Abstract

Detailed soil survey of Eruthenpathy panchayat (3693 ha) was undertaken as part of the centrally sponsored scheme, RSVY to inventorise the soil, land and water resources of the panchayat. The soil perspective and its role in improving agriculture production and productivity are given special stress during the survey.

Ten soil series were identified and mapped as phases of soil series in the uplands of Eruthenpathy panchayat. Major soil in the upland are Ozhalapathy series with a total area of 1370.10 ha. Other uplands series are Attayampathy, Kottapalam, Kozhinjampara, Perumachalla, K.K.Pathy, Thenampathy, Kariparachalla, Nilipara and Kinarpalam series. Four soil series have been identified and mapped in the low lands of Eruthenpathy panchayat. They are Karadipara, Karuvapara, Nadukulam and Vannamada series.

The soil mapping units 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 were 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 were 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.

The fertility status of the panchayat is as follows. About 2 per cent of the surface soil samples collected and analysed from uplands were moderately acid, 4 per cent slightly acid, 86 per cent neutral and the rest slightly alkaline in soil reaction. All the land parcels with moderately acid reaction require liming. The soil fertility map provides information of each land parcel of uplands. Nearly 15 per cent of the samples were low, 83 per cent medium and the rest high in available nitrogen. Nearly 90 per cent of the surface samples were high in available phosphorus, 6 per cent medium and the rest low. About
19 per cent of the samples were low in available potassium, 77 per cent medium and the rest high. Nearly 85 per cent of the surface samples were adequate in available zinc and the rest deficient. Nearly 98 per cent of the samples were adequate in available copper and the rest deficient. All the land parcels with low available nitrogen, phosphorus and potassium should be applied with 125 per cent of the recommended dose of these nutrients and only 60 per cent is required when the availability is high. The recommended dose is enough in all the land parcels with medium level of availability. Foliar application of Zn and copper is required when these elements are deficient in the land parcels.

Nearly 410 composite surface samples were collected and analysed from the low lands of Eruthenpathy panchayat. About 3 per cent of the surface samples were moderately acid, 4 per cent slightly acid, 80 per cent neutral and the rest slightly alkaline in soil reaction. All the land parcels with moderately acid reaction require liming. The soil fertility map provides information of each land parcel. Nearly 17 per cent of the samples were low, 82 per cent medium and the rest high in available N. Nearly 87 per cent of the surface samples were high in available phosphorus, 8 per cent medium and the rest low. About 19 per cent of the samples were low in available potassium, 73 per cent medium and the rest high. Nearly 84 per cent of the surface samples were adequate in available zinc and the rest deficient. Nearly 98 per cent of the samples were adequate in available copper and the rest deficient. All the land parcels with low available nitrogen, phosphorus and potassium should be applied with 125 per cent of the recommended dose of these nutrients and only 60 per cent is required when the availability is high. The recommended dose is enough in all the land parcels with medium level of availability. Foliar application of zinc and copper is required when these elements are deficient.

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 grown in paddy lands and ploughed into the soil 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.