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Research
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Integrated nutrient management for greater yam (*Dioscorea alata* L.) cv. LOCAL

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ABSTRACT

In order to explore the possibility of improving growth and productivity of greater yam (*Dioscorea alata* L.) cv. LOCAL by involving integrated nutrient management, an experiment was formulated and conducted during *Kharif* season of 2008-09 and 2009-10 at Rambhas Farm, Krishi Vigyan Kendra of Navsari Agricultural University, Gujarat, India. Eight treatment combinations were evaluated on greater yam variety "Local", in Randomized Block Design (RBD) with three replications. Application of 75 % RDF (Through IOS) + 25% RDN (Through OS:FYM) + *Azotobacter* 5 kg ha⁻¹ + PSB 5 kg ha⁻¹ (T₈) was proved to be beneficial in connection with maximum tuber yield (31.44 t ha⁻¹) which was at par with the treatment of T₄, T₅ and T₇.

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Key words : Greater yam, Organic fertilizers, Inorganic fertilizers, Bio-fertilizers, Growth and yield

INTRODUCTION

Plants belong to genus *Dioscorea* of the family Dioscoreaceae under monocotyledons are commonly known as yams. Of the 6 important edible species of yams, greater yam (*Dioscorea alata* L.) popularly known as *Ratalu*, is the most important edible yam of many parts of the world. In India it is extensively cultivated in Madhya Pradesh, North-eastern States, West Bengal, Bihar, Orissa, Uttar Pradesh, Kerala, Tamil Nadu, Gujarat and Maharashtra as a commercial crops. Besides, it is also ideal for fries, chips and flakes. It contains 18-20 % starch with mucilaginous substance and is extracted in a commercial basis. It also contains quite good amount of alkaloids, tannins and steroids having pharmaceutical value and used in Ayurvedic, Unani and Homeopathy medicinal preparations. It is a sun loving plant and commercially propagated vegetatively by tuber. The tuber shape is extremely variable.

Several factors are found to affect the yield and quality of greater yam. Long term fertilizer experiments (LTFE's) had reported that continuous and intensive use of chemical fertilizers have resulted in numerous problems

like micro- nutrient deficiencies, nutrient imbalances in soil as well as plant system, pest infestation, deterioration of soil health, environmental pollution and stagnation in the crop productivity. To meet out nutrient requirements, environment safety and to maintain soil health, INM system has great promises (Virmani, 1994).

The integrated nutrient supply includes the use of chemical fertilizers with organic sources like F.Y.M., crop residues etc. along with bio-fertilizers helps not only in bridging the exiting wide gap between the nutrient removal and addition but also in ensuring balanced nutrient proportion, in enhancing nutrient response efficiency, add in maximizing crop productivity of desired quality (Singh and Kalloo, 2000).

Information on the conjoint use of organic sources and chemical fertilizers in this crop under the South Gujarat conditions is very limited. Considering its greater importance and cultivation in the country, future scope and a heavy demand by all class of consumers as well as to curb the trend of declining yield there is a great need to adopt the most appropriate approach of Integrated nutrient management system and thereby increasing the yield of the crop under the question. The recommended nutrient requirement of greater yam is 80-60-80 NPK kg/ha (Laxminarayan, 2008).