

The Geographical Indications of Goods (Registration and Protection) Act, 1999  
(To be filled in triplicate along with the Statement of Case accompanied by five  
additional representation of the Geographical indication)

One representation to be fixed within the space and five others to be send separately

## FORM GI - 1 (A)

Application for the registration of a Geographical Indication in Part A of the Register  
Section 11 (1), Rule 23(2)  
Fee: Rs. 5,000/- (See entry No.1 A of the First Schedule)

Received Rs. 5000 in cash/  
CLP of GI MO on 3.8.2012  
no. 0897 in the  
register of variables  
Cashier  
3/8/12  
D.D.O.

Application is hereby made by **Dr. Panjabrao Deshmukh Kirshi Vidyapeeth** for the registration in Part A of the Register of the accompanying geographical indication furnishing the following particulars: -

1. Name of the Applicant: **Dr. Panjabrao Deshmukh Kirshi Vidyapeeth**
2. Address: **Dr. Panjabrao Deshmukh Kirshi Vidyapeeth  
Dept. of Horticulture,  
P. O. Krishi Nagar,  
Akola - 444 104, Maharashtra**
3. List of association of persons / producers / organisation / authority:  
Shall be provided at the earliest.
4. Type of goods: Class 31 (Fourth Schedule) Horticultural Product (Orange)
5. Specification:

Nagpur Orange is described as oranges cultivated in the Nagpur & Vidharbha region of Maharashtra and some parts in adjoining regions of Madhya Pradesh. Nagpur Oranges are medium sized, oblate in shape, with yellowish green to orange colour skin, which is easily peel able, rind thin, fine texture, good flavour and taste. The pulp is tender, Saffron or orange coloured, with excellent blend of sugar-acid. Nagpur Oranges differ from other Oranges due to growth habit, physical-chemical properties and taste.

## Composition of mature Mandarin

Composition	Nagpur Orange	
	Mirg bahar	Ambia bahar
Average weight of fruit(g)	100	125
Peel(g)	27	20
Juice(g)	45	55
Pomace(g)	28	25
TSS(° Brix)	11-14	8-10
Acidity (As anhydrous citric acid)(%)	0.3	0.5
Essential oil (%)(v/w)	2.2	3.1

Pectin (%) (fresh wt. basis)	4.5	3.5
Ascorbic acid (mg/100 ml juice)	35.0	33.6

6. Name of the geographical indication [and particulars]:

**NAGPUR ORANGE**



7. Description of the goods:

Nagpur Orange is described as oranges cultivated in the Nagpur & Vidharbha region of Maharashtra and some parts in adjoining regions of Madhya Pradesh.

The botanical name of Nagpur Orange is *Citrus reticulata Blanco*,

Botanical description of Nagpur Orange is

Kingdom: Plantae  
 Division: Magnoliophyta  
 Class: Magnoliopsida  
 Subclass: Rosidae  
 Order: Sapindales  
 Family: Rutaceae  
 Genus: Citrus  
 Species: Reticulata

Habit: Nagpur Orange is a spreading shrub or a small tree reaching a height of about 7 – 8 m.

Root: Tap root system, it goes down upto 1-2.5 m, with plenty of fibrous roots.

Stem: Cylindrical, thin, slightly thorny below and unarmed at upper regions, Bark – greyish black, thin.

Branching: Profuse branching, branching starts at a height of 1 – 2 m. from the base. Branches are spirally arranged and main stem and are very slender.

Flower: The flowers are small, white & fragrant.

Fruit: Fruits are medium sized, oblate in shape, with yellowish green to orange colour skin, which is easily peel able, rind thin, fine texture, good flavour and taste. The pulp is tender, Saffron or orange coloured, with excellent blend of sugar-acid.

Seed: Seeds are small, ellipsoid, pointed at one end, green inside.

Yield: 700 to 1200 fruits per year from a tree of 8 years and above.

**Chemical compositions of Nagpur Orange**  
(Per 100g of edible portion)

Moisture	82.6-90.2g
Protein	0.61-0.215g
Fat	0.05-0.32g
Fibre	0.3-0.7g
Ash	0.29-0.54g
Calcium	25.0-46.8mg
Phosphorus	11.7-23.4mg
Iron	0.17-0.62mg
Carotene	0.013-0.175mg
Thiamine	0.048-0.128mg
Riboflavin	0.014-0.041mg
Niacin	0.199-0.38mg
Ascorbic Acid	13.3-54.4mg

**Nutritional facts about Nagpur Orange:**

Energy (kcal)	62
Fabric content (g)	3.1
Ascorbic acid (mg)	70
Folate (mcg)	40
Potassium	237

**8. Geographical area of production and map:**

Nagpur Orange are cultivated in the Nagpur & Vidharbha region of Maharashtra and some parts in adjoining regions of Madhya Pradesh in black clay soils (Entisol, Inceptisol and Vertisol) under hot sub-humid tropical climate.

Nagpur Orange is grown in Nagpur, Wardha, Amaravathi, Yavatmal, Washim, Buldhana, Jalgaon, Aurangabad, Jalna, Prabhani, Beed, Ahmadnagar and Usmanabad districts of Maharashtra and Betul, Khandwa, Chhindwara, Seoni Districts of Madhya Pradesh.

**9. Proof of origin [Historical records]:**

Nagpur Orange is grown since last 250 years in Vidarbha. Raje Raghoji Bhosle brought it from Aurangabad to Nagpur in 18<sup>th</sup> Century.

**10. Method of Production:**

**A. Selection of Site :**

- ❖ **Orchard:** Soil should be well drained and of shallow or medium depth. Deep heavy soil having more than 60% clay contents is not suitable for citrus plantation.

National Research centre for citrus Nagpur has prescribed threshold values of soil properties for optimum productivity of Nagpur oranges.

(2)

Thresholds of soil properties for optimum productivity of Nagpur mandarin.

Properties	Optimum value
Soil Ph(1:2.5)	7.6
Soil EC (dS/m)	0.22
Free CaCO <sub>3</sub> (%)	11.8
<b>Mechanical Composition (%)</b>	
Sand	25.5
Silt	28.1
Clay	46.4
<b>Water soluble cations (mg / L)</b>	
Ca <sup>2+</sup>	171.15
Mg <sup>2+</sup>	52.15
Na <sup>+</sup>	1.1
K <sup>+</sup>	2.10
<b>Exchangeable cations (cmol (p+) kg)</b>	
Ca <sup>2+</sup>	25.60
Mg <sup>2+</sup>	10.20
Na <sup>+</sup>	1.40
K <sup>+</sup>	5.20
Cation exchange capacity (cmol(p <sup>+</sup> )/kg)	42.41
<b>Fertility status (mg/kg)</b>	
Available N	118.10
Available P	10.20
Available K	220.15
Available Fe	14.08
Available Mn	10.50
Available Cu	2.20
Available Zn	1.02
Optimum yield (tons/ha)	11.50-13.25

- ❖ **Nursery:** Nursery should be located at least 500 meters away preferably on western side of the orchard to minimize incidence of insect pests and diseases.

**B. Raising of citrus nursery:**

- ❖ **Sowing of Rootstocks seeds**
  - Potting mixture of soil, sand and FYM or compost should be used in equal proportion (1:1:1) for filling of trays in primary nursery and polythene bags in secondary nursery. Before it is used for filling the bags/ trays the potting mixture should be solarised. For solarisation, it is spread on the concrete platform in 4" thick layer in the month of April – May, sufficiently moistened with water, then covered fully with the white polythene sheet, sealing its edges with soil . Then it should be left undisturbed for 1 1/2 to 2 months in the hot sun for solarisation.

- Only certified seeds of rootstocks should be used.
- Shade dried medium size, bold seeds of rootstocks should be treated with vitavax or Thiram (@ 3g/kg seed) and sown on the raised beds or in plastic trays during September – October.
- Stagnation of water in beds should be avoided otherwise roots of young plants may start rooting.
- Uniform seeding of medium height only be discarding either vigorous or the weak and dwarf ones while transferring to secondary nursery. Plants having hooked or bent roots should be discarded.

❖ **Budding**

- Bud sticks should be used from the authorized and certified source only.
- Bud sticks should be drawn from the last years flush, the stick should have pencil thickness, roundish and having whitish longitudinal streaks on it.
- Bud stick should not be drawn from rubbery wood or Kikarpani plants.
- Budding should be performed at 10'' – 12'' height on the rootstock seedling.

**C. Orchard Establishment**

❖ **Pits Size**

- Pits for planting should be 2'6'' x 2'6'' x 2'6'' (75 x 75 x 75 cm) size and spaced at 6 x 6 m distance.
- To avoid soil borne fungi or nematodes soil of roots should be removed.

❖ **Pre – planting treatment for budding**

- Roots of budding should be dipped in the solution of metalaxyl MZ72 2.75 g + carbendazim 1 g/l water for 10 – 15 minutes before planting.

❖ **Planting of budding**

- While planting care should be take that rootstock union remains at least 6'' above ground.

**D. Manure and Fertiliser Application**

- Nitrogen containing fertilisers should be applied in three equal splits in January, July and November months; phosphorus containing fertilisers in two splits in January and July months and potassium containing fertilizers may be applied as singly dose in January.

- Fertiliser Doses:**

Fertilisers	Age of tree			
	I Year	II Year	III year	IV year and above
Nitrogen	150	300	450	600
Phosphorus	50	100	150	200
Potassium	25	50	75	100

As far as possible  $1/3^{\text{rd}}$  of the dose of N may be given through farm yard manure/ compost, oil cakes etc.

- Leaf sampling**

For correct diagnosis of nutritional status use of correct sampling technique is very important. For this, it is important to know as to how many leaves, when, from which part of the plant and from how many trees should be sampled.

In case of Ambia bahar 5-6 month old leaves in Aug.-Oct. and for Mrig bahar 6-8 months old leaves in December and February should be sampled. As far as possible 2<sup>nd</sup> 3<sup>rd</sup> or 4<sup>th</sup> leaf should be picked from the tip of the non -- bearing shoot, preferably at 1.5 – 2'm above the ground should be sampled.

### E. Drip Irrigation

With the help of drip system of irrigation required quantity of water can be provided right at the feeder root system. Similarly, water soluble fertilizers and micro – nutrients also can be given through drip system. Water requirement of irrigation depends upon age of the tree and season of the year (Table 1). Mulching with drip irrigation maintains moisture in soil for longer period.

Table 1. Water requirement of Nagpur Orange (litres / day / tree)

Month	Age of the tree (years)									
	1	2	3	4	5	6	7	8	9	>10
January	7	15	22	30	44	62	72	82	92	102
February	9	20	30	40	60	82	96	101	121	137
March	12	26	40	53	78	109	127	145	163	181
April	14	29	43	63	87	123	143	163	183	204
May	17	34	52	74	102	143	166	188	211	235
June	11	22	34	48	67	95	110	126	142	157
July	8	18	26	41	56	79	92	105	118	131
August	7	14	23	34	42	60	70	80	90	100
September	8	15	25	36	45	65	76	87	98	108
October	9	17	27	40	52	79	92	105	118	131
November	8	15	25	36	45	63	74	85	96	150
December	6	11	19	24	35	49	57	65	73	82

#### F. Weed Control:

For effective and economic control of mono and dicotyledonous weeds, pre-emergence weedicides diuron 3 kg or simazin 4 kg/ha at the end of May and 120 days thereafter should be done. For post-emergence weed control glyphosate @ 4 l/ha or paraquat @ 2 l/ha when sprayed preferably on weeds before flowering give very good control.

#### G. Fruit drop

Fruit drop in citrus is of serious in nature which occurs at least twice i.e. first when the fruits are little more than the marble size and second when the fruits are fully developed or at the time of colour break. This drop is very serious in Ambia bahar crop which is called as pre-harvest fruit drop and is important from economics point of view to the orchardists.

To control fruit drop that occurs after fruit set, two foliar Sprays of either 2,4-D or GA3 at 15ppm + urea 1% at and benomyl or carbendazim 0.1% at monthly interval in April – May are recommended. Same spray concentration is recommended for controlling pre- harvest drop in the months of September and October. 2,4-D and GA3 may be dissolved earlier in little quantity (30 - 40 ml for 1g) of some organic solvent such as alcohol or acetone before making spray solution.

#### H. Blossoming in Nagpur oranges

- Nagpur oranges bloom twice in a year. The flush that comes in the month of January – February is called Ambia Bahar (The name is taken from the period when mango also have a bloom in January – February in Vidarbha region).
- In local language mango is called Amba hence the name Ambia bahar).
- The fruit from this flush would be available in the months of November – December.
- Because of the lower temperature during fruits maturity period of Ambia Bahar , these fruits are some what sour compared to the fruits of Mirg Bahar .
- But these fruits escape the possible damage from hailstorms, which may come in the following months of January to March. And thus there is certainty of getting fruit yields from Ambia bahar.
- Because of this certainty of getting yield, farmers prefer Ambia Bahar.
- As the development of the fruit of Ambia bahar continues throughout the summer months, assured supply of irrigation water must be there if 'Ambia bahar' is preferred. The bloom that comes in June-July (i.e. after 'Mirg Nakshatra') is called Mirg bahar and the fruits of this bloom would be available in the months of February – March.

- This is the beginning of the summer months and therefore there is heavy demand and naturally higher price for this crop. Because of clear sunshine and better atmospheric conditions the development of the fruits continues in uninterrupted manner resulting in better quality and sweeter fruits than the fruits of Ambia bahar.

Source: [http://nrcitrus.nic.in/nagpur\\_mandrain\\_practices.pdf](http://nrcitrus.nic.in/nagpur_mandrain_practices.pdf)

#### 11. Uniqueness:

- 1) Nagpur Orange /Nagpur mandarin is considered as one of the best mandarin of the world because of its attractive colour, pleasant flavour and good taste.
- 2) Nagpur Orange / Nagpur mandarin is most commonly thought of as a good source of vitamin C.
- 3) Nagpur Orange also contain an impressive list of other essential nutrients, including both glycaemic and non-glycaemic carbohydrate (sugars and fibre), potassium, folate, calcium, thiamin, niacin, vitamin B6, Phosphorus, magnesium, copper riboflavin, pantothenic acid and a variety of phytochemicals.
- 4) Nagpur Orange / Nagpur mandarins contains no fat or sodium. The average energy value of fresh citrus is also low, which can be very important for consumers concerned about putting on excess body weight.

12. **Inspection Body:** Shall be provided at the earliest.

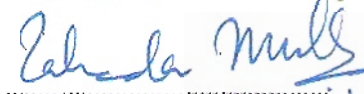
13. **Others:**

14. Along with the Statement of Case in Class <sup>b</sup> 31 (Schedule 4) in respect of <sup>c</sup> Horticultural Product (Orange) in the name(s) of <sup>d</sup> **Dr. Panjabrao Deshmukh Kirshi Vidyapeeth** whose address is Dr. Panjabrao Deshmukh Kirshi Vidyapeeth, Dept. of Horticulture, P. O. Krishi Nagar, Akola – 444 104. Maharashtra who claims to represent the interest of the producers of the said goods to which the geographical indication relates and which is in continuous use since in respect of the said goods.

The Application shall include such other particulars called for in Rule 32(1) in the Statement of Case.

All communications relating to this application may be sent to the following address in India:

ZAHEDA MULLA - Advocate  
Winlexis - Legal Consultants (Corporate)



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