EFFECT OF PLANT GROWTH REGULATORS ON FLOWERING, YIELD AND QUALITY OF SAPOTA \textit{[Manilkara achras (Mill.) Forsberg]} cv. KALIPATTI

ABSTRACT

\textit{Key word}: Sapota, Plant growth regulators, Flowering, Yield, and quality

The investigations entitle “Effect of plant growth regulators on flowering, yield and quality of sapota \textit{[Manilkara achras (Mill.) Forsberg]} cv. Kalipatti” was conducted at Fruit Research Station, Lal Baugh, Department of Horticulture, College of Agriculture, Junagadh Agricultural University, Junagadh during the year 2016-17. The experiment was laid out in a Randomized Block Design with three replications and nine treatments \textit{viz.}, $T_1 = \text{CCC 350 ppm + NAA 100 ppm + GA}_3 50 \text{ ppm}$, $T_2 = \text{CCC 350 ppm + NAA 100 ppm + GA}_3 100 \text{ ppm}$, $T_3 = \text{CCC 350 ppm + NAA 150 ppm + GA}_3 50 \text{ ppm}$, $T_4 = \text{CCC 350 ppm + NAA 150 ppm + GA}_3 100 \text{ ppm}$, $T_5 = \text{CCC 450 ppm + NAA 100 ppm + GA}_3 50 \text{ ppm}$, $T_6 = \text{CCC 450 ppm + NAA 100 ppm + GA}_3 100 \text{ ppm}$, $T_7 = \text{CCC 450 ppm + NAA 150 ppm + GA}_3 50 \text{ ppm}$, $T_8 = \text{CCC 450 ppm + NAA 150 ppm + GA}_3 100 \text{ ppm}$ and $T_9 = \text{Control (Water spray)}$. CCC = Spraying at Fruit Bud Differentiation stage (FBD), NAA = Spraying at Pea stage, GA$_3$ = Spraying at Fruit Development stage. The observations on flowering yield and yield attributing and quality parameters were recorded accordingly.

Results of the experiment revealed that an application of $T_7$ [CCC 450 ppm (FBD stage) + NAA 150 ppm (Pea stage) + GA$_3$ 50 ppm (Fruit development stage)] recorded maximum buds per shoot (12.08), minimum number of buds drop per shoot (2.30), maximum number of flowers per shoot (9.78), number of fruit set per shoot (4.42), number of fruits per tree (683.33), fruit weight (93.77 g), fruit length (6.62 cm), fruit width (5.59 cm), fruit circumference (20.10 cm), fruit volume (69.30 cm$^3$), fruit yield (63.91 kg plant$^{-1}$ and 6.39 tonnes ha$^{-1}$).
This investigation also revealed that application of [CCC 450 ppm (FBD stage) + NAA 150 ppm (Pea stage) + GA₃ 50 ppm (Fruit development stage)], gave higher gross and net realization (95850 Rs. ha⁻¹ and 44081 Rs. ha⁻¹), respectively. This treatment also recorded higher CBR (1:1.85), followed by treatment T₃ [CCC 350 ppm (FBD stage) + NAA 150 ppm (Pea stage) + GA₃ 50 ppm (Fruit development stage)] (1:1.63).

From the investigation, it can be inferred that spraying of treatment T₇ [CCC 450 ppm (FBD stage) + NAA 150 ppm (Pea stage) + GA₃ 50 ppm (Fruit development stage)] significantly influenced the flowering, yield and yield attributes parameters viz., number of bud per shoot, number of bud drop per shoot, number of flower per shoot, number of fruit set per shoot, number of fruit per tree, average fruit weight, fruit length, fruit width, fruit circumference, fruit volume and fruit yield (kg tree⁻¹ and tonne ha⁻¹).

Hence, it is recommended to spray CCC 450 ppm (FBD stage i.e., 1st week of July) + NAA 150 ppm (Pea stage i.e., 2nd week of September) + GA₃ 50 ppm (Fruit development stage i.e., 3rd week of October) for higher yield, net return and CBR of sapota cv. Kalipatti.