The experiment was carried out on an uniform trees (7 years) of cultivar Alphonso during 2017-18 and 2018-19 which are maintained at 5 X 5 m spacing at Fruit Science block, College of Horticulture, Bengaluru.

Tre atments of the experiment

T1 = control (No pruning and only 100% RDF); T2 = Shoot pruning at 10cm length + 100% RDF; T3 = Shoot pruning at 10cm length + PBZ @ 0.75g a.i./ m canopy diameter + 75% of RDF + 5kg vermicompost +20g of AMC + Mango special(spray); T4 = Shoot pruning at 10cm length + PBZ @ 0.75g a.i./ m canopy diameter + 75% of RDF + 10kg vermicompost + 2 g of AMC + Mango special(spray); T5 = Shoot pruning at 10cm length + PBZ @ 0.75g a.i./ m canopy diameter + 75% of RDF + 5kg vermicompost +20g of AMC + Mango special(spray); T6 = Shoot pruning at 10cm length + PBZ @ 1.25g a.i./ m canopy diameter + 75% of RDF + 10kg vermicompost + 2 g of AMC + Mango special(spray); T7 = Shoot pruning at 10cm length + PBZ @ 1.25g a.i./ m canopy diameter + 75% of RDF + 5kg vermicompost +20g of AMC + Mango special(spray); T8 = Shoot pruning at 10cm length + PBZ @ 1.25g a.i./ m canopy diameter + 75% of RDF + 10kg vermicompost + 2 g of AMC + Mango special(spray); T9 = Shoot pruning at 10cm length + PBZ @ 1.25g a.i./ m canopy diameter + 75% of RDF + 5kg vermicompost +20g of AMC + Mango special(spray); T10 = Shoot pruning at 10cm length + PBZ @ 1.25g a.i./ m canopy diameter + 75% of RDF + 10kg vermicompost + 2 g of AMC + Mango special(spray); T11 = Shoot pruning at 10cm length + PBZ @ 1.25g a.i./ m canopy diameter + 75% of RDF + 5kg vermicompost +20g of AMC + Mango special(spray); T12 = Shoot pruning at 10cm length + PBZ @ 1.25g a.i./ m canopy diameter + 75% of RDF + 10kg vermicompost + 2 g of AMC + Mango special(spray); T13 = Shoot pruning at 10cm length + PBZ @ 1.25g a.i./ m canopy diameter + 75% of RDF + 5kg vermicompost +20g of AMC + Mango special(spray);
10kg vermicompost + 20g of AMC + Mango special(spray); T7 = Shoot pruning at 20cm length + 100% RDF; T8 = Shoot pruning at 20cm length + PBZ @ 0.75g a.i. /m canopy diameter + 75% of RDF + 5kg vermicompost + 20g of AMC + Mango special(spray); T9 = Shoot pruning at 20cm length + PBZ @ 0.75g a.i./m canopy diameter + 75% of RDF + 10kg vermicompost + 20g of AMC + Mango special(spray); T10 = Shoot pruning at 20cm length + PBZ @ 1.25g a.i./m canopy diameter + 75% of RDF + 5kg vermicompost + 20g of AMC + Mango special(spray); T11 = Shoot pruning at 20cm length + PBZ @ 1.25g a.i./m canopy diameter + 75% of RDF + 10kg vermicompost + 20g of AMC + Mango special(spray).

Treatment Imposition for experiment
This investigation was laid out in randomized complete block design (RCBD) with three replications. Two years data was statistically analyzed and pooled data is interpreted here. Pruning was carried out in 3rd week of July of year 2017 and 2018, application of paclobutrazol in the last week of September of year 2017 and 2018 and fertilizer application in 2 split doses (first half dose in July of year 2017 and 2018 along with FYM and AMC, second half dose in October of year 2017 and 2018), mango special 3 sprays (before flowering, after flowering, during fruit setting) in year 2017 and 2018. The samples were collected from three trees for each treatment. For quality parameters, ten fruits from each replication were randomly selected and used for analysis. The content of total soluble solids (TSS) was determined with the help of digital hand refractometer (Atago®; pocket refractometer) and expressed as degree brix (OBrrix).

The total titratable acidity and total sugars of mango fruits sample was determined by titrating the fruit sample against 0.1N NaOH using phenolphthalein as an indicator [10]. Shelf life of five fruits was decided based on the appearance and marketability of the fruits. When the fruits attained beyond edible ripe stage and shrivelled, then those fruits were considered to have reached the end of their shelf life [13]. Recently matured leaves (5th leaf from top) from mid position of 4 to 5 months old shoots were collected at the beginning of experiment and at the time of harvest, likewise, 30 leaves per tree were collected and oven dried at 65°C for 48 hours. The dried samples were powdered, stored in air tight plastic container and utilized for analysis. Similarly soil samples were collected before initiation of experiment and at the time of harvest.

Results and Discussion

Studies on correlation among vegetative parameters, yield parameters, soil and leaf nutrient status of mango cv. Alphonso
Simple correlation was worked out among the vegetative parameters, number of fruits per panicle, days to maturity, yield, soil and leaf nutrient status during the year 2017-18 and 2018- 19. The results given in Table 1 revealed that tree volume was positive and significantly correlated (0.772**) with canopy height. Days to maturity is positive and non-significantly correlated with tree volume (0.277) and tree height (0.531) and showed negative significant correlation with fruit yield (-0.724*), soil nutrients viz., nitrogen (-0.641*), phosphorus (-0.783**), potassium (-0.811*), calcium (-0.808**), magnesium (-0.841*) and sulphur (-0.519) and leaf nutrients viz., nitrogen (-0.718*), phosphorus (-0.758*), potassium (-0.811*), calcium (-0.686*), magnesium (-0.787**) and sulphur (-0.740**). Number of fruits per panicle showed positive non-significant correlation with tree height (0.058) and tree volume (0.314) while negative significant correlation with days to maturity (-0.699*) and showed positive significant correlation with soil nutrients viz., nitrogen (0.785**), phosphorus (0.839**), potassium (0.637*), calcium (0.830**), magnesium (0.939**) and sulphur (0.668**) and leaf nutrients viz., nitrogen (0.932**), phosphorus (0.914**), potassium (0.947**), calcium (0.807**), magnesium (0.931**) and sulphur (0.811**) Correlation studies of fruit yield showed positive non-significant correlation with tree height (0.004) and tree volume (0.201), positive significant correlation with number of fruits per panicle (0.946*), soil nutrients viz., nitrogen (0.814**), phosphorus (0.934**), potassium (0.712**), calcium (0.869**), magnesium (0.950**) and sulphur (0.762**) and leaf nutrients nitrogen (0.964**), phosphorus (0.893**), potassium (0.953**), calcium (0.886**), magnesium (0.924**) and sulphur (0.873**) while negative significant correlation with days to maturity (-0.724*). Soil nutrients and leaf nutrients showed positive significant correlations with each other.

Data on correlation co-efficient between morphological characters and fruit yield indicated that fruit yield was significantly and positively correlated with number of fruits per panicle and soil nutrients and leaf nutrients While, it had negative relationship with days to maturity. From this, it is inferred that the fruit yield is more dependent on number of fruits per panicle, soil and leaf nutrients. The similar conformational results were recorded in mango cv. Himsagar [12], Amrapali [7, 13] and Banganapalli [4].

Studies on correlation among fruit quality parameters and leaf nutrient status of mango cv. Alphonso
A glance on Table 2 depicted about the correlation studies among physiochemical parameters and leaf nutrient status during two years (2017-18 and 2018-19) of the experiment. The pooled mean data of two years revealed that fruit weight was positive and significantly correlated with acidity (0.860**) and spongy tissue (0.818**) while negative significant correlation with TSS (-0.88**), total sugars (-0.84*), reducing sugars (-0.75*), non-reducing sugars (-0.615*) and shelf life (-0.86*). Fruit length and fruit width was positive and significantly correlated with acidity and spongy tissue while negative significant correlation with TSS, total sugars, reducing sugars, non-reducing sugars and shelf life. Fruit weight, fruit length and fruit width showed positive and significant correlation with each other.

TSS showed negative significant correlation with acidity (-0.96**) and spongy tissue (-0.96**) while positive significant correlation with total sugars (0.93**), reducing sugars (0.88**), shelf life (0.96**) and leaf nutrients viz., nitrogen (0.671*), phosphorus (0.729*), potassium (0.758**), calcium (0.660*), magnesium (0.733*) and sulphur (0.750**). Acidity showed negative significant correlation with total sugars (-0.97*), reducing sugars (-0.79*), non-reducing sugars (-0.533), shelf life (-0.97*) and leaf nutrients viz., nitrogen (-0.75*), phosphorus (-0.80*), potassium (-0.83*), calcium (-0.734*), magnesium (-0.78*) and sulphur (-0.79*), while positive significant correlation with spongy tissue (0.982*). Reducing sugars showed significant positive correlation with shelf life (0.844**) and non-significant positive relation with non-reducing sugars (0.080) and leaf nutrients viz., nitrogen (0.537), phosphorus (0.595), potassium (0.579) and magnesium (0.581) while significant positive correlation with calcium (0.634*) and sulphur (0.693*).
Correlation studies revealed that fruit yield positively and significantly correlated with number of fruits per panicle, soil nutrients and leaf nutrients. Spongy tissue is positively correlated with acidity and negatively correlated with TSS, reducing sugars, non-reducing sugars, total sugars and leaf nutrients. Shelf life positively correlated with TSS, total sugars, reducing sugars, non-reducing sugars and leaf nutrients, while negatively correlated with acidity and spongy tissue.

**Conclusion**

Correlation studies revealed that fruit yield positively and significantly correlated with number of fruits per panicle, soil nutrients and leaf nutrients. Spongy tissue is positively correlated with acidity and negatively correlated with TSS, reducing sugars, non-reducing sugars, total sugars and leaf nutrients. Shelf life positively correlated with TSS, total sugars, reducing sugars, non-reducing sugars and leaf nutrients, while negatively correlated with acidity and spongy tissue.

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References