



Research Paper

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Effect of INM on growth and yield of banana cv. GRAND NAIN

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ABSTRACT : A field trial was conducted at Regional Horticultural Research Station, Gujarat Agricultural University, Navsari Campus, Navsari to assess the effect of inorganic nitrogen at various levels in combination with castor cake and *Azotobacter* or *Azospirillum* on growth and yield of banana cv. Grand Nain. Results revealed that integration of inorganic nitrogen in combination with castor cake and *Azotobacter* or *Azospirillum* will be always advantageous than application of inorganic nitrogen alone as it produced early vegetative growth and improved yield. The higher doses of nitrogen (300 g nitrogen in chemical form with *Azotobacter*) had produced highest yield which is obvious because of Grand Nain cultivar of banana is a tall, vigorously growing in nature, voracious feeder of plant nutrients and respond well to the applied nutrients.

KEY WORDS : Banana, Nitrogen, Castor cake, *Azotobacter*, *Azospirillum*

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Banana (*Musa paradisiaca* L.) is the cheapest, plentiful and most nourishing of all fruits. India is the largest producer of banana in the world with the total production of 26.2 million ton. In banana culture, nitrogen is most critical mineral nutrient determining crop yield. But the nutrient use efficiency of applied nitrogen is only 30-50 per cent. It is necessary to modify the nitrogen supply system to obtain maximum benefit from the applied sources. Therefore, the integrated nutrient management approach which includes the utilization of chemical fertilizers as a major source of plant nutrients, organic manures as a supplementary source of plant nutrients in combination with nitrogen fixing bacteria as a biological source of nitrogen may prove very useful as well as economic in reducing the requirement of chemical fertilizers and increasing the yield. Therefore, an experiment was conducted involving graded doses of inorganic nitrogen in combination with castor cake and *Azotobacter* or *Azospirillum* to study the effect on growth and yield of banana cv. GRAND NAIN.

RESEARCH METHODS

The present investigation entitled effect of INM on

growth and yield of banana (*Musa paradisiaca* L.) cv. GRAND NAIN was carried out at Regional Horticultural Research Station, Gujarat Agricultural University, Navsari Campus, Navsari during the year 2001-02. Well hardened healthy tissue culture plants having 5-6 leaf stage were used for planting. The treatment comprised of graded doses of nitrogen applied either through urea or by combinations of biofertilizers like *Azotobacter* or *Azospirillum* and castor cake (Table A). Fertilizers for nitrogen and potash were applied at 3rd, 4th and 5th month after planting in three equal split doses, while complete dose of phosphorus was applied at 3rd month after planting. As per the treatments, castor cake was applied at three months after planting on the basis of nitrogen content in it. *Azotobacter* and *Azospirillum* were applied at 2g per plant in two equal splits at 1st and 2nd month after planting. The total quantity of bio-fertilizers were mixed in 1 litre of water and poured on to 25 kg FYM and mixed thoroughly. Extra water was sprinkled to moist the FYM and kept this mixture over night under open shade. This mixture was applied in a shallow ring made around the plant according to the root zone, immediately covered with soil and irrigation was given.

The twelve treatments of experiment were replicated thrice. The trial was laid out in a randomized block design. All