Abstract

Detailed soil survey of Chalavara panchayath (2790 ha) of Ottapalam taluk of Palakkad district was carried out during 2005-2006 under Rashtriya Sam Vikas Yojana in Palakkad district. Four wetland and five garden land soil series were identified during the course of survey.

The wetland soils are Periyarampotta, Kuthannur, Tolannur and Thanikunnu series. Production potential studies of these soils revealed that these soils have high potential for paddy production. These soils have medium to high potential for growing other crops such as banana, tapioca, sesameum and vegetables.

The garden land soils identified in the panchayat are Andurkode, Chalavara, Karinganthode, Pookkottukavu and Sreekrishnapuram series. All these soils have high potential for cash crops such as coffee, pepper and rubber and agricultural crops such as coconut, arecanut, banana and tapioca.

Considerable area under paddy lands have been converted for growing garden land crops due to many reasons detailed elsewhere in the report. This tendency has to be discouraged by providing proper incentives and creating awareness among rice cultivators.

Yield and productivity from the cash crops and other agricultural crops show a declining trend over the recent years. This aspect warrants an in-depth study of the crop-soil relation. The study may be taken up in collaboration with the Agricultural University, for proper identification of the cause of yield decline.

Composite surface soil samples from every mapping unit was collected and tested for major plant nutrients. About 60 per cent of the samples collected from the uplands were strongly acidic in reaction, 16 per cent of the samples collected were very strongly acid, 20 per cent of the samples collected were moderately acid in reaction and the rest were extremely acid and slightly acid in reaction. About 96 per cent of the samples collected from the lowlands were very strongly to moderately acidic in reaction.
Surface samples collected from all the units have medium to high availability of Nitrogen. All the units from Chalavara, Karinganthode, Kuthannur, Periyarampatta, Pookkottukavu, Sreekrishnapuram, Tolanur and Thanikunnu series showed low availability of phosphorus and its availability is medium in units of Andurkode series. Availability of Potassium is medium in all the units except in units of Chalavara series where it is low.

All the land parcels with low nitrogen, phosphorous and potassium should be treated with 125 per cent of the recommended dose of these nutrients and 60 per cent of the nutrients need to be applied in land parcels having high available nitrogen, phosphorous and potassium. Only the recommended doze of nutrients needs to be applied if the availability of nitrogen, phosphorous and potassium are medium.

Adequate quantities of organic matter should be ensured. Nitrogen status of the soil can be enhanced by cultivation of leguminous green manure crops. In dry sown rice, cowpea seeds may be sown at the rate of 12.5 kg/hectare and incorporated into the soil at flowering stage. Green manure crops like Dhaincha may be sown after pre-monsoon showers and subsequently incorporated into the soil. This practice is widely prevalent in Palakkad district and needs to be encouraged by supplying seeds and planting material of green manure crops at subsidized rates. Methods may be adopted to improve fertilizer use efficiency. Methods to reduce loss of nitrogen through volatalisation, leaching and nitrification may be popularized. To reduce loss of Nitrogen, it may be incorporated well with soil in basal dose application. To reduce leaching loss of nitrogen from fertilizers like urea during top dress, it may be mixed thoroughly with about six times the quantity of soil and kept for 24 hours before sowing. To reduce nitrification loss, fertilizers like urea may be mixed well with powdered neem cake in the ratio 1:5 and applied. Copper and zinc was found to be adequate in most samples hence external input of these nutrients is not necessary. However in land parcels showing deficit values for these nutrients, foliar application of these nutrients is recommended. As a cheaper alternative for foliar application seed dip of these micronutrients is
recommended. The recommendation for zinc is dipping for 24 hours before sowing in 1% zinc sulphate solution @ 1 litre of micronutrient solution /kg of seeds and that for copper is dipping the seeds for 24 hours in 0.25% Copper sulphate solution @ 1 litre /kg of seeds.

Information on the level of plant nutrients in the soil may be gathered from the soil fertility map and the nutrients may be applied to crops base on the nutrients available in the soil. The organic matter status of the soil may be enhanced by return of crop residues to the soil, raising green manure crops and ploughing them in and regularly adding farmyard manure and or compost.