

## Relationships among yield components and yield trends in 'Dashehari' mango (*Mangifera indica*)\*

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Received : 25 August 1998

**Key words:** relationships, yield components, yield, mango

It has been generally observed in mango (*Mangifera indica* L.) that the number of fruits, fruit size and fruit yield often vary from tree to tree in the same block though these trees belong to the same mother plant. There are a number of factors which affect fruit size and fruit yield. Yield in apple (*Malus pumila* Mill.) and in many other fruit species is reported to be a function of planting and flower density, fruit set and fruit size. In apple orchards, yield was found to be positively related to fruit numbers but negatively related to fruit size (Forshey and Elfving 1977). With in the trees, the percentage of flowers setting fruits decreases as flower density increases and fruit size is inversely related to fruit

density. Although flower density can be important, particularly in biennial bearing cultivars, fruit set is more closely related with yield than either flower density or fruit size (Denis 1979). Less number of fruits/plant increased size and colour in apple and brought improvement in fruit quality (Fletcher 1932). Work on fruit numbers, size and yield relationships have not been studied in mango and the studies were conducted to unravel these relationships in 'Dashehari' an alternate bearing cultivar of mango.

Data were collected from experimental orchards of Institute at Rehamankhera from 3 blocks comprising 100 trees. The trees were 18-year-old. No chemicals were used for thinning or to increase the fruit set. The fruits/tree were counted at harvest and yield (kg) was recorded. Fruit drops occurred till April end were not included in total fruit numbers and yield. Average individual fruit weight was determined on

\*Short note

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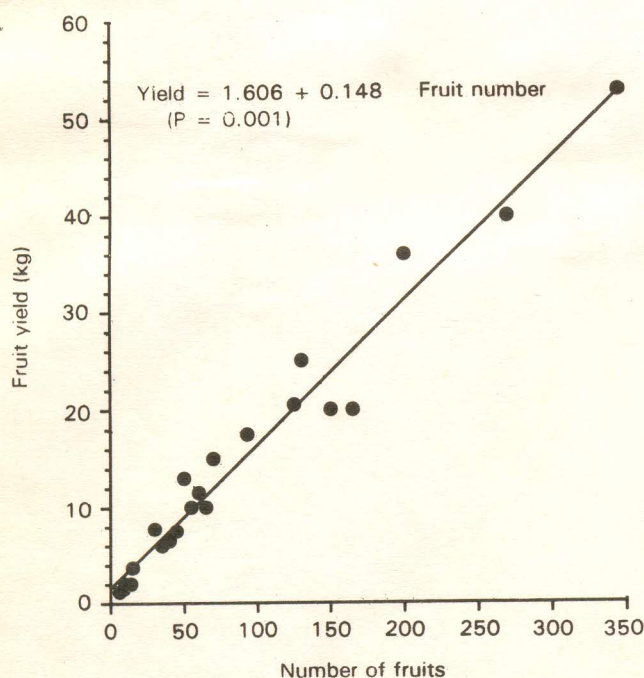


Fig 1 Relationship between fruit yield and number of fruits

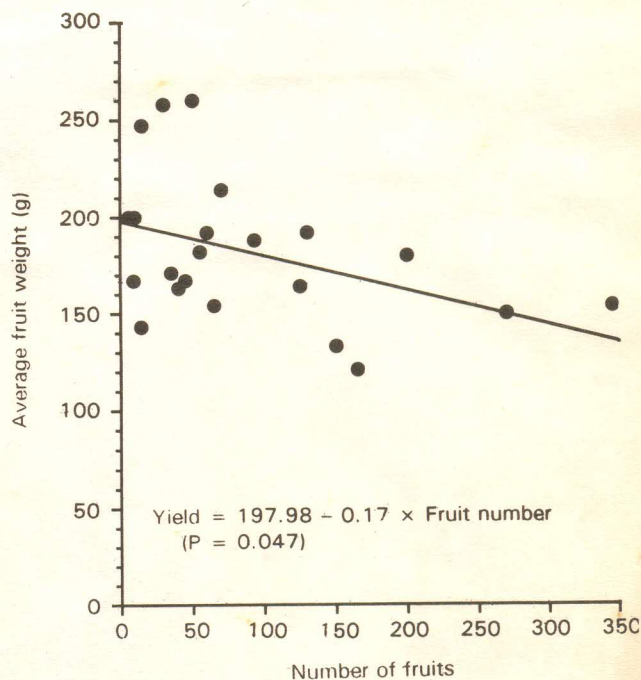


Fig 2 Relationship between number of fruits and fruit weight

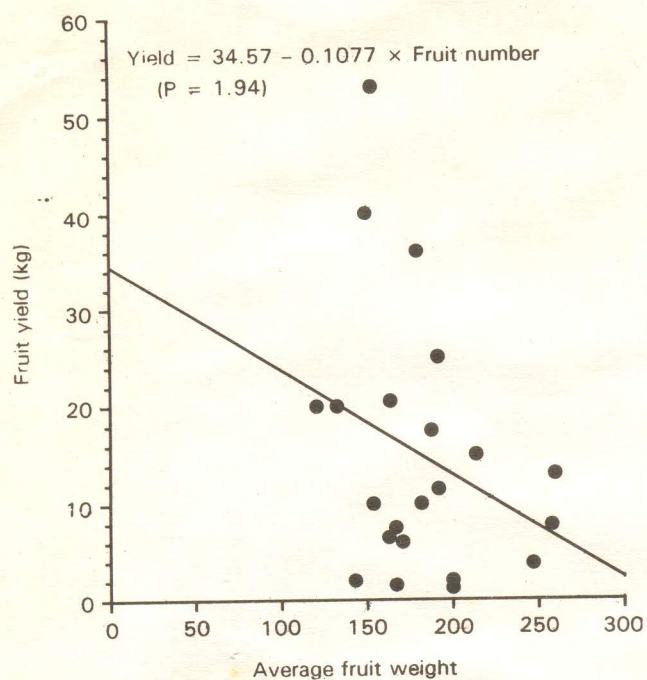


Fig 3 Relationship between number of fruits and fruit weight

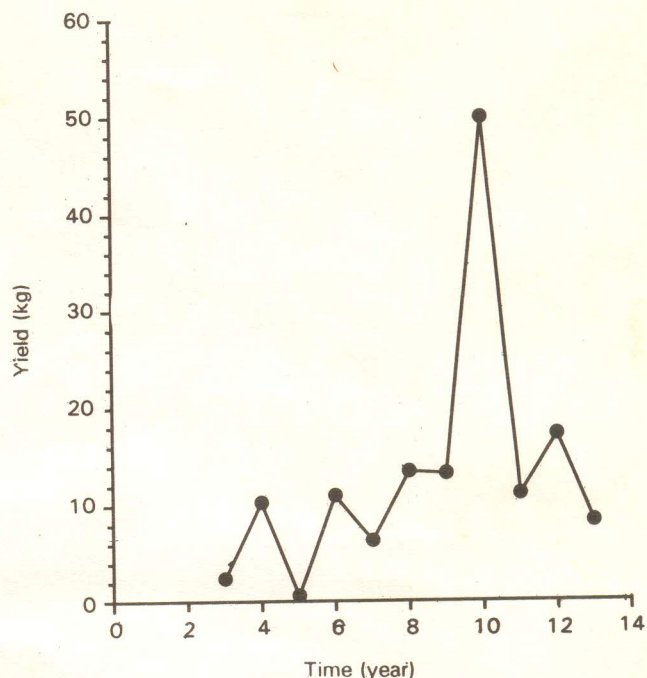


Fig 4. Yield pattern of 'Dashehari' mango

whole tree basis. To work out yield trend in 'Dashehari', time series calculations were done including average fruit yield of 100 trees continuously for 11 years which had 5 on and 6 off years. Linear equations were fitted among yield components, age of the tree and average fruit yield/tree.

Natural variability produces wide range in fruit numbers, fruit weight and yield. Trees give high yield, low yield, high fruit number, low fruit numbers and wide range of fruit weight. The close relationship between fruit numbers and yield is a dominant factor in yield (Fig 1). The relationship between fruit numbers/plant and fruit weight was found non-significant (Fig 2). Forshey and Elfving (1977) reported that fruit yield was positively related to fruit numbers but negatively related to fruit size in apple. This might be due to developing fruits compete with shoot growth which results in decreasing fruit numbers and increase in shoot growth and more leaf numbers/fruit, increase the fruit size (Elfving and Forshey 1976). In the present study, weak negative (non significant) relationship was found between fruit weight and fruit yield (Fig 3) as fruit number is a major contributor to fruit yield, and fruit weight is not directly related to fruit yield. The increase in fruit size usually does not compensate for reduction in yield (Forshey and Elfving 1977). As in apple crop, predicting yield in mango, fruit numbers will be reliable

criterion rather than fruit size for 'Dashehari' variety. Irregular tree 1 in yield with age of the tree was found (Fig 4). Roversi *et al.* (1979) found productivity over several years to be inversely related to stability of yield in apple. The results of this study provide 2 important information, ie fruit number may be more useful than the fruit size for predicting mango yield and a clue to increase fruit size also lies in fruit thinning.

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