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Department of Soil Science and Agricultural Chemistry
College of Agriculture, PJTSAU, Rajendranagar, Hyderabad

Guest Lecture

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Improving Nutrient Use Efficiency in Different Soils and Crops

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ABSTRACT

With the increasing population of our country, demand for food grain production is increasing day by day. We require of about 45 million tonnes of fertilizer nutrients to produce the 350 million tonnes of food grains to feed the expected population of 1400 million by 2025. Using all the available resources of our country, our estimated plant nutrients will be about 30 million tonnes only during 2025 and thus there will be a gap of minimum 15 million tonnes of plant nutrients which is a big challenge for all of us.

Fertilizers are costly inputs to produce and affect both financially and environmentally. There is absolute requirement to enhance the use efficiency of nutrients through fertilizers employing both agronomical and plant breeding approaches.

Nutrient use efficiency may be defined as the yield per unit of fertilizer input applied. Estimates of overall efficiency of applied fertilizer have been reported to be of about less than 50% for nitrogen, less than 20% for P and of about 60% for K.

Nutrient use efficiency can be enhanced by using best management practices that apply nutrients at Right Rate, at Right Time, by Right Method and other practices. Acidity, alkalinity, salinity and other similar processes can lead to soil degradation and reduce nutrient use efficiency. Addition of proper amendments and proper fertilizers is essential for proper nutrient supply and maximum yields.

Plants that are efficient in absorption and utilization of nutrients greatly enhance the efficiency of applied fertilizers. Addition of legumes, addition of organics, crop rotation with legumes, use of Integrated Nutrient Management practices, balanced fertilizers, apportioning the nutrients to a crop in a cropping system, soil test based fertilizer recommendations and micronutrient additions are some of the measures that can be followed for enhancing the Fertilizer Nutrient Use Efficiency.

Nano technology, precision agriculture and fertilizer fortification may play an important role in Future Soil Science Research particularly for enhancing the input use efficiency.



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