ICFRE-INSTITUTE OF FOREST BIODIVERSITY (ICFRE-IFB), HYDERABAD

Report on One Day Training "Methodology of Soil Sampling in Forest Areas" under CAMPA-Extension organized at ICFRE-Institute of Forest Biodiversity, Hyderabad on 09.05.2024

A One-day training programme was organized for the forest officials of the Telangana Forest Development Corporation Limited (TSFDCL) on the topic **"Methodology of Soil Sampling in Forest Areas"** under CAMPA-Extension organized at ICFRE-Institute of Forest Biodiversity (ICFRE-IFB), Hyderabad on 09.05.2024. This training program was attended by 65 forest officials from the TSFDCL in hybrid mode (offline and online).

The training program was started with a welcome address by **Dr. S Pattanaik,** Sc-'G' and GCR, ICFRE-Institute of Forest Biodiversity, Hyderabad. He warmly welcomed all the participants. During his address, he briefly introduced the institute's mandate, vision, and various ongoing research activities. He also highlighted that this institute is part of the "Prakriti" Program, a Scientist-Student Connect initiative aimed at imparting awareness among school children about conserving nature. Dr. Pattanaik further emphasized the importance of the training program, noting that soil is a critical factor in plant growth. Therefore, it is essential to assess the soil properties and quality by identifying the status of essential nutrients for plant growth. He explained that soil sampling techniques involve collecting a representative soil sample for the whole area (1 Ha area) using standard methods. Toward the end, Dr. Pattanaik reiterated the significance of the training program in assessing the status of macro and micro nutrients in the soil that are essential for plant productivity.

Shri E. Venkat Reddy, IFS, Director of ICFRE-Institute of Forest Biodiversity, Hyderabad, addressed all the participants who joined this one-day training program. In his

address, he talked about degraded land status and its amendment practices, such as soil moisture conservation practices and nutrient management strategies to replenish depleted essential soil nutrients for plant growth. He also mentioned that degraded land inhibits natural regeneration, leading to degraded soil quality and health. He emphasized the use of organic manure, which helps in conserving soil health, and highlighted the importance of soil litter in maintaining soil quality. He stated that the selection of suitable plant species depends on soil quality, soil type, nutrient status, climate, and various other parameters. He also highlighted the importance of implementing sustainable forest management practices to enhance soil quality and health. Additionally, he mentioned that this training will equip the participants with the necessary theoretical and practical knowledge for the soil sample collection procedure and soil nutrient analysis in the laboratory.

In continuation of the training program, the course overview was given by **Dr. Ruby Patel,** Sc-B and Course Coordinator of the training program. She welcomed all the participants and explained the importance of the training program in the present scenario. Dr. Ruby Patel delivered lecture on the **"Methodology of Soil Sampling in Forest Areas".** In her address, she emphasized that soil is a crucial component of land that sequesters carbon for a long duration, and even 1 cm of soil takes millions of years to form. Therefore, it is vital to conserve our natural resources for future generations.

She highlighted the necessity of maintaining essential plant nutrients, as their deficiency reduces plant growth. These nutrients are critical for plant growth, metabolic activity, and the completion of plant life cycle. Dr. Patel emphasized the important roles of basic nutrients (C, H, and O), macro nutrients (N, P, K, and S), and micro nutrients (Zn, Cu, B, Mn, Mo) present in the soil for increasing plant production. She also discussed mobile and immobile nutrients, which play a significant role in plant growth. For example, boron (B), copper (Cu), calcium (Ca), and sulfur (S) are immobile, while nitrogen in the form of nitrate, phosphorus (P) in the form of phosphate, potassium (K), and chlorine (Cl) are mobile nutrients.

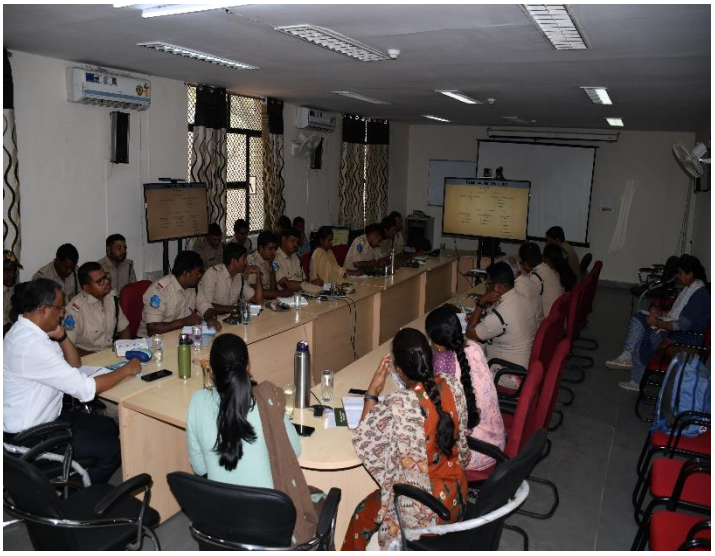
Dr. Patel elaborated on the benefits of ploughing, which is essential for plant growth as it makes the soil loose, allowing for plant root penetration, fast decomposition of organic matter, and improved microbial activities. Furthermore, she discussed soil sampling techniques, which vary according to the land use. For example, in heterogeneous forest soil, a greater number of samples must be taken compared to agricultural land to accurately represent the whole area. She also detailed the sampling procedures, tools, and other

relevant aspects useful for the subsequent field demonstration session.

During the next session of the program, **Dr. Ruby Patel,** Sc-B and **Shri C. Sachin,** Technical Assistant, conducted a field demonstration for the participants. The demonstration focused on the procedure of soil samples collection from three different layers: 0-30 cm, 30-60 cm, and 60-90 cm. Dr. Patel emphasized the significance of soil at three different depths at each sampling point. She also explained the process of preparing soil samples before sending them for nutrient analysis in the laboratories. The participants were further briefed on the testing of soil samples for macro and micro nutrients in the laboratory. Dr. Ruby Patel discussed the parameters followed in analyzing the samples, such as pH, EC, macronutrients (available N, P, K, and S), and micronutrients (available boron, copper, manganese, iron, and zinc). She highlighted the crucial role essential nutrients play in plant growth and the potential effects of their deficiency on plants. Simultaneously, Dr. Ruby Patel, along with her project staff, showcased various instruments used in the analysis, including pH meters, EC meters, flame photometers for potassium, Kjeldahl distillation units for available nitrogen, and atomic absorption spectrometers for copper, zinc, manganese, and iron. They also explained how all this data is compiled to create forest soil health cards and provided recommendations for plantations in degraded forest areas.

The one-day training program concluded with the valedictory session. The training ended with vote of thanks to all the participants by **Dr. S Pattanaik,** Sc-G and GCR, ICFRE-IFB, Hyderabad. The overall program is coordinated by Shri **A. Sasidhar,** TC, **Shri D. S.S. Prasad**, TC & **Shri E. Manikanta Reddy**, TC, ICFRE-IFB.

Glimpses of the Program




ICFRE-IFB
HYDERABAD