STATEMENT OF CASE

GEOGRAPHICAL INDICATION APPLICATION

FOR

KESAR MANGO

WITH

GEOGRAPHICAL INDICATION

AS

Submitted by

Director of Research
Junagadh Agricultural University
Junagadh, Gujarat (India)

GI APPLICATION No.
185
17 AUG 2009

STATEMENT OF CASE

GI-APPLICATION FOR GIR KESAR MANGO

Application is made by Junagadh Agricultural University, Junagadh, Gujarat

Applicant : **Junagadh Agricultural University,**
Junagadh-362 001, Gujarat
An Undertaking of Gujarat Government

Address : **At. Motibag, Vanthali Rd, Junagadh-362 001, Gujarat**

Geographical Indication :

Class : **31 - Horticultural Produce**

Goods : **Kesar Mango**

1 (a) Name of the Applicant : **Junagadh Agricultural University**

through Dr. D. B. Kuchhadia, Director of Research

(b) Address : At. Motibag, Vanthali Rd,

Junagadh-362 001, Gujarat

(c) List of association of persons/producers /organization/authority

Sr. No.	Name & Designation
1.	Junagadh Agricultural University, Junagadh.
2.	Junagadh Agricultural Produce Market Committee (Fruit) Junagadh.
3.	Talala Agricultural Produce Market Committee (Fruit), Talala, Dist. – Junagadh.
4.	Dhari Agricultural Produce MarketCommittee (Fruit), Dhari, Dist. – Junagadh.
5.	Vanthali Mango marketing yard , Vanthali, Dist. – Junagadh.
6.	Una Agricultural Produce Market Committee (Fruit), Una, Dist. – Junagadh.
7.	Kodinar Agricultural Produce Market Committee (Fruit), Kodinar, Dist. – Junagadh.

(d) Type of goods : The fruit of Mango cv. Kesar

(e) Specification

Kesar is the well-known variety of Gujarat particularly Junagadh region. The name of variety as a Kesar was given on bases of saffron color of the fruit pulp. Specification of varieties is as under.

i. The tree is of medium height with vigorous **(Plate No 1).**

ii. Fruit is oblong, weighing 250-300 g with small beak.

iii. Skin is medium thick about 13% of total fruit weight.

iv. The color of the fruit is deep green during fruit development stage and than turns to yellow with pink spot on shoulder.

v. Pulp is of saffron color, fibreless and some what hard. The pulp weight is 69 % of the fruit **(Plate No. 2)**

vi. The stone is flat with 18 % of total fruit weight.

vii. The juice is semi solid, very sweet, testy with good flavored.

viii. The fruits are matured during April-May.

ix. The keeping quality of the fruit is 15-20 days.

x The biochemical parameters are like TSS (18-22 °B), Acidity (0.25-0.27%), Vitamin-A (42.0 IU), Vitamin-C (42-48 mg/100 g), total sugar (12-13%) etc.

xi The Kesar mango has distinctive and naturaly occuring orgeanoleptic characteristics of taste, aroma, pulp color and sweetness. The sugar/ acid blend is excellent. The fruit is suitable for table purpose also. The keeping quality of the fruit is also good.

xii Its average yield is 150-200 kg per tree.

(f) Name of the geographical indication (and particulars) : The proposed geographical indication is '**Gir Kesar mango**' which is originated at Mangrol of Junagadh district. It is cultivated in the area of Junagadh district particularly Gir territory and other tehsils and some adjoining tehsils like Dhari and Khambha of Amreli district.

The Kesar Mango is the clonally selected variety and originated from mangrol of Junagadh district. Due to the unique and complex combination of agro-climatic conditions prevailing in the Junagadh district and Saurashtra region comprising majority of orchards of Kesar mango. This is due to unique and excellent physico-chemical and organoleptic characteristics of Kesar mango like oblong fruit shape, 250-300 g fruit weight, deep green to yellow with pink spot on shoulder, fruit colour, saffron colour pulp with no fiber, excellent sweet test with good aroma. So it has distinctive and naturally occurring orgeanoleptic characteristics of taste, aroma, pulp colour, sweetness etc. which have won the patronage and recognition of discerning consumers to all over India and many corners of the world. Consequently, the fruit of Kesar mango produced in the Junagadh region having the explained unique characteristics has for long being known to the fruit trade, traders and peoples of India and abroad as *Kesar mango* and as such it has acquired substantial domestic and international reputation. There is great demand of Kesar mango in India and abroad and which is increasing day by day. The person or member of the trade or public from any corner of world who wants to purchase or give order of mango fruits, always will expect the Kesar mango cultivated or grown and produced in the aforesaid region with aforesaid distinctive characteristics.

(g) Description of the goods : :

The mango, botanically *Mangifera indica* L. is now one of the most popular and widespread of tropical trees with sweet fruits. It is well adapted to cultivation and have been grown commercially for centuries. Mango is old as at least 4000 years ago in India and 2500 years ago in South east Asia, and the fruit has been venerated in the Hindu religion. The tree of Kesar mango hardy, single stemmed slow growing evergreen canopy and it has a generally spreading habit. The age of mango tree long lasting as long as 200-300 years which are still capable of fruit production in deep soil conditions where the taproot descends up to the depth of 20 ft and widely spread roots system. The tree may gain the height of 50 feet up. The mango graft takes 3-4 years to start in bearing. It is regular bearer and so bears the fruits every year. The Kesar mango have also higher yield potentiality as compared to other varieties. It contains good physico-chemical properties like size, shape, colour of the skin as well as pulp, test, flavour, TSS, acidity, Vitamin-A, Vitamin-C and sugar. For that reason, it has its great utility and occupied a pre-eminent place amongst the all fruit crops grown in India and is known as the king of fruits of this country. The saffron colour is rare in world, only to the fruit pulp colour of *Kesar* mango and colour of lion known as *kesari sinha* of aforesaid Junagadh (Sasan Gir) region. The above said characteristics including pulp colour and flavour of *Kesar mango* are rare and unique and it is the result of combination of plant genes, soil strata & chemistry, elevations, climatic parameters like temperature, humidity, sunshine & rainfall of the region. The agro techniques are also developed by the scientists to sustain growth, flowering, fruit yield and quality of fruits. The steps are also taken against biotic and abiotic stress and burning/chronic problems of the crop. The Kesar mango yields up to 150 to 200 kg/tree in a year gives an idea of the extend of human effort involved in its production.

(h) Geographical area and production :

The description of area for geographical indication for **Kesar mango** is given here.

Location of Geographical indicating area

Geographically, the Junagadh district lies between the parallel of latitude 20.44' N and 21.40' N and meridians of longitude 69.40' E and 71.50' E. The latitude and longitude of the geographical area of Kesar mango is given in **Table 1.** The area of Junagadh district is also known as *Sorath Pradesh.* Similarly, the Gir tract also included in *Sorath* is popular for *Kesari sinh* (Asiatic Lion) and *Kesar* mango located between the parallel of latitude 20.40' N and 21.50' N and meridians of longitude 70.50' E and 71.50' E with 150.3 to 530.7 m MSL and it falls in Agro tropical realm, and '4-B Gujarat *Rajwada*' biotic province in semi-arid zone. The ecological zone of Gir extends to Girnar forests in the north-west, Mitiala forests in east and coastal forests in souath. The successful cultivation of Kesar mango is surrounded by Gir and Girnar forest including Gir Sanctuary and National Park.

Gir is one of the largest compact tract of dry deciduous forests and has become a very stable ecosystem with tremendous regeneration, self supporting and self sustaining capacity. It contains a rich biodiversity.

The Kesar mango in this region is due to unique ecosystem responsible for unique characteristics of Kesar variety like test, flavour and colour of pulp and this type of ecosystem or ecology is also developed in this area is due to surrounding of forest.

Climatic condition of GI area

The dance forest of Gir cover a large tract also exert significant moderating effect on the climate in this region and it improves the microclimate with reducing the temperature up to 4 to 5 C^{o} than the other region. The climatic conditions of above geographical area is unique and suitable for Kesar mango cultivation and it is also due to Gir and Girnar forest. The

Table 1 : latitude and longitude of geographical indicating area of Kesar mango

Sr. No.	Name of location	Latitude oN	Longitude oE	Remarks
1	Junagadh district	20.44' to 21.40'	69.40' to 71.50'	
2	Junagadh	21.31'	70.33'	
7	Manavadar	21.50'	70.40'	
8	Veraval	20.54'	70.22'	
13	Mangrol	21.12'	7011'	Origin of Kesar mango
14	Keshod	21.19'	70.19'	
15	Kodinar	20.80'	70.70'	
Amreli district				
1	Amreli	21.36'	71.13'	
2	Dhari	21.34'	71.03'	
3	Jafrabad	20.47'	70.43'	
Gujarat State		20.6'	70.22'	
Gir Sanctuary		20.40' N to 21.50' N	70.50' E to 71.50' E	

geographical region indicated in the proposal having semi arid climate. The maximum and minimum temperature is 44.4 C^{o} and 10 C^{o}, respectively. Rainfall is erratic and irregularly distributed. The average annual rainfall of the area is 600-850 mm during 35 rainy days and there is no rain during summer and winter season which provides the unique environment for Kesar mango. Wind blows mainly form north-west to south-east during October to March and changes to south-east to north-west during summer and monsoon. Hence, the surrounding area of Gir and Girnar forest facilitate the moderate climatic condition to the mango orchard because mango is the more sensitive against above said abiotic stresses. Thus Gir and Girnar forests are boon to Kesar mango farmers inhibiting the peripheral environs by sustaining the horticultural and agricultural production.

Soil strata of GI area

The soil of the geographical indicating area is with different characteristic and varies from place to place. It is generally medium, black & alluvium with varying proportions of loam. The other types found are red, yellow, white clay and sandy loam soils. The soil strata of the area is also more suitable for Kesar mango because it contains calcareous type of soil responsible for good drainage capacity. It also contains calcium carbonate and other elements which improve the soil physical and biological properties allowing healthy and uniform growth habit of Kesar mango. The surrounding of forest area helps to reduce the salinity problems which is most important for Kesar mango as it is highly sensitive to salt problem. It also add the organic carbon to the soil and improves properties of the soil by increasing the availability of the nutrients to the plant.

The characteristics of **South Saurashtra Agroclimatic Zone** which is included in this geographical indicating area is as under

Sr.	Particulars	Characteristics
1	Area, Districts and Talukas :	All talukas of Junagadh district and Dhari and Khamba taluka of Amreli district
2	Rainfall :	625-750 mm
3	Type of soil :	Shallow medium black and calcareous soils
4	Soil characteristics	
	Land use classification :	Cultivated force & grass land
	Surface colour :	Very dark grey to dark grayish and dark brown
	Depth of soil :	Moderate to deep
	Predominant texture :	Clay loam to clay
	Soil slope :	1 % to 3 %
	General fertility :	Nitrogen medium to high, Phosphorus low, Potash high
	Cation exchange capacity :	30 to 35 me/100 g of soil
	Electrical conductivity :	Less than 1.0 dS/m^{-1}
	Exchangeable sodium :	Less than 15 % ESP in the normal More than 15 % ESP in coastal soil
5	Order :	Entisols, Inceptisols
6	Sub-order :	Orthents, Ochrepts, Psamments, Fluvents, Aquepts.
7	Crops :	Groundnut, Cotton, Pulses, Wheat, Pearl millet, Sorghum, Sugar cane, Castor, Castor etc.

Source : Agro climatology of Gujarat by A. M. Shekh, pp. 23.

Irrigation water quality and availability of GI area

This geographical area also posses good qualitative and more availability of irrigation water due to prevailing of many rivers are the natural gift of Gir ecosystem like *Hiran, Datardi, Shingoda, Machhundri, Ghodavadi, Raval & Shentrunji.* These rivers are originated from Gir and Girnar forest which provide qualitative water to the orchards of this area. The topography and terrain of the area influenced the water regime by contributing

towards run off and the recharge to the ground water. The forests of Gir help to recharge the water table due to infiltration and percolation. The water table is usually maintained up to 6-10 meters in this area during normal year. The under ground water table and the water supply have improved at many places of this region due to construction of many dams in Gir. The Kesar of the geographical area depends on stagnant water in rivers as well as availability of water in bores and wells.

Marketing facility

Generally, mango growers in the region that they sell the mango at farm gate itself and even the harvesting operation are also offered on contract basis. Thus, there is a group of people benefiting from the harvesting and marketing of mango. The cultivation and increased area of Kesar mango in this region is also due to good marketing facilities available at Talala and Vanthali mango market yard. The traders and consumers of entire state are purchased the mango from this region. The income generated from Kesar mango from this area is about Rs. 70-72 millions. Hence, this geographical area covered by Gir and Girnar forest provides unique ecosystem to the surrounding of orchard which is not available to other area of mango in Gujarat and India.

Approaches of area

The geographical area of Kesar mango is approachable by road from Junagadh - Mendaradra - Talala - Una - Dhari - Visavadar and Junagadh and Junagadh - Vanthali - Keshod - Veraval (Somnath) - Talala and Junagadh state highway. Sasan Gir is the main rail head situated on the meter gauge line and Veraval - Somnath on borad gauge line of western railway line. Talala - Sasan is nearly 50 km from Junagadh and 40 km from Veraval.

Impact of Gir on Kesar mango

The average area and productivity of Kesar mango is increased in this geographical region nearest to the surrounding area of Gir and Girnar as compared to the other area. This couples be attributed mainly to the better irrigation facility, favorable environment condition and soil properties. The area and production of Kesar mango in varying taluksa viz., Talala, Mendarada, Malia, Kodinar, Una and Visavadar could be attributed mainly to Gir and Girnar forests. It is observed that the Talala taluka occupied lion's share both in area & production (38%), followed by Vanthali (>15%), Una (about 13%), Maliya (>11%) etc. The talukas of Amrreli district adjoining Gir forest viz., Dhari and Khambha also occupied more area i.e. 61% area & production.

Geographical and ecological attribute/contributing justification in quality product of Kesar mango

1. The suggested geographical indication for Kesar mango is located around Gir forest. The Gir forest is situated in typical semi arid region. Hence, the climate during mango season is absolutely dry and moderate cool (as the GI area situated near coastal belt).
2. The Gir sanctuary have 400 sq. kms area. There are several small rivers like *Hiran, Datardi, Shingoda, Machhundri, Ghodavadi, Raval & Shentrunji* are originated from Gir forest which is providing sweet and quality water to the mango orchard; otherwise not available in the another part of the region.
3. The agricultural land around forest having well drained calcareous soil which is the unique feature available to mango cultivation in this suggested GI area.
4. So ecological agricultural conditions provides unique environment to mango orchard as specially for cultivar Kesar resulted in unique flavored & test, otherwise not available in Kesar cultivation in other than the region.

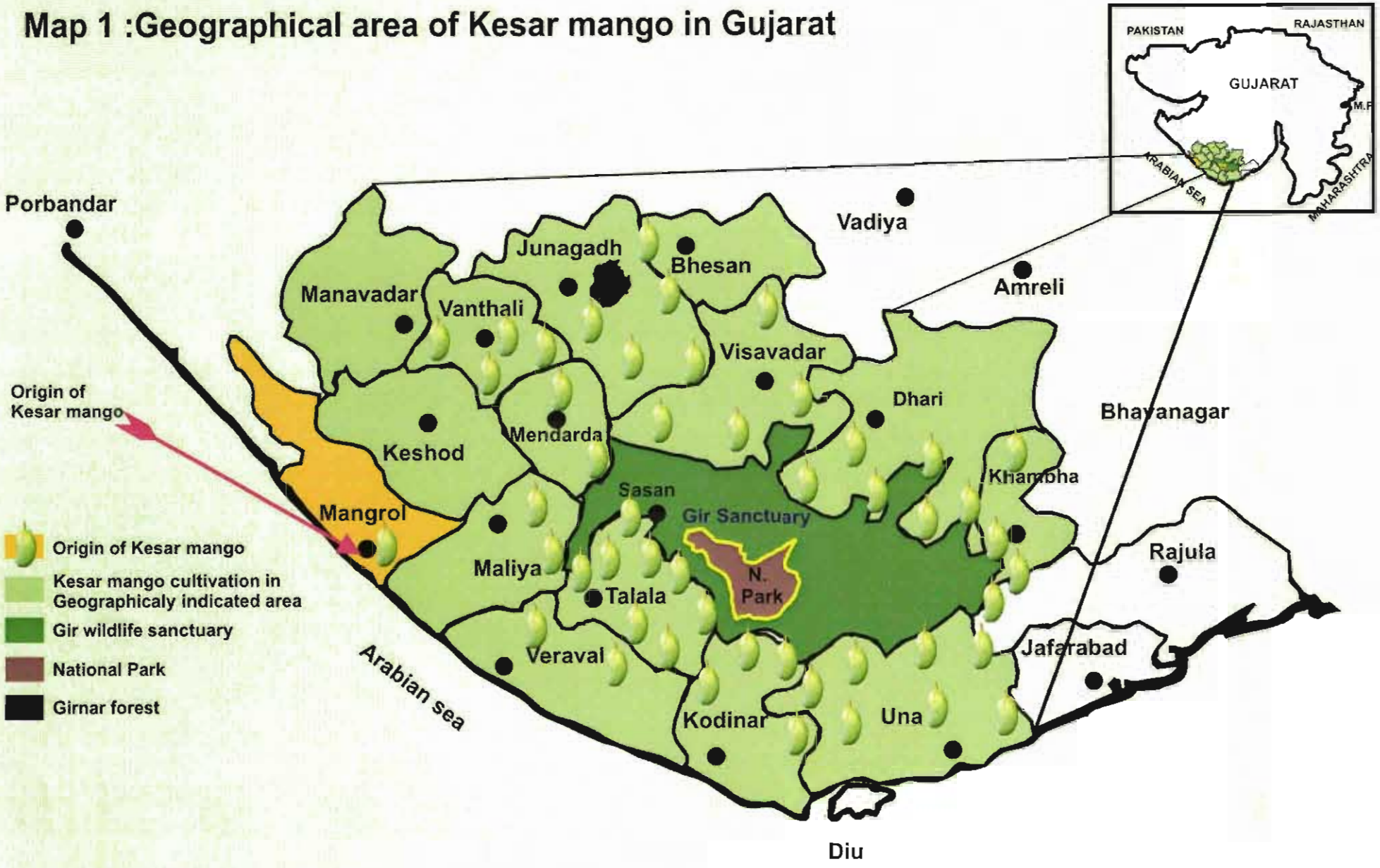
5. The suggested GI area having absolute Kesar commercial orchards. This type of condition not available in any part of country for mango.
6. The consumers are well aware about the test & flavour of Gir Kesar in the state. They are also paying premier price to the Gir Kesar as compared to any part of the country.
7. The Kesar mango growing in suggested GI area is also the home of Kesar cultivar origin. This Kesar mango cultivar is already grown in other parts of Gujarat and Maharashtra state. However, test, flavoure & color of Kesar of suggested GI area is unique.

The maps for origin and geographical area of Kesar mango for Gujarat and India are presented in **Map No. 1 & Map No. 2,** respectively. The area and production of mango in Junagadh district **(Table 2)** and in Gujarat **(Table 3 & Graph No. 1)** are also attached herewith.

(i) Proof of origin [Historical records] : Kesar is the well-known variety of Gujarat particularly Junagadh region. Mango is originated from Indo-Burman region. Similarly, Kesar is originated from *Sorath* region of Gujarat. The history of Kesar mango is as follows.

The variety was first time identified by the farmer named Shalebhai at his farm in Mangrol town of Junagadh of Sorath State. The fruit of the variety was selected from the tree which was planted by stone (seedling). The big sized, long beaked fruits in bunch were first time observed by Shalebhai in his orchard. Naturally fallen fruits known as *shankh* were first tested by Shalebhai, he experienced better. Than he presented the fruits to Nawab Mohabatkhan second of Junagadh state who have tested organoleptically with his *Darbars* and others peoples and opinioned that the said fruit was very sweet, flavored, fibreless with flat stone. The fruit was excellent than the fruits of other tree. So it was first appreciated by Nawab Mohabatkhan second of Junagadh state and he had given the name as "*Salebhai ni Ambadi*". Nawab

Map 1 :Geographical area of Kesar mango in Gujarat



Map 2 :Geographical area of Kesar mango in India

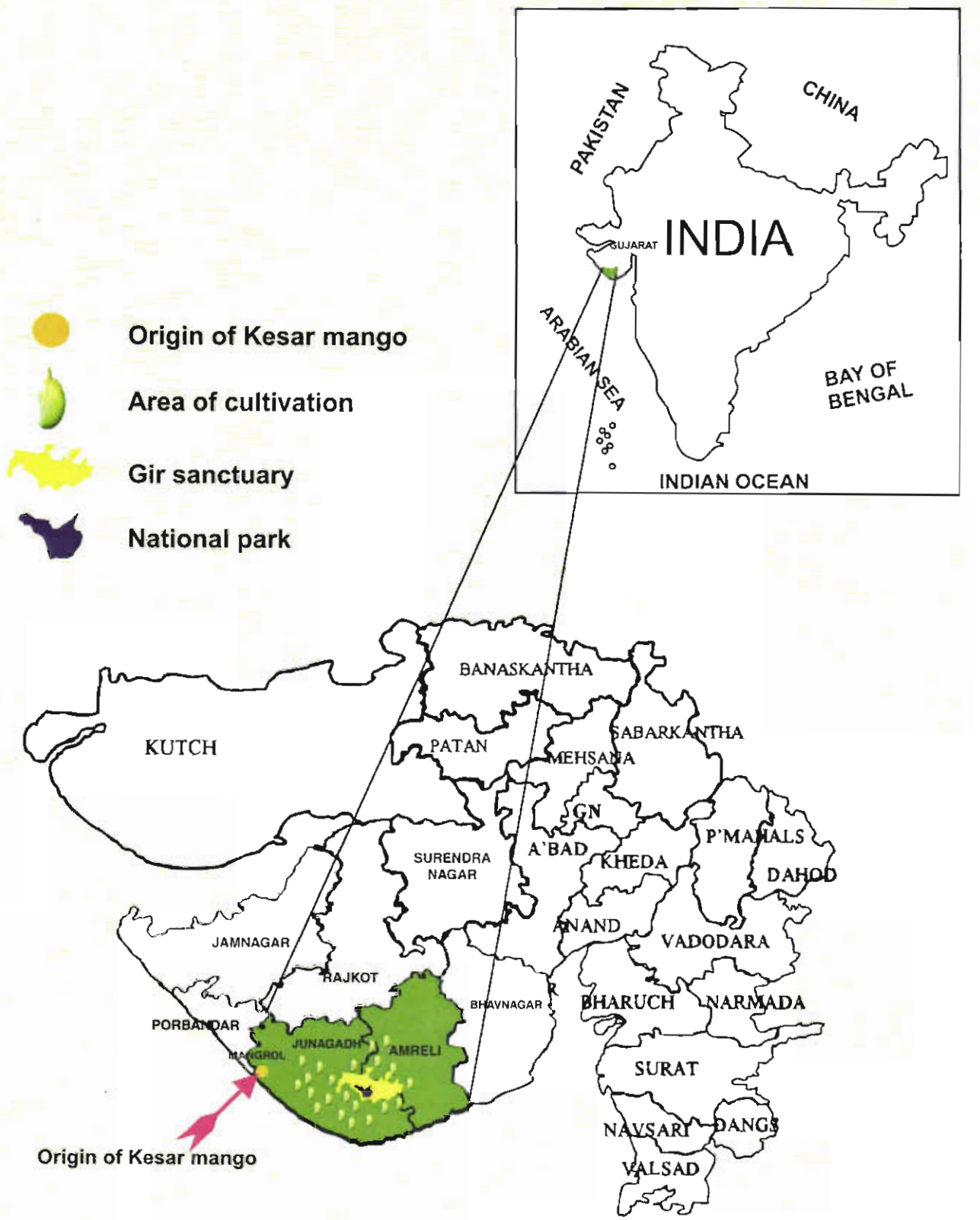


Table 2: Taluka wise Area and production of Kesar mango in Junagadh district during 2007-08 (Format No. h)

Sr. No.	District	Area	Production
1	Junagadh	510	3870
2	Bhesan	110	770
3	Visavadar	810	5670
4	Mendarda	1210	8470
5	**Vanthali**	**2030 - III**	**14210**
6	Manavadar	100	700
7	Veraval	500	3500
8	Sutrapada	100	700
9	**Una**	**2800 - II**	**27500**
10	**Talala**	**5550 -I**	**38850**
11	Malia	1700	11900
12	Mangrol	200	1400
13	Keshod	210	1470
14	Kodinar	590	4130

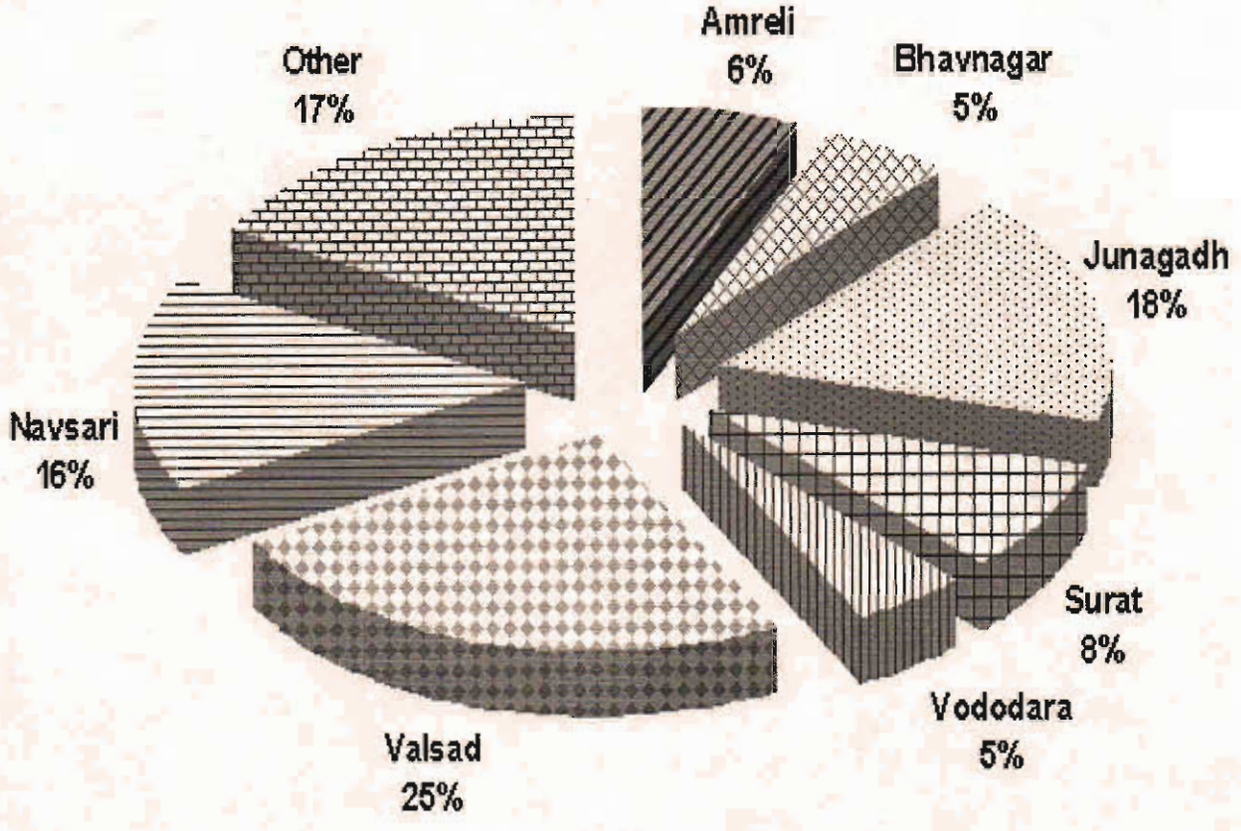
Source : Deputy Director of Horticulture, Laghu krushi Bhavan, Junagadh

Table 3 : District wise Area and production of mango in Gujarat during 2007-08
(Format No. h)

Sr. No.	Taluka	Area (Hectors)	Production (MT)
1	Ahmedabad	635	5080
2	Amreli	6106	36636
3	Banaskantha	470	3548
4	Bharuch	2544	21115
5	Narmada	2550	13387
6	Bhavnagar	5336	40820
7	Dang	2420	13310
8	Gandhinagar	942	8384
9	Jamnagar	417	3899
10	**Junagadh**	**16120**	**112840**
11	Porbandar	190	1455
12	Kutch	6692	75486
13	Kheda	790	8295
14	Anand	2115	16920
15	Mehsana	750	5700
16	Patan	59	484
17	Panchmahal	2070	12420
18	Dahod	2180	16350
19	Rajkot	355	3103
20	Sabarkantha	3060	25704
21	Surat	5840	53704
22	Surendranagar	560	2766
23	Baroda	4886	43974
24	**Valsad**	**23140**	**219830**
25	**Navsari**	**16670**	**158365**
26	Tapi	2710	26558
Total		**109607**	**930133**

Source : Deptt. of Ag. Economics, JAU, Junagadh

Graph No. 1 : Area of mango in Geographical region & other districts of Gujarat

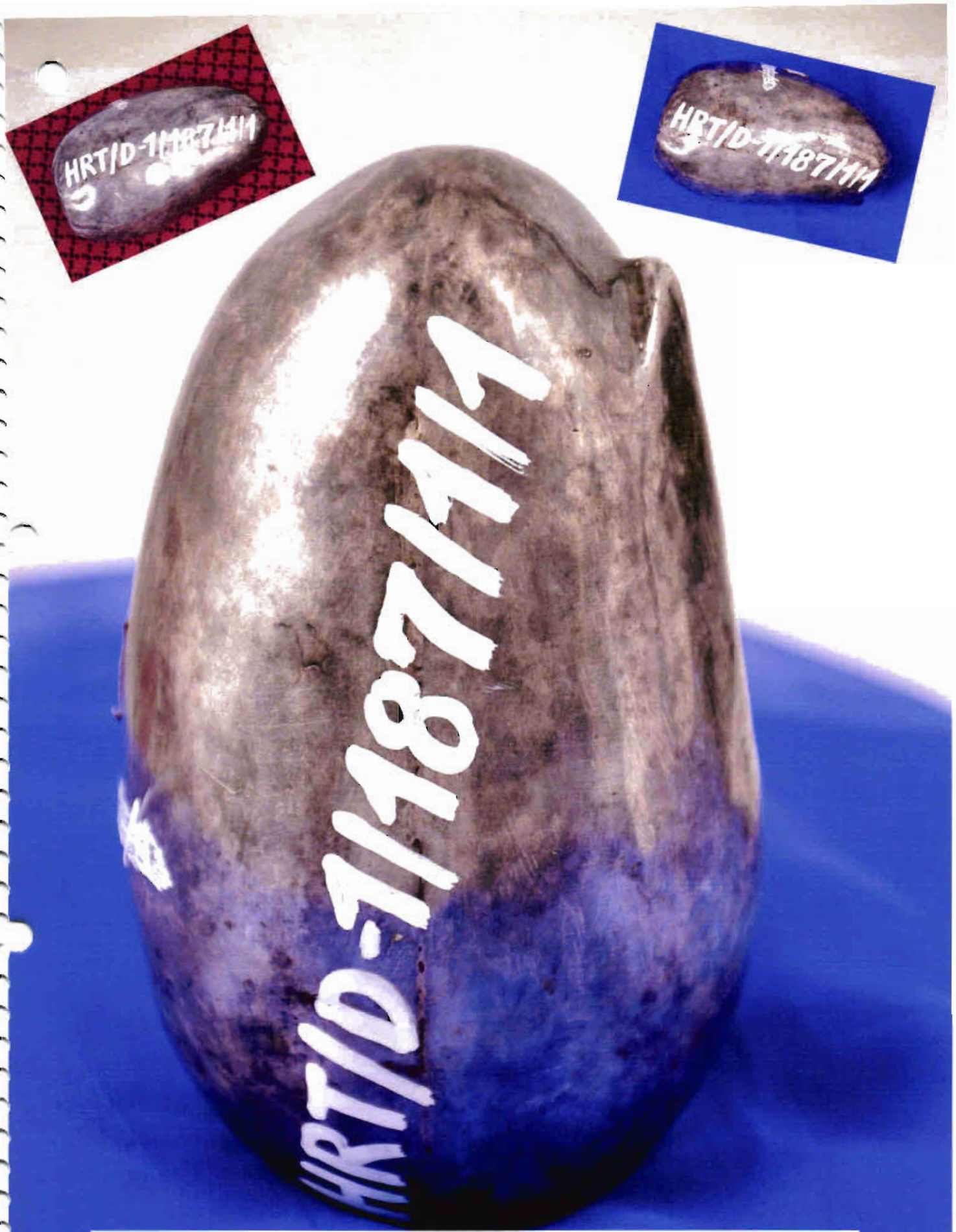


had organized to prepare the grafts from said mother tree and planted to adjoining area of the region. The variety *Salebhai ni Ambadi* was also planted in Chorwad of Mangrol region by Shri Harprashad Udayshankar Desai, *Deewan* of Junagadh state during 1887 to 1909.

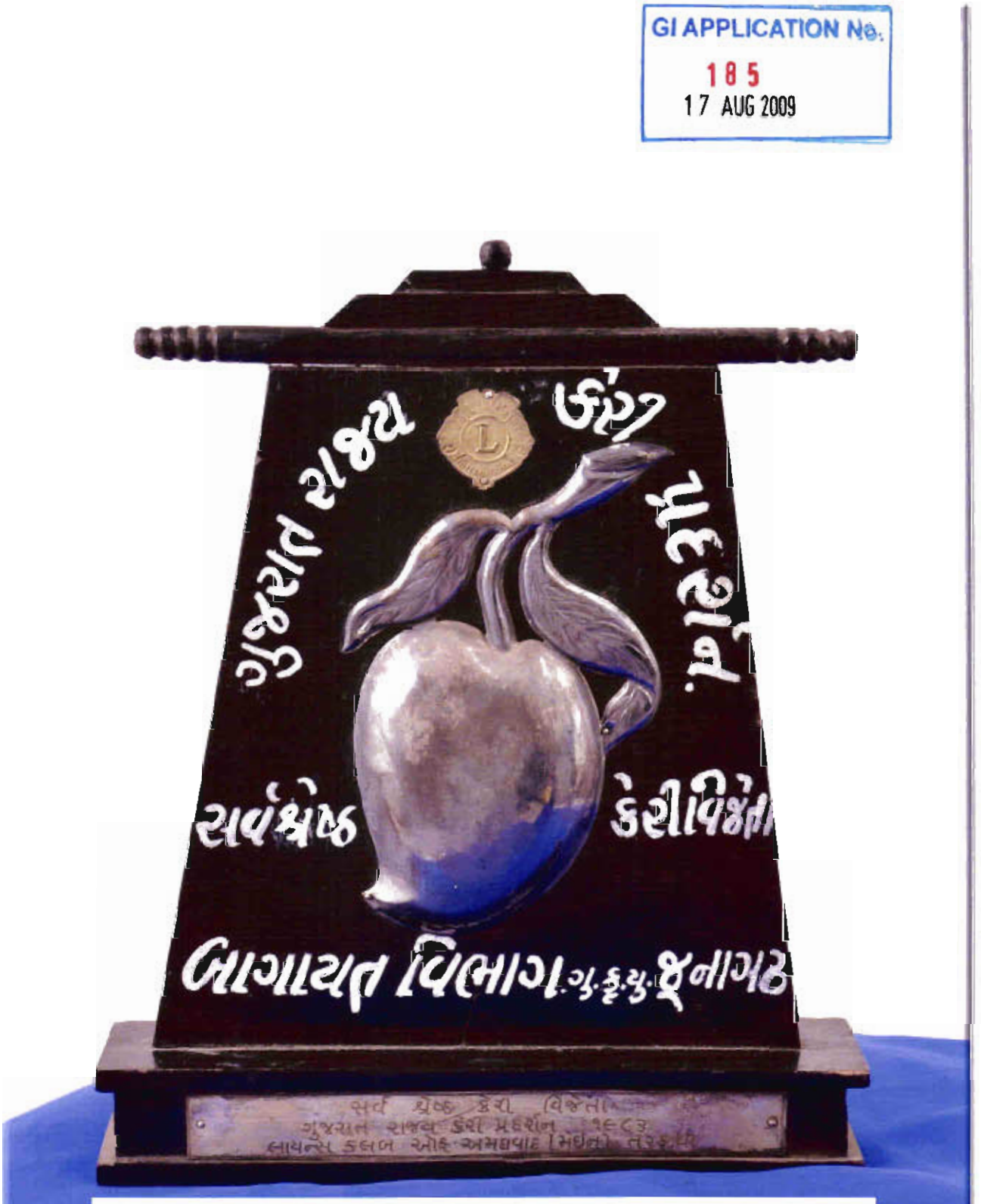
During the period of Nawab Mohabatkhan Third (*Trija*) in 1920 to 1947, Shri A. S. K. Ayengar was the Garden Superintendent of Junagadh State. He had evaluated the *Salebhai ni Ambadi* scientifically and noted the visual changes obtained in the fruits of said variety like shape, skin color and change in pulp color with reduced length of beak. They found saffron colored pulp and for that reason, he gave the name *Kesar* instead of *Salebhai ni Aambadi.* He had planted the grafts of variety Kesar to *Girnar Taleti* known as *Ambvan of Dhudheswar* plantation. He had also planted to Sakkar bag and Lal dhori gardens of Junagadh. These gardens are now under Junagadh Agril. University. The variety Kesar were became popular in farming community and distributed to different regions.

The variety was also appreciated by Horticulturists of different States of Saurashtra and planted to Model farm of Vadodara and gardens at Shentrunji river of Dhari of Vadodara State by Lt. Shri Shambhubhai, Horticulturist, Vadodara State; planted to Natvar bag near Khmbhala tekara of Porbandar State by Lt. Shri Natvarshinhji, Maharana of Porbandar and Lt. Shri Amilal Dhanki, Horticulturist, Porbandar. It was also planted at Nilam bag of Bhavanagar State by Lt. Shri Krushnakumarsinhji, Maharaja of Bhavanagar State. The first mango fruit exhibition was organized by Lt. Shri Amilal Dhanki, Garden superintendent, Junagadh during June, 1952 and from that time, Shri Baneshinhji, Collector of Junagadh started the Kesar mango shaped running silver trophy. The similar exhibition was also organized at Bombay during 1955 and the Kesar variety was stood first rank and got certificate and gold medal.

This history is supported by the article " *Keri no Raja Kesar*" (2006) authored by Dr. N. N. Gajipara and Shri D. K. Varu published in Book " *Maniye Sorath Man Bhari*" by Collector, Junagadh during 2006. The copy of said article is attached.



Silver Trophy won by
Kesar Mango



Shield won by Kesar Mango in Gujarat State Mango exhibition, 1983

(j) Method of Production : **The Kesar variety of mango was earlier cultivated mostly in Junagadh, Amreli and Bhavanagar districts of Gujarat, but now it is also adopted for cultivation by farmers of Kutch to Valsad and Jamnagar to Panchmahal districts of the whole sate. The agro techniques and requirements for the cultivation standardized by the scientists are as under.**

1. Soil and climate

The mango can grow well in all types of soil, from alluvial to lateritic, except black cotton soils. However, it is also cultivated in successfully in soft rocky area of the west coast which have a good drainage capacity. For climate, it can be grow from sea level to an altitude of about 1400 m with optimum temperature ranging from 24-30 C^{o}. It also requires light intensity from 4000-30000 lux. It can grow in areas having average rainfall as low as 25 cm to as high as 250 cm. Wind velocity in December and February should be low. The soil and climate of Talala, Mendarda, Vanthali, Vishavadar etc are suitable for Kesar.

2. Propagation :

It is vegetatively propagated by Inarching and softwood grafting. Softwood and *In situ* soft wood grafting method is standardized. In slight salt affected area up to 2.00 EC dSm^{-1} of water, the variety Kesar is also standardized using as a root stock for propagation.

3. Cultivation

a. Systems of planting : Square system

b. Spacing : 10 m x 10 m

c. Method of planting

- **i. Size of pit : 90 x 90 x 90 cm**
- **ii. Time of pit : Hot period of May**
- **iii. Time of planting : June - July**

d. Irrigation schedule

1. Normally young trees should be irrigated frequently during lean period for quick growth. The interval between two irrigations may be 4-6 days in summer and 8-10 days in winter.

2. In case of bearing trees, irrigation should not be given after completion of monsoon and before flowering period. However, if monsoon is completed earlier or soil of orchard is sandy, only one irrigation should be applied in September. First irrigation should be given at the fruit attain the pea size stage. Second and third irrigation should be given with maintaining an interval of 20-25 days which are useful for increasing the size of fruit, fruit shape, quality of fruit as well as reduce the fruit drop. It should be stopped 20 days before harvesting which improves the post harvest quality of the fruit.

Methods of irrigation

Normally in mango following methods are used. (i) Flood irrigation (ii) Basin system (iii) Drip irrigation. Out of them, drip irrigation system is the most important. It also increases the efficient use of soluble chemical fertilizers, which are applied through drip as a fertigation system.

Water requirement through drip

Normally adult tree requires 30-60 liter of water per day through four dripper per tree with four liter per hour capacity. However, it depends on the climate (location), type of soil, age of tree and cultivars.

e. Manuring and fertilizers

Non –bearing tree

The requirement of one year old plant and than up to five year is given in table

Year	FYM (kg/tree)	N (g/tree)	P (g/tree)	K (g/tree)	Remarks
1	10	75	20	50	Nutrients are applied in two equal splits. First dose is applied before onset of monsoon and second dose is after completion of monsoon.
2	20	150	40	100	
3	30	225	60	150	
4	40	300	80	200	
5	50	375	100	250	

Bearing tree : The nutrient requirements of 6th year to 10th year tree is given in table from.

Year	FYM (kg/tree)	N (g/tree)	P (g/tree)	K (g/tree)	Remarks
6	60	450	120	300	All dose of nutrients should be applied before onset of monsoon. Only additional 200 g N/pl. should be applied in February at first irrigation.
7	70	525	140	350	
.8	80	600	160	400	
9	90	675	180	450	
10	100	750	200	500	

- ✓ Ferrous sulphate ($FeSO_4$) @ 50g + Zinc sulphate ($ZnSO_4$) @ 50g/tree/year should be applied in mixing with other nutrients.
- ✓ Addition to that, biofertilizers like *Azotobactor* and *Phosphobactor* @ 50 g./ tree is also helpful to boot up yield and quality.
- ✓ Apply 3000 ppm B produced desirable effects in respects of vegetative and reproductive growth.

Method of application:

The nutrients should be applied at 90-120 cm of periphery. It should be applied in ring formed of 30 cm width and 60-90 cm depth at above location. Foliar application of nitrogenous fertilizer in form of urea is also effective.

f. Pruning and training

Mango is evergreen tree and fruit is borne on new season's growth and usually on the tips of the outer branches of the tree. Therefore, it is only necessary to lightly thin trees by removing weak, overcrowded or broken branches, keeping the centre of the tree open. Cut off branches which are too near the ground. Developing trees should be trained to eliminate low branches less than 2 feet from the ground, leaving three to four main branches on the trunk at different heights.

g. Intercropping and cover cropping

Crop for inter crop

The crop should be

- ✓ Shallow rooted and short duration vegetables
- ✓ Quick growing fruit plant with a short juvenile period.
- ✓ Among vegetables, Onion, tomato, radish, carrot, beans, cauliflower, cabbage, palak etc. are suitable.
- ✓ Among fruit crops, papaya, phalsa, guava, pineapple and strawberry etc.

Inter cultivation

The following inter culturing operations should be followed.

(i) Plough the soil to a shallow depth at least twice a year. First in June and second in October.

(ii) The tree basin must be kept free from weed round the year by shallow hoeing and hand weeding.

(iii)The tree basin should also be opened or exposed after completion of monsoon.

h. Harvesting :

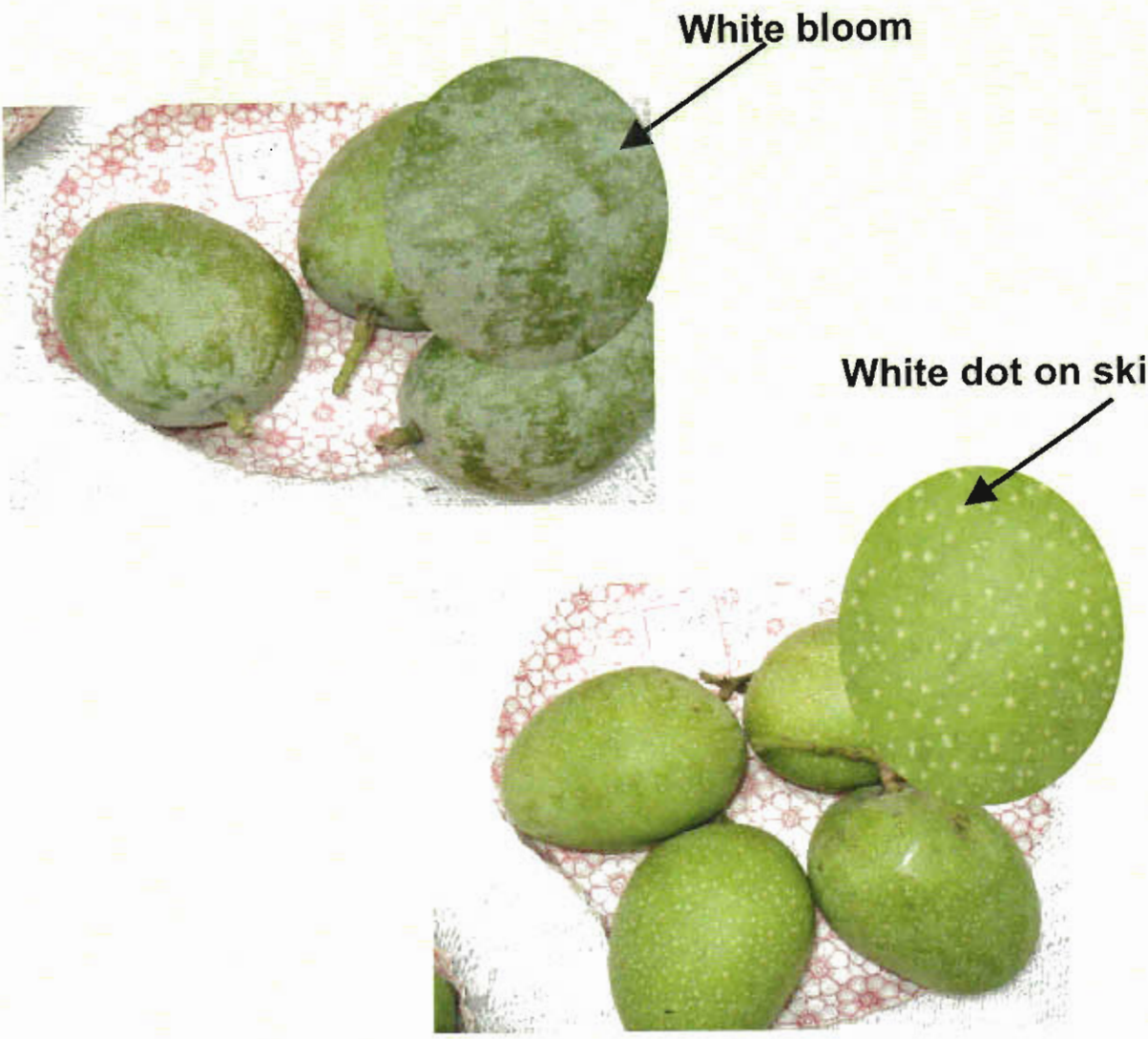
The major harvesting season for Kesar mango is April-May in Junagadh region.

Maturity indices (Plate No. 3)

Various criteria recommended for judging maturity are

1. Slight color changes on fruit from dark green to light green.
2. Development and exposure of shoulders.
3. Development of white powder on the skin of fruit.
4. Development of dot on the fruit.
5. When one or two ripe fruits fall from the plant naturally.
6. When the specific gravity of fruits attains the ranges from 1.01-1.02. The last method is dependable. Fruits generally mature between 90-120 days from fruit set stage.

Plate No. 3 Maturity indices of Kesar mango



Time of harvesting

Normally the fruits should be harvested during morning hours and in evening after 5.00 pm. The temperature is lower at this time which reduces the respiration rate of the fruit. If harvesting is operated during hot period (30-35° C or more), the shelf life is reduced.

Method of harvesting

1. Harvested by manually operated mango picker called *vedo*.
2. Recently, the Ananad Agricultural University has developed the tractor operated harvester using the hydraulic system.

Yield : The yield of Kesar mango reaches up to 150-200 kg/tree.

(k) Uniqueness :

Kesar mango have distinctive and rare characters which are the results of several factors. The Kesar mango orchards are located in specific areas of Junagadh region which contains ideal climatic parameters with natural soil condition suitable for cultivation. Coupled with this, the awareness of farmers with better agro techniques adapted to impart the uniqueness of characters of Kesar mango variety which has the distinctive and naturally occurring organoleptic characteristics of test, aroma, pulp colour and mouth feel which have won the patronage and recognition of discerning consumers all over the world.

(l) Inspection Body :

The Kesar mango was not inspected and tested by any legal authorities, but was inspected and tested by authority and peoples during independents times. As per the history of Kesar mango, the variety was first time inspected by Shaikh Jahangir Minya of Sorath State and organoleptically tested by him, some *Darbars* and peoples before independents times. The fruit was excellent.

After some period or at independent time, it was evaluated scientifically, inspected and tested by Shri Ayengar saheb, the Horticulturist of Junagadh State to the different gardens of Junagadh. He observed the change in the fruits of said variety which was altered in shape, skin colour and change in pulp colour with

reduced length of beak. They found saffron color pulp and for that reason, he gave the name *Kesar* instead of *Sale bhai ni ambadi.* The variety Kesar was became popular in farming community and distributed and planted to the Vadodara, Dhari, Bhavnagar and Porbandar states through their Horticulturists. The first mango fruit exhibition was organized by Lt. Shri Amilal Dhanki, Garden Superintendent, Junagadh during June, 1952. The similar exhibition was also organized at Bombay during 1955 and Kesar was selected for first rank and got certificate and gold medal.

It was inspected and certified by Department of Agriculture and now Department of Horticulture, Gujarat State from many years. They are certifying the Kesar mango grafts and mother plants every years. The table showing the data for certification of Kesar mango graft and mother plant is attached herewith **(Table 4).**

Last year, Gujarat Agro Industrial Corporation Ltd., Ahmedabad has been implemented a certification programme for regulation and control of agro techniques including pre-harvest and post-harvest technologies for export purposes. The certification programme is known as Global Gap certificate undertaken by Govt. approved organization Food Cert India Ltd., Hyderabad has been in existence for a long time and the company has taken periodical steps to refine and improve the same in response to the evolving dynamics of consumer expectations from time to time. The certification programme involved various stages right from the production stage to the export of Kesar mango to abroad. At the production level, all 52 orchards of different farmers of Talala and Junagadh Talukas are registered for Global Gap Certificate and are required to implement the norms of certification programme for agro techniques. The company has been regularly monitored these orchards by making periodical checks and inspections and issued the Global Gap Certificate with two years of validity. From the orchards, the Kesar mango fruits are sent to the one pack house

Table 4 :Total number of grafts and mother trees certified in Junagadh district during last five years (2004-05 to 2008-09)

Sr. No.	Years	Certified grafts	Certified mother tree
1	2004-05	81,500	1500
2	2005-06	90,200	1275
3	2006-07	88,761	2245
4	2007-08	66,321	575
5	2008-09	43,160	600

Source : Deputy Director of Horticulture, Laghu Krushi Bhavan, Junagadh

"Lion packaging" at Gadu Nr. Veraval for post harvest treatment as per the norms of APPEDA and required International standard. Some farmers out of 52 are also sent their mango directly to local auction centre like Talala, Vanthali and Junagadh marketing yard.

The research work on Kesar mango is also initiated through inspection and testing of variety and research programme is going on by Department of Ag. Bio-chemistry & Department of Horticulture, Junagadh Agril. University, Junagadh. This testing programme is for bio-chemical evaluation of Kesar mango of different area of Saurashtra region. The result of bio-chemical parameters are given here **(Table 5).** The technical programme for DNA mapping of Kesar mango was approved and work is also in progress.

However, there is great need to evaluate scientifically the Kesar genome to many aspects compared with other varieties of mango and should be released as a variety through passing in different scientific bodies of Gujarat Agricultural Universities like ZREAC, AGRESCO, Joint AGRESCO, Combined Joint AGRESCO and state release COMMITTEE.

(m) Other information and list of attachments :

1. **History published in *Maniye sorath Man Bhari***
2. **Certificate Mango Exhibition, 1994**
3. **Photograph for Silver Trophy won by Kesar Mango**
4. **Photograph for Shield won by Kesar Mango**

Table 5 : Effect of different zone of geographical area of Kesar mango and Kutch region on bio-chemical parameters.

Zone	Pulp weight (g)	Dry matter (%)	TSS (B^0)	Total sugar (%)	Phenol (mg/100 g)	Carotenoid (mg/g)	Acidity (%)
Dhari	154	18.595	17.2	11.684	8.214	0.209	3.057
Vishavadar	168	18.507	17.1	12.382	8.060	0.195	2.930
Junagadh	124	18.954	17.4	11.680	7.872	0.185	2.982
Kutch-Bhuj	163	19.510	18.0	13.114	7.055	0.222	3.097
Talala	135	19.590	18.1	13.964	7.330	0.214	2.605
Vanthali	117	19.182	17.8	13.264	7.349	0.214	2.908
Porbandar	197	18.752	17.3	11.851	7.905	0.187	3.028

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17 AUG 2009

ENCLOSURE-3

DATA SHEET OF CLIENT

Name of Association/organization : **Director of Research, Junagadh Agril. University, Junagadh-362 001 (Applicant)**

Address and Nationality : **Director of Research, Junagadh Agril. University, Junagadh-362 001, Gujarat** and Nationality : **Indian**

Name and Addresses of the members of association/organization :

Sr. No.	Name & Designation	Address
1.	Dr. D. B. Kuchhadia Director of Research	Junagadh Agril. University, Junagadh-362 001, Gujarat
2.	Dr. A. V. Barad, Professor & Head	Department of Horticulture, Junagadh Agril. University, Junagadh-362 001, Gujarat.
3.	Dr. D. K. Varu Asstt. Professor	Department of Horticulture, Junagadh Agril. University, Junagadh-362 001, Gujarat.

GI Registration of (Name of the GI) Word/Label/Device : **Geographical Indication for Kesar variety of mango**

Period of use : **Not applicable** (Date of use/Date of First Sale Bill)

Details of the Products/Goods or Services : **The fruit of Kesar mango**

Complete details of your goods and the description of goods, which indicates the geographical indication and its unique features : **The fruit of Kesar mango is oblong, weighing 250-300 g with small beak, skin is medium thick with deep green during fruit development stage and than turns to yellow with pink spot on shoulder. The pulp is of saffron colored, fibreless and some what hard. The stone is flat, juice is semi solid, very sweet, testy with good flavored. The keeping quality of the fruit is also 15-20 days after harvesting and the biochemical parameters like TSS (18-22 °B), Acidity (0.25-0.27%), Vitamin-A (42.0 IU), Vitamin-C (42-48 mg/100 g) and Total sugar (12-13%) are recorded. So Kesar mango has distinctive and naturally occurring orgeanoleptic characteristics of taste, aroma, pulp color, sweetness. The sugar/ acid blend is excellent. The fruit is suitable for table purpose also. It yields 150-200 kg per tree.**

Proof of Origin (Its historical records) : **Attached herewith**

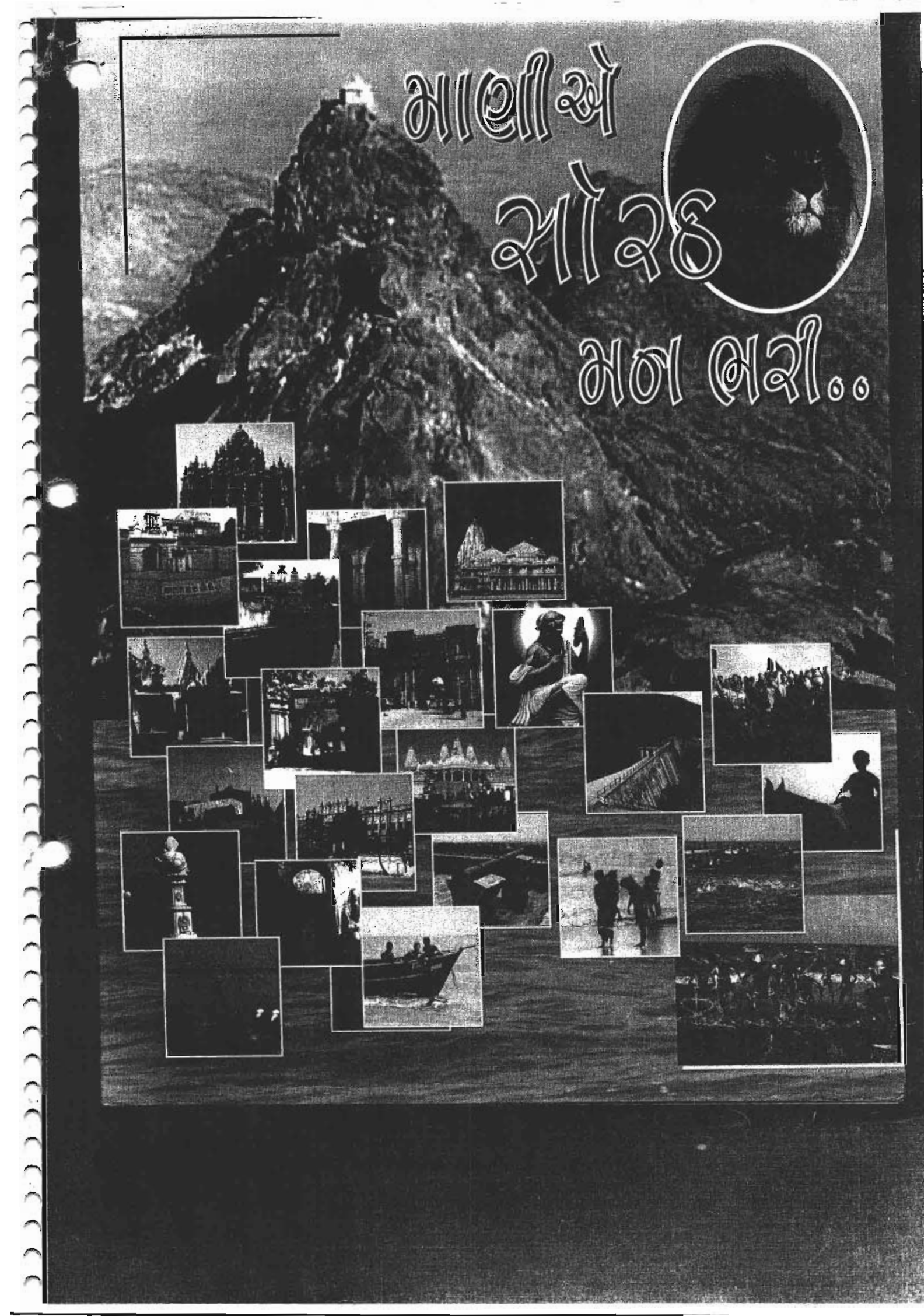
Method of production (Procurement of raw materials) : **Use standard Agro techniques given in format.**

Name of Contact Person : **Dr. D. B. Kuchhadia, Director of Research**

Signature of Contact person

(D. B. Kuchhadia)
Director of Research
JAU, Junagadh

Contact Numbers:
Phone No: (0285) 2672080, Ext. 336,314 Fax No. (0285) 2670289
Mob.
E-mail : dkvaru@yahoo.com, dkavru@jau.in Website: www.jau.in


માળીએ
મૌન
મળ ભરી..

કેરીનો રાજા કેસર

- ડૉ. એન. એન. ગાજીપરા,
- શ્રી ડી. કે. વરૂ

આપણા દેશમાં હાલમાં ફળપાકોનો વાવેતર વિસ્તાર અને ઉત્પાદન વધવા લાગ્યું છે. આંબો ફળપાકોનો રાજા ગણી શકાય છે. વાવેતર વિસ્તારની દ્રષ્ટિએ આંબો એ આપણા દેશમા તેમજ રાજયમાં પ્રથમ નંબરે આવે છે.

આપણાં રાજયની વાત કરીએ તો આંબા હેઠળનો તાજેતરનો વાવેતર હેઠળનો વિસ્તાર ૭૯૩૧૧ હેકટર છે. તેમજ ઉત્પાદન ૫,૯૫,૨૦૬ મે.ટન છે. આંબામાં ઘણી બધી જાતોનું દેશ તેમજ રાજયસ્તરે વાવેતર થાય છે. તેમાં હાલના તબકકે આપણાં રાજયમાં સૌથી વધારે પ્રચલિત તેમજ વધારે વાવેતર વિસ્તાર જો કોઇ જાતનો હોય તો તે 'કેસર' જાતનો છે.

કેસર જાત આંબાનું તેમજ સોરઠનું અને ગુજરાતનું ગૌરવ છે. અને તેથી જ આપણને ચોકકસ કહેવાનું મન થાય છે કે, 'કેસર' એ કેરીની જાતનો રાજા છે.

આમ તો આંબાનુ ઉદભવ સ્થાન ઇન્ડો-બર્મન (પૂર્વ ભારત) પ્રદેશ છે. તેવી જ રીતે કેસર જાતિની કેરીનું ઉદભવ સ્થાન ગુજરાતનો સોરઠ પ્રદેશ છે.

કેસર કેરીનો ઇતિહાસ કાંઇક આ પ્રમાણે છે. જૂના સોરઠ પ્રાંતમાં માંગરોળ શહેરનાં મર્હુમ શેખ જહાંગીરમીયાના રાજયમાં સાલેભાઇ નામના એક મેમૂતની વાડીમાં ગોટલાથી તૈયાર થયેલ આંબામાં પહેલી જ વખત લાંબા કદની અણીદાર કેરી ઝુમખામાં બેઠેલી જોવા મળી. આ આંબામાં શાખ પડતાં અને તે ગળતાં તેના ચિરીયા કરી ચાખી જોતાં કેસર વગરની ચપટા ગોટલા વાળી સ્વાદમાં મીઠી લહેજતદાર કેરી લાગી અને પોતાના આંબાવાડીયાની અન્ય જાતો કરતાં તેમા વિવિધતા જણાયેલ. આ પાકેલ કેરીઓ તેમણે શેખ જહાંગીરમીયાના દરબારમાં ભેટ ધરી શેખ સાહેબે પોતે કેરી ચાખી અને હાજર રહેલાં સૌ દરબારીઓને ચખાડી. આ એક ઉત્તમ જાતની કેરી છે. તેમ સૌને લાગ્યું શેખ જહાંગીરમીયા એ વિચારીને નકકી કર્યું કે, સાલેભાઇની વાડીની કેરી છે. તો આ જાતને સાલેભાઇની આબરૂ એવું નામ રાખીએ જે સૌ દરબારીઓએ સ્વીકારી લીધું.

શેખ જહાંગીરમીયાએ કેરીના ગોટલા પોતાના લાલબાગ બગીચામાં તેમજ આજુબાજુના આંબાવાડીયામાં રોપાવ્યા. અને તેની કલમો તૈયાર કરાવી આસપાસના વિસ્તારમાં આ કેરીનો પ્રસાર થયો.

જૂના સોરઠ પ્રાંતમાં માંગરોળ શહેરનાં મર્હુમ શેખ જહાંગીરમીયાના રાજયમાં સાલેભાઇ નામના એક મેમૂતની વાડીમાં ગોટલાથી તૈયાર થયેલ આંબામાં પહેલી જ વખત લાંબા કદની અણીદાર કેરી ઝુમખામાં બેઠેલી જોવા મળી. આ આંબામાં શાખ પડતાં અને તે ગળતાં તેના ચિરીયા કરી ચાખી જોતાં કેસર વગરની ચપટા ગોટલા વાળી સ્વાદમાં મીઠી લહેજતદાર કેરી લાગી અને પોતાના આંબાવાડીયાની અન્ય જાતો કરતાં તેમા વિવિધતા જણાયેલ.

આ સમયમાં જૂનાગઢ રાજ્યમાં શ્રી આયંગર સાહેબ એક ઘણા બાહોશ બાગાયત શાસ્ત્રી હતાં. તેઓ માંગરોળથી સાલેભાઈની આંબડીની કલમો સંખ્યાબધ્ધ ખરીદી લાવ્યા. સક્કરબાગ અને લાલ ઢોરીના બગીચાઓમાં રોપી, ભેટ કલમો બાંધી આ બગીચાઓમાં કેરીનો જે ફાલ આવ્યો તેમા મૂળ કેરીના (સાલેભાઈની આંબડી) આકારમાં, છાલના રંગમાં અને અંદરના માવાના રંગમાં ફેરફાર દેખાયો અને ફળ ઉપરની લાંબી ચાંચ પણ ટૂંકી થઈ ગઈ. પાકી કેરી કાપતાં તેનો માવો કેસરી રંગનો (સેફોન કલર) માલુમ પડયું આથી આયંગર સાહેબે સાલેભાઈની આંબડીનું નવું નામ કેસર આપ્યું. કેસર કેરીને સારી પ્રસિધ્ધિ મળી આમ સાલેભાઈની આંમડીએ નામ ભૂતકાળ બની ગયું અને આ જાત કેસરના નામે પ્રચલિત થઈ.

વડોદરા રાજ્યના તે વખતના બાહોશ બાગાયત શાસ્ત્રી સ્વ. શંભુભાઈ ભટ્ટ, શ્રી આયંગર સાહેબના મિત્ર હતાં. અને સ્વ. અમિલાલ ઢાંકી (પોરબંદર સ્ટેટના બાગાયત શાસ્ત્રી)ને પણ તેમની સાથે અંગત સંબંધ હતો. વડોદરાના મોડેલ ફાર્મમાં તેમજ થારી તાલુકાના શંત્રુજી કાંઠે તૈયાર કરેલ ફળ બાગોમાં તેઓએ કેસર આંબાઓના બગીચા કરાવેલાં.

ભાગનગરના પ્રજા વત્સલ મહારાજ સ્વ. કૃષ્ણકુમારસિંહજીએ પોતાના નિલમબાગમાં તેમજ પોરબંદરના મહારાણા સ્વ. નટવરસિંહજીએ તેમના ખંભાળા, ટેકરા પાસેના નટવર બાગમાં કેસર કેરીનું વિશાળ વાવેતર કરાવેલું. જે ઝાડો જૂજ પ્રમાણમાં હાલ હયાત છે.

સૌરાષ્ટ્રના જુદા જુદા રાજ્યોનું એકીકરણ થયા બાદ અને સન-૧૯૫૨ માં જૂનાગઢ જિલ્લાના ગાર્ડન સુપ્રિન્ટેન્ડેન્ટ તરીકે સ્વ.અમીલાલ ઢાંકીની નીમણુંક થયેલ અને પ્રથમ વખત જ તે વર્ષમાં જૂનાગઢના મુખ્ય પોસ્ટ ઓફિસ પાસે આવેલા કન્યા વિદ્યાલયના વિશાળ હોલમાં કેરીઓ અને અન્ય ફળોનું પ્રદર્શન જુન માસની શરૂઆતમાં યોજાયેલ. તે સમયના બાહોશ કલેકટર બનેસિંહજીએ કેસર કેરીના આકારની જ ચાંદીની રંગીન ટ્રોફી તે વખતના પોરબંદરના કુશળ કારીગર શ્રી ગોવિંદભાઈ ગજજરે તૈયાર કરી આપે તેવી દરખાસ્ત મુકેલી. સ્વ. ચિતરંજનભાઈ રાજા, સ્વ. જીવણલાલ મોતીચંદ, સ્વ. રામજીભાઈ [illegible] વિરાણી અને અન્ય ઉત્સાહી ખેડૂતોએ આ દરખાસ્ત વધાવી લીધી. ટ્રોફી [illegible]

[illegible] સૌરાષ્ટ્ર રાજ્યના સમયમાં ખેતીવાડી ખાતાએ સન-૧૯૫૫માં મુંબઈમાં યોજેલ [illegible] વિભાગના કેરી પ્રદર્શનમાં ભાગ લીધેલો અને જૂનાગઢની "કેસર" અને "ખોડી" [illegible] તેમના મોકલેલા કાપીને ખાવાની જાતોમાં કેસર રજુ કરેલી અને રસની [illegible] મુકેલી આંધ્ર પ્રદેશની "ચેરકુરસમ" જાત અને ખોડી વચ્ચે હરીફાઈ રહેશે [illegible] પરંતુ તે પ્રદેશમાં નિર્ણાયકોએ કેસરને કાપીને ખાવાની જાતોમાં ઉત્તમ [illegible] અને સુવર્ણચંદ્રક આપેલું.

આ બગીચાઓમાં કેરીનો જે ફાલ આવ્યો તેમા મૂળ કેરીના (સાલેભાઈની આંબડી) આકારમાં, છાલના રંગમાં અને અંદરના માવાના રંગમાં ફેરફાર દેખાયો અને ફળ ઉપરની લાંબી ચાંચ પણ ટૂંકી થઈ ગઈ. પાકી કેરી કાપતાં તેનો માવો કેસરી રંગનો (સેફોન કલર) માલુમ પડયું આથી આયંગર સાહેબે સાલેભાઈની આંબડીનું નવું નામ કેસર આપ્યું.

ગુજરાત કૃષિ યુનિવર્સિટી, ગુજરાત રાજ્ય બાગાયત ખાતુ અને ખેતીવાડી ખાતુ તથા હોર્ટીકલ્ચરલ સોસાયટી ઓફ ગુજરાત દ્વારા આયોજીત

કૃષિવિત્ કૃષસ્વ

કેરી પ્રદર્શન, હરિફાઇ અને પરિસંવાદ - ૧૯૯૪

પ્રમાણપત્ર

શ્રી/શ્રીમતી મદદનીશ બાગાયત, કૃષિ મહાવિદ્યાલય ગામ જૂનાગઢ

તાલુકા _____ જીલ્લા જૂનાગઢ ને કેરી / કેરીની ~~બગીચા~~ / ~~પ્રદર્શન~~ / ~~કલસ્ટર~~ની સ્પર્ધામાં

તેઓની કેસર ને ~~પ્રથમ~~ / બીજા / ~~ત્રીજા~~ / ~~પ્રોત્સાહન~~ ક્રમે

આવવા બદલ અભિનંદન સહિત આ પ્રમાણપત્ર અને ઈનામ આપવામાં આવે છે.

કૃષિ કેમ્પસ,
ગુજરાત કૃષિ યુનિવર્સિટી,
નવસારી.
તા. ૯-૬-૧૯૯૪

(ઠાકોરભાઈ એલ. પટેલ)
અધ્યક્ષ : ગુજરાત રાજ્ય કેરી પ્રદર્શન -વ- હરિફાઈ સમિતિ
અને કેન્દ્ર નિયામક, ગુજરાત કૃષિ યુનિવર્સિટી
નવસારી કેન્દ્ર, નવસારી.

આ જાતની પ્રસિધ્ધિ માટે જૂનાગઢમાં મહાશિવરાત્રીના મેળામાં ભવનાથ પાસે જૂનાગઢ રાજયના બાગાયત ખાતાઓનો આસ સ્ટોલ રાખવામાં આવતો અને તે દ્વારા કલમોનું વેંચાણ કરાંતુ આ રીતે સૌરાષ્ટ્રના જુદા-જુદા વિસ્તારોમાં કેસર આંબાની કલમો પહોંચેલી.

પ્રચલિત કેસર કેરીની અગત્યની ખાસીયતો જોઈએ તો

૧. ઝાડ મધ્યમ કે મોટું ઘટ્ટ ગોળાકાર હોય છે. (૨) સરેરાશ ફળનું વજન ૨૨૫ ગ્રામ લંબગોળ આકારનું નાની ચાંચ વાળું હોય છે. (૩) ફળની છાલ મધ્યમ ઝાડી (કુલ કેરીનું વજનના ૧૩ ટકા) માવો કેસરી રંગનો રેસાં વગરનો (૬૯ ટકા) અને ગોટલો મધ્યમ કદનો ચપટો (૧૮ ટકા) હોય છે. (૪) રસ પ્રમાણમાં ઘટ્ટ ખૂબજ સ્વાદિષ્ટ અને મન પસંદ સુંગધવાળો હોય છે. (૫) પરિપકવ ફળ મે માસના મધ્યમમાં તૈયાર થાય છે. ફળ સંગ્રહ શકિત ૧૫ થી ૨૦ દિવસની છે. એક પુખ્ત વયના ઝાડમાંથી સરેરાશ ૧૫૦ થી ૨૦૦ કિલો ઉત્પાદન મળે અન્ય ગુણોવત્તામાં ટી.એસ.એસ. ૧૮ થી ૨૨ ટકા એસીડીટી ૦.૨૫ થી ૦.૨૭ ટકા વિટામીન એ ૪૨.૦ આઈયુ અને વિટામીન સી ૪૨ થી ૪૮ મીલીગ્રામ/ ૧૦૦ ગ્રામ માવામાં કુલ શર્કરા ૧૦.૫ થી ૧૨.૦ ટકા જેટલી જોવા મળે છે.

હાલ આ કેસર કેરી વેડ માધવપુરથી શીલ, માંગરોળ, ચોરવાડ, ઉના, દેલવાડા, તાલળા, વિસાવદર, મેંદરડા, ધારી, વંથલી સુધી પથરાળ તેમજ કાંપાળ જમીનમાં સારી વિસ્તરેલી છે. હવે સૌરાષ્ટ્ર-કચ્છ તેમજ ઉત્તર દક્ષિણ ગુજરાતના બીજા ભાગોમાં પણ ક્રમે-ક્રમે સારા પ્રમાણમાં નવા બગીચાઓ તૈયાર થતાં જણાય છે.

કેસર કેરી તેની સારી ગુણવત્તા હોવાના કારણે કપાસીના નુકશાનથી મુકત હોવાને કારણે તેની ચાહના અને નિકાસ વધતી જાય છે. અને તે આંતરરાષ્ટ્રીય બજારમાં હાફુસનું સ્થાન લેતી જાય છે. જેથી કેસર કેરીની ખેતી ગુજરાત પુરતી મર્યાદિત ન રહેતાં બાજુના મહારાષ્ટ્ર અને અન્ય રાજયોમાં ખેડૂતો પણ હોંશથી કરવા લાગ્યાં છે.

કેસર કેરી તેની સારી ગુણવત્તા હોવાના કારણે કપાસીના નુકશાનથી મુકત હોવાને કારણે તેની ચાહના અને નિકાસ વધતી જાય છે. અને તે આંતરરાષ્ટ્રીય બજારમાં હાફુસનું સ્થાન લેતી જાય છે.

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કેસર કેરી

કેસર કેરીના ઉત્પાદનના વિકાસ માટે પ્રજાજનોને ગામની આસપાસની ખરાબાની જમીનમાં આંબા રોપવાની મંજુરી અપાતી. જ્યારે ઝાડ ફળ આપતાં થાય ત્યારે ઝાડ દીઠ માત્ર ચાર આના દસ્તુરી લેવાતી. આ બાગની જમીન પછી વેચાણથી અપાતી.