

BLACK PEPPER



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1. Agricultural and Botanical Details

Black pepper, (*Piper nigrum*), also called pepper, perennial climbing vine of the family Piperaceae and the hotly pungent spice made from its fruits. Black pepper is native to the Malabar Coast of India and is one of the earliest species known. Widely used as a spice around the world, pepper also has a limited usage in medicine as a carminative (to relieve flatulence) and as a stimulant of gastric secretions. In early historic times pepper was widely cultivated in the tropics of Southeast Asia, where it became highly regarded as a condiment. Pepper became an important article of overland trade between India and Europe and often served as a medium of exchange; tributes were levied in pepper in ancient Greece and Rome. In the Middle Ages the Venetians and the Genoese became the main distributors in Europe, and their virtual monopoly of the trade helped instigate the search for an eastern sea route. The plant is widely cultivated throughout Indonesia and has been introduced into tropical areas of Africa and of the Western Hemisphere. The black pepper plant is a woody climber and may reach heights of 10 metres (33 feet) by means of its aerial roots. Its broad shiny green leaves are alternately arranged. The small flowers are in dense slender spikes of about 50 blossoms each. The fruits, which are sometimes called peppercorns, are drupes about 5 mm (0.2 inch) in diameter. They become yellowish red at maturity and bear a single seed. Their odour is penetrating and aromatic; the taste is hot, biting, and very pungent. Ground black pepper contains up to 3 percent essential oil that has the aromatic flavour of *Capsicum* peppers but not the pungency. The characteristic flavour is principally derived from the chemical piperine, though the seeds also contain chavicine, piperidine, and piperettine. Black pepper is a plant of humid tropics requiring high rainfall and humidity. The hot and humid climate of sub mountainous tracts of Western Ghats is ideal for its cultivation. It grows successfully between 20° North and South latitude, and from sea level up to 1500 m above sea level. The crop tolerates temperatures between 10° and 40°C. The ideal temperature is 23 -32°C with an average of 28°C. Optimum soil temperature for root growth is 26-28°C. A well distributed annual rainfall of 125-200 cm is considered ideal for black pepper. Black pepper can be grown in a wide range of soils with a pH of 5.5 to 6.5, though in its natural habitat it thrives well in red laterite soils.

2. Uses

Ground, dried and cooked peppercorns have been used since antiquity, both for flavour and as a traditional medicine. Black pepper is the world's most traded spice, and is one of the most common spices added to cuisines around the world. Its spiciness is due to the chemical compound piperine, which is a different kind of spicy from the capsaicin characteristic of chili peppers. It is ubiquitous in the modern world as a seasoning, and is often paired with salt and available on dining tables in shakers or mills. Pepper spirit is used in many medicinal and beauty products. Pepper oil is also used as an ayurvedic massage oil and in certain beauty and herbal treatments.

To prevent cancer: The piperine in black pepper can be credited with the prevention of cancer, and becomes twice as potent when combined with turmeric. The spice also has Vitamin C, Vitamin A, flavonoids, carotenes and other anti-oxidants that help remove harmful free radicals and protect the body from cancers and diseases. The best way to eat pepper to harness maximum benefits is to eat freshly ground pepper, and not cook it along with food.

Stimulates digestion: Again, the piperine in black pepper eases digestion and stimulates the stomach, which then secretes more hydrochloric acid that helps to digest proteins in food. So a bit of pepper in food will actually help you to digest it faster.

Relieves cold and cough: Black pepper is antibacterial in nature, and therefore helps to cure cold and cough. A teaspoon of honey with freshly crushed pepper does the trick. It also helps to alleviate chest congestion, often caused due to pollution, flu, or a viral infection. You can add it to hot water and eucalyptus oil and take steam. And given that black pepper is rich in Vitamin C, it also works as a good antibiotic.

Enables weight loss: You might not want to believe this, but black pepper is brilliant when it comes to extracting nutrients from food. And it's outermost layer contains phytonutrients, which helps to break down fat cells, and also increases metabolism. If you eat fresh pepper, and begin to perspire, that's the pepper helping your body to get rid of excess water and toxins. But you need to control consumption - a pinch with your food (one meal) is enough.

Improves skin: Did you know that crushed pepper is one of the best exfoliators nature has provided us? Don't use it directly though; add a bit of honey, curd, or fresh cream to it. It also enables blood circulation, and provides the skin with more oxygen. Adding it to your food also takes care of unwarranted skin wrinkles. Black pepper is known to help in the cure of Vitiligo, a condition where the skin loses pigmentation, and creates white patches.

Addresses depression: It's said that the piperine in black pepper helps to deal with depression. It stimulates the brain, and helps it to function properly by making it more active.

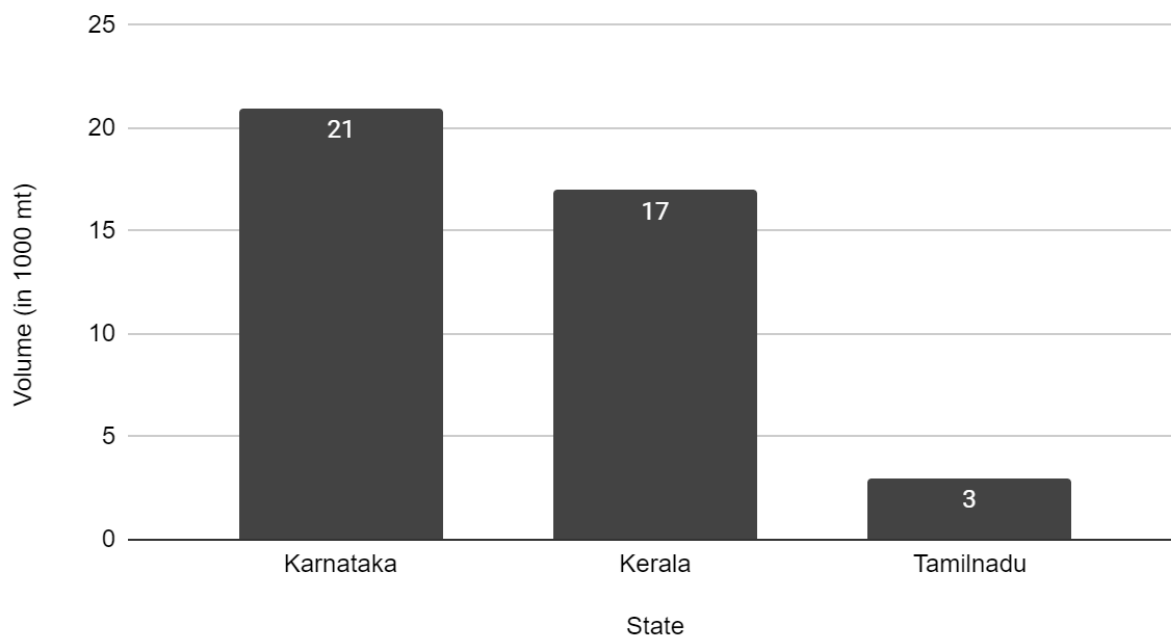
3. Production

3.1 Worldwide

Country	Production (1000 mt)
Ethiopia	375
Vietnam	265
Brazil	109.4
Indonesia	88.95
India	66
Tajikistan	47.11
Srilanka	41.43
China	37.42
Malaysia	33.94

3.2 In India

Top Black pepper producing states



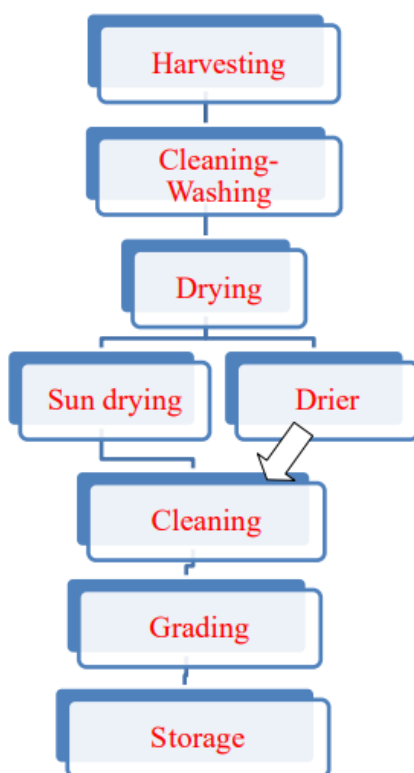
Karnataka produced the highest volume of pepper in the financial year 2019. The south Indian state was estimated to produce about 21 thousand metric tons of pepper that year. The perennial woody vine of pepper was expected to be grown in an area of about 41 hectares of land. Pepper cultivation Pepper vines are mostly grown in hilly terrain with well-drained soil under high temperatures and ample rainfall. They need additional support such as other trees or trellis for promoting climbing to prevent the fruits from touching the ground. The leading producers of pepper in India are the southern states – Karnataka, Kerala, and Tamil Nadu. The total area under pepper cultivation in the country was estimated to be over 139 thousand hectares as of the financial year 2019.

4. Framework

Backward Linkages	
Operations	Agency/Agents/Providers
Seed/Planting Material	ICAR-IISR, Kerala Agricultural University
Manure	Co-Op Societies
Fertilizers	Co-Op Societies

Bio Fertilizers	State Department of Agriculture
Bio Pesticides	State Department of Agriculture
Pesticides/Insecticides	Co-Op Societies
Forward Linkages	
Storage Unit	
Processing Unit	
Local Market	
Terminal market	
Farm Market	

Black pepper based products: Whole black pepper, Sterilized black pepper, Ground black pepper, Cryoground black pepper powder, Pepper oil, Oleoresin, Microencapsulated spice flavour.



5. Varieties of commodity grown in india - location and qty .Metrics of Quality Parameters and Indian produce range of parameters

A majority of the cultivated types are monoecious (male and female flowers found in the same spike) though variation in sex expression ranging from complete male to complete female is found. Over 75 cultivars of black pepper are being cultivated in India. Karimunda is the most popular of all cultivars in Kerala.

The other important cultivars are Kottanadan (South Kerala), Narayakodi (Central Kerala), Aimpiriyam (Wayanad), Neelamundi (Idukki), Kuthiravally (Kozhikode and Idukki), Balankotta and Kalluvally (North Kerala). Panniyur-1, Panniyur-2, Panniyur-3, Panniyur-4, Panniyur-5, Panniyur-6, Panniyur-7, Subhkara, Sreekara, Karimunda, Panchami, Pournami, Kottanadan, Kuthiravally, Arakulam Munda, Balakotta and Kalluvally are the commonly cultivated varieties of these, Panniyur-1 is to be grown in comparatively open areas, improved varieties are Panniyur-8, Girimunda, and Malabar Excel.

Name	Pedegiree	Released From	Av. Yeild Kg/ha (dry)	Oleore sin(%)	Piperi ne(%)	E.Oil (%)	Remark
Panniyur-1	F1 of Uthirankotta X Cheriakaniya kadan	Pepper Research Station, Kerala Agriculture University, Panniyur	1242	11.8	5.3	3.5	Suited to all pepper growing regions. However, do not tolerate heavy shade.
Panniyur-2	Open pollinated progeny of 'Balankotta'	Pepper Research Station, Kerala Agriculture University, Panniyur	2570	10.9	6.6	3.4	Suited to all pepper growing tracts of Kerala. Appreciably tolerant to shade.
Panniyur-3	F1 of Uthirankotta X Cheriakaniya kadan	Pepper Research Station, Kerala Agriculture University, Panniyur	1953	12.7	5.3	3.1	Suited to all pepper growing regions of Kerala. Late maturing.

Panniyur-4	Clonal Sselection of Kuthiravally	Pepper Research Station, Kerala Agriculture University, Panniyur	1277	9.2	4.4	2.1	Suited to all pepper growing tracts of Kerala. performs well under adverse climatic conditions.
Panniyur-5	Open pollinated progency of Perumkodi	Pepper Research Station, Kerala Agriculture University, Panniyur	1098	12.33	5.5	3.8	Suited to all pepper growing tracts . Tolerant to nursery diseases.
Subhakara	Clonal Selection of Karimunda	IISR, Calicut	2352	12.4	3.4	5	Suited to all pepper growing tracts of Kerala and South Karnataka.
Sreekara	Clonal Selection of Karimunda	IISR, Calicut	2677	13	5.1	7	Suited to all pepper growing tracts of Kerala and South Karnataka.
Panchami	Clonal selection of Aimpirian	IISR, Calicut	2828	12.5	4.7	3.4	Suited to all pepper growing tracts of Kerala and South Karnataka.
Pournami	Clonal selection of Ottaplackal	IISR, Calicut	2333	13.8	4.1	3.4	Suited to all pepper growing tracts of Kerala and S.Karnataka. Tolerant to root knot nematode infection.
PLD-2	Clonal selection of Kottanadan	Central Plantation Crops Research Institute, Regional Station, palode.	2475	15.5	3.3	3.5	Recommended for release in Quilon and Trivandrum districts of Kerala/

6. Domestic Consumption

Year	Production Volume (in mt)	Imported Volume (in mt)	Domestically Consumed Volume (in mt)
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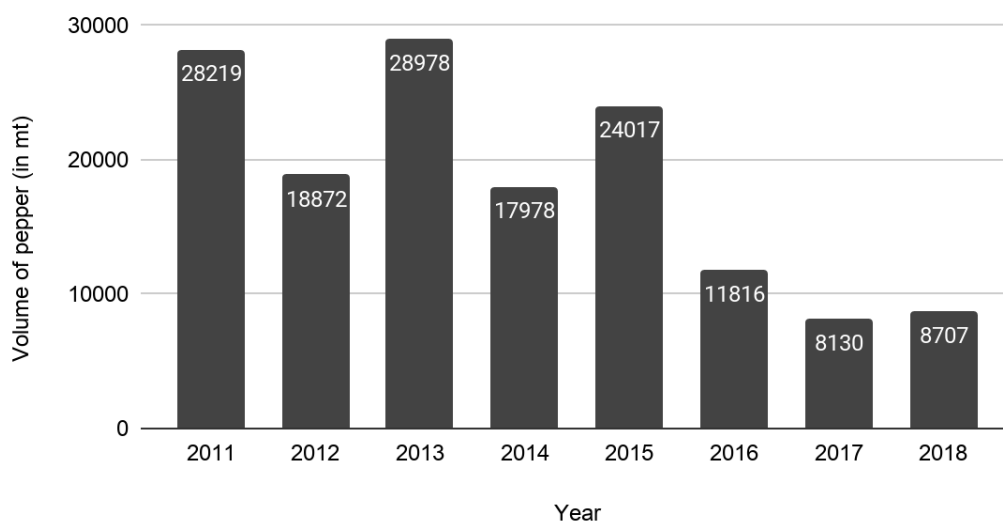
resurgentagric@gmail.com

2016-17	62080	20265	55000
2017-18	71488	29650	56000
2018-19	62425	24950	57000

The import of black pepper has been estimated at 10,990 tonnes during April-August FY20 . Of this, the share of import from Vietnam has been estimated at 6,657 tonnes. The share of Sri Lanka and Indonesia has been estimated at 2003 tonnes and 1034 tonnes, respectively.

7. Exports : Quantity and value

Export Volume of pepper including black pepper over the years



India's exports of pepper including black pepper have declined by 10.4% exponentially since 2011. Also from the point of view of exports in quantity terms, India's quantum is lower for 2017 and 2018 as compared to 2015 and 2016. This clearly indicates that our processes are not competitive compared to those of Viet Nam, Brazil and Indonesia. In 2018, pepper exports from India plummeted by approximately 35% compared to 2016 to 16,840 tonnes, the lowest in recent times. In 2018-19, according to the Spices Board, export shipments fell over 25% year-on-year in the nine months up to December 2018. Majority of the shipments from India are value added exports of imported varieties, mostly from Vietnam. To be more specific, Vietnam is selling the commodity at US\$ 2,800 per tonne, way less than US\$ 6,000 per tonne commanded by the Indian variety.

8. Major Production Organisations

S. No.	Organisation Name	Address	Contact (mail & phone)	Website
1	Shristi Aqua Teh	Ahmedabad, Gujarat, India - 382210	9409055299, 9624778855 rajneeshmishra011@gmail.com	http://www.shristiaquatech.com/
2	Safex Agro Export Industries	holka, Ahmedabad, Gujarat - 382225, India	91 9825308027 dilepvaghela1942@gmail.com	http://www.safexagroexports.in/about-us.htm
3	MSK Impex	karur, Tamil Nadu, India - 639136	8760649493 impexmsk2@gmail.com	https://www.msk-impex.co.in/
4	Monsut Chem Industries	Dispur, Guwahati, Assam, India - 781022	8812844258 monsutchemind@gmail.com	https://www.monsutchem.co.in/
5	Hindustan Mint & Agro Products Pvt. Ltd.	Barehseni Street, Chandausi - 202412, Uttar Pradesh, India	Phone :08035062971 Email Us :phoolprakash@hindustanmint.in	https://www.hindustanmint.com/
6	DC Traders	Mysore, Karnataka, India - 570001	7022246666 dnrj248@gmail.com	http://www.dctraders.biz
7	Aloha Exports	Rajendra Place, Delhi - 110008, India	09999105018 girish@alohaexports.in, rishab.bansal@alohaexports.in	https://www.exportersindia.com/aloha-exports/
8	Heya and Company	Vinobaji Street, Mannargudi - 614001, Tamil Nadu, India	Phone : 08045804659 Mr. Johnson Durai S (Proprietor) Mobile : 08045804659	http://www.heyandcompany.com/

9	Aushadhi Herbal	Near Pnb Bank , Dilshad Garden - 110095 Factory Address 7A, Sector 8B, Deopuri, Raipur, Chattisgarh -492015	09990708948 +91-011-49324112 aushadhiherbal@outlook .com aushadhiherbal@gmail.c om	http://www.aushadhiherbal.co.in/
10	Adya Agro	Gurgaon, Haryana, India - 122001	08287024503 Contact@adyaagro.com	https://www.adyaagro.com

9. Major domestic sales organisations

S. No.	Organisation Name	Address	Contact)	Website
1	Tuned Food Agro LLP	Bhuvaneswari Nagar, Bengaluru	8048620986	https://www.tunedfood.in/
2	3D Masale	Market Yard -Iskcon Temple Road, Pune	8048705936	https://www.3dmasale.com/
3	Prince Enterprise	ASARWA bridge, Ahmedabad	8048612318	https://www.indiamart.com/princeenterprises-ahmedabad/
4	Mithuna Foods	Rice Mills, Mandy Red Hills., Chennai	8048807341	https://www.mithunafoods.in/
5	Indian Aroma Exports	H-472, Awas Vikas, Kalyapur, Kanpur - 208017, Uttar Pradesh	info@indianaroma.in	https://www.indianaroma.in/
6	Kallupurackal Traders	11/180, Erettayar Panchayath, Kattappana, Idukki Vandanmedu, Kochi - 685508, Dist. Ernakulam, Kerala	8046032183	https://www.indiamart.com/kallupurackal-traders/

7	Mumbai Traders	En key Chambers 2nd floor, gopalaprabhu road, Kochi - 682018, Dist. Ernakulam, Kerala	8048085643	https://www.mumbaitraders.com/
8	Ramesh Masala	Vardhman Mansion, Road No. 110, Keshavji Nayak Road, chinchbunder, Mumbai - 400009, Dist. Mumbai, Maharashtra	8048566984	https://www.indiamart.com/rameshmasala/
9	Deon Healthcare (A Div. Of Ultra Healthcare)	376, Ground & 1st Floor, Saketri, Panchkula - 134109, Dist. Panchkula, Haryana	8048026371	https://www.indiamart.com/deonhealthcare/
10	The Taj Urban Grains	F-03, Plot No. 43, RK Puram IInd, Near Shenai Farm House Sadarpur Harsaon Road, Opposite Vrindavan Garden, Govindpuram, Govindpuram, Ghaziabad - 201013,	8049591643 vineet.nehra@t ajurbangrains.c om	https://www.tajurbangrains.com/

10. Major Export organisations

S. No.	Organisation Name	Address	Contact	Website
1	M.M Impex	Opp. New Charan Boarding Layja Road, Room No.21, Mandvi, Kutch, Gujarat - 370465, India	+91-9662239253 m.m.impexp9@g mail.com	http://www.mmimpexindia.co.in/

2	Jubitar Exim	D/No:8/285, Thulasinga Nagar, Valparai, Coimbatore, Tamil Nadu, India - 642127	9843476496 matuprakashsk @gmail.com	https://www.jubitarexim.co.in/
3	Global Exporters	No. 130/1, Ganapathy Nagar, Pudukkottai, Tamil Nadu, India	8754277432 shanmugavelpav i1@gmail.com	https://www.globalexport.co.in/
4	Dc Traders	Mysore, Karnataka, India - 570001	7022246666 dnrj248@gmail.c om	http://www.dctraders.biz
5	MONSUT CHEM INDUSTRIES	Plot No. A 3, VIP Road, Elegant Plaza, Six Mile Near Kali Mandir, Dispur, Guwahati, Assam, India - 781022	8812844258 monsutchemind @gmail.com	https://www.monsutchem.co.in/
6	MSK Impex	17/21 Pillaiyar Kovil Street, Masagoundan Pudur, Manmangalam Post, karur, Tamil Nadu, India - 639136	8760649493 impexmsk2@gm ail.com	https://www.msk-impex.co.in
7	Spice Arena	B-802, Green Victory, Althan, Surat, Gujarat - 395017, India	8460091212 spicearena17@g mail.com	https://www.spicearena.co.in
8	Safex Agro Export Industries	61-62, Dhaval Society, Near Mithikui Jakatnaka, Dholka, Ahmedabad, Gujarat - 382225, India	9825308027 dilepvaghela194 2@gmail.com	http://www.safexagroexports.in/
9	SMVVT Export	No. 3/85, Sebasthiyar Kovil Street, Mahadevappattinam, Thiruvavur, Tamil Nadu - 614018, India	9566263112 info@smvvtexpo rt.com	https://www.smvvtexport.co.in

10	Shristi Aqua Tech	Plot No. - 8, S K Tiles Estate, Sarkhej, Near Relief Hotel Ahmadabad 382210, Sarkhej, Ahmedabad, Gujarat - 382210, India	rajneeshmishra011@gmail.com	https://www.exportersindia.com/shristi-aqua-tech/
11	Chintamani Traders	1/5296, Gali nNo. 10, Balbir Nagar Extension, Shahdara, Delhi, India - 110032	shri1008chintamani@gmail.com	shri1008chintamani@gmail.com
12	Hindustan Mint & Agro Products Pvt. Ltd.	Barehseni Street, Chandausi, Sambhal, Uttar Pradesh - 202412, India	hindustan@sancharnet.in	http://www.hindustan-mint.com/
13	Mahajan Agro International	Shop No. 8 Batala Road Kashmir Plaza Market, Vijay Nagar, Amritsar, Punjab, India - 143001	mahajanagrointernational72@gmail.com	https://www.mahajanagro.co.in

11. Major importing countries of indian produce

US, UK, Germany, India, Vietnam, Netherlands, France, Egypt and Japan are the major global importers of black pepper. India ranked at the topmost position in global pepper production until the late 19th century, but lost its position to other nations like Vietnam, Indonesia and Brazil. Major exporting destinations of India include US, UK, Sweden, Italy, Germany, France and Netherlands.

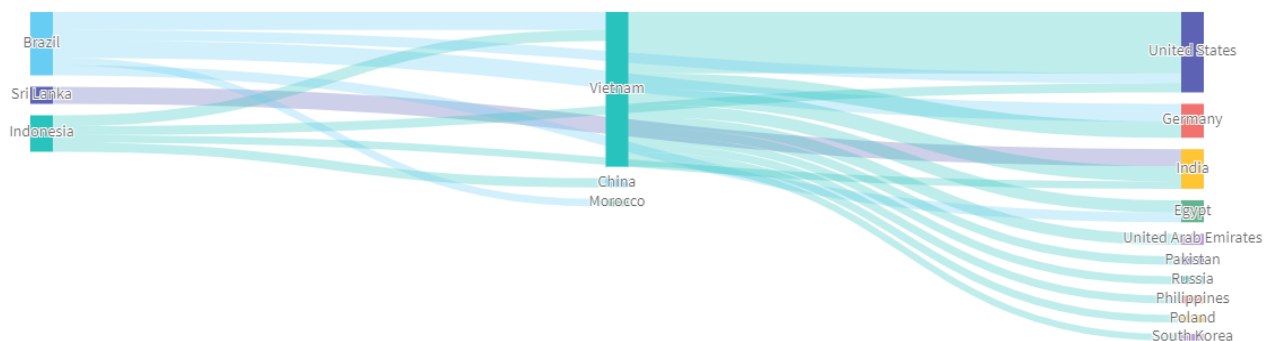
Export Destinator	Share in Export from India (in %)	Export Value of India (in M USD)	Export Quantity of India (in mt)	3-Year Growth in Value
United States	17.02	7.06	1400	-72.23
Sweden	12.84	5.33	852.22	-51.39
Germany	10.66	4.43	474.21	-61.9

Japan	7.23	3	517.51	-57.94
United Kingdom	5.88	2.44	445.11	-44.67
Thailand	5.55	2.3	573.98	15387.44
Italy	4.17	1.73	517.75	49.79
Netherlands	3.53	1.47	210.93	66.82
Canada	3.43	1.42	268.18	32.59

Refer: <https://www.tridge.com/products/black-pepper/export/IN>

12. Network of origin countries and importing countries other than india

Refer: <https://www.tridge.com/products/black-pepper/import>



13. Apex bodies /Associations

14.1 In India

Spices Board India

Spices board was constituted 26th Feb 1987 under the spices board act 1986 (No. 10 of 1986) with the merger of the erstwhile Cardamom Board (1968) and Spices Export Promotion Council (1960). Spices Board is one of the five Commodity Boards functioning under the Ministry of Commerce & Industry. It is an autonomous body responsible for the export promotion of the 52 scheduled spices and development of Cardamom (Small & Large).

Main Functions :

- Research, Development and Regulation of domestic marketing of Small & Large Cardamom

- Post-harvest improvement of all spices
- Promotion of organic production, processing and certification of spices
- Development of spices in the North East
- Provision of quality evaluation services
- Export promotion of all spices through support for:- Technology upgradation.
- Quality upgradation
- Brand promotion Research & product development

Contact: <https://www.indianspices.com/contact.html>

14.2 International

International Pepper Community (IPC)

The International Pepper Community is an intergovernmental organization of pepper producing countries. The Community now includes India, Indonesia, Malaysia, Sri Lanka and Vietnam as permanent members and Papua New Guinea, Philippines as an associate member. The IPC was established in 1972 under the auspices of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP). The IPC Secretariat is located in Jakarta, Indonesia and is headed by an executive director. Membership to the Community is open to all pepper producing countries, with the unanimous consent of the existing members and by acceding to the agreement establishing the Pepper Community.

Contact: <http://www.ipcnet.org/subs/?p=d>

14. Commodity Exchanges

In India:

Multi Commodity Exchange

National Commodity & Derivatives Exchange Limited

Indian Commodity Exchange Limited

Indian Pepper and Spice Trade Association (IPSTA), one of the oldest pepper exchanges in the world to trade in pepper futures, ceased to exist from January 10 th, 2018 with Securities and Exchange Board of India (SEBI) granting an exit order.

15. Major challenges in the domestic trade

According to Spices Board chairman A Jayathilak, drought and untimely rains in major pepper growing areas of Kerala and Tamil Nadu are the major reasons for the decline in production. Certain areas in Karnataka also suffered damage due to pest attack. This is the major challenge that brought the production of pepper down to around 35% less than the year 2015.

Some of the factors affecting the Indian pepper production are cultivation of low yield varieties, existence of unproductive vines, pest and disease attack, Drought, Decrease in soil fertility, Increasing labor cost, changing pattern of crops.

16. Major challenges in the export trade

The respondents of a survey conducted in 2018, were asked to rank their opinion about the characteristics of the Black Pepper Exporter. The order of merit given by respondents was converted into rank.

From the below table it is referred that by using weighted average mean the ranking for major problems faced during exports in the Black Pepper. Most of the respondents face problems because of **Quarantine or pest problems** and the lowest rank for low profitability.

PROBLEM	10	9	8	7	6	5	4	3	2	1	Total	Mean	Rank
High cost of production	6	2	6	2	9	2	13	7	7	4	50	4.34	VI
	60	18	48	14	54	10	52	21	14	4	295		
Quality issues	3	4	9	5	3	6	6	10	4	7	50	4.48	V
	30	36	72	35	18	30	24	30	8	7	290		
Improper packing issues	8	3	3	1	8	7	13	11	5	2	50	4.22	VII
	80	27	24	7	48	35	52	33	10	2	318		
Quarantine or pest problem	7	8	4	12	5	2	4	2	4	2	50	6.6	I
	70	72	32	84	30	10	16	6	8	2	330		
Certification problem	5	8	8	4	5	12	3	7	9	2	50	4.7	VIII
	50	72	64	28	30	60	12	21	18	2	357		
Low yield during high requirements	3	5	3	7	2	12	2	8	5	11	50	3.96	IX
	30	45	24	49	12	60	8	24	10	11	273		
Food safety system of importing countries	6	5	4	7	12	6	5	8	2	6	50	4.74	III
	60	45	32	49	72	30	20	24	4	6	237		
Quality standards fixed by importing countries	5	7	3	14	5	2	7	12	3	4	50	4.72	IV
	50	63	24	98	30	10	28	36	6	4	349		
Low profitability	5	3	2	9	3	7	7	3	6	13	50	3.88	X
	50	27	16	63	18	35	28	9	12	13	271		
Diversification	9	2	5	4	5	5	3	7	4	6	50	5.56	II
	90	18	40	28	30	25	12	21	8	6	278		

17. Government incentives and policies to promote the production and exports

Responsibilities of Spices Board India related to export promotion of spices:

- Quality certification and control
- Registration of exporters
- Collection & documentation of trade information
- Provision of inputs to the Central Government on policy matters relating to import & export of spices

18. Conclusions

Until the late 19th century, India was at the top in the list of top producer countries of blackpepper. Increased production in Vietnam, Indonesia and Brazil pushed India down in the list. We still have our place in top five producers even after a drastic decrease after the year 2015 due to drought and untimely rains in major pepper growing areas of Kerala and Tamil Nadu. Over 70% of total pepper (produced and imported) has been consumed domestically in India since the last 4-5 years. India lags in promoting the production and export of this spice by offering supportive policies and schemes.

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