LECTURE 18

FERTILITY SURVEY AND MAPPING

Survey, village indices

Soil Fertility Survey

Soil survey essentially aims at taxonomical classification of soils in well-defined units. The properties studied in the survey are ultimately used to plot the extent of boundaries on a map. The maps are referred for various purposes particularly for predicting yields based on soil fertility.

Fertility surveys are carried out in profile studies. Profiles in representative locations in each soil series are opened and thoroughly examined. From samples collected at different depthwise layer, soil physical, chemical, and biological properties are thoroughly studied. The factors limiting crop growth are identified in field and laboratory estimations.

Parameter on the depth of soil, rooting depth, bulk density, particle density, porosity, water holding capacity, possible profile moisture storage, soil reaction, salinity, total and available nutrients, presence of hard pans. By interpretive analysis the fertility, data are grouped and used for mapping.

The division of Soil Survey and Land Use Planning of State Department of agriculture, which is operating in selected districts of the Tamil Nadu compiles the information and publish them as a Report. The reports are available on cost basis to needy persons and institutions. The results of survey are further classified and mapped by National Bureau of

Soil Survey and Land Use Planning located in Nagpur, Bangalore and in many other locations in India. The Maps are distributed on cost basis for their effective use. Soil Maps of Agro-climatic regions, fertility status, irrigability, soil depth, crop suitability, salinity, etc are available.

Besides, the State Agricultural Universities and other national Institutes conduct soil surveys and prepare maps on nutrient status marking the macro and micronutrient deficient soils for ready recognition. The remote sensing tools are also used in Mapping.

Village Fertility Indices and Mapping

In our country, the soil testing laboratories are functioning in all the states. In Tamil Nadu, the soil testing and mobile soil testing laboratories are functioning in almost all the districts.

One of the major functions of these laboratories is to analyze the soil samples collected from the farmers for available N, P and K status. For every year few taluk will be adopted. After analyzing the soil samples for available NPK, they are grouped as low, medium and high based on the soil test value as follows.

After grouping soils as low, medium or high, **Village Fertility Index** (VFI) will be worked out for every revenue village.

$$VFI = \frac{N_L + 2N_M + 3N_H}{N_L + N_M + N_H}$$

Where N_L, N_M, N_H are the number of soil samples falling under the category low, medium and high, which are given weight of 1,2,3

respectively. Arbitrarily an index below 1.5 is low, between 1.5-2.5 is medium, and above 2.5 is high.

Using these fertility indices, the current area wise fertilizer recommendation for each crop can be modified. A soil fertility map may be prepared in any outline map of block / taluk by plotting the index values within the boundary of villages.