

## High density planting system

Planting of fruit trees rather at a closer spacing than the recommended one using certain special techniques with the sole objective of obtaining maximum productivity per unit area without sacrificing quality is often referred as 'High density



planting' or HDP. This technique was first established in apple in Europe during sixties. In this system, four planting densities are recognized for apples viz., low HDP (< 250 trees/ha), moderate HDP (250-500 tree/ha), high HDP (500 to 1250 trees/ha) and ultra high HDP (>1250 trees/ha). Recently, super high density planting system has been also established in apple orchards with a plant population of 20,000 trees per ha. In some orchards, still closer, planting of apple trees is followed (say 70,000 trees/ha) which is often referred as 'meadow orchards'. Accommodation of trees/ha is different for different fruit trees.

### **Advantages of HDP are:**

- Early cropping and higher yields for a long time; the average yield in apple is about 5.0 t/ha under normal system of planting and it is about 140.0 t/ha under HDP
- Reduced labour costs
- Improved fruit quality

### **Characteristics of HDP are:**

- The trees of HDP should have maximum number of fruiting branches and minimum number of structural branches
- The trees are generally trained with a central leader surrounded by nearly horizontal fruiting branches.

- These branches should be so arranged and pruned in such a way that each branch casts a minimum amount of shade on other branches.
- The height should be one and half its diameter at the base. A key to successful HDP depends upon the control of tree size.

## **Planting season**

The season of planting varies with different fruits and local conditions. There are two seasons of planting in vogue in India.

- i) Monsoon (June - August)
- ii) Spring (February - March)

Monsoon season is considered to be the best for planting evergreen fruit trees like citrus, mango, sapota and guava. If the trees are planted early in the rainy season, they soon establish themselves and grow vigorously. Deciduous trees may be planted during the dormant period without shock. Care should be taken that planting is done before the growth starts, otherwise trees suffer severely and will be in poor condition to withstand the next hot weather.

## **Planting methods**

After locating the positions of the orchard trees, it is important that the trees are planted exactly where the stakes stood. It can be easily done with the help of a planting board. The planting board is usually of 15m long, 10 cm wide and 2.5cm thick with a central notch and one hole on either end, the central notch and the two holes (one on either end) are in a straight line. The planting board is placed in such a way that the stake (tree marker) fits into the central notch. Two small stakes are inserted one in each end hole. The planting board along with the tree marker is then lifted straight up without disturbing the end stakes. A pit of about 1m cube or of the desired dimensions at the position of the tree marker is then dug.

The pits are allowed to wither for few weeks before planting in some cases. The pits are then filled with top soil already mixed with red earth and well rotten farm yard manure. Irrigation is then applied to enable the contents of the pits to

settle down properly. In the event of depressions taking place as a result of irrigation, more soil should be added to the pits to fill them to the level of the land. The pits are then ready for planting.

## **Transplanting**

The trees should be planted approximately where the original pegs were placed. This is achieved by replacing the planting board in position with the help of the guide pegs and the stem of the trees is brought to the central notch with the help of a hand hoe.



One of the most common mistakes is that of planting the trees too deep. The plants should be sent in such a way that the bud union remains slightly above the ground level. The trees in the field should be planted as deep as they stood in the nursery. The trees are irrigated soon after planting. This consolidates the soil and helps the roots to establish contact with it and to secure a supply of water quickly. A small basin may be made around the tree for this purpose. Planting if taken up during the rains, this basin should be demolished within a day or two so that water will not collect around the tree. This is more dangerous on heavy than light soils.

Spring winds cause damage to the growing plants by giving a constant shaking. To prevent this, plants should be staked when planted. Some young plants are subject to considerable injury from sunburn particularly if they have been trained to single stem with no branches for 45cm or more from the ground. Such trunk can be protected by wrapping them with paper or other material or by painting them with white wash. The latter is probably best, as most materials wrapped around the trunk would be subject to termite attack.