



BOOK OF SPECIFICATIONS OF THE PROTECTED GEOGRAPHICAL INDICATIONS

“SINDHRI MANGO”



Contents

1. Background of the Product:	2
1.1. Name of GI:	2
1.2. Classification:	2
1.3. Historical Background:	2
2. Description of “Sindhri Mango”:	2
2.1. Definition:	2
2.2. Introduction:	3
2.3. Type of Good and Botanical Classification:	3
3. Characteristics:	3
3.1. Feature of the Product	3
3.2. Feature of the Fruit	4
4. Uniqueness:	4
5. Agro climatic requirement for Cultivation:	4
5.1. Soil Profile	4
5.2. Water Table	4
5.3. Climate and Temperature	4
5.4. Season of Sindhri Mango	5
5.5. Link between Geographical Area and Uniqueness	5
6. Physio Chemical Characteristics:	5
7. Geographical Area:	9
8. Control Mechanism:	9
9. Map	10

1. Background of the Product:

1.1. Name of GI:

“Sindhri Mango”

1.2. Classification:

Class-31 of “Nice Classification”.

1.3. Historical Background:

In the first decade of 19th century, various varieties of mangoes from all over the subcontinent were collected and a breeding program was initiated at Mirpurkhas district of Sindh. The aim was to develop new varieties of mango suitable for cultivation under the local climate conditions. After extensive research and breeding new variety of mango namely ‘Sindhri’ was evolved and its cultivation started in Mirpurkhas in 1909¹.

Thereafter, the cultivation of Sindhri Mango became popular in the areas, which now spread over the Mango cluster in Sindh and Punjab. In Sindh, the areas spread in the districts of four divisions which includes Mirpurkhas Division (Mirpur Khas, Umerkot), Hyderabad Division (Hyderabad, Jamshoro, Tando Allah Yar, Tando Muhammad Khan, Mititari), Shaheed Benazir Abad Division (erstwhile Nawabshah) (Shaheed Benazir Abad/Nawabshah, Sanghar, Naushahro Feroze) Sukkur Division (Khairpur District). In Punjab, the production areas are spread over the districts of three division which include Multan Division (Multan, Khanewal, Lodhran, Vehari), Dera Ghazi Khan Division (Dera Ghazi Khan, Muzaffargarh, Rajanpur) and Bahawalpur Division (Bahawalpur, Rahimyar Khan, Bahawalnagar).

2. Description of “Sindhri Mango”:

2.1. Definition:

The ‘Sindhri Mango’ is the large oval shaped mango. Its flavor is pleasantly aromatic with sweet taste. It is a low yielding variety with early ripening season.

¹ Syed Ahmad Pasha Jagirdar (Oct. 12. 1968), *Modern Developments in Fruit Production in Pakistan*.

2.2. Introduction:

Pakistan is the fourth largest producer of mangoes in world ². Mango is the second largest fruit crop grown in Pakistan after citrus. Pakistan supplied about 3.5% of the world's total mango production in 2016 ³. The provinces of Sindh and Punjab together produce about 98% of Pakistan's total mango production. 'Sindhri Mango' is one of the well-known varieties of mango; famous worldwide.

2.3. Type of Good and Botanical Classification:

Mangifera indica, Agricultural product, Mango

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Sub Class	Rosidae
Order	Sapindales
Family	Anacardiaceae
Genus	Mangifera
Species	Indica
Number of Chromosomes	40

3. Characteristics:

3.1. Feature of the Product

Sindhri Mango is an early season and low yielding variety with harvesting time end of May and June in Sindh Province and June / July in Punjab Province. The tree of Sindhri Mango is medium to large, vigorous and round. When the trees are exposed to sunlight during the growing season (March-June) mangoes become larger and increase the percentage of pulp.

² The Daily Records. (2017, December 9). Top 10 Largest Mango Producing Countries in The World

³ FAO. (2018, March 13). FAOSTAT.

3.2. Feature of the Fruit

The fruit skin is thin peel able, stone size is medium- thin oblong to elliptical and deeply rigged. The ‘Sindhri’ has sweet taste when fully ripened with Total Soluble Solids (TSS) of 15-17% and average weight of 330-450 grams. At maturity, the mango is deep yellow with smooth skin.

4. Uniqueness:

- i. ‘Sindhri Mango’ is an incredibly delicate fruit with a deep yellow color, thin peel and a distinct elongated and curved shape. The flesh is also deep yellow, compact fiber free, thin stone, moderate sweet and excellent flavor. It is famous for its shelf life and aroma.
- ii. ‘Sindhri Mango’ is very good for root stock as it is harvested earlier as compared to other large size varieties. Its seedling in mango is tolerant to Mango Sudden Death Syndrome (MSDS).
- iii. Naturally ‘Sindhri Mango’ has a little longer shelf life than other mango varieties; as it does not spoil too early which makes it suitable for commercial use and easy to export.

5. Agro climatic requirement for Cultivation:

5.1. Soil Profile

‘Sindhri Mango’ is grown in light soil for its healthy growth soil porosity has paramount importance as it does not tolerate saturated soil conditions.

5.2. Water Table

‘Sindhri Mango’ requires less water which is comparatively 30 – 40% less than other mango varieties.

5.3. Climate and Temperature

‘Sindhri Mango’ requires rain free flowering season with temperatures below 30 degree centigrade which should not be more than 45 degree centigrade in summer season.

5.4. Season of Sindhri Mango

Sindhri Mango is grown in both Sindh and Punjab province of Pakistan. Therefore, considering the climatic conditions, distance among the producing areas and slight variation of temperature; the flowering season, fruit ripening season, harvesting season and fruit maturity season change between both of the provinces. Details are given below as:

Provinces	Flowering Season	Fruit Maturity Season	Fruit availability / ripening Season	Fruit Harvesting Season
Sindh	January / February	End of May and June	End of May and June	End of May and June
Punjab	February / March	June / July	June / July	June / July

Information provided by (Agriculture University Faisalabad). Source: (*The Mango Tree Encyclopedia*, 2015)

5.5. Link between Geographical Area and Uniqueness:

The soil, climatic and environmental conditions are key factors required for a better-quality of ‘Sindhri Mango’. The same are exclusively available in the areas of Sindh and Punjab province as mentioned in the introduction which accounts for the unique taste, beautiful aroma and the pulp characteristics for which it is also preferred in many culinary arts of Sindhri Mango.

6. Physio Chemical Characteristics:

	CHARACTERISTICS	TYPES OF SINDHRI
		Sindhri 
A	General	
1	Parentage	Developed as chance seedling, local germplasm
2	Species	<i>Mango (Mangifera indica)</i>
3	Rootstock name	Mono-embryonic unknown seedling

4	Scion name	Sindhri
5	Origin of scion	Natural through seed
6	Time of flowering / fruit set	January / February (Sindh) February / March (Punjab)
7	Time of fruit availability/ripening	End of May and June (Sindh) June / July (Punjab)
8	Harvesting time	End of May and June (Sindh) June / July (Punjab)
B	Tree Characteristics	
1	Main branch attitude and tree	Semi erect, spreading and medium tall
2	Young leaf anthocyanin	Medium pink with dark pink midrib
3	Color intensity	Medium
C	Leaf Characteristics	
		
1	Leaf length/width	16-20 x 4-7 cm
2	Full developed leaf attitude	Horizontal
3	Leaf Shape	Elliptical
4	Leaf Color	Medium green
5	Fully developed leaf twisting of blade	Present but weak
6	Leaf shape in cross section	Medium concave
7	Leave curvature of midrib	Basal
8	Leaf position of curvature of midrib	Basal

9	Leaf relief of upper surface	Smooth
10	Leaf undulation of margin	Weak
11	Leaf shape of tip	Acute
12	Leaf shape of base	Obtuse
13	Leaf fragrance	Present / <i>Slight</i>
14	Leaf length of petiole (cm)	3-4
D	Flower Characteristics	
1	Time of flowering	January / February (Sindh) February / March (Punjab)
2	Inflorescence Length	Medium Long
3	Inflorescence color of axis and branches	Medium Pink
4	Pubescence on inflorescence	Present
5	Density of Pubescence on inflorescence	Medium
6	Old flower anthocyanin coloration	Medium
E	Fruit Characteristics	
1	Average size of mature fruit Length, Breadth, Thickness (LxB xT)	15-17 x 7-9 x 7-8 cm
2	Time of Fruit maturity	End of May and June (Sindh) June / July (Punjab)

3	Average weight per fruit	350 – 550 grams / 750-800 grams
4	Fruit shape in cross section	Broad elliptical
5	Color of peel	Deep yellow
6	Size of lenticels	Medium
7	Density of lenticels on skin	Medium dense
8	Conspicuousness of lenticels	Medium
9	Fruit skin	Smooth
10	Stalk cavity	Absent to weak
11	Fruit beak	Almost absent
12	Fruit prominence of beak	Weak
13	Position of shoulders	Ventral higher than the dorsal.
14.	Sinus of fruit	Weak to medium
15.	Skin thickness	Medium
16	Pulp color	Medium yellow
17	Total soluble solids	15 – 17 %
18	Acidity	0.18 – 0.22%
19	Presence of fiber	Absent
20	Fresh texture	Fine
21	Juiciness	Medium
22	Fruit fiber beneath the skin	Low
23	Fruit flavor	Present, medium

7. Geographical Area:

The geographical areas of Sindhri Mango spreads from Sindh to Punjab provinces of Pakistan. The below table indicates major clusters/divisions with Sindhri Mango producing districts in Pakistan:

Province/ Federating Unit	Divisions / Cluster	Districts
Sindh	Mirpur Khas	Mirpur Khas, Umerkot
	Hyderabad	Hyderabad, Jamshoro, Tando Allah Yar, Tando Muhammad Khan, Mititari
	Shaheed Benazir Abad(Erstwhile Nawah Shah)	Shaheed Benazir Abad(Erstwhile Nawah Shah), Sanghar, Naushahro Feroze
	Sukkur	Khairpur
Punjab	Multan	Multan, Khanewal, Lodhran, Vehari
	Dera Ghazi Khan	Dera Ghazi Khan, Muzaffargarh, Rajanpur
	Bahawalpur	Bahawalpur, Rahim Yar Khan, Bahawalnagar

8. Control Mechanism:

Following two stages for control (internal and external) on production methods are set to maintain the quality and uniqueness of the production:

8.1.Internal Control:

Initial check on the product will be by the Authorized User itself. The Authorized Users involved in production, processing and packaging of the product will maintain internal control and ensure that all Standard Operating Procedures (SOPs) in the line with this Book of Specifications.

8.2.External Control:

At second stage, the ‘Certification Body’ notified by the Ministry of Commerce under Section 13(2) of The Geographical Indications (Registration and Protection) Act, 2020 will ensure



compliance of this Book of Specification under its defined procedures for control and evaluation of the product.

9. Map

Map of the Sindhri Mango is showing the cluster/areas where the product is grown in Sindh and Punjab: