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**Review Paper**

# Current Scenario of GI Certified Mango Varieties in India

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**ABSTRACT**

This article puts emphasis on varieties of Mangoes with Geographical Indication (GI) certification in India and also discusses the characteristics and uniqueness of each certified variety. GI one of the most important laws in Intellectual Property Rights (IPR) that protects a product's specific geographical origin with an GI Tag. Mango (*Mangifera indica*) is a popular member of Anacardiaceae family and one of the most critical and cultivated crops in the world, with exotic qualities due to its origin. Indian climate is very favorable for Mango production, and this makes India the largest exporter of mangoes across the globe. In India, a total of 417 products were registered with GI, out of which 129 were in the agriculture product's category. Twelve Mango varieties have been GI registered, and seven Mango varieties are under the process of GI Certification. GI-certified products have the potential for rural development because of their domestic and global demand.

**HIGHLIGHTS**

- Twelve Varieties of Indian Mangoes are protected with GI and are in demand in the global markets.
- GI certified Mango varieties are contributing to the economy due to its domestic and global consumer base.
- Regional development and employment opportunities are associated with the GI protected Mango varieties.

**Keywords:** Geographical Indication, Mango, Agriculture, Intellectual Property Right, Rural Development

A geographical indication (GI) is a legal word used on traditional and natural products that have a particular geographical origin and possess some special characteristics *viz.* Exotic qualities, uniqueness, or a reputation due to geographical origin. GI is one of the important laws of Intellectual Property Rights (IPRs) that protects the product belongingness with a specific geographical origin (Tiwari, 2015).

GI provides legal protection for a product with a certain specified origin which prevents the producer and consumer from deceptive and misleading information. For agricultural products, GI helps the producer and grower to make their products more valuable and to get remunerative prices based on its uniqueness as compared to other products with different origins. Initial period of protection for a product through GI is for ten years and thereafter, it can be renewed from time to time (Bagade and Mehta, 2014).

In the case of Indian products, research and inventions were protected by different laws of IPR *viz.* Patents, Trade Marks, Data Protection. Copyrights, Industrial design, Plant Varieties Protection, and GI. The Geographical Indication of Goods (Registration and Protection) Act, 1999 gave the first GI-certified product to "Darjeeling Tea" in October 2004; the application for the same

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was applied by Tea Board in 2003 (Ravindran and Mathew, 2009).

Horticulture crops play a vital role in rural development and provide employment opportunities in various supply chain activities involved in it. India's share in the worldwide production of fruits and vegetables in 10.9% and 8.6%, respectively (FAO, 2022). India stands largest in terms of production of banana with 14.2 billion tonnes (NHB, 2019) and third in terms of citrus fruits. In the case of Mango, India ranks first in production and export. India exports Mangoes to different countries such as UK, Qatar, Oman, Kuwait, Singapore, Germany, Canada, Saudi Arab, Nepal, Switzerland, Maldives, HongKong, Italy, Japan, Netherland, Russia, Australia, France, New Zealand, and Norway (Datarkar *et al.* 2014; Kuthe Surendra, 2021).

## Mango Production in India

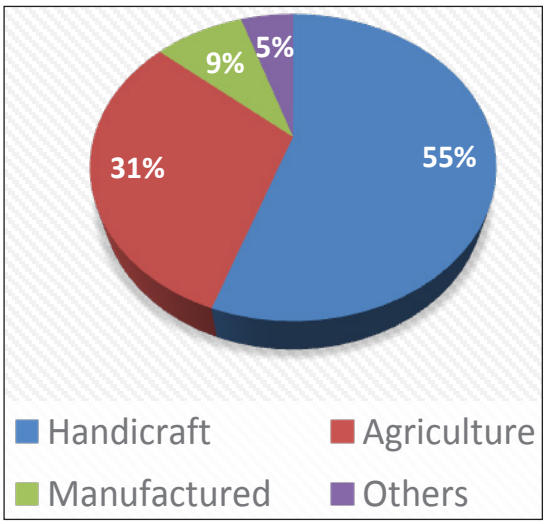
Mango (*Mangifera indica*) is one of the most well-known fruits of the subtropics and tropics region in India, popularly known as "king of fruits" having 73 genera and approximately 830 species (Azam *et al.* 2018). It is a stone fruit that belongs to the Anacardiaceae family, which are classified as flowering plants that produce fruits. The origin of the Mango is said to be from South Asia, with evidence from countries like India, Pakistan, and the Philippines (University of California, 2016). Mango is generally harvested in green condition and then stored for ripening. It is used as an essential ingredient for many of food processing industries and has immense potential for rural development because of its commercial and individual demands (Léchaudel and Joas, 2007; Khan *et al.* 2019).

Mango has enormous nutritional and medicinal value, such as anti-oxidant, anti-diabetic, antiparasitic, anti- diarrhoeal, anti-inflammatory, anti-microbial and immune modulatory (Shah *et al.* 2010). Mango is a seasonal fruit available in the Indian market during the summer months of April-July. After harvesting, the fruits pass through various channels before reaching end consumers. Most common marketing channel used in India is a three-tier channel: (i) producer – trader –consumer for local sale, while (ii) for urban and domestic markets, a more complex channel operates i.e., producer – pre-harvest contractor-retailer-consumer, and (iii) producer – commission agent – processor-retailer – consumer (Srikanth *et al.* 2015).

In 2010-11, the area under Mango production in India was 2.4 million hectares with 16 million tonnes of production. Major Mango growing states in the country are Uttar Pradesh, Bihar, West Bengal, Andhra Pradesh, Gujarat, Karnataka, Maharashtra, and Tamil Nadu, and various Mango varieties grown are Neelam, Chausa, Jahangir, Bangalore, Alphonso, Totapuri, Rumani, Banganapalli, Kalepad, Peter, Sendhura, Langra, Fajli, etc. (Gopalakrishnan, 2013; Bhattacharyya *et al.* 2019). As per the latest data available on National Horticulture Board website for the year 2018-19,22.96 lakh ha of land is under Mango cultivation with a production of 214 lakh MT (NHB, 2022).

## GI scenario in India

In India, 417 goods are registered under the Geographical Indication of Goods (Registration and Protection) Act, 1999. Out of these 231productsareunder handicrafts, 129 are Agriculture based products, 36 are manufactured, and 21other products are GI registered (IP India, 2022).




***Source:*** *https://ipindia.gov.in/registered-gls.htm*

**Fig. 1:** Category-wise Percentage of GI registered products in India

Twelve Indian Mango varieties are GI registered till January, 2022 for their uniqueness due to specific geographical origin (Rajan and Mishra, 2021). The first two Mango varieties that were GI certified are Laxman Bhog and Khirsapati (Himsagar) from

West Bengal, after which several other varieties got GI certification. Malda Fazli form West Bengal, Malihabadi Dusseheri and Rataul from Uttar Pradesh, Appemidi Mango from Karnataka, Gir Kesar from Gujarat, Marathwada Kesar from Maharashtra, Banaganapalle from Telangana and Andhra Pradesh, Bhagalpuri Zardalu form Andhra Pradesh, Alphonso from Maharashtra and Kuttiatoor from Kerala (Bhooshan *et al.* 2011; Veena and Dinesh, 2018; Dinesh *et al.* 2018). The details regarding GI registration of different Mango varieties are given in Table 1 (IP India, 2022). The exotic uniqueness of each GI registered Mango variety with detailed characteristics is given in Table 2.

## GI application under examination

Mango growers from some states of India filed an application for GI registration and these applications are under consideration. Seven Mango varieties are pending/under process for GI registration as per the detail available in the Intellectual Property India website (IP India, 2021). In Table 3, the details regarding such GI applications are presented in detail.

## Impact of GI on development

GI protects against the unauthorized use of certified products with specific geographical origins by others and offers legal protection to the producers

**Table 1:** GI Registered Mango Varieties

| Sl. No. | Name of Mango varieties | Name of GI Applicant | Application no. | Date of filing | Certificate date | Name of production area with state |
|---|---|---|---|---|---|---|
| 1 | Laxman Bhog Mango | Patent Information Centre, West Bengal<br>State Council of Science and Technology, Department of Science and Technology (DST), Kolkata -700091 | 111 | 19/09/2007 | 09.09.2008 | Malda, West Bengal |
| 2 | Khirsapati (Himsagar) Mango | Patent Information Centre, West Bengal State Council of Science and Technology, Department of Science and Technology (DST), Kolkata -700091 | 112 | 19/09/2007 | 09.09.2008 | Malda, West Bengal |
| 3 | Malda<br>Fazli Mango Grown in the district of Malda | Patent Information Centre, West Bengal<br>State Council of Science and Technology, Department of Science and Technology (DST), Kolkata -700091 | 113 | 01/10/2007 | 09.09.2008 | Malda, West Bengal |
| 4 | Mango Malihabadi Dusseheri | National Horticulture Board, Institutional Area, Sector-18, Gurgaon -122015 | 125 | 15/05/2008 | 04/09/2009 | Malihabad, Baksi ka talab and Kakori, Uttar Pradesh |
| 5 | Appemidi Mango | Director of Horticulture Department of Horticulture, Government of Karnataka, Biotechnology Centre, Hulimavu, PB No. 7648, Bangalore | 132 | 04/09/2008 | 04/09/2009 | Shimoga, Uttara Kannada, Udupi and Dakshina Kannada, District of Karnataka |
| 6 | Gir Kesar Mango | Gujarat Agro Industries Corporation Ltd., an undertaking of Govt. of Gujarat, Kher Udhyog Bhavan, Navrangpura, Ahmedabad -380014 | 185 | 17/08/2009 | 24/06/2011 | Junagadh, Amreli and Saurashtra region of Gujarat |
| 7 | Rataul Mango | Rataul Mango Producers Association, C/o Umar Faridi, Rataul, District: Baghpat, U.P. -250101 | 206 | 05/04/2010 | 14/09/2021 | Rataul District Bagpat Uttar Pradesh |
| 8 | Banaganapalle Mangoes | Horticulture Development Agency, Represented by Commissioner of Horticulture, Govt. of Andhra Pradesh, Public Gardens, Hyderabad - 50004 | 241 | 07/09/2011 | 03/05/2017 | 'Banaganapalle region' of Kurnool district, Banaganapalle, Paanyam and Nandyalmandals and Rayalaseema region and coastal Andhra Region and Telangana region. |

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| 9 | Marathwada Kesar Mango | Mango Growers Association, Ajay Engineering Company Premises, Adalat Road, Aurangabad-431005 | 499 | 30/09/2014 | 30/11/2016 | Marathwada Division: Aurangabad, Nanded, Parbhani, Latur, Beed, Hingoli, Jalna and Osmanabad, Maharashtra |
| 10 | Kuttiattoor Mango (Kuttiattoor Manga) | Kuttiattoor Mango Producer Company Limited, Rama Nivas, Post Kuttiatoor, Kannur, Kerala- 670602 | 660 | 04/09/2019 | 1409/2021 | Kuttiattoor and nearby Municipalities in Kannur district of Kerala. |
| 11 | Bhagalpuri Zardalu Mango | Bhagalpuri Zardalu Aam Utpadak Sangh, Madhuban, Village – Maheshi, Post Tilakpur, Block: Sultanganj, Bhagalpur, (Bihar) – 813228<br>Facilitated by; Bihar Agriculture University | 551 | 20.06.2016 | 28.03.2018 | District of Bhagalpur and adjoining areas of Munger, Bihar. |
| 12 | Alphonso Mango<br>Application No.379 (Devgad Alphonso) and No. 497 (Ratnagiri Alphonso)merged in Application No.139. | Director of Research, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Ratnagiri (M.H.) -415712 | 139 | 22.09.2008 | 03.10.2018 | Alphonso Mango grown in the region of some districts in Gujarat, Konkam in Maharashtra and North Karnataka and Goa. |

***Source:*** *ipindia.gov.in (2022).*

**Table 2:** Geographical Indication certified Mango varieties characteristics

| Sl. No. | Name of variety | Specification |
|---|---|---|
| 1 | Laxman Bhog Mango | ◆ Laxman bhog Mango tree is spreading with exceptionally thin canopy, shape umbrella like, highly productive, trunk medium shoots and regular bearer.<br>◆ Fruit size has been medium to big weighing about 225 – 390gm, long oval, stalk inserted obliquely, base obliquely flattened, cavity shallow, very thick skin and yellow green, very few dots, medium and not prominent. Flash attractive orange yellow, firm but melting, fine texture, fibre almost absent, flavour agreeable, with very sweet taste.<br>◆ Fruit quality is excellent with total soluble solids of 17.3 – 19.5% and pulp content of 80-88%, sugar/acidity ratio is 98 with good keeping quality.<br>◆ Yellow colour with reddish tinge near shoulder and the pulp of fruit are firm but melting. Harvest time: June, mid-season variety. |
| 2 | Khirsapati (Himsagar) Mango | ◆ Fruit does not have any fibre, medium sized and weight between 250 and 350gm, out of which the pulp content is around 77%.<br>◆ Harvest time of Himsagar ripens in May and it is available in the market from the second week of May to the end of June.<br>◆ It has a good keeping quality.<br>◆ Colour of fruit is yellow to orange and flavour is delicious and sweet taste. |
| 3 | Malda Fazli Mango | ◆ It is full of sweet mystery and a lot of juicy pulp; pleasant flavour and it is very low fibre variety.<br>◆ Fazli Mango season in the end of June and continues up to end of July.<br>◆ Fruit weight 600-100gm; Pulp content 74-75%, peel and stone percentage of 25-26%and total soluble solids of 15-16%. |
| 4 | Mango Malihabadi Dusseheri | ◆ Mango Malihabadi Dusseheri (alternatively known as Dashehari and Dasheri) is a variety of Mango with fibreless flesh.<br>◆ Size of fruit is small to medium with elongated shape, yellow in colour, with fibreless pulp, rich characteristic flavour and good keeping quality.<br>◆ Dusseheri Mango rich in vitamin C and Folate. |

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| 5 | Appemidi Mango | ◆ The varieties of Appemidi Mango are recognized by their unique aroma and taste apart from their colour, shape, size, pulp content, shelf life, consistency and the season of harvest. The fruits somewhat flattened. Appemidi is available in an array of aroma ranging from that of jeera (cumin seeds) to that of camphor.<br>◆ The shape of fruit is round and oblong. Fruits are fragile with less fibre content and sour in taste.<br>◆ Fruit length is 4.15-5.23 cm, diameter 2.55-3.52 cm and fruit thickness 2.18-2.33 cm.<br>◆ Appemidi Mango fruit weight is approx.16.33-21.12 gm, which is low comparison to other Mangoes.<br>◆ Special type Mango for pickle and pickle is aromatic and tasted. |
| 6 | Gir Kesar Mango | ◆ The name of variety as kesar was given on the basis of saffron colour fruit pulp.<br>◆ The height of tree is medium.<br>◆ Fruit is long, weighing approximately 250-300gm with small beak. Skin is medium thick with about 13% of total fruit weight.<br>◆ The colour of the fruit is deep green during development stage and then turns to yellow with pink spot on shoulder.<br>◆ The pulp weight is 69% of the fruit.<br>◆ The juice is semi solid, very sweet with good flavoured.<br>◆ The fruit are matured during April- May. The keeping quality of the fruit is 15-20days. |
| 7 | Rataul Mango | ◆ Rataul variety Mangoes are of medium size averaging around 294 grams as compared to Mangoes of other varieties i.e. Chausa, Fazli, Mallika, Langda etc. which are averaging around 350 grams, keeping quality is good.<br>◆ Pulp is firm, fibreless with excellent lemon-yellow colour and distinct (good) sweet taste.<br>◆ Rataul Mangoes are sigmoid with undulating surface, rounded base with no break. Its extra ordinary pleasant aroma differentiates this variety from others.<br>◆ This quality also increases its market value and makes it suitable for export.<br>◆ Tree with medium growth.<br>◆ Fruit colour is lemon yellow. |
| 8 | Banaganapalle Mangoes | ◆ Banaganapalle Mangoes' also known as Beneshan, Benishan, Chappatai, Safeda, Banaganapalli, Banginapalli are very much popular and extensively used table fruit all over the world.<br>◆ Considered to be one of the finest dessert Mangoes in the country.<br>◆ They have gained wide acceptability throughout the globe due to their novel characteristics in aroma, taste, shape and size.<br>◆ The agro climatic and geographical conditions prevailing in Banaganapalle and adjoining areas has given the unique characteristic to Banaganapalle Mangoes' for more than 100 years.<br>◆ Fruits are large in size, obliquely oval in shape with their ventral shoulders markedly broader and higher than dorsal, ventral shoulder progressively rising and then rounded, dorsal shoulder ending in a long curve. The colour of repined fruit is golden yellow.<br>◆ It's having sweetness and retains in good quality for a long time in cold storage. |
| 9 | Marathwada Kesar Mango | ◆ Kesar Mango of Marathwada contains higher amount of total soluble solids i.e. 24°Brix which is highest among all Mango varieties in India.<br>◆ An increase in sugars is accompanied by an increase in TSS hence the sweetness of Kesar Mango in Marathwada is highest.<br>◆ Kesar Mango of Marathwada possesses colour and taste similar to Saffron hence the variety is known as Kesar Mango, which is the unique for Marathwada division.<br>◆ Ample amount of Kesar Mango fruit yield, which is about 3 to 4 times higher than Alphonso Mango'. |

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| 10 | Kuttiattoor Mango (Kuttiattoor Manga) | ◆ Kuttiatloor Mango (*Kuttianoor manga* called in Malayalam) is a well-known and tasty traditional Mango of Kuttiattoor.<br>◆ Even though this cultivar is most popularly known as Kuttiattoor Mango, it is interesting to note that it is also known as *Nambiar manga*, Kannapuramttutnga', 'Kunjimangalam mango' and, Vadakkunbhagam mango, in small pockets of Kannur district.<br>◆ This Mango is famous for its appealing colour (orange yellow) of flesh and rind and excellent taste and flavour. Another specialty is that opened fruits do not show speckles or patches on the skin, making it more appealing in market.<br>◆ The distinctiveness of Kuttiattoor Mango is aided by the combination of specific environmental conditions of the area of its cultivation and varietal characters.<br>◆ Harvesting time is second week of November. The peak flowering is in the last fortnight of December.<br>◆ The time of fruit maturity is maximum during the last week of March and second week of April and extends up to middle of May.<br>◆ Mature fruit length 8.10-9.50 cm, width 6.80-8.40 cm, colour of skin green and yellow, size of lenticels is medium and shape of fruit is rounded. |
| 11 | Bhagalpuri Zardalu Mango | ◆ Zardalu Mango variety is one of popular varieties of Bhagalpur, Bihar. It is a moderately vigorous with spreading tree habit. The trunk is slender in nature and shape of the tree is top rounded.<br>◆ The leaves are evergreen, alternate, simple 15-35 cm long and 6-8 cm broad. And when young they are orange-pink, rapidly changing to a dark, glossy red. Then dark green as they mature.<br>◆ The fruit are medium size (186-265 gm) with golden yellow peel. Pulp is golden yellow in colour and flavour very pleasant to delightful.<br>◆ Fruits having rich in fibre and enzymes that is useful to the abdominal muscles and digestive system. |
| 12 | Alphonso Mango | ◆ The colour of the fruit is orange yellow, and pulp is firm but melting, fibreless, textures are soft.<br>◆ Flavour is delicious and the taste is very sweet and it is large, fleshy drupe, containing edible mesocarp of varying thickness.<br>◆ Fruits are medium to big size (200-300 gm), oblong oval in shape with length of 8.5-11.2cm and thin skin.<br>◆ Fruit having total soluble solids of 17.2-19.5 ($^{O}$B), acidity 0.20-0.35%, pulp 70-87%, pulp to stone ratio is 5:1 and pulp to peel ratio is 8:1.<br>◆ Fruits have uniqueness with having high creamy, tender texture and delicate, non-fibrous and juicy pulp. |

**Table 3:** GI applications under Examination

| Sl. No. | Name of variety | Applicant | Date of filing | State | Specification |
|---|---|---|---|---|---|
| 1 | Salem Mango Application 406 | Periyar University, Periyar Palkalai Nagar, Salem (T.N.) - 636011 | 03/05/2013 | Salem (Tamil Nadu) | ◆ Salem Mango in six significant varieties comprised as Alphonso, Bangalora, Banganapalli, Mulgoa, Neelum and Totapuri. |
| 2 | Rewa Sundarja Mango Application 707 | M/s. Gofarm Producer Company Ltd. andKrishna Samaj Utthan Samiti, Patehara, Bagadha Pidhihan Sirmore, Rewa (M.P.)- 486440 | 28/09/2020 | Rewa district of Madhya Pradesh | ◆ Sundarja Mango is very special due to their color, smell, taste and there is no rasa in the Mango pulp.<br>◆ Sundarja Mango has famous for the special quality like before ripening (Kachcha Aam) is also sweet taste in comparison to the other Mangoes and after ripening it is much sweeter in test but the people who are avoiding sugar is also prefer to eat Sundarja Mango due to their health benefits. |

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| 3 | Banarasi Langra Aam (Mango) Application 716 | M/s. Jaya Seed Producer Company Ltd. Jayapur, Jakhini, Varanasi -221305 and M/s. Human Welfare Association, S 15/116-2AC, Mawaiya, Sarnath, Varanasi -221007 | 04/11/2020 | Varanasi, Chandauli, Mirzapur, Ghazipur, Janunpur and Ballia. | ◆ Langra Mango is medium in size, has an oval shape and is green in colour.<br>◆ The bright lemon-yellow flesh of the Langra is super juicy and flavoursome and scarcely fibrous.<br>◆ It is available from May to August, colour of the Langra is greenish andsize varies from medium to large.<br>◆ The flesh is fibre-less, yellowish brown in colour and has a strong smell when it ripens. As compared to other varieties, it is naturally very sugary and soft and size of the seed is small. |
| 4 | Goa Mankur Mango (Malcorado or Mankurad) Application no. 728 | Department of Science and Technology and Waste Management, Government of Goa, Pandit Deendayal Upadhay Bhavan, Near Sanjay School, Porvorim, Bardez, Goa -403521 | 17/12/2020 | Goa | ◆ Goa Mankur Mango is the most important popular variety throughout Goa for its excellent quality, taste and pleasant flavour.<br>◆ Goa Mankur Mango has unique connection to Goa's culture and is the most loved Mango by the people in Goa and in other State too.<br>◆ It is medium to smaller in size but is juicy and tasty.<br>◆ MankurMango is the high cost fruit comparison to other Mango fruits.<br>◆ Skin of this variety is smooth, bright yellowish orange.<br>◆ Trees are large and vigorous and canopy is round and spreading.<br>◆ Trunk is stocky and shoots are thick and devoid of any pigmentation or waxy bloom. |
| 5 | Rajapalayam Mangoes Application no. 742 | Principal, Rajapalayam Rajus College, Mudangiar Road, Rajapalayam (T.N.) -626117 | 23/02/2021 | Rajapalayam,Pancha-vamam, Sapppattai, Puliadi, Kilimooku, Kaasaladdu, Karuppati Kai, Pottalm (Pottiladi), Immampassand, | ◆ The Mangoes having a shelf life of month and the high glucose level are its most unique qualities.<br>◆ The Mangoes grown in the groves of Rajapalayam have a unique sweet taste.<br>◆ Specifically, the Mangoes from trees on the south side of the Alyanar River are much sweeter than those in other parts of Rajapalayam. This is attributed to the red soil properties. The trees grafted from here and can be grown in other lands, but do not bear the same sweet taste as those grown in Rajapalayam.<br>◆ The Grove is called Ezhumara Sappattai. It indicates that in this Grove there are seven Sappattai Mango trees that fully cover an acre of land. The trees are so huge and gigantic with well spread branches. Each tree produces 5-10 tonnes of Mangoes. |

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| 6 | Gaurjeet Mango of Uttar Pradesh Application No. 778 | ICAR- Central Institute for Subtropical Horticulture, Rehmankhera, Lucknow-226101 | 07/10/2021 | Siddhartha Nagar, Basti, Gorakhpur, Kushi Nagar and Maharajganj. | ◆ Gaurjeet Mango has regular bearing tendency and maturity is very early. Fruit size is small to medium, ovate-oblong, ventral outward.<br>◆ Skin is yellow and thin to medium thick flesh soft and melting light yellow-light orange with slightly fibrous, very good fruit quality with very pleasant flavour, sweet to very sweet taste with abundant juice. Stone is small and covered with soft fibre all over.<br>◆ Gaurjeet is one of the best early and sucking varieties grown in Eastern Uttar Pradesh especially Gorakhpur and Basti division. This Mango variety is resistant to wind. |
| 7 | U.P. Chausa Mango Application No. 779 | ICAR- Central Institute for Subtropical Horticulture, Rehmankhera, Lucknow-226101 | 07/10/2021 | Saharanpur, Meerut, Farrukhabad, Hardoi, Pratapgarh, Bulandshahr and Amroha. | ◆ Long fruit, quality is good bearing heavily, strong and pleasant flavour, sweet to very sweet taste, juice moderately to abundant, keeping quality good.<br>◆ Chausa matures late when almost all choicest Mangos are finished. The wonderful taste and unique characteristic flavour make Chausa different from the all other Mangos.<br>◆ It is also called Samm Behist Chausa (Samm meaning fruit; Behist meaning heaven and Chowsa is origin village i.e. heavenly fruit of Chausa).<br>◆ It is different from the other varieties in terms of its wonderful taste and unique characteristic. |

***Source:*** *search.ipindia.gov.in (2022)*

in domestic and global markets (Rani and YSR, 2013). GI certified products have a unique identity due to specific geographical origin characteristics. This helps in increasing consciousness among consumers for these products. Consumers of these products pay a premium price, and it directly motivates the producer to improve the production of the product (Jantyik and Török, 2020).-certified products were in great demand in domestic and international markets (Economic Times, 2021). The rural population involved in the production of these GI products were getting financially benefitted and their income is constantly rising (Sharma and Rajan, 2018; Singh, 2020).

In 2004, only one product was GI registered in the country i.e., Darjeeling Tea; since then, several products have been registered with GI because of its benefits. Currently, 29 agricultural products were registered with the Geographical Indication of Goods (Registration and Protection) Act, 1999 (Sharma, 2020). GI certified agricultural products play a vital role in terms of sustainability (Blakeney, 2021). Consumers always look for organic and good-quality products for their consumption, and GI-certified products meet this demand of consumers. Traditional knowledge plays an essential role in environmental conservation because of its sustainable practices, and in studies it's evident that GI has a link with traditional knowledge (Gopalan and Sivakumar, 2007). Use of traditional knowledge in agriculture helps in reducing production cost and improving employment opportunities for rural people, GI is also ensuring the legal protection of traditional knowledge (Pant, 2015). GI certification

of a product results in the development of the whole region and the economic development of the country (Datta *et al*. 2020).

## CONCLUSION

GI plays a vital role in regional development and creating employment opportunities for the rural population. In India, 129 Agricultural products were registered with the Geographical Indication of Goods (Registration and Protection) Act, 1999. As per the latest data released by the Government of India, there are 12 varieties of mangoes that were protected by this law for their specific geographical origin. India tops in terms of Mango production and export throughout the globe, and a major portion of the export goes to countries like United Arab Emirates, United Kingdom, Qatar, Oman, Kuwait, Singapore, Germany, Canada, Nepal, Maldives, and Italy. Due to its exotic characteristics, the GI certified verities of Mango were in enormous demand in the domestic and global markets. This demand pushes the rural economy many folds and increases the employment opportunities for rural youths. Geographical indication not only protects a product with the law but also protects traditional knowledge and practices used in the process of product cultivation. GI certification boosts the economy due to its huge demand among consumers and enormous potential for rural development.

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