

SOIL SCIENCE

The Soil Science laboratory of ICAR-Directorate of Cashew Research, Puttur is equipped with basic to advanced instrumental facilities to carryout research. The laboratory also undertakes testing of soil/plant/water and manure samples of farmers, students, industrialists, researchers and Govt. departments. The details on analytical charges are available on this website on tab [FOR FARMERS < Paid Services]. The details on instrument usage charges are also available on KM Portal of ICAR.

Sl. No.	Name of equipment	Uses	Photo
1.	Microwave Plasma Atomic Emission Spectrometer (MP-AES) [AGILENT 4210 MP-AES]	MP-AES able to measure multiple elements (including, Na, K, P, S, Ca, Mg, Fe, Mn, Zn, Cu, B, Mo, Cd, Pb, Ni, Cr, Al, As, Hg, Si, etc. almost 71 elements) in single aspiration in one run before moving to the next sample analysis, using a solid state CCD detector.	
2.	UV-Visible Spectrophotometer - Double beam [Shimadzu UV-1900]	Double beam spectrophotometer instrument is used to determine the amount of light of a specific wavelength absorbed by an analyte in a sample.	

3. **Nitrogen/Protein analyzer** For estimation of nitrogen/protein content in soil, plant, fertiliser, manure and water.
[KEL PLUS – CLASSIC DX VATS (E)]



4. **Nitrogen analyzer** For estimation of nitrogen/protein content in soil, plant, fertiliser, manure and water.
[KEL PLUS – CLASSIC DX (VA)]



5. **Time TDR Soil moisture profiling system** For estimation of soil moisture upto 1 m depth.



6. **BOD Incubator** For estimation of biological oxygen demand.



7. **Flame photometer** For estimation of sodium and potassium content in soil, plant, fertiliser, manure and water.
[Systronix Flame Photometer 128]



8. **pH meter** To measure pH of soils, reagents etc.



9. **Digital conductivity meter** To measure the electrical conductivity and salt concentrations in solutions, reagents and soils.
[Elico model CM180]



10. **Hot air oven** For drying plant samples, estimation of soil moisture, drying glasswares and plastic wares.



11. **Water distillation system (Single)** To prepare distilled water



12. Water distillation system (Double) To prepare distilled water



13. Top loading precision balance For accurately weighing samples, chemicals etc.



14. Oakton Water proof PCS tester 35 Multiparameter pocket tester For field estimation of soil pH.



15. Water bath shaker To shake and mix samples at desired temperature.



16. **Magnetic stirrer with hot plate** To mix the reagents with help of stirring bar, along with heating to increase the solubility.



17. **Hot rectangular plate with thermostat** To heat chemicals, solutions, media etc



18. **Muffle furnace** For dry ashing of samples, carbon estimation in soil and plants



19. **Vortex mixer** To quickly mix samples in test tube.



20. Labline Centrifuge
Max speed : 4000
- To centrifuge samples at desired speed.



21. DK 20 Digestor
(Plant sample digestion system)
Velp scientific, Italy
- For digestion of plant samples for elemental analysis and digestion of soil samples for total nutrient analysis.



22. Horizontal Rotary Shaker
- For shaking soil, plant samples, chemicals etc.



- 23 Horizontal Autoclave
- For autoclaving glasswares, plasticwares, media etc



24. Microwave oven For media preparation and re-heating.



25. Laminar air flow chamber For providing contamination free area for microbiological studies.



26. Colony counter (Digital) For counting colonies



27. Microscope, olympus To visualize small objects and organisms.



28. GPS (Garmin)

To aid in navigation during field surveys and to mark geo-coordinates and altitude information.

