

**PROCEEDINGS OF THE TREE EXPERT COMMITTEE MEETING HELD  
ON 14.10.2020 AT 2:00 PM AT BENGALURU.**

**PRESENT:**

- |    |   |                  |
|----|---|------------------|
| 1. | <b>Shri I B Srivastava, IFS (Rtd).</b>  | <b>CHAIRMAN</b>  |
|    | <b>Dr. Muthu Kumar</b>                  | <b>MEMBER</b>    |
|    | <b>Arunachalam</b>                      |                  |
| 2. | <b>(Scientist-E, Plant Pathologist)</b> |                  |
|    | <b>IWST.</b>                            |                  |
|    | <b>Dr. Nagarajaiah C</b>                | <b>MEMBER</b>    |
|    | <b>(Professor and Head, Dept. of</b>    |                  |
| 3. | <b>Forestry and Environmental</b>       |                  |
|    | <b>Science)</b>                         |                  |
|    | <b>Dr. R Krishna Murthy</b>             | <b>MEMBER</b>    |
|    | <b>(Professor Dept. of Forestry and</b> |                  |
| 4. | <b>Environmental Science)</b>           |                  |
|    | <b>Shri. V.Govindaraju</b>              | <b>MEMBER -</b>  |
|    | <b>(Assistant Conservator of</b>        | <b>SECRETARY</b> |
| 5. | <b>Forests, (BBMP)</b>                  |                  |

Shri V. Govindaraju, Member Secretary, Tree Expert Committee and Assistant Conservator of Forests, BBMP, Bengaluru welcomed the Chairman, and Members of the Committee present in the meeting.

Pursuant to the orders dt 20.08.2020 of Hon'ble High Court of Karnataka to reconstitute the Tree Expert Committee, the Government of Karnataka has re-constituted the Committee of Experts by incorporating the following members:

- (1) Professor and Head, Department of Forestry and Environmental Science and
- (2) Professor, Department of Forestry and Environmental Science, University of Agricultural Sciences, GKVK, Bengaluru. The same was submitted and placed on record by the Hon'ble High Court of Karnataka.

Bearing in mind the directions issued by the Hon'ble High Court and taking into account all the paper and documents with respect to the pending applications pertaining to BMRCL, the re-constituted Committee examined the pending

applications of BMRCL and carried out field visits for on site assessment and to find alternative ways to save the trees which were identified for felling, in different project sites/locations on the dates mentioned against each location: -

Sl.No	Metro Stations/Depot. Location	Date of Inspection
1	UM Kaval Depot.(Reach 4B)	10.09.2020
2	Bennaganahalli Lake Bund (Reach 1A)	15.09.2020
3	Kadugudi Metro Station (Reach 1B)	17.09.2020
4	Whitefield Metro Station (Reach 1B)	
5	Kadugudi Depot.	
6	Kothunur Depot Entry Line (Reach 6 Elevated)	19.09.2020
7	Reach 5 (Package-3)	
8	Govt. I.T.I Ground (Fabrication Yard)	
9	Dairy Circle Metro Station (RT 01 UG)	
10	Lakkasandra Metro Station (RT 01 UG)	23.09.2020
11	M G Road Metro Station (RT 02 UG)	

During the course of these visits, the concerned Chief Engineers / Deputy Chief Engineers of BMRCL have explained with reference to the alignment of Metro works along with the approved alignment, drawing plans etc., and the same has been examined by the Committee.

The Committee thoroughly assessed each existing tree in all the above locations for the possibility of Retention or Transplantation considering the following factors like change in project alignment / shifting of proposed structures, type of trees, health of the tree, age / maturity status of the tree *etc.* in reference to the 20 points Working Procedure and Methodology submitted to the Hon'ble High Court of Karnataka.

Intensive assessment was carried out by the Committee in order to retain the trees on site by understanding the overall project plan vis-à-vis the alignment of Metro line, stations, Depot *etc.* wherever possible, as Retention is the first priority and efficient way to save trees in any infrastructure development project area. Only when retention on site was not feasible, Committee examined as to whether the tree is sufficiently healthy to be translocated. Then if the above two options are not possible then as a last resort, the Tree Expert Committee has decided to recommend for felling of trees.

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The Committee has also inspected the proposed sites by BMRCL for translocation of trees both of existing trees locations and at receptors sites (planned for translocation) which are near to the existing trees locations at some places. Details of soil test reports are produced as **Annexure**.

Thereafter meetings were held by the Committee for finalizing the field inspections reports pertaining to various Metro Stations, Viaducts and Depots in jurisdiction of Concerned Tree Officers and further the proceedings were drawn based on the field inspection reports indicating which are the trees to be saved by way of retention, which are the trees to be saved by way of translocation and finally trees to be felled.

All sincere efforts were made to save the trees by means of retention on site as first priority and then translocation as a next step. After due deliberation, the Tree Expert Committee has therefore taken decision and directed the concerned Tree Officers to issue / grant permissions for retention of trees on site, translocation of trees to suitable places and then felling of remaining trees as a last resort to BMRCL besides simultaneously informing them to carry out planting of tall healthy saplings in lieu of felling of trees at the ratio of 1:10 at suitable places. The details of trees permitted for retention, translocation and felling has been listed in the field inspection reports of Tree Expert Committee (Reports enclosed).

The Committee stressed that in respect of tree to be translocated, regular inspection of the process of translocation should be conducted and translocation should be done with close supervision of Forest Staff. Further regular post care management of the trees thus translocated must be undertaken by the Forest Staff of BBMP, Bangalore Urban Division and Project Authorities and it should be ensured that the greenery of Bengaluru city is enhanced through proper maintenance of saplings / trees under all circumstances.



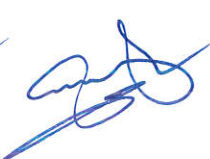


  
Member Secretary and  
Assistant Conservator of Forests, BBMP

# Kothnur Depot Entry Line Tree List

Height

S.No	Tree No.	Branch	Name of Tree/Species	Girth in mtr	Height in mtr	Remarks
1	1		Jackfruit	0.92	6	To be Retained
2	2		Ashok tree	0.53	8	To be Felled
3	3		Ashok tree	0.53	9	To be Felled
4	4		Ashok tree	0.51	9	To be Felled
5	5		Ashok tree	0.56	9	To be Felled
6	6	A	Ashok tree	0.45	8	To be Felled
		B	Ashok tree	0.45	8	
7	7	A	Ashok tree	0.65	9	To be Felled
		B	Ashok tree	0.63	9	
8	8	A	Jackfruit	1.3	5	To be Felled
		B	Jackfruit	1.26	4	To be Translocated
9	9		Jackfruit	1.43	4	To be Translocated
10	10	A	Mango tree	0.55	2	To be Felled
		B	Mango tree	0.43	2	
11	11		Spathodia	1.1	5	To be Translocated
12	12	A	Benjaniyam	0.48	2	To be Translocated
		B	Benjaniyam	0.45	2	
13	13		Benjaniyam	0.54	2	To be Translocated
14	14	A	BettadaNelli	0.63	4	To be Translocated
		B	BettadaNelli	0.45	4	
15	15	A	BettadaNelli	0.55	2.5	To be Translocated
		B	BettadaNelli	0.38	2	To be Felled
16	16		Jackfruit	0.67	3	To be Retained
17	17		Jackfruit	0.8	3	To be Translocated
18	18	A	Dalchinni	0.55	2	To be Felled
		B	Dalchinni	0.65	2	To be Retained
19	19		Jackfruit	0.8	4	To be Retained
20	20	A	Jackfruit	1.08	4	To be Retained
		B	Jackfruit	1.12	4	
		C	Jackfruit	1.15	4	
21	21		Butter fruit	0.83	2	To be Translocated
22	22	A	Cashew nut	2.15	3	To be Felled
		B	Cashew nut	1.85	3	
23	23		Nelli	0.98	8	To be Felled
24	24		Ashok tree	0.33	8	To be Felled

Chief  
  
  






# Kothnur Depot Entry Line Tree List

S.No	Tree No.	Branch	Name of Tree/Species	Girth in mtr	Hieght in mtr	Remarks
25	25		Ashok tree	0.4	8	To be Felled
26	26		Ashok tree	0.47	8	To be Felled
27	27		Ashok tree	0.35	8	To be Felled
28	28	A	Dalchni	0.36	2	To be Translocated
		B	Dalchni	0.26	2	
29	29		Cherry	0.37	2	To be Felled
30	30		Nelli	0.45	3	To be Translocated
31	31	A	Nelli	0.37	3	To be Translocated
		B	Nelli	0.35	2.5	
25	32		Jackfruit	0.45	4	To be Translocated
33	33		Jackfruit	0.34	4	To be Translocated
34	34		Peltophorum	0.25	4	To be Felled
35	35		Kunkum	0.25	3	To be Translocated
36	S1		Sandal	0.3	3	To be Translocated
37	S2		Sandal	0.2	2	To be Translocated
38	S3		Sandal	0.15	2	To be Translocated
39	S4		Sandal	0.22	1.5	To be Translocated

Total No. of Trees Enumerated	39 Nos
No. of trees recommended for Retention	5 Nos
No. of trees recommended for Translocation	19 Nos
No. of trees recommended for Felling	15 Nos
Total No. of Trees	39 nos

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# Tree List - Kothnur Depot Entry Line

## Trees Recommended to Retain at site

S.No	Tree No.	Branch	Name of Tree/Species	Girth in mtr	Height in mtr	Species Characteristics	Committee Remarks
1	1		Jackfruit	0.92	6	<p><i>Artocarpus heterophyllus</i> grows as an evergreen tree that has a relatively short trunk with a dense treetop. It easily reaches heights of 10 to 20 m (33 to 66 feet) and trunk diameters of 30 to 80 cm (12 to 31 inches). It sometimes forms buttress roots. The leaves are alternate and spirally arranged. They are gummy and thick and are divided into a petiole and a leaf blade. The fruits grow on a long and thick stem on the trunk. An average fruit consists of 27% edible seed coat, 15% edible seeds, 20% white pulp (undeveloped perianth, rags) and bark and 10% core.</p>	<p>These trees are falling close to the boundary and will not hinder the BMRCL project activities ( These recommendations are in reference to the 20 point working procedure and methodology submitted by TEC to the Hon'ble High Court of Karnataka)</p>
2	16		Jackfruit	0.67	3		
3	19		Jackfruit	0.8	4		
4	20	A	Jackfruit	1.08	4		
		B	Jackfruit	1.12	4		
		C	Jackfruit	1.15	4		
5	18	B	Dalchini	0.65	2	<p><i>Cinnamom</i> (Dalchini) - is the dried bark of various laurel trees in the cinnamomun amily. It is a sweet-tasting spice, with a warm, woody aroma. The smell of Cinnamon is pleasant, stimulates the senses, yet calms the nerves. Cinnamon is an evergreen tree characterized by oval-shaped leaves, thick bark, and a berry fruit. When harvesting the spice, the bark and leaves are the primary parts of the plant used</p>	

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2/10/2024



Tree List - Kothnur Depot Entry Line						
Trees recommended for Translocaton						
S.No	Tree No.	Branch	Name of Tree/Species	Girth in mtr	Hieght in mtr	Species Characteristics
1	12	A	Benjamina	0.48	2	<i>Ficus benjamina</i> , commonly known as weeping fig, benjamin fig or ficus tree, and often sold in stores as just ficus, is a species of flowering plant in the family Moraceae, native to Asia and Australia. It is the official tree of Bangkok. A recently described variety, <i>Ficus benjamina</i> planted by Horticulture Department long back
		B	Benjamina	0.45	2	
2	13		Benjamina	0.54	2	The tree is small to medium in size, reaching 1–8 m (3 ft 3 in–26 ft 3 in) in height. The branchlets are not glabrous or finely pubescent, 10–20 cm (3.9–7.9 in) long, usually deciduous. The fruit is nearly spherical, light greenish-yellow, quite smooth and hard on appearance, with six vertical stripes or furrows.
3	14	A	BettadaNelli	0.63	4	
		B	BettadaNelli	0.45	4	
4	15	A	BettadaNelli	0.55	2.5	
5	21		Butter fruit	0.83	2	Avocados are commercially valuable and are cultivated in tropical and Mediterranean climates throughout the world. <i>Persea americana</i> is a tree that grows to 20 m (66 ft), with alternately arranged leaves 12–25 cm (5–10 in) long. Panicles of flowers with deciduous bracts arise from new growth or the axils of leaves. They have a green-skinned, fleshy body that may be pear-shaped, egg-shaped, or spherical. A typical serving of avocado (100 g) is moderate to rich in several B vitamins and vitamin K, with good content of vitamin C, vitamin E and potassium.
6	28	A	Dalchni	0.36	2	<i>Cinnamom</i> (Dalchni) - is the dried bark of various laurel trees in the cinnamomun family. It is a sweet-tasting spice, with a warm, woody aroma. The smell of Cinnamon is pleasant, stimulates the senses, yet calms the nerves. Cinnamon is an evergreen tree characterized by oval-shaped leaves, thick bark, and a berry fruit. When harvesting the spice, the bark and leaves are the primary parts of the plant used
		B	Dalchni	0.26	2	
7	8	B	Jackfruit	1.26	4	<i>Artocarpus heterophyllus</i> grows as an evergreen tree that has a relatively short trunk with a dense treetop. It easily reaches heights of 10 to 20 m (33 to 66 feet) and trunk diameters of 30 to 80 cm (12 to 31 inches). It sometimes forms buttress roots. The leaves are alternate and spirally arranged. They are gummy and thick and are divided into a petiole and a leaf blade. The fruits grow on a long and thick stem on the trunk. An average fruit consists of 27% edible seed coat, 15% edible seeds, 20% white pulp (undeveloped perianth, rags) and bark and 10% core.
8	9		Jackfruit	1.43	4	
9	17		Jackfruit	0.8	3	
10	32		Jackfruit	0.45	4	
11	33		Jackfruit	0.34	4	
12	35		Kunkum	0.25	3	<i>Mallotus philippensis</i> is a plant in the spurge family. It is known as the kamala tree or red kamala or kumkum tree, due to the fruit covering, which produces a red dye. A bush to small or medium-sized tree, up to 25 metres tall and a trunk diameter of 40 cm. The trunk is fluted and irregular at the base. The grey bark is smooth, or with occasional wrinkles or corky bumps. <i>Mallotus philippensis</i> is used to produce yellow dye and herbal remedies

\*Each tree was examined and identified for translocation based on their ecological importance, health and relevant factors in reference to the parameters as mentioned in point no.s 14, 15 and 19 of methodology of TEC. Sandalwood trees were smaller in girth size with availability of suitable root ball size.As these trees are healthy and falling in midway of project area, translocation is the only method to save the trees. As Sandalwood needs host plant/tree for growth/survival ,the excavated tree/plant may be planted nearer to suitable host plant/tree. ( These recommendations are in reference to the 20 point working procedure and methodology submitted by TEC to the Hon'ble High Court of Karnataka)

\* Regarding translocation of trees, the sites identified are in the premises of Horticulture farm .These sites have been inspected by TEC. Soil analysis reports were also produced for persual of TEC, translocation of trees can be done in these areas. The recommendations as suggested by GKVK and TEC during the course of translocation activity have to be followed by BMRCL


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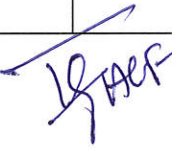
Tree List - Kothnur Depot Entry Line

Trees recommended for Translocaton

S.No	Tree No.	Branch	Name of Tree/Species	Girth in mtr	Height in mtr	Species Characteristics	Committee Remarks
13	30		Nelli	0.45	3	<i>Phyllanthus acidus</i> is an intermediary between a shrub and tree, reaching 2 to 9 m (6½ to 30 ft) high. The tree's dense and bushy crown is composed of thickish, tough main branches, The branchlets bear alternate leaves that are ovate or lanceolate in form, with short petioles and pointed ends.	
14	31	A	Nelli	0.37	3		
		B	Nelli	0.35	2.5		
15	S1		Sandal	0.3	3	<i>Santalum album</i> , or Indian sandalwood, is a small tropical tree, and the traditional source of sandalwood oil. It is considered sacred in some religions, and some cultures place great significance on its fragrant and medicinal qualities. . Indian sandalwood still commands high prices for its essential oil owing to its high alpha santalol content, but due to lack of sizable trees it is no longer used for fine woodworking as before.	
16	S2		Sandal	0.2	2		
17	S3		Sandal	0.15	2		
18	S4		Sandal	0.22	1.5		
19	11		Spethodia	1.1	5	<i>Spathodea campanulata</i> , is commonly known as the African tulip tree,fountain tree, pichkari or Nandi flame. The tree grows between 7–25 m (23–82 ft) tall and is native to tropical dry forests of Africa. It has been nominated as among 100 of the "World's Worst" invaders. This tree is planted extensively as an ornamental tree throughout the tropics and is much appreciated for its very showy reddish-orange or crimson (rarely yellow), campanulate flowers.	

Dr

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Tree List - Kothnur Depot Entry Line							
Trees recommended for Felling							
S.No	Tree No.	Branch	Name of Tree/Species	Girth in mtr	<del>Height</del> Hieght in mtr	Species Characteristics	Committee Remarks
1	2		Ashok tree	0.53	8	<i>Polyalthia longifolia</i> , is an Asian small tree species in the family Annonaceae. It is native to southern India and Sri Lanka, but has been widely introduced elsewhere in tropical Asia and Africa.	Felling of these trees was decided as a last resort , as these trees are falling within the project alignment and were exhibiting various symptomatic parameters which render them un- fit for translocation. The various parameters include major wounds on the trunk, debarking, physical damage on the bark, scar due to fire and other pest infestation.( These recommendations are in reference to the 20 point working procedure and methodology submitted by TEC to the Hon'ble High Court of Karnataka)
2	3		Ashok tree	0.53	9		
3	4		Ashok tree	0.51	9		
4	5		Ashok tree	0.56	9		
5	6	A	Ashok tree	0.45	8		
		B	Ashok tree	0.45	8		
6	7	A	Ashok tree	0.65	9		
		B	Ashok tree	0.63	9		
7	24		Ashok tree	0.33	8		
8	25		Ashok tree	0.4	8		
9	26		Ashok tree	0.47	8		
10	27		Ashok tree	0.35	8		
11	22	A	Cashew nut	2.15	3	The fruit of the cashew tree is an accessory fruit (sometimes called a pseudocarp or false fruit). The true fruit of the cashew tree is a kidney- or boxing-glove-shaped drupe that grows at the end of the cashew apple. The drupe develops first on the tree, and then the pedicel expands to become the cashew apple.	
		B	Cashew nut	1.85	3		
12	29		Cherry	0.37	2	A small tree of 3-12m in height, which has fan-like branches and is droopy, thus resulting in its tiered tree form. Leaves are evergreen of about 4-14cm long and 1-4cm wide. Leaves are simple, ovate-lanceolate, dark-green and minutely hairy on the upper side. It is able to thrive in both acid and alkaline conditions, and is drought-resistant but not salt tolerant.	
13	10	A	Mango tree	0.55	2	Mango trees grow to 35–40 m (115–131 ft) tall, with a crown radius of 10 m (33 ft). The trees are long-lived, as some specimens still fruit after 300 years. In deep soil, the taproot descends to a depth of 6 m (20 ft), with profuse, wide-spreading feeder roots and anchor roots penetrating deeply into the soil. The fruits may be somewhat round, oval, or kidney-shaped, ranging from 5–25 centimetres (2–10 in) in length and from 140 grams (5 oz) to 2 kilograms (5 lb) in weight per individual fruit.	
		B	Mango tree	0.43	2		
14	23		Nelli	0.98	8	<i>Phyllanthus emblica</i> , also known as emblic, emblic myrobalan, myrobalan, Indian gooseberry, Malacca tree, or amla from Sanskrit amalaki is a deciduous tree of the family Phyllanthaceae. It has edible fruit, referred to by the same name	
15	34		Subabul	0.25	4	<i>Leucaena leucocephala</i> is a small fast-growing mimosoid tree native to southern Mexico and northern Central America and is now naturalized throughout the tropics. Common names include white leadtree, jumbay, river tamarind, ipil-ipil, and white popinac.	

  
 Prof. C. Nagarajaiah  
 (Member, TEC)

  
 Dr. Muthu Kumar Arunachalam  
 (Member, TEC)

  
 Prof. R. Krishna Murthy  
 (Member, TEC)

  
 Shri. V. Govindaraju  
 (Member Secretary and ACF, BBMP)

Shri I.B. Srivastava, IFS (Rtd).  
 Chairman, TEC







## BRUHAT BANGALORE MAHANAGARA PALIKE

No: ACF//PR. 16 /2020-21

Encls: 24 pages.

Office of the  
Assistant Conservator of Forests  
Bruhat Bangalore Mahanagara Palike  
N.R.Square Annex Building-3  
Bengaluru, dated: 15.10.2020

To,

The Deputy Conservator of Forests  
Bangalore Urban Division,  
Bengaluru.

Sir,

**Sub: Proceedings of the Tree Expert Committee meeting held  
on 14.10.2020 Reg.**

Please find enclosed herewith the copy of the proceedings along with Field Inspection reports of the Tree Expert Committee meeting held on 14.10.2020, with a request to take necessary action pertaining to your jurisdiction as per the direction by the Tree Expert Committee in the proceedings.

Also, in this regard, action may be taken to upload the documents in the website of BBMP as per the directions of the Hon'ble High Court of Karnataka vide its order dated 04.03.2020.



Yours faithfully

  
Member Secretary and  
Assistant Conservator of Forests  
BBMP  


Copy to:

1. The Chairman, Tree Expert Committee.
2. Respected members of Tree Expert Committee.

**UNIVERSITY OF AGRICULTURAL SCIENCES GKVK, BANGALORE**  
**DEPARTMENT OF SOIL SCIENCE AND AGRICULTURAL CHEMISTRY**

SS&AC/ /2020-21

20-08-2020

To,

SHRI C M RANGANATH  
CE/R6(ELEVATED)  
BANGALORE METRO RAIL CORPORATION LTD.,  
REGD. OFFICE: BMTc COMPLEX  
3<sup>RD</sup> FLOOR, K.H. ROAD, SHANTINAGAR  
BANGALORE- 560 027  
INDIA

Sir,

Sub: Analytical result of two soil samples .....reg

Ref: DR/ STA/TT -105/ 2020-21

dt:-18-08-2020

Please find here with the analytical results of two soil samples provided by you (**BMRCCL/P2/R6/ELEVATED/ TREE/2020-21/2234**) for analysis in the Dept. of Soil Science and Agricultural Chemistry, College of Agriculture, GKVK, Bangalore-65

**Soil samples**

Parameters	1 Present location Kothnur depot entry line	2 Proposed location Horticulture internal area
pH (1:2.5)	6.51	7.36
Electrical conductivity (dS/m)(1: 2.5)	0.12	0.39
Organic carbon (%)	0.06	0.05
Nitrogen( kg ha <sup>-1</sup> )	188.2	188.2
Phosphorus ( kg ha <sup>-1</sup> )	10.39	4.45
Potassium( kg ha <sup>-1</sup> )	196.5	106.2
Calcium (meq/100 g)	5.00	7.00
Magnesium ( meq/100 g)	1.50	1.80
Sulphur (ppm)	6.08	4.83
Iron (ppm)	5.21	4.44
Manganese (ppm)	4.16	3.00
Zinc (ppm)	0.54	0.60
Copper (ppm)	0.28	0.41
Boron (ppm)	0.21	0.12


**Inference:** The two samples provided for analysis are slightly acidic to neutral in nature, low in salt content and organic matter content and contain low quantities of major nutrients (N,P,K and all other parameters as per standards). Therefore with proper nutrient application soil is suitable for tree shifting

The result should not be utilized for legal / commercial purposes without prior consent of the Director of Research.

Forwarded to  
Director of Research

NO. DR/STA/TT-105/2020-21 dt. 20/8/2020  
Yours faithfully  
**COUNTERSIGNED**

  
**Director of Research**  
University Of Agricultural Sciences  
G.K.V.K Bangalore-560 065

  
**Professor and Head**  
Dept. of Soil Science & Agril. Chemistry  
College of Agriculture, U.A.S., G.K.V.K.  
Bangalore - 560 065

UNIVERSITY OF AGRICULTURAL SCIENCES, BANGLORE  
DEPARTMENT OF SOIL SCIENCE AND AGRICULTURAL CHEMISTRY  
COLLEGE OF AGRICULTURE, GKV CAMPUS

Soil and Irrigation Water Parameters Interpretation  
**Limits of Nutrients in Soil / ಮಣ್ಣಿನಲ್ಲಿನ ಪೋಷಕಾಂಶಗಳ ಮಿತಿಗಳು**

Parameters				
pH	ರಸಸಾರ	<6.5 ಹುಳಿ	6.5-8.5 ತಟಸ್ಥ	>8.5 ಕ್ಷಾರ
EC (dS/m)	ವಿದ್ಯುತ್ ವಾಹಕತ್ವ, ಡೆಸಿ, ಸೈಮನ್/ಮೀ	<0.8 ಸಹಜ ಸ್ಥಿತಿ	0.8-1.6	>1.6-2.5 ಹಾನಿಕಾರಕ

Parameters		Low/ಕಡಿಮೆ	Medium/ಮಧ್ಯಮ	High/ಹೆಚ್ಚು
OC(Organic Carbon%)	ಸಾವಯವ ಇಂಗಾಲ (%)	<0.50	0.5 - 0.75	>0.75
Nitrogen (Kg ha <sup>-1</sup> )	ಸಾರಜನಕ (N) ಕೆ.ಜಿ./ಹೆ.	<280	280-560	>560
Phosphorus (Kg ha <sup>-1</sup> )	ರಂಜಕ (P <sub>2</sub> O <sub>5</sub> ) ಕೆ.ಜಿ./ಹೆ.	<22.9	22.9-56.33	>56.33
Potassium (Kg ha <sup>-1</sup> )	ಪೊಟ್ಯಾಶ್ (K <sub>2</sub> O) ಕೆ.ಜಿ./ಹೆ.	<141	141-336	>336
Sulphur (ppm)/mg kg <sup>-1</sup>	ಗಂಧಕ(S) ಪಿ.ಪಿ.ಎಂ	<10	10-20	>20
Iron (ppm)/mg kg <sup>-1</sup>	ಕಬ್ಬಿಣ (Fe) ಪಿ.ಪಿ.ಎಂ	<2.50	2.50-4.50	>4.50
Manganese (ppm)/mg kg <sup>-1</sup>	ಮ್ಯಾಂಗನೀಸ್(Mn) ಪಿ.ಪಿ.ಎಂ	<1.00	1.00-2.00	>2.00
Copper (ppm)/mg kg <sup>-1</sup>	ತಾಮ್ರ(Cu) ಪಿ.ಪಿ.ಎಂ	<0.10	0.10-0.20	>0.20
Zinc (ppm)/mg kg <sup>-1</sup>	ಸತು (Zn) ಪಿ.ಪಿ.ಎಂ	<0.60	0.60-1.00	>1.00
Boron (ppm)/mg kg <sup>-1</sup>	ಬೋರಾನ್ (B) ಪಿ.ಪಿ.ಎಂ	<0.25	0.25-0.50	>0.50

**Irrigation Water Quality Parameters/ ನೀರಾವರಿ ನೀರಿನ ಗುಣಮಟ್ಟ ನಿರ್ಯತಾಂಕ**

Parameter	Low/ಕಡಿಮೆ	Medium/ಮಧ್ಯಮ	High/ಹೆಚ್ಚು
pH ರಸಸಾರ	<6.5	6.5-7.5	>7.5

**Salinity Classes**

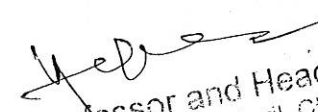
Parameter	Low/ಕಡಿಮೆ (C <sub>1</sub> )	Medium/ಮಧ್ಯಮ (C <sub>2</sub> )	High/ಹೆಚ್ಚು (C <sub>3</sub> )	Very High/ಅತಿ ಹೆಚ್ಚು (C <sub>4</sub> )
EC(dS/M) ವಿದ್ಯುತ್ ವಾಹಕತ್ವ	<0.25	0.25-0.75	0.75-2.25	>2.25
Chlorides(Cl)(ppm)/ಕ್ಲೋರೈಡ್	<2-5	5-12	12-20	>20

**Sodicity Classes**

Parameter	Low/ ಕಡಿಮೆ (S <sub>1</sub> )	Medium/ಮಧ್ಯಮ (S <sub>2</sub> )	High/ಹೆಚ್ಚು (S <sub>3</sub> )	Very High/ ಅತಿ ಹೆಚ್ಚು (S <sub>4</sub> )
SAR(Sodium adsorption ratio) ಸೋಡಿಯಂ ಹೊರಹೀರುವಿಕೆ ಅನುಪಾತ	<10	10-18	18-26	>26

**Bicarbonate (HCO<sub>3</sub>) Classes**

Parameter	Low (RSC <sub>1</sub> ) / ಕಡಿಮೆ	Medium (RSC <sub>2</sub> ) /ಮಧ್ಯಮ	High (RSC <sub>3</sub> ) /ಹೆಚ್ಚು
RSC(Residual Sodium carbonate) ಉಳಿರೆಯ ಸೋಡಿಯಂ ಕಾರ್ಬೋನೇಟ್	<1.25	1.25-2.50	>2.50

  
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