



## Response of integrated nutrient management on flowering, fruit setting, yield and fruit quality in mango (*Mangifera indica* L.) cv. HIMSAGAR

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### ABSTRACT

To observe the response of integrated nutrient management on the flowering, fruit setting, yield and fruit quality parameters were subjected to 1000:500:500 g NPK/tree (control) ( $T_1$ ),  $T_1 + Zn$  (0.5%) + B (0.2%) + Mn (1%) + Ca (0.6%) as foliar application twice (Aug. and Oct.) ( $T_2$ ),  $T_1 +$  organic mulching (10 cm thick of dry leaves) ( $T_3$ ),  $T_2 +$  organic mulching (10 cm thick of dry leaves) ( $T_4$ ),  $\frac{1}{2} T_1 + 50\text{kg FYM} + 250\text{g Trichoderma}$  ( $T_5$ ),  $\frac{1}{2} T_1 + 50\text{ kg FYM} + 250\text{g Azospirillum}$  ( $T_6$ ),  $\frac{1}{2} T_1 + Azotobacter$  (250g) + 50 kg FYM ( $T_7$ ) and  $\frac{1}{2} T_1 + Azotobacter$  (250g) + 250 g *Azospirillum* ( $T_8$ ). The observation revealed that the date of first and last flowering initiation was first recorded in  $T_4$  on 12<sup>th</sup> February and  $T_7$  on 22<sup>nd</sup> February. Highest ratio of hermaphrodite flower / panicle was observed in  $T_4$  (28.06%) and minimum in  $T_1$  (21.40 %). Fruits / panicle in pea stage and marble stage was highest in  $T_5$  (13.24) and  $T_6$  (8.53) and lowest in  $T_7$  (10.80) and  $T_1$  (5.16), respectively but the total number of fruits / tree in harvest stage was recorded highest in  $T_6$  (333.70) and lowest in control (176.00). Average fruit weight was also recorded highest in  $T_6$  (244.22 g) and lowest in  $T_8$  (216.28 g). Fruit length and breadth was recorded maximum in  $T_4$  (6.88 cm) and  $T_2$  (5.80 cm) and minimum in control (6.22 cm) and (5.04 cm), respectively. Seed weight and peel weight was observed highest in  $T_8$  (38.30g) and  $T_5$  (33.10g) but lowest in  $T_6$  (26.18g) and  $T_4$  (24.50g), respectively but pulp weight was noted maximum in  $T_6$  (189.86g) and minimum in  $T_1$  and  $T_8$  (151.48g). The quality parameters viz., total soluble solid, reducing sugar and total sugar were observed maximum in  $T_6$  (19.24 ° Brix), (4.44 %) and (15.48 %), respectively but minimum in  $T_2$  (17.50 ° Brix),  $T_2$  and  $T_5$  (3.66 %) and  $T_7$  (14.04 %), respectively. Acidity was found highest in  $T_5$  (0.21 %) and lowest in  $T_6$  (0.14 %). The overall performance of  $T_6$  treatment was better both in yield and quality parameters which can be recommended for mango plantation in new-alluvial zone of West Bengal in future.

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**M**ango (*Mangifera indica* L.) is called 'the King of fruits' due to its sweetness and richness in phytochemical and nutrient (Purseglove, 1972). It is praised as 'heavenly fruit' in Vedas. It is also known as 'super fruit' due to its potential health values. It is one of the most important fruit crops in the country. Apart from its uses as desert fruit, mango has several other nutritional and industrial uses, such as consumed fresh as either green or mature ripe and processed into numerous products. It is indigenous to the Indian subcontinent belonging to the genus *Mangifera*, consisting of numerous species of tropical fruiting trees in the flowering plant family Anacardiaceae while other *Mangifera* species are also grown on a more localized basis, *Mangifera indica* L. the common mango or Indian mango is the only mango

tree commonly cultivated in many tropical and subtropical region and its fruit is distributed essentially worldwide.

It is grown in India since from ancient time and shares about 40.8% of total mango production in the world as against world's production of 33,736 million tonnes. Its production has been increasing since independence, contributing 21.7 % of total fruit production of India (Anonymous, 2009). The fruit is very popular with the masses due to its wide range of adaptability, high nutritive value and richness in variety. The fruit is consumed raw or ripe, in which ripe fruit are delicious in taste and excellent flavour.

However, these important fruit tree are facing various factors mainly due to improper irrigation and lack of nutrient management, physiological disorders, pests and