2.3	3.4	-16.35	0.06
Angola	2.8	2.8	2.9	3.0	3.0	3.3	3.0	3.0	3.1	3.3	3.3	3.4	1.54	0.06
Saudi Arabia	5.3	5.3	5.2	4.9	4.7	4.5	4.4	4.8	3.5	3.8	2.6	3.3	-5.28	0.06
Sierra Leone	2.6	2.6	2.8	3.0	2.9	3.0	3.0	3.2	3.2	3.0	3.0	3.0	1.33	0.06
Guinea	0.5	0.6	0.6	0.8	0.5	1.0	0.5	0.5	4.0	1.0	2.0	2.9	15.68	0.05
Côte d'Ivoire	2.2	2.3	1.8	2.4	2.6	2.7	3.0	3.0	2.8	2.7	2.7	2.7	2.70	0.05
Colombia	5.0	3.0	3.0	3.0	2.0	1.6	2.4	2.1	3.8	3.0	2.8	2.3	-2.62	0.04
Gambia	2.1	2.2	2.5	2.3	2.4	2.7	2.9	0.5	0.8	1.6	1.9	1.9	-5.31	0.04
Togo	1.3	1.4	1.5	1.5	1.4	1.6	2.0	2.0	1.8	1.8	1.9	1.9	3.70	0.04
Morocco	1.6	2.1	1.4	1.5	1.1	1.1	1.6	0.4	0.5	1.1	0.9	1.0	-7.56	0.02
El Salvador	2.0	2.0	1.6	1.0	1.8	2.0	2.0	2.7	3.9	0.8	0.6	0.9	-5.66	0.02
Syrian Arab Republic	4.5	3.2	2.9	7.6	4.9	3.7	1.0	0.3	0.3	0.7	0.8	0.7	-21.04	0.01
Grand Total	3597.8	3628.2	3723.8	3863.2	4318.9	4709.4	5203.4	5778.6	6092.2	5509.5	5425.7	5321.4	4.99	

Source: FAOSTAT

Annexure 2: Country-wise Sesame seed Area

2. Country-wise Sesame Area ('000') Hectares														
Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	CAGR%	% Share (2017)
Sudan	1807.9	1113.3	1489.1	1234.2	1273.0	1482.2	820.3	2157.5	2532.0	1450.3	2134.9	2141.3	4.33	22.93
India	1647.0	1799.0	1809.1	1942.1	2079.3	1902.0	1706.0	1678.2	1778.0	1947.0	1900.0	1800.0	0.28	19.27
Myanmar	1367.0	1431.0	1431.0	1563.3	1519.2	1531.7	1492.1	1524.5	1465.0	1511.4	1495.3	1478.2	0.45	15.83
United Republic of Tanzania	120.0	120.0	139.9	153.3	203.4	510.5	651.7	860.0	928.2	978.8	900.0	750.0	25.73	8.03
Nigeria	197.0	299.3	317.1	308.2	324.6	191.5	499.1	526.9	291.4	329.5	480.0	500.0	6.09	5.35
Chad	148.5	96.3	105.2	178.5	239.1	175.3	218.5	230.5	421.6	305.9	279.0	297.7	10.71	3.19
Ethiopia	205.2	211.3	185.9	315.8	384.7	337.5	239.5	299.7	420.5	388.2	337.9	293.6	4.89	3.14
Burkina Faso	47.3	55.1	92.0	93.4	125.5	120.8	165.6	203.4	506.1	400.3	282.4	291.2	21.29	3.12
China	569.7	486.6	472.6	476.9	448.4	438.2	437.8	420.2	431.2	424.0	284.2	262.1	-5.06	2.81
Uganda	276.0	280.0	165.0	192.0	198.0	202.8	207.0	207.0	207.1	200.0	210.0	210.0	-1.29	2.25
Niger	68.6	72.1	79.8	147.8	172.2	181.7	181.7	133.0	131.6	75.9	129.9	117.3	3.37	1.26
Mozambique	68.5	74.1	114.7	123.0	105.5	152.4	69.9	99.5	108.0	106.0	117.0	115.0	2.71	1.23
Pakistan	71.4	76.4	90.6	79.9	77.7	75.7	71.0	81.6	82.7	78.5	79.1	81.9	0.37	0.88
Mexico	38.5	48.2	48.4	51.9	70.5	71.3	58.9	63.6	96.3	79.0	90.0	76.1	6.92	0.81
Mali	15.1	9.6	20.4	16.3	32.4	38.6	58.0	36.9	54.1	79.7	80.0	66.9	19.86	0.72
Paraguay	56.0	50.0	69.9	100.0	69.2	83.3	85.0	50.0	60.0	63.0	55.0	55.0	-1.24	0.59
Central African Republic	60.0	80.1	81.7	83.3	41.5	42.3	40.2	42.0	30.1	40.3	48.3	50.0	-5.64	0.54
Cameroon	27.0	22.1	26.9	29.8	30.4	64.9	62.0	70.2	43.3	47.8	52.1	50.0	8.32	0.54
Somalia	62.0	58.6	52.9	52.1	51.2	50.3	49.4	48.6	47.7	46.9	46.2	45.4	-2.43	0.49
Thailand	65.0	65.4	65.6	65.8	66.1	66.2	48.1	44.8	42.5	41.8	44.0	45.0	-4.93	0.48
Iran (Islamic Republic of)	29.4	37.1	47.7	69.7	52.2	79.3	81.0	69.6	39.9	40.0	42.0	42.0	0.67	0.45
Guatemala	52.5	51.4	34.9	34.2	35.3	30.2	37.8	38.4	39.1	39.9	41.2	41.7	-0.85	0.45
Cambodia	56.3	47.8	35.9	43.2	48.3	42.6	36.7	35.0	42.0	38.0	39.0	40.0	-2.23	0.43
Bangladesh	36.0	33.5	32.9	35.6	36.0	37.0	33.3	34.1	34.2	38.2	40.3	37.5	0.94	0.40
Viet Nam	45.0	44.0	45.0	45.0	47.0	46.1	41.6	42.8	43.0	55.4	50.5	37.0	-0.02	0.40
Egypt	31.8	32.0	28.2	42.3	36.9	33.8	25.1	25.1	28.2	36.6	29.3	34.0	-0.59	0.36
Venezuela (Bolivarian Republic of)	49.1	40.5	48.0	41.0	63.4	64.6	29.3	22.9	56.3	90.7	57.8	31.6	0.19	0.34
Republic of Korea	31.1	31.3	28.8	34.9	27.2	25.6	25.1	23.2	28.4	25.1	27.2	29.7	-1.48	0.32
Turkey	39.9	29.8	28.6	28.0	31.8	26.6	28.9	24.8	26.3	28.1	28.9	28.0	-1.83	0.30
Kenya	24.9	25.2	26.0	26.5	27.1	27.6	28.5	29.0	28.9	27.2	27.2	27.2	0.92	0.29
Eritrea	15.2	24.0	4.2	2.6	26.7	21.8	23.2	23.8	24.4	25.1	25.8	26.5	11.09	0.28
Senegal	46.3	14.4	26.1	17.3	12.7	8.3	11.3	7.4	18.2	20.5	21.0	22.0	-2.59	0.24
Yemen	21.0	21.8	22.2	22.6	23.2	22.7	23.0	23.2	22.8	21.7	21.5	21.3	-0.02	0.23
Bolivia (Plurinational State of)	45.0	32.0	12.8	25.0	25.0	24.0	25.1	15.0	14.9	17.2	20.6	20.7	-4.95	0.22
Brazil	25.0	11.0	10.0	9.0	8.0	9.0	10.0	12.0	20.0	15.0	17.0	19.0	3.22	0.20
Haiti	15.7	15.6	14.8	14.6	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	0.35	0.17
Afghanistan	47.0	47.0	47.0	47.0	47.0	15.0	12.0	12.0	16.0	15.0	15.0	15.0	-13.22	0.16
Guinea	2.2	2.5	2.3	3.4	2.4	4.6	2.6	2.6	20.6	5.1	8.0	14.7	17.30	0.16
Côte d'Ivoire	12.7	12.9	10.0	13.5	13.6	13.7	14.0	14.0	14.3	13.9	14.4	14.3	1.74	0.15
Angola	10.0	10.3	10.6	10.9	11.2	12.1	12.0	12.0	12.3	12.7	12.8	13.1	2.49	0.14
Lao People's Democratic Republic	10.0	10.1	10.2	11.0	15.1	12.0	11.0	10.7	12.1	13.6	13.4	13.0	2.42	0.14
Benin	9.6	12.0	14.0	13.0	14.0	14.0	13.5	16.0	11.0	12.0	11.0	11.0	-0.28	0.12
Democratic Republic of the Congo	11.0	11.0	11.1	11.1	11.2	10.5	10.4	10.5	10.5	10.4	10.4	10.4	-0.72	0.11
Sri Lanka	9.3	9.3	9.5	10.9	18.4	14.4	15.6	17.1	14.5	16.0	17.0	9.1	3.59	0.10
Nicaragua	9.2	9.2	8.3	7.3	7.4	9.1	7.1	8.2	8.1	8.3	4.7	6.7	-3.10	0.07
Togo	5.0	5.1	5.0	5.0	4.7	5.3	6.0	6.0	5.7	5.7	5.9	6.0	2.00	0.06
Sierra Leone	4.2	4.3	4.6	5.0	5.1	5.2	5.8	6.0	5.8	5.4	5.4	5.5	2.62	0.06
Gambia	6.7	7.1	7.1	6.9	6.9	7.8	8.0	1.6	2.1	4.5	5.2	5.3	-6.44	0.06
Uzbekistan	3.5	2.1	5.8	3.2	3.0	3.3	4.9	3.6	3.8	7.8	5.5	4.8	5.80	0.05
Iraq	24.3	21.8	16.3	7.5	13.1	17.5	12.0	10.5	4.5	2.1	2.7	3.7	-18.23	0.04
Colombia	6.0	5.0	5.0	4.0	3.0	2.1	1.6	2.7	5.3	5.5	2.5	2.5	-4.92	0.03
Saudi Arabia	3.0	3.3	3.1	2.9	2.7	2.6	2.5	2.5	2.1	1.9	1.8	1.7	-5.70	0.02
El Salvador	2.5	2.5	2.1	1.5	2.8	3.0	3.0	3.3	4.6	1.2	0.8	1.1	-5.57	0.01
Morocco	2.0	2.5	1.6	1.5	1.2	1.2	1.4	0.6	0.7	1.0	1.2	0.8	-8.30	0.01
Syrian Arab Republic	7.2	5.2	4.4	5.7	6.8	3.3	1.6	0.5	0.4	0.9	1.0	0.8	-22.00	0.01
Grand Total	7667.405	7122.995	7482.01	7870.357	8217.263	8390.552	7782.146	9360.252	10314.055	9271.536	9689.273	9340.3	2.88	

Source: FAOSTAT

Annexure 3: Country-wise Sesame seed yield

3. Major country-wise sesame seed yield (kg/hectare)													
Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	CAGR%		
China	1241	1306	1311	1382	1462	1487	1466	1066	1244	1401	-0.06		
United Republic of Tanzania	1241	1306	1311	1382	1462	1487	1466	1066	1244	1401	-0.06		
Nigeria	384	388	460	1197	1993	1110	573	522	938	1100	8.52		
Ethiopia	1005	825	852	725	757	735	687	779	793	787	-1.87		
Uganda	600	599	601	700	599	600	700	600	571	643	0.17		
Burkina Faso	564	602	723	702	607	675	636	587	580	563	-0.91		
Chad	385	344	527	414	570	546	486	499	551	533	3.94		
Mozambique	355	350	598	687	1674	396	500	572	513	522	2.16		
Myanmar	587	505	518	543	533	536	547	548	544	517	-0.20		
India	354	303	430	426	402	426	466	437	393	417	2.28		
Sudan	235	258	195	245	228	261	285	227	246	257	1.11		

Source: FAOSTAT

Annexure 4: State-wise Sesame seed Production in India

4. India State-wise Sesame seed Production ('000) tons																
State	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-2017	2017-2018	CAGR% (2017-18)	% Share (2017-18)
West Bengal	125.1	123.1	186.1	185.9	133.3	153.2	168.7	167.2	185.2	205.0	213.6	214.0	217.1	228.5	4.3	30.2
Madhya Pradesh	53.8	58.1	66.2	87.6	87.6	86.6	143.1	154.9	157.1	140.1	186.0	179.6	165.0	187.0	10.7	24.8
Uttar Pradesh	29.0	27.0	39.3	39.0	44.4	34.0	66.0	75.0	64.0	43.0	64.0	166.0	79.2	82.0	10.1	10.9
Gujarat	117.1	143.0	71.0	141.0	84.9	80.0	127.0	117.0	34.0	121.0	102.0	64.0	78.0	72.7	-3.7	9.6
Rajasthan	148.7	62.8	88.7	126.9	152.5	97.2	223.2	166.3	122.1	72.1	112.5	115.3	92.7	67.8	-1.7	9.0
Others	35.6	38.5	38.2	34.0	32.0	31.8	31.0	32.7	29.0	31.3	34.3	32.8	37.4	40.0	-0.1	5.3
Karnataka	56.0	87.0	48.0	48.0	32.0	31.0	51.0	31.0	38.3	23.0	22.0	24.0	22.0	23.8	-8.3	3.1
Tamil Nadu	33.8	30.6	27.3	27.3	32.3	29.2	25.4	26.4	17.2	33.7	44.8	29.4	10.8	23.1	-2.9	3.1
Andhra Pradesh	38.0	29.0	29.0	27.0	19.0	20.0	19.0	13.0	12.4	16.9	28.0	14.0	17.0	11.0	-6.5	1.5
Telangana							7.0	7.0	8.6	12.1	10.0	3.0	15.0	8.8	2.4	1.2
Maharashtra	26.0	29.0	14.0	30.0	15.0	15.0	20.0	15.0	12.0	11.0	4.0	4.0	7.8	6.8	-12.3	0.9
Odisha	11.0	13.0	10.6	10.2	7.3	10.5	11.6	4.8	5.3	5.6	6.7	4.1	4.9	4.1	-8.3	0.5
Grand Total	674.1	641.1	618.4	756.9	640.3	588.5	893.0	810.3	685.2	714.8	827.9	850.2	747.1	755.4	1.7	

Source: Ministry of Agriculture and Farmers welfare/Directorate of economics and statistics

Annexure 5: State-wise Sesame seed Area in India

5. India State-wise Sesame seed area ('000') hectares																
State	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-2017	2017-2018	CAGR%	% Share (2017-18)
Madhya Pradesh	135.3	150.1	191.9	231.3	209.6	202.4	290.6	294.9	314.5	266.9	359.0	365.0	380.0	424.0	8.3	26.8
Uttar Pradesh	108.5	107.1	233.8	253.5	269.4	332.0	336.0	345.0	344.0	293.0	323.0	546.0	370.2	278.0	8.2	17.6
Rajasthan	446.7	422.1	273.3	314.9	521.2	598.3	547.0	512.8	415.2	360.6	329.9	366.7	266.9	251.9	-2.7	15.9
West Bengal	148.4	146.0	200.4	203.1	202.8	185.9	183.2	182.1	196.6	213.2	224.5	227.4	232.7	240.9	3.1	15.2
Gujarat	371.9	364.0	355.0	300.0	238.5	225.0	289.0	247.0	132.0	236.0	181.0	164.0	150.0	123.0	-7.7	7.8
Others	85.5	88.1	87.9	80.4	74.2	69.2	96.2	89.6	91.7	102.3	88.6	81.5	90.4	97.6	1.0	6.2
Tamil Nadu	72.7	65.1	52.6	74.4	63.7	62.7	48.2	43.2	33.2	56.6	64.2	46.3	28.2	41.6	-4.6	2.6
Andhra Pradesh	210.0	116.0	114.0	113.0	80.0	90.0	98.2	52.3	44.0	45.8	85.0	53.0	64.0	40.0	-8.9	2.5
Karnataka	108.0	103.0	85.0	87.0	56.0	76.0	87.0	62.0	73.0	41.0	44.0	51.0	35.0	36.0	-7.9	2.3
Maharashtra	109.0	107.0	59.0	93.0	56.0	55.0	56.0	46.0	40.0	40.0	21.0	30.0	33.5	32.0	-10.0	2.0
Odisha	48.0	54.7	50.3	48.4	37.7	45.5	51.8	26.5	21.7	23.5	25.9	20.0	16.0	14.8	-9.8	0.9
Grand Total	1844.0	1723.2	1703.2	1799.0	1809.1	1942.0	2083.2	1901.4	1705.9	1678.9	1746.1	1950.9	1666.9	1579.8	-0.5	

Source: Ministry of Agriculture and Farmers welfare/Directorate of economics and statistics

Annexure 6: State-wise Sesame seed Yield in India

6. India major state-wise yield (kg/hectare)																
State	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-2017	2017-2018	CAGR%	
West Bengal	843	843	929	915	657	824	921	918	942	961	952	941	933	949	1.2	
Karnataka	519	845	565	552	571	408	586	500	524	561	500	471	629	660	-0.4	
Gujarat	315	393	200	470	356	356	439	474	258	513	564	390	520	591	4.4	
Tamil Nadu	465	470	519	367	507	466	527	612	518	596	697	634	384	555	1.7	
Madhya Pradesh	398	387	345	379	416	428	492	525	500	525	518	492	434	441	2.1	
Uttar Pradesh	267	252	168	154	166	102	196	217	186	147	198	304	214	295	1.7	
Odisha	229	238	211	211	194	231	224	181	245	238	257	207	306	279	1.7	
Andhra Pradesh	181	250	254	239	238	222	193	249	282	370	329	264	266	274	2.6	
Rajasthan	333	149	325	403	293	163	408	324	294	200	341	314	347	269	1.0	
Maharashtra	239	271	237	323	268	273	357	326	300	275	190	133	233	211	-2.6	
Average	378.9	409.8	375.3	401.3	366.6	347.3	434.3	432.6	404.9	438.6	454.6	415	426.6	452.4	1.3	

Source: Ministry of Agriculture and Farmers welfare/Directorate of economics and statistics

Annexure 7: Destination-wise Sesame seed Export from India

7. Indian Sesame seed Export destination-wise ('000') Metric tons (HS Code: 120740)												
Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	% average total export	% Share (2017)
Viet Nam	6.33	10.27	32.47	85.84	58.85	26.82	55.59	39.25	67.17	57.93	16.11	20.35
Rep. of Korea	30.93	10.79	39.54	34.41	41.27	34.25	39.86	38.07	30.71	31.48	12.12	11.06
USA	20.83	15.69	23.54	34.70	25.68	19.06	18.87	17.20	17.78	19.89	7.80	6.99
Netherlands	13.10	9.86	12.03	12.17	10.87	7.99	11.25	10.64	12.82	14.91	4.23	5.24
Other Asia, nes	14.61	17.73	13.56	23.78	16.79	19.69	25.34	19.56	18.21	14.72	6.73	5.17
Russian Federation	0.58	0.84	5.02	5.48	7.40	8.42	8.91	9.39	10.22	13.10	2.54	4.60
Iran	1.75	1.02	2.58	2.76	3.36	7.85	11.08	12.38	15.01	12.29	2.56	4.32
Germany	10.44	8.46	12.26	15.34	11.77	11.99	12.72	13.49	12.39	11.43	4.40	4.02
Greece	15.15	7.74	11.49	13.02	10.64	13.47	10.26	10.36	9.91	11.36	4.15	3.99
Indonesia	4.07	5.15	5.82	7.71	9.07	7.45	6.75	6.45	8.17	10.06	2.59	3.53
Israel	12.45	4.70	7.44	6.43	5.95	7.02	7.78	8.66	7.98	8.86	2.83	3.11
Malaysia	7.13	6.79	6.58	8.56	8.25	9.18	9.05	8.60	9.10	8.74	3.00	3.07
China	16.05	8.80	21.48	12.59	3.33	3.13	36.72	7.06	5.85	6.82	4.46	2.40
Canada	2.93	3.02	4.01	4.26	4.40	4.77	5.18	5.17	5.18	6.03	1.64	2.12
Australia	4.04	4.07	5.18	4.70	5.02	5.45	5.47	5.19	5.65	5.10	1.82	1.79
Italy	4.12	4.07	4.27	5.92	4.15	3.23	3.98	3.81	4.37	4.75	1.56	1.67
Turkey	16.94	6.34	16.65	20.99	12.51	8.34	14.48	3.62	4.46	4.59	3.98	1.61
United Kingdom	3.58	3.24	4.51	4.88	4.29	5.38	4.25	4.83	4.28	4.48	1.60	1.57
Egypt	5.93	3.75	5.73	18.38	12.81	7.24	5.69	6.90	5.03	4.46	2.78	1.57
France	1.35	1.48	1.97	2.04	2.52	2.55	3.64	3.44	3.49	4.36	0.98	1.53
Poland	5.18	3.21	5.45	6.65	5.39	5.27	6.40	5.55	5.45	4.23	1.93	1.49
United Arab Emirates	6.77	4.34	6.72	6.42	5.23	2.72	3.86	2.01	1.73	4.10	1.61	1.44
Spain	0.82	1.18	1.66	1.94	2.25	3.66	4.36	5.06	3.88	3.89	1.05	1.36
Saudi Arabia	4.49	3.22	3.35	5.05	3.51	4.40	4.65	4.01	2.87	2.99	1.41	1.05
Ukraine	1.40	1.02	1.90	2.16	3.19	3.26	2.90	1.67	2.26	2.84	0.83	1.00
Lebanon	1.24	1.44	1.80	2.90	1.95	2.92	3.03	3.31	3.40	2.71	0.90	0.95
Mexico	11.49	3.82	2.98	10.35	6.35	3.48	4.06	1.44	1.65	2.64	1.77	0.93
Thailand	0.61	0.61	1.23	1.96	2.88	3.00	5.50	4.73	2.25	2.16	0.91	0.76
Singapore	3.95	2.20	1.57	3.31	1.95	2.22	3.14	2.30	2.22	1.90	0.91	0.67
Belgium	2.02	1.47	2.04	2.06	2.58	3.03	2.36	2.76	2.44	1.79	0.82	0.63
Others (about 117 countries)	24.96	21.01	27.14	41.93	32.84	32.50	35.30	36.65	39.97	46.89	12.40	16.47
Grand Total	230.31	156.34	264.85	366.76	294.22	247.22	337.13	266.90	285.94	284.63		

Source: UN Comtrade

Annexure 8: Destination-wise Sesame seed Export from Sudan

8. Sudan Sesame seed Export destination-wise ('000') Metric tons (HS Code 120740)									
Country	2008	2009	2010	2011	2012	2015	2017	CAGR%	% Share (2017)
China	4.16	24.44	47.79	26.75	35.95	57.40	249.27	0.77	48.68
Egypt	34.18	30.38	21.17	25.17	28.99	81.80	88.94	0.57	17.37
Turkey	1.58	1.26	0.78	0.29	2.57	14.07	39.26	0.83	7.67
Saudi Arabia	19.72	13.99	11.84	17.41	12.38	40.02	34.22	0.54	6.68
India			0.06		9.50	5.38	22.37	0.73	4.37
Jordan	1.40	4.22	6.52	4.95	6.33	17.75	20.89	0.70	4.08
Syria	7.51	14.14	11.05	13.88	7.67	7.84	17.84	0.49	3.48
Lebanon	9.24	10.87	15.58	11.48	10.91	23.09	17.34	0.53	3.39
Greece	4.32	4.18	4.71	5.67	4.73	10.80	11.61	0.56	2.27
Tunisia	8.51	8.00	5.93	8.85	5.96	10.11	10.19	0.49	1.99
Areas NES	0.27	0.81	44.51	47.31	39.10		0.09	1.92	0.02
Others (About 48 countries)	14.65	12.82	6.93	8.28	11.39	27.75	37.25	0.56	7.27
Grand Total	90.89	112.28	169.94	161.76	164.08	268.26	512.02	0.61	

Source: UN Comtrade

Sudan Sesame seed Export destination-wise (Values in USD million) (HS Code 120740)								
Country	2008	2009	2010	2011	2012	2015	2017	CAGR%
China	6.55	26.41	55.32	31.30	42.44	126.56	188.06	58.75
Egypt	64.96	41.65	22.98	25.81	29.01	104.35	63.71	7.45
Turkey	7.09	1.42	0.88	0.30	2.86	20.27	29.82	47.02
Saudi Arabia	25.92	17.28	13.85	19.52	14.04	283.84	26.76	22.61
Jordan	2.07	6.54	10.86	5.79	8.69	21.51	16.39	34.84
India			0.05		7.31	176.27	15.51	45.63
Syria	12.10	14.03	10.23	14.14	8.51	9.68	13.54	-2.09
Lebanon	11.79	11.39	17.68	13.22	12.18	37.07	12.95	8.43
Greece	6.17	4.07	4.99	5.61	5.24	13.85	8.99	13.81
Tunisia	10.91	7.80	5.93	9.51	6.07	13.13	7.76	0.15
Areas, nes	0.31	1.03	46.68	49.74	40.40	0.10	0.06	-29.40
Others (About 48 countries)	20.04	15.83	7.33	11.41	10.44	34.71	28.26	11.14
Grand Total	147.88	131.62	189.44	174.94	176.73	806.63	383.55	

Source: UN Comtrade

Annexure 9: Destination-wise Sesame seed Export from Tanzania

9. Tanzania Sesame seed export destination-wise ('000') Metric tons (HS Code 120740)												
Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	CAGR %	% Share (2017)
China	6.56	35.55	32.85	52.60	51.21	72.52	79.37	102.54	112.15	60.77	23.89	75.59
Japan	21.20	30.64	17.58	21.92	24.07	12.65	35.18	31.45	20.41	18.00	-0.38	22.39
India	0.78	2.08	13.05	0.72	0.36	0.67	1.09	0.20	1.07	0.25	-18.64	0.31
Others (about 22 countries)	3.24	3.53	2.23	0.78	1.07	1.89	1.25	0.90	0.11	1.38	-18.80	1.71
Grand Total	31.78	71.80	65.71	76.02	76.71	87.73	116.88	135.08	133.75	80.40	11.35	

Source: UN Comtrade

Tanzania Sesame seed export destination-wise (Values in USD million) (HS Code 120740)												
Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	CAGR %	
China	6.52	33.40	33.64	51.71	49.75	102.01	271.85	94.00	107.97	55.65	26.17	
Japan	21.42	26.38	13.27	20.86	28.53	20.37	48.89	34.93	20.43	17.17	2.01	
India	0.39	1.67	1.03	0.11	0.25	0.61	1.52	0.17	1.06	0.23	-4.79	
Others (About 22 countries)	2.94	3.08	2.15	0.39	1.18	1.56	2.15	0.65	0.11	1.09	-18.02	
Grand Total	31.27	64.53	50.10	73.08	79.70	124.54	324.41	129.75	129.57	74.14	14.49	

Annexure 10: Destination-wise Sesame seed Export from Myanmar

10. Myanmar Sesame seed export destination-wise ('000') Metric tons (HS Code 120740)										
Country	2010	2012	2013	2014	2015	2016	2017	CAGR%	% Share (2017)	
China	20.27	92.74	223.48	66.16	56.98	84.68	100.97	12.38		76.33
Rep. of Korea	5.93	14.00	15.08	16.17	12.14	5.95	10.68	-0.58		8.08
Japan	12.58	9.65	10.57	5.50	4.56	6.48	9.16	-8.84		6.92
Singapore	4.44	6.87	11.81	3.72	2.63	4.29	4.37	-8.52		3.30
Others (about 31 countries)	3.15	17.22	5.45	3.00	2.30	2.36	7.11	-8.20		5.37
Grand Total	46.38	140.48	266.39	94.56	78.62	103.76	132.29	4.82		

Myanmar Sesame seed export destination-wise (Values in USD million) (HS Code 120740)									
Country	2010	2012	2013	2014	2015	2016	2017	CAGR %	
China	27.82	127.28	306.72	155.48	141.72	118.46	119.87	13.18	
Rep. of Korea	9.63	19.21	20.69	37.99	30.20	19.60	15.15	6.56	
Japan	19.57	13.24	14.51	12.93	11.34	14.34	14.51	-3.46	
Singapore	6.34	9.43	16.21	8.75	6.54	8.52	5.10	-6.11	
Others (about 31 countries)	4.36	23.63	7.48	7.05	5.72	5.08	9.52	-3.50	
Grand Total	67.73	192.80	365.62	222.21	195.51	166.00	164.16	6.38	

Annexure 11: Destination-wise Sesame seed Export from Nigeria

11. Nigeria Sesame seed Export destination-wise ('000') Metric tons (HS Code 120740)										
Country	2008	2009	2010	2011	2012	2013	2014	2017	CAGR%	% Share (2017)
China	6.28	5.31	8.14	11.17	9.93	6.08	30.83	21.65	21.66	27.78
Turkey	26.09	26.17	69.28	46.64	75.80	53.94	60.30	20.27	2.59	26.02
Japan	48.59	21.28	58.60	44.63	63.46	31.23	70.82	13.93	-4.95	17.88
Viet Nam		0.38	21.91	4.54	19.76	10.54	10.59	6.54	32.65	8.40
India	0.35	3.55	0.14	0.51	7.16	9.27	12.47	6.16	64.06	7.90
Germany	0.41	0.18	0.02	15.31	1.36	8.85	10.05	4.08	86.22	5.24
Netherlands	0.30	0.78	1.06	0.48	1.82	13.06	7.80	3.55	56.86	4.56
Greece	0.70	0.89	0.37	2.09	5.97	10.74	5.66	1.65	37.04	2.11
Singapore	9.69	1.92	1.39	5.20	3.69	3.29	2.85	0.08	-29.50	0.10
Brazil	6.79	14.03	21.13	15.21	13.24			0.01	15.22	0.02
Others (About 94 countries)	30.43	36.33	49.83	23.96	39.05	27.08	24.17	15.45	-9.22	19.83
Total	99.18	74.48	182.03	145.77	202.19	146.99	211.38	77.93	3.90	

Source: UN Comtrade

Note: 2015 and 2016 data not available

Nigeria Sesame seed Export destination-wise ('000') Metric tons (HS Code 120740)									
Country	2008	2009	2010	2011	2012	2013	2014	2017	CAGR%
China	7.33	5.78	23.25	21.49	19.45	19.36	72.46	31.46	30.24
Turkey	30.45	53.19	334.12	98.64	117.20	220.91	141.71	29.47	4.38
Japan	56.72	31.53	89.87	75.58	128.81	109.35	166.44	20.25	2.69
Viet Nam		0.48	15.54	6.54	32.22	38.58	24.89	9.51	51.64
India	0.41	7.40	1.02	0.88	12.46	38.24	29.30	8.95	64.80
Germany	0.48	0.19	0.11	3.09	7.37	122.48	23.62	5.94	113.38
Netherlands	0.35	0.51	1.60	0.68	3.30	40.85	18.33	5.17	77.48
Greece	0.82	2.28	3.43	3.51	11.73	36.71	13.31	2.40	34.17
Singapore	11.31	3.57	32.10	12.64	26.08	14.21	6.69	0.12	-30.54
Brazil	7.92	18.32	21.77	37.75	26.87			0.02	37.24
Others (About 94 countries)	35.52	71.15	115.13	127.69	109.54	201.99	56.80	22.46	-3.28
Total	115.78	123.24	522.80	260.80	385.48	640.69	496.76	113.28	9.75

Annexure 12: Country-wise Sesame seed Import

Country-wise Sesame seed Import ('000') Metric tons (HS Code 120740)							
Country	2013	2014	2015	2016	2017	CAGR%	% Share (2017)
China	441.1	568.8	805.4	931.2	711.8	15.6	37.1
Japan	141.6	168.2	184.7	152.1	119.8	-4.2	6.2
Turkey	106.8	110.9	126.4	137.0	145.8	8.7	7.6
EU-28	125.0	123.5	67.5	125.5	124.4	0.1	6.5
Rep. of Korea	77.9	83.9	77.8	77.9	75.0	-1.5	3.9
Israel	55.4	54.1	61.3	58.6	56.6	1.3	2.9
India	76.6	53.4	23.1	47.3	45.8	-10.9	2.4
Iran	30.9	32.0	0.0	79.8	85.7	34.4	4.5
Saudi Arabia	40.0	44.3	47.4	NA	44.9	8.9	2.3
Greece	39.4	33.4	32.6	33.7	31.2	-4.5	1.6
USA	34.5	33.3	32.5	31.9	33.6	-1.0	1.8
Germany	31.1	33.2	34.1	31.5	33.1	0.8	1.7
Other Asia, nes	39.0	0.0	39.3	41.6	41.3	100.3	2.2
Jordan	23.5	26.5	28.8	34.0	24.2	3.1	1.3
Lebanon	24.2	25.0	30.1	29.7	25.3	2.7	1.3
Netherlands	27.3	22.2	25.3	19.2	23.0	-4.7	1.2
Mexico	16.0	20.1	20.0	23.7	28.9	14.4	1.5
Egypt	22.1	19.6	7.7	13.4	26.4	-0.3	1.4
Others (About 147 countries)	239.9	238.8	251.7	254.4	244.0	1.0	12.7
Grand Total	1592.1	1691.3	1895.7	2122.5	1920.9	6.2	

Source: UN Comtrade

Country-wise Sesame seed Import (Values in USD million) (HS Code 120740)						
Country	2013	2014	2015	2016	2017	CAGR%
China	773.2	1148.1	1122.4	956.3	734.0	-2.8
Japan	266.9	382.5	332.7	205.4	189.5	-12.2
EU-28	270.0	316.9	253.5	177.5	181.9	-12.8
Turkey	182.1	219.9	219.2	235.9	243.9	6.8
Rep. of Korea	175.7	205.3	140.1	111.1	108.8	-14.5
Israel	112.1	131.2	103.4	71.3	70.4	-14.3
USA	89.7	101.3	79.4	59.5	61.5	-12.1
India	122.7	106.2	29.7	46.7	43.5	-25.1
Germany	74.9	90.1	73.4	51.2	54.4	-11.4
Iran	54.8	62.7	0.0	106.9	116.1	22.6
Saudi Arabia	71.5	92.0	70.4	51.2	50.4	-12.1
Greece	72.3	79.1	54.8	41.8	41.0	-16.2
Other Asia, nes	45.4	70.6	55.5	49.7	49.1	-1.9
Jordan	45.7	61.7	46.3	41.0	29.6	-12.0
Lebanon	46.1	59.8	48.4	34.9	30.1	-13.0
Netherlands	41.6	55.3	45.0	28.7	36.1	-9.0
Egypt	51.9	39.5	20.3	25.0	41.7	-8.6
Mexico	26.2	37.2	23.2	23.2	29.5	-2.3
Others (About 147 countries)	412.0	509.9	415.7	343.4	345.3	-7.2
Grand Total	2934.9	3769.3	3133.3	2660.7	2456.9	-6.8

Source: UN Comtrade

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