

Study of Nutrients in Soil

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Abstract:-

Indian soils have become deficient not only in major plant nutrients like nitrogen, phosphorus and in some cases, potash but also in secondary nutrients, like sulfur, calcium, and magnesium. Micronutrients such as zinc, boron and to a limited extent iron, manganese, copper and molybdenum have also been reported to be deficient. Deficiency of micronutrients during the last three decades has grown in both, magnitude and extent because of increased use of high analysis fertilizers, use of high yielding crop varieties and increase in cropping intensity. This has become a major constraint to production and productivity of rice, wheat and pulses. Thus, there is an urgent need for correction of individual nutrient deficiency and for arresting its further spread. Accordingly, it has been planned to address micronutrient deficiency in major rice, wheat and pulses growing States of India through National Food Security Mission programme.

Introduction:-

Out of 17 nutrients established as essential for plant growth, 6 are required in small quantities and therefore called micronutrients. They are zinc, boron, iron, Manganese, molybdenum and copper. General guidelines for ensuring optimum crop response to nutrient application are narrated. The mineral nutrients can also be divided into two groups- macronutrient and micronutrients. Macronutrients are those which are required by crops in a large amount these can be further categorized into two groups -primary nutrients and secondary nutrients. The primary nutrients are nitrogen, phosphorus and potassium. The secondary nutrients are calcium, magnesium and sulfur. Micronutrients or trace nutrients are those elements which are required by crops in small amounts. Some of the micronutrients are boron, copper, iron, manganese, molybdenum, zinc and cobalt, chloride also plays an important role as a micronutrient.

Experimental procedure for Soil Analysis:-

Method-

Lindsay and Norvell (1978) developed a method using DTPA (Diethylene Triamine Penta Acetic Acid) which was found useful for separating soils deficient and non-deficient categories for micronutrients and macronutrients. Ten gram of soil sample will be taken from each set in a conical flask. 20 ml of the DTPA extracting solution will be added to it.

Conclusions

Micronutrient problems in Mediterranean-type soils are causing substantial, but often unrecognized, losses in productivity, with possible health hazards in human populations. Currently, deficiencies of Zn, Fe, and B, and toxicity of B, are known to be serious problems. Such problems are likely to be accentuated in magnitude as well as in severity unless addressed adequately. Therefore, sustainable productivity cannot be expected without effectively coping with such issues. In some cases the problem can be solved effectively and economically by simple fertilization, in others, breeding for tolerance to deficiency or toxicity is the only practical solution. The agriculturists and planners should remain abreast

REFERENCES

1. Brady, N.C.; Weil, R.R. *The Nature and Properties of Soils*; Prentice-Hall: Englewood Cliffs, NJ, 1999.
2. Matar, A.; Torrent, J.; Ryan, J. Soil and fertilizer phosphorus and crop responses in the dryland Mediterranean zone. *Adv. Soil Sci.* 1992, 18, 81–146.
3. Cakmak, I. Selection and Characterization of Cereal Genotypes with High Zinc Efficiency and Evaluation of Bioavailability of Zinc in Wheat for the Central Anatolian Region; Science for Stability Programme, Cukurova University: Adana, Turkey, 1998; 171 pp.
4. Anonymous, *Micronutrients in Agriculture: Pakistan Perspective* National Fertilizer Development Center: Islamabad, Pakistan, 1998; 51 pp.