Abstract

Detailed soil survey of Pirayiri panchayat (1869 ha) was undertaken as a part of the centrally sponsored scheme, RSVY to prepare an inventory of the soil and land resources of the panchayat. The soil perspective and its role in improving agricultural production and productivity were given emphasis during the survey.

During the course of survey twelve soil series were identified and mapped in the panchayat viz. Pezhumpara, Oravumada, Kacheripara, Kuzhalmannam, Palathura and Padappanal series in the garden lands and Ambalaparamba, Athipotta, Pazhampalarkode, Kalapatti, Koonampara and Tharur series in the low lands.

The various phases of soil representing individual mapping units were identified. Systematic collection of surface samples were done from each land parcels and these samples were subjected to detailed analysis for macro and micro nutrients, and other soil properties which directly affect the plant growth. The results are systematically arranged in this report and detailed descriptions of each management units are given with specific recommendations based on soil fertility analysis. Various interpretative maps are also prepared for easy understanding. The soils identified in the panchayat are classified as per the USDA Soil Taxonomic Classification System, which enables information exchange and better understanding of soils.

Composite surface soil samples were collected from individual land parcels and analysed for soil reaction, available macro and micronutrients and for various other parameters affecting the normal plant growth. About three-fourths of the surface soil samples collected and analysed from uplands were moderately acid to strongly acid in reaction. 17 per cent of the surface samples from upland showed very strongly acid reaction and about 1 per cent were extremely acid in reaction. The remaining samples were neutral to slightly acid in reaction.
Eighty four percent of the samples tested low for available nitrogen and the rest were medium.48 per cent of the surface samples from the garden lands were low in available phosphorus while 55 per cent tested medium for available potassium. In land parcels testing low for primary nutrients it is desirable to apply the nutrients at 125 % of the recommended dosage .In mapping units with medium values, the full recommended dosage is to be applied and in areas testing high only 60 % of the recommended dosage need to be applied. Zinc and copper availability is adequate in about 60 per cent of the samples. Since the land parcels are generally adequate in Zinc and Copper, external application of these micronutrients is not warranted.

In lowlands nearly fifty percent of the samples have moderately acid reaction. About 35 per cent of the samples were strongly acid and 11 per cent very strongly acid in reaction. The remaining samples were either neutral or slightly acid. The land parcels with moderately acid reaction or higher acidity require liming.

In the lowlands available nitrogen was low in most of the samples (93%) and medium in the rest.48 per cent of the soil samples from low land showed higher availability of phosphorus and 32 percent showed medium availability. More than half of the soil samples were medium in available potassium and nearly 32 per cent of the samples showed deficiency. Very few samples showed high availability of potassium. Most of the samples were adequate in available zinc and copper.

Information on level of plant nutrients in each land parcel may be gathered from the soil fertility map and nutrients may be applied accordingly to the crop plants. Green manure crops may be raised in paddy lands and ploughed back into the soil at correct stages of growth to increase the available nitrogen content. Farm yard manure or compost should be added regularly in the soils to enhance the organic carbon content of the soil. All the land parcels with low nitrogen, phosphorous and potassium has to be treated with 125 per cent of the recommended dose of these nutrients. Only 60 per cent of the recommended dose is needed if the availability is high. The
recommended dose of the nutrients has to be applied if the availability is medium. Foliar application of zinc and copper may be resorted to if these nutrients are deficient.