# All India Coordinated Research Project on Preparation of Forest Soil Health Cards under different Forest Vegetations in all the Forest Divisions of India

Funded By : Compensatory Afforestation Fund Management and Planning Authority (CAMPA)

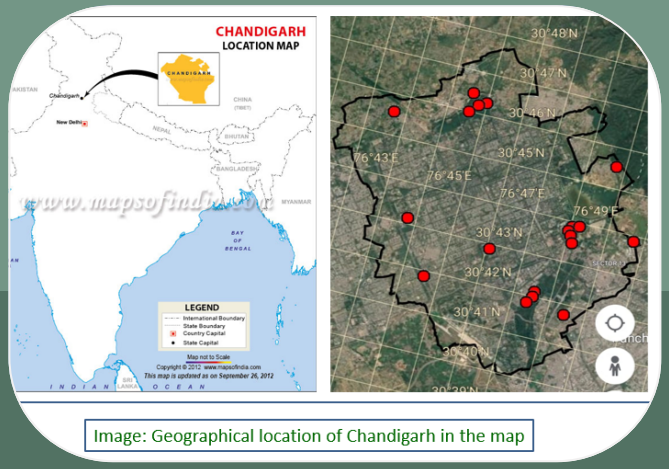



Image: Geographical location of Chandigarh in the map

# INTRODUCTION

Soil Health Card Scheme for agriculture soils sponsored by Government of India was launched by the Hon'ble Prime Minister on 19 February 2015. However, forest area of the India has not been covered in the present scheme and therefore, the concept is proposed to undertake a task to prepare Forest Soil Health Card in the country.

## PROJECT OBJECTIVES

1.To prepare forest soil health cards under different vegetations and adjoining degraded land in all the Forest Divisions to enhance deficient nutrients through sustainable management practices and making plantations more successful.

2.To diagnose forest soil fertility related constraints with the help of standard procedures, uniform sampling, data compilation and analysis thereof and to suggest divisional level management practices.

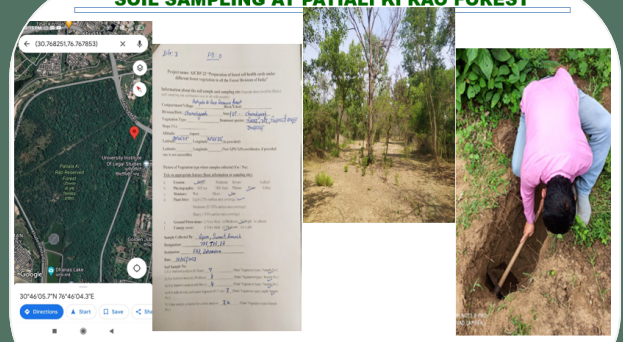
3.To promote soil test-based nutrient management practices in different forest vegetations in the forest divisions for enhancing nutrient use efficiency.

4.To build capacities of officials / field level staff of SFD's for promoting nutrient management practices for effective plantations.

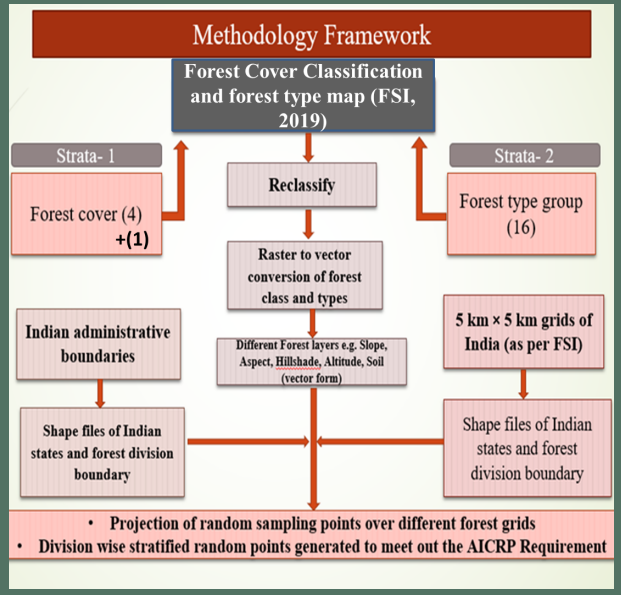
5.To strengthen the Forest Soil Testing Laboratories and develop a network with state owned soil testing laboratories.

6. To launch a forest soil health card portal on website for easy access to the various stakeholders.

## SOIL SAMPLING AT PATIALI KI RAO FOREST



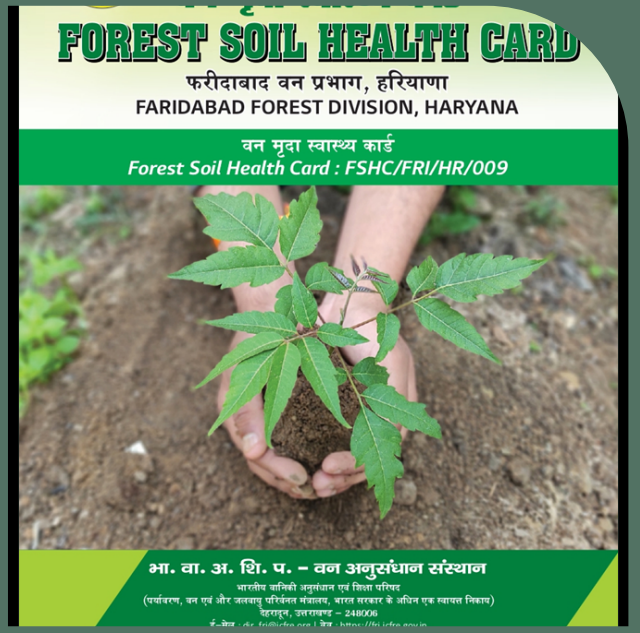
| Image 1 : Google map location | Image 2: Field form | Image 3: Mixed forest (Kikar, Khair, Arjun, Eucalyptus, Vilayati Babool and Amaltas) | Image: soil excavation |
|---|---|---|---|




## SAMPLING DETAILS AND PARAMETERS

- Soil Samples were collected from all territorial Forest Division available in the country, following due collection protocols.
- Sampling depth 0-30 cm, 30-60 cm, 60-90cm.
- Soil samples collected as per prescribed protocols were analyzed for the following 12 comprehensive parameters:

| Parameter | Analysis |
|---|---|
| Basic parameters- | pH, EC and Organic Carbon |
| Major nutrients | Av. Nitrogen (N), Av. Phosphorus (P) and Ex. Potassium (K) |
| Secondary nutrients | Av. Sulphur (S) |
| Micronutrients (Av) | Zinc (Zn), Boron (B), Iron (Fe), Manganese (Mn) and Copper (Cu) |



## मृदा परीक्षण परिणाम / SOIL TEST RESULTS

| क्रमांक S. No. | पैरामीटर / Parameters | मानक मान (औसत) Standard Value (Average) | परीक्षण मान Test Value |
|---|---|---|---|
| 1 | पीएच / pH | 7.7 | 7.25 |
| 2 | ईसी / EC (dS/m) | 0.11 | 0.12 |
| 3 | कार्बनिक कार्बन / Organic Carbon (%) | 0.45 | 0.37 |
| 4 | उपलब्ध नाइट्रोजन / Available Nitrogen (kg/ha) | 189.59 | 180.3 |
| 5 | उपलब्ध फास्फोरस / Available Phosphorus (kg/ha) | 28.36 | 12.92 |
| 6 | उपलब्ध पोटेशियम / Available Potassium (kg/ha) | 396.45 | 384.76 |
| 7 | उपलब्ध सल्फर / Available Sulphur (ppm) | 3.99 | 4.35 |
| 8 | उपलब्ध जिंक / Available Zinc (ppm) | 0.99 | 0.99 |
| 9 | उपलब्ध बोरोन / Available Boron (ppm) | 1.34 | 1.07 |
| 10 | उपलब्ध आयरन / Available Iron (ppm) | 1.68 | 1.27 |
| 11 | उपलब्ध मैंगनीज / Available Manganese (ppm) | 1.99 | 2.05 |
| 12 | उपलब्ध कॉपर / Available Copper (ppm) | 0.96 | 1.16 |

## अनुशंसा (अजैविक) / RECOMMENDATIONS (INORGANIC)

| पैरामीटर Parameters | स्त्रोत / Source | मृदा अनुप्रयोग Soil Applications (kg/ha) | या छिड़काव (पैरामीटर) ion) Spray (ppm) |
|---|---|---|---|
| नाइट्रोजन / Nitrogen | Urea | 20.2 | -- |
| फास्फोरस / Phosphorus | SSP-(Single Super Phosphate) | 96.5 | -- |
| पोटेशियम / Potassium | $K_2SO_4$-Potassium Sulphate | 19.48 | -- |
| सल्फर / Sulphur | $(NH_4)_2SO_4$-Ammonium sulphate | -- | -- |
| जस्ता / Zinc | $ZnSO_4$-Zinc Sulphate | -- | -- |
| बोरोन / Boron | Borax | 5.32 | 2.38 |
| लौह / Iron | $FeSO_4$-Ferrous Sulphate | 4.59 | 2.05 |
| मैंगनीज / Manganese | $MnSO_4$-Manganese Sulfate | -- | -- |
| तांबा / Copper | $CuSO_4$-Copper Sulfate | -- | -- |

## अनुशंसा (जैविक) / RECOMMENDATIONS (ORGANIC)

| पैरामीटर Parameters | स्त्रोत Source | गोबर खाद / FYM पोषक तत्व Nutrients (kg) | वृमिखाद / Vermicompost पोषक तत्व Nutrients (kg) |
|---|---|---|---|
| नाइट्रोजन / Nitrogen | गोबर खाद Farmyard Manure (1.86 t/ha) एवं / हैक्टेयर or / या वृमिखाद Vermicompost (0.58 t/ha) एवं / हैक्टेयर | 9.29 | 9.29 |
| फास्फोरस / Phosphorus | | 3.716 | 4.064 |
| पोटेशियम / Potassium | | 9.29 | 4.645 |
| सल्फर / Sulphur | | 7.804 | 2.032 |
| जस्ता / Zinc | | 0.026 | 0.014 |
| बोरोन / Boron | | 0.004 | 0.008 |
| लौह / Iron | | 2.731 | 0.105 |
| मैंगनीज / Manganese | | 0.13 | 0.058 |
| तांबा / Copper | | 0.006 | 0.003 |

### सुधार/Amelioration

| | |
|---|---|
| 1. चूना / Lime (t/ha) | -- |
| 2. जिप्सम / Gypsum (t/ha) | -- |

कृपया जैविक अथवा अजैविक अनुशंसा का प्रयोग करें।
Please use either organic or inorganic recommendation.

वनों का ह्रास होने से पूर्व इनका संरक्षण करें।
Protect our forest before it's too late.

जैविक खाद से मृदा स्वास्थ में सुधार होता है।
Organic manures improve soil health.
उर्वरकों का अनुशंसाओं के अनुरूप उचित मात्रा में उपयोग करें।
Use fertilizer judiciously as recommended.
स्वस्थ मृदा के लिए एकीकृत पोषक तत्व प्रबंधन अपनाएं और वन उत्पादकता बढ़ाएं।
Adopt integrated nutrient management for healthy soil & increase forest productivity.

Financial support: Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Ministry of Environment, Forest & Climate Change, Government of India.
वित्तीय सहायता: प्रतिपूरक वनीकरण कोष प्रबंधन और योजना प्राधिकरण (कैंपा) पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार