

YIELD AND QUALITY TRAITS OF BANANA cv. ROBUSTA INFLUENCED BY DIFFERENT FERTILIZER LEVELS

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ABSTRACT

A field experiment was conducted in the College Orchard, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore, to assess the effect of different fertilizer treatments on yield and quality characters of tissue cultured banana cv. Robusta. The experiment laid out in RBD had six treatments each replicated four times. The experiment consisted of application of 100 per cent, 150 per cent and 200 per cent of recommended NPK (110:35:330 g plant⁻¹) in three and four splits, respectively in each level. Yield and yield attributing characters were positively influenced by the nutrient treatments. Application of NPK @ 165:52.5:495 g plant⁻¹ in four splits (T₄) recorded highest bunch weight, yield and yield related characters. Higher levels of TSS, ascorbic acid, reducing, non reducing and total sugars, high sugar/acid ratio but a lower acidity were recorded in fruits in which 165:52.5:495g NPK per plant were applied.

Key words : Tissue cultured banana, Robusta, Fertilizer, Yield, Quality.

Banana is one of the most important remunerative fruit crops grown in all the tropical and sub tropical regions of the world. Conventionally, suckers are the only source of planting material for commercial expansion of banana. Recently, tissue cultured plants are used as the planting materials for commercial expansion in many countries including India. The tissue cultured plants are uniform, vigorous, shorter in duration producing relatively heavier bunches (Hwang *et al.*, 1984). Since tissue cultured banana is able to produce heavier bunches than conventional suckers, the requirements of macro as well as micronutrients might be more. However, farmers are practicing only the NPK recommended for conventional suckers. Hence, it is essential to standardize the optimum requirements of nutrients in order to exploit the maximum yield potential in these tissue cultured banana. With this background the present investigation was undertaken to study the effect of different fertilizer levels on yield and yield characters of tissue cultured banana cv. Robusta (AAA).

MATERIALS AND METHODS

The experiment was laid out with tissue cultured banana cv. Robusta (AAA) as a test crop in randomized block design with six treatments and four replications. The treatments consisted of application of 100 per cent, 150 per cent and 200 per cent of recommended NPK (110:35:330g plant⁻¹) (Anon, 1999) in three (3, 5, 7th MAP) and four splits (2, 4, 6 and 8th MAP) in each level.

Urea, single super phosphate and muriate of potash were the sources of N, P and K. The bunch weight was recorded including the peduncle upto first bract leaf node above the first hand and expressed in kilogram (kg). Length of the bunch was measured from the point of attachment of the first hand on the peduncle to the last hand and expressed in cm. Total number of hands and fingers in a bunch were counted and recorded. The middle fingers in the top and bottom rows of the second hand were selected as representative fingers (Gottreich *et al.*, 1964) to record average weight of the finger. Length of the finger was measured from the base of the pedicel to the tip of the fruit along the outer curvature and expressed in cm. Mid portion of the finger was measured using a nylon thread and a scale and expressed in cm.

The TSS was determined by using Carl-Zeiss hand refractometer and the results were expressed in percentage. Titrable acidity was estimated by adopting A.O.A.C. (1960) and expressed in terms of malic acid equivalents in percentage. The ascorbic acid content was estimated using 2, 6, dichlorophenol indophenol dye and expressed as mg of ascorbic acid per 100g fresh fruit (Freed, 1966). The total, reducing and non-reducing sugars were estimated as per the method suggested by Somogyi (1952). The ratio was computed by dividing the total sugars by acidity.

RESULTS AND DISCUSSION

In the present study, the most important economic trait, namely bunch weight was dramatically influenced by the various fertilizer treatments. Among the different