Radiotracer Laboratory (RTL)

The Radiotracer Laboratory was established in 1982 as a common facility of the University for Research utilizing radiation and radio isotopes. The lab is approved by the Atomic Energy Regulatory Board (AERB), Department of Atomic Energy, Government of India. Later the lab was developed as a central facility for soil, plant, water and manure analysis. The laboratory functions as a unit of College of Horticulture.

Objective: To facilitate research utilizing radioisotopes, radio-immuno assay and gamma irradiation studies

Major contributions:

- Research on root activity pattern of coconut, pepper, cashew, cocoa, rubber, ginger, turmeric & banana
- Dynamics of Fe & S in submerged acid sulphate soils using ^{59}Fe & ^{35}S
- Absorption pattern of Fe & Zn by rice roots in lateritic soils using ^{59}Fe & ^{65}Zn

Instruments for Radio assay and Irradiation

1. Three in one Liquid Scintillationa nad Solid Scintillation Counter(Triathler)
2. Radiation Survey Meters
3. Contamination Monitors
4. Gamma Chamber(GC-5000)

The laboratory has been later expanded as a central analytical laboratory with facilities for soil, water and plant tissue analysis with modern equipments. Soil testing and soil test based crop specific recommendations are being provided from the lab as a paid service to the farmers.

Major instruments for soil, water, plant and manure analysis

1. Inductively Coupled Plasma Optical Emission Spectrometer(ICP-OES)
2. Atomic Absorption Spectrophotometer (AAS)
3. Carbon Hydrogen Nitrogen Sulphur analyzer(CHNS analyzer)
4. Micro-Wave Digestion System
5. Kjeldahl Digestion and Distillation Assembly
6. Millipore Water Purification System

Research Highlights:

The lab was the nodal centre for state plan project entitled "*Network Project on Characterization and Management of Soil Fertility with respect to secondary and Micronutrients for Agro Eco systems of Kerala*" and with 9 (nine) other satellite centres.

The project resulted with the following salient output

1. Critical levels for Ca, Mg, B, Zn and Cu both in soil and in index leaves in different crops like rice,

banana, bittergourd, snake gourd, vegetable cowpea etc. have been established.
2. Recommendations for these elements in the above crops based on response studies and based on critical levels have been formulated.

Another state plan project entitled "*Regional Soil Health Management*" resulted in the following conclusion; Boron followed by magnesium were the most critical elements in different districts of the state. Acidity is the next factor to be managed in majority of the districts. High P status resulting in P induced deficiency of Zn and B is anticipated.

Ongoing research projects

- Tissue and soil analysis – RF mode
- AICRP on Micro and Secondary Nutrients and Pollutant Elements in soils and Plants

Paid services from the Lab

Soil test based recommendations (soil health cards) as well as assay of plant samples for nutrient contents, assessment of quality of irrigation water, quality of liming material and quality of organic manures are being provided from the lab as a paid service to farmers, R & D institutions and PG and Ph.D Scholars.
