

Geographical indications of fruit crops

Our country has mega-diversified climate and productive soil for cultivation providing ample of opportunities for the development of fruit industry. But the hardest challenge in present situation is to be produce self-sufficient in production to feed the ever increasing human population. The infusion of technology is needed for deriving higher output per unit area for competition both in domestic and international market. In India, many varieties of different fruit crops are growing under specific climate and in a specific zone of climate. This specific type of climate is responsible for conferring some unique characteristics to that particular variety of fruit crop. In this regard, the concept of geographical indications highlights the facts regarding quality and other parameters of the produce. Among 86 horticultural products, fruits cover 43% maximum share to the total number of GI's. Twenty nine fruit goods have been registered covering crops like Mango, Banana, Citrus, Guava, Grapes, Pineapple, Pomegranate, Litchi, Strawberry, Jackfruit, Custard apple and Fig.

Geographical indication (GI)

Intellectual property is the creation of human mind, human intellect and hence called 'Intellectual property'. A geographical indication (GI) is a sign or name given to certain products which corresponds to a specified geographical locality (WIPO). It is an exclusive right which recognizes the value of climate and location in making the produce distinguished on the basis of unique characteristics. It is also an effective tool in the strengthening of traditional knowledge associated with them.

The use of GI of the products depicts certain quality or enjoys certain reputation to their geographical area. It is mainly used to identify the manufacturing, handicrafts, food stuff, natural goods and agricultural goods from the peculiar area which has built up goodwill in the market. The geographical indication is generally possessed by community which belongs to particular geographical locality. With all India jurisdictions, GI operates as per Geographical Indication of Goods (Registration and Protection) Act 1999.

Geographical indication (GI) of fruit crops

Since the enactment of GI Act, 108 agricultural produce have been listed with GI tag till date and among horticultural items have a share of more than 75%. Among horticultural commodities, maximum percentage occupied by the fruit crops (about 43%) which includes Appemidi Mango, Nanjanagudu Banana, Kamalapur Red Banana, Coorg Orange, Devanahalli Pommelo, Bengaluru blue grapes in Karnataka; Banganpalli Mango in Andhra Pradesh; Himsagar, Lakshman Bhog and Fazli Mango in West Bengal; Sirumalai Hill Banana and Virupakshi Hill

Banana in Tamil Nadu; Malihabadi Mango, Dashehari Mango and Allahabad Surkha Guava in Uttar Pradesh; Fazli Mango, Shahi Litchi in Bihar; Tezpur litchi in Assam; Queen Pineapple in Tripura; Wakro orange in Arunachal Pradesh; Khasi Mandarin in Meghalaya; Kachai lemon in Manipur; Solapur Pomegranate, Jalna Sweet orange, Nagpur Orange, Mahabaleshwar Strawberry, Beed Custard apple, Purandar Fig and Nashik Grapes in Maharashtra; Vazhakulam Pineapple in Kerala and Gir Kesar Mango in Gujarat state.

Significance of Geographical indication in fruit crops

- It can prevent unauthorized use of registered geographical indications by other state or location.
- It provides a legal protection to GI goods which boost up the export potential.
- It is an integral part of rural development that can effectively advance commercial and economic interests such as tradition and culture.
- It can also boost up business clustering and rural integration on supply chain.
- GI can keep on eyes over quality, traceability and food safety of the products.

GI protection for fruits

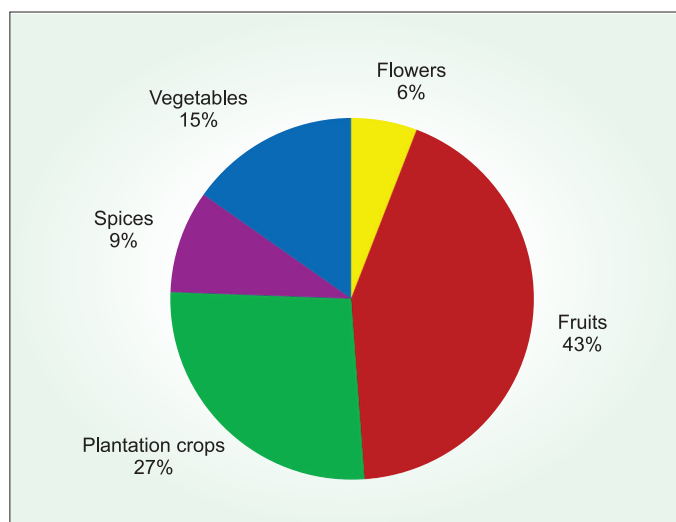
Since the enactment of GI Act, 109 agricultural commodities have bagged GI tag till March 2020 and among them, maximum share is taken by horticultural commodities (75%). Among horticultural crops, large number of GI accorded to the fruit crops (32) followed by vegetables (13).

Indigenous varieties of fruits which have distinct attribute in terms of taste, aroma, pigments, high antioxidants, proteins and other bio-compounds as they are cultivated in particular

Name of GI	Scientific name	Area	State	Registered year	Unique characteristics	Representative photograph
Nanjanagudu Rasabale (GI tag. 35)	<i>Musa spp</i>	Mysuru and Chamaraġnagar	Karnataka	2005	Unique taste and aroma.	
Kamalapur Red banana (GI tag. 133)	<i>Musa spp</i>	Kalaburgi	Karnataka	2009	Contained more calcium, iron, potassium and fibre than any other variety. Also contains high calories (110 kCal) and Vitamin C and B ₆ .	
Virupakshi Hill banana (GI tag. 124)	<i>Musa spp</i>	Dindigul district	Tamil Nadu	2008	It belongs to AAB grown at a height of 2,000 to 5,000 feet. Hill bananas are perennial in nature known for their special flavour and long shelf life.	
Appemidi mango (GI tag. 132)	<i>Mangifera indica</i>	Sagara, Shimogha	Karnataka	2009	It is the heart of the mango pickle industry. Appemidi pickles are the most sought after as they remain fresh for years.	
Lakshman Bhog mango (GI tag. 111)	<i>Mangifera indica</i>	Lakshmanbhog	West Bengal	2008	Laxman Bhog mango, the taste of Bengal, specimen is exclusively cultivated in West Bengal, India. It is a perfect alternative to Alphonso mango.	
Himsagar mango (GI tag. 112)	<i>Mangifera indica</i>	Hoogly district	West Bengal	2008	The inside is yellow to orange in colour and does not have any fibre. The fruit is medium-sized, out of which the pulp content is around 77%. It has a good keeping quality.	
Fazli mango (GI tag. 113)	<i>Mangifera indica</i>	Fazil region	Bihar	2009	It has a soft outer peel and its size is also big (around 1kg/fruit) as compared to other varieties.	
Malihabadi mangoes/ Dusseheri (GI tag. 125)	<i>Mangifera indica</i>	Malihabad region	Uttar Pradesh		Malhiabad is also known as the 'Mango Capital of India'. Mangoes from Malihabad are sold in various parts of the country as well as exported to the US and other nations.	
Gir Kesar mango (GI tag. 185)	<i>Mangifera indica</i>	Junagadh region	Gujarat	2011	The mango is known for its bright orange coloured pulp. The Kesar mango is grown in the districts of Junagadh and Amreli in the Saurashtra region of Gujarat.	

Name of GI	Scientific name	Area	State	Registered year	Unique characteristics	Representative photograph
Banaganapalle mango (GI tag. 241)	<i>Mangifera indica</i>	Banganpalli	Andra Pradesh	2017	It also known as 'Beneshan', 'Baneshan' and 'Benishan'. The fruits can retain their quality under cold storage even up to three months.	
Bhagalpuri Zardalu (GI tag. 551)	<i>Mangifera indica</i>	Bhagalpuri area	Bihar	2018	Popular for its aroma, has persisted a mainstay on the state government's annual present repertoire directed to be gifted to an assortment of an odd 40 VVIPs including the Hon'ble President of India and the Prime Minister.	
Coorg mandarin (GI tag. 33)	<i>Citrus reticulata</i>	Coorg	Karnataka	2004	It is a traditional crop variety and to provide high quality (disease-free) plant material, bringing economic development to the region.	
Nagpur orange (GI tag. 385)	<i>Citrus reticulata</i>	Nagpur belt	Maharashtra	2013	This flavour is result of a unique acid-sugar blend that is not found in any other orange across the world.	
Arunachal Wakro orange (GI tag. 375)	<i>Citrus reticulata</i>	Wakro belt	Arunachal Pradesh	2014	Arunachal Wakro orange has been exported to Bangladesh and from there to other countries in other names depriving the state of its intellectual property right. It is more popular for its attractive packages for export.	
Khasi mandarin (GI tag. 465)	<i>Citrus reticulata</i>	Khasi region	Meghalaya	2014	It can be used for the preparation of a number of processed products like orange marmalade, bottled and canned juices, squash, jam, jelly etc.	
Kachai lemon (GI tag. 466)	<i>Citrus limon</i>	Ukhrul district	Manipur	2014	Kachai Lemon is considered to be unique as it contains 51% ascorbic acid, the highest so far available in the realm of citrus fruits. It is the only lemon variety has GI tag in India.	
Jalna sweet orange (GI tag. 495)	<i>Citrus sinensis</i>	Jalna region	Maharashtra	2015	Jalna Sweet Orange variety is known as 'Nucellar variety' which is famous for higher peel (rind) thickness which gives highest protection to the pulp due to higher potassium and nitrogen content.	
Devanahalli Pomelo (GI tag.131)	<i>Citrus maxima</i>	Devanahalli, Bengaluru rural	Karnataka	2009	The Devanahalli Pomelo has a unique, sweet taste, unlike other local varieties which have a bitter taste. Five decades ago, this plant's special sweetness trait was compromised by natural crossbreeding with local varieties.	

Name of GI	Scientific name	Area	State	Registered year	Unique characteristics	Representative photograph
Allahabad Surkha guava (GI tag. 50)	<i>Psidium guenensis</i>	Allahabad region	Uttar Pradesh	2007	Allahabad Surkha is a guava cultivated across the Allahabad and known for sweet and strongly flavor. The fruit is also known for its medical properties.	
Nashik grapes (GI tag. 165)	<i>Vitis vinifera</i>	Nashik	Maharashtra	2010	Nashik grape is a variety of grape produced in Nashik district, which is known as the 'Grape capital of India'. Nashik contributes to more than half of the total grape export from the country.	
Bengaluru Blue grapes (GI tag. 211)	<i>Vitis vinifera</i>	Bengaluru urban, Chickaballapur and Kolar region	Karnataka	2012	Bangalore Blue is characterized by its 'foxy flavour'. More than 4.5 lakh tonnes blue grapes were grown annually mainly used for table purpose, making jam and jellies.	
Vazhakulam pineapple (GI tag. 130 and 141)	<i>Ananus comosus</i>	Vazhakulam (city of pineapple)	Kerala	2009	Vazhakulam pineapple locally known as 'Kannarachakka'. The fruit has a pleasant aroma, fruit shape is slightly conical, and fruit 'eyes' deeply placed.	
Tripura Queen pineapple (GI tag. 436)	<i>Ananus comosus</i>	Kamalapur region	Tripura	2015	Queen pineapple has pleasant aroma and flavour. Its sweetness and unique aroma differentiates it from pineapples. Its export was a major step in connecting with the world trade.	
Mahabaleshwar strawberry (GI tag. 154)	<i>Frageria ananassa</i>	Mahabaleshwar	Maharashtra	2010	Mahabaleshwar strawberry is a strawberry grown in the hilly slopes of Mahabaleshwar, which accounts for about 85% of the total strawberry produced in India.	
Solapur pomegranate (GI tag. 502)	<i>Punica granatum</i>	Solapur district (Pomegranate Hub)	Maharashtra	2016	Solapur Pomegranate is famous for its refreshing sweet juice and valued for its medicinal as well as nutritional properties.	
Shahi litchi (GI tag. 552)	<i>Litchi chinensis</i>	Muzaffarpur region	Bihar	2018	The famous Shahi litchi, which is famous for its sweet, juicy, unique flavour and aroma.	
Tezpur litchi (GI tag. 438)	<i>Litchi chinensis</i>	Lichu Pukhuri in Tezpur town	Assam	2014	Tezpur Litchi is also grown completely under organic condition.	
Beed custard apple (GI tag. 494)	<i>Anona squamosa</i>	Beed district	Maharashtra	2016	It has high total sugar (20.12%) and reducing sugar content (17.97%).	
Purandar fig (GI tag. 500)	<i>Ficus carica</i>	Purandar region (Pune district)	Maharashtra	2016	The distinct bell shaped Purandar fig with attractive violet colour differentiates itself from other varieties.	



Geographical indications of horticultural crops up to March 2020

locality. GoI has recognized wide diversified status of fruit plants by giving a special status of GI tag to popularize and strengthen economic potential of the country in general and that locality in particular. Till today, GI registry has given 32 GI tag for the fruits which includes Mango, Banana, Citrus, Guava, Grapes, Pineapple, Litchi, Custard apple, Strawberry, Pomegranate, Fig and Jackfruit. Among fruits, mango has the highest number of GI tag followed by banana and citrus. The detailed list of GI's in fruit crops and their unique

characteristics is in Table 1.

Conclusion

Geographical indications is a emerging field in Intellectual property. India is blessed with diversified agro-climatic conditions, which have encouraged the cultivation of different number of fruit crops. Each fruit crop growing in India has a unique attribute which are distinct from the fruits grown in other countries. These unique characters facilitates the registration of fruit crops under GI but the number of registered crops under GI is very low in number than the actual crops eligible for registration. So, there is an urgent need to spread awareness in community/farmers about the importance of GI.

It is imperative to maintain quality standards at lower level with adoption of good agricultural practices. Just being granted GI image to a place does not mean everything to growers to that location, however unique measures like providing online stage, basis for implementation of GAP is the need of hour. GI tag will pave a better way of branding and marketing of produces both in international and domestic markets.

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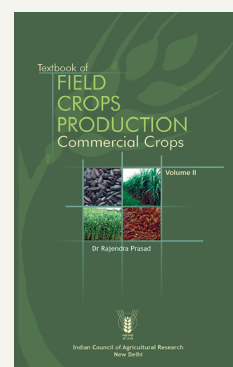
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Textbook of Field Crops Production – Commercial Crops

Availability of high-yielding varieties/hybrids and increased irrigated facilities have resulted in the development of production-intensive cropping systems in several parts of India, and this has catalyzed further agronomic research based on the cropping-system approach. Many changes have also taken place in the crop-production technologies. And this necessitated the revision of the earlier publication brought out in 2002. The revised textbook is in two volumes: First is covering Foodgrains and second is on Commercial Crops.

The discipline of Agronomy has no longer remained mere field trials without application of discoveries emanating from the related disciplines of Genetics, Soil Science and Agricultural Chemistry, Plant Biochemistry, etc. The future Agronomy Landscape will face challenges of climate change, transboundary issues, TRIPS and other trade-related barriers, biotic and abiotic stresses, consequences of biotechnology and genetic engineering and increased market demands in terms of quality assurance, customized food crops, global competition, ecosystem services on land and social equities etc. The Agronomy must measure up to these futuristic challenges with well-defined metrics and methodologies for performance. The advent of hydroponics, precision farming, bio-sensors, fertigation, landscaping, application of ICT, GPS and GIS tools and micro-irrigation is in the horizon. This revised edition in two volumes covers fundamentals of the subject and at the same time will inspire and prepare teachers and students for the emerging frontiers.

(Volume II)



TECHNICAL SPECIFICATIONS

Pages : i-xiv + 612 • Price : ₹ 800 • ISBN No. : 978-81-7164-146-8

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