Abstract

Detailed Soil Survey of Kannadi panchayat (2248.09 ha) was undertaken as a part of the centrally sponsored scheme, RSVY to prepare an inventory of the soil, land and water resources of the panchayat. The soil perspective and its role in improving agricultural production and productivity are given special stress during the survey.

Eight soil series are identified in the panchayat of which two series viz. Ambad and Padappanal are upland series and remaining six series are lowland series. The uplands are mostly cultivated with coconut and other tree crops. The wetlands occupy 1493 ha i.e about 66 per cent of the total geographic area of the panchayat and are mostly cultivated with paddy. In terraced areas where provisions for giving adequate drainage facilities are available, crops like ginger, vegetables and yams are cultivated.

The soil mapping units representing types and phases under each soil series 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 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.

Nearly 541 composite surface samples were collected from different soil series in the uplands for detailed analysis. The surface samples showed vide range of soil acidity. Nearly 1 per cent of the samples were extremely acid, 14 per cent very strongly acid, 32 per cent strongly acid, 29 per cent moderately acid, 16 per cent slightly acid, 1 per cent moderately alkaline and the rest neutral in soil reaction. All the land parcels with moderate or high acid ranges require liming. The availability of nitrogen was low in about 89 per cent and
medium in the rest. Nearly 14 per cent of the samples were low, 30 per cent medium and the rest high in the availability of phosphorus. About 88 per cent of the samples were low, 10 per cent medium and the rest high in available potassium. Nearly 76 per cent in case of available zinc and 96 per cent in case of available copper were adequate in availability. All the land parcels in the upland with low available nitrogen, phosphorus and potassium need to be treated with 125 per cent of the recommended dose and only 60 per cent is required if the availability is high. In land parcels with medium availability recommended dose should be applied. The land parcels with low available zinc and copper require foliar application of the nutrients.

About 1124 samples from the wet lands were collected and tested. The surface samples showed vide range of soil acidity. Nearly 1 per cent of the samples was extremely acid, 14 per cent very strongly acid, 29 per cent strongly acid, 34 per cent moderately acid, 15 per cent slightly acid, 1 per cent slightly alkaline, 1 per cent moderately alkaline and the rest neutral in soil reaction. All the land parcels with moderate or high acidity require liming. The availability of nitrogen was low in about 90 per cent and medium in the rest. Nearly 12 per cent of the samples were low, 28 per cent medium and the rest high in the availability of phosphorus. About 88 per cent of the samples were low, 11 per cent medium and the rest high in available potassium. Nearly 76 per cent of the samples in case of available zinc and 95 per cent in case of available copper were adequate. All the land parcels in the lowlands with low available nitrogen, phosphorus and potassium need to be treated with 125 per cent of the recommended dose and only 60 per cent is required if the availability is high. In land parcels with medium availability recommended dose should be applied. The land parcels with low available zinc and copper require foliar application of the nutrients.

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. It is necessary to adopt cultivation of green manure crops in paddy lands to increase the available nitrogen content. These green manure
crops should be ploughed back into the soil at correct stages of growth to ensure maximum expected advantage. Farm yard manure or compost should be added regularly in the soils to enhance the organic carbon contact of the soil.