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Center for Smart Agriculture

Hi Tech Fruit Culture



Module 3: Canopy Management
**Session 1: Canopy management- Introduction
and Importance**



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- Canopy in a fruit tree refers to its physical composition comprising of the stem, branches, shoot and leaves.
- Canopy density is determined by the number and size of the leaves.
- Canopy architecture is determined by the number, length and orientation of the stem, branches and shoots.
- Canopy managements of the fruit trees deals with the development and maintenance of the structure in relation to size and shape, orientation of branches and light interception for the maximum productivity and quality.



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- The basic concept in canopy management of a perennial tree to make the best use of land and the climatic factors for an increased productivity in three dimensional approaches.
- Canopy management includes a range of techniques to alter the position and the amount of leaves, shoots and fruits in space which determines, to a large extent the plant geometry structure including spatial distribution of leaf area and leaf orientation



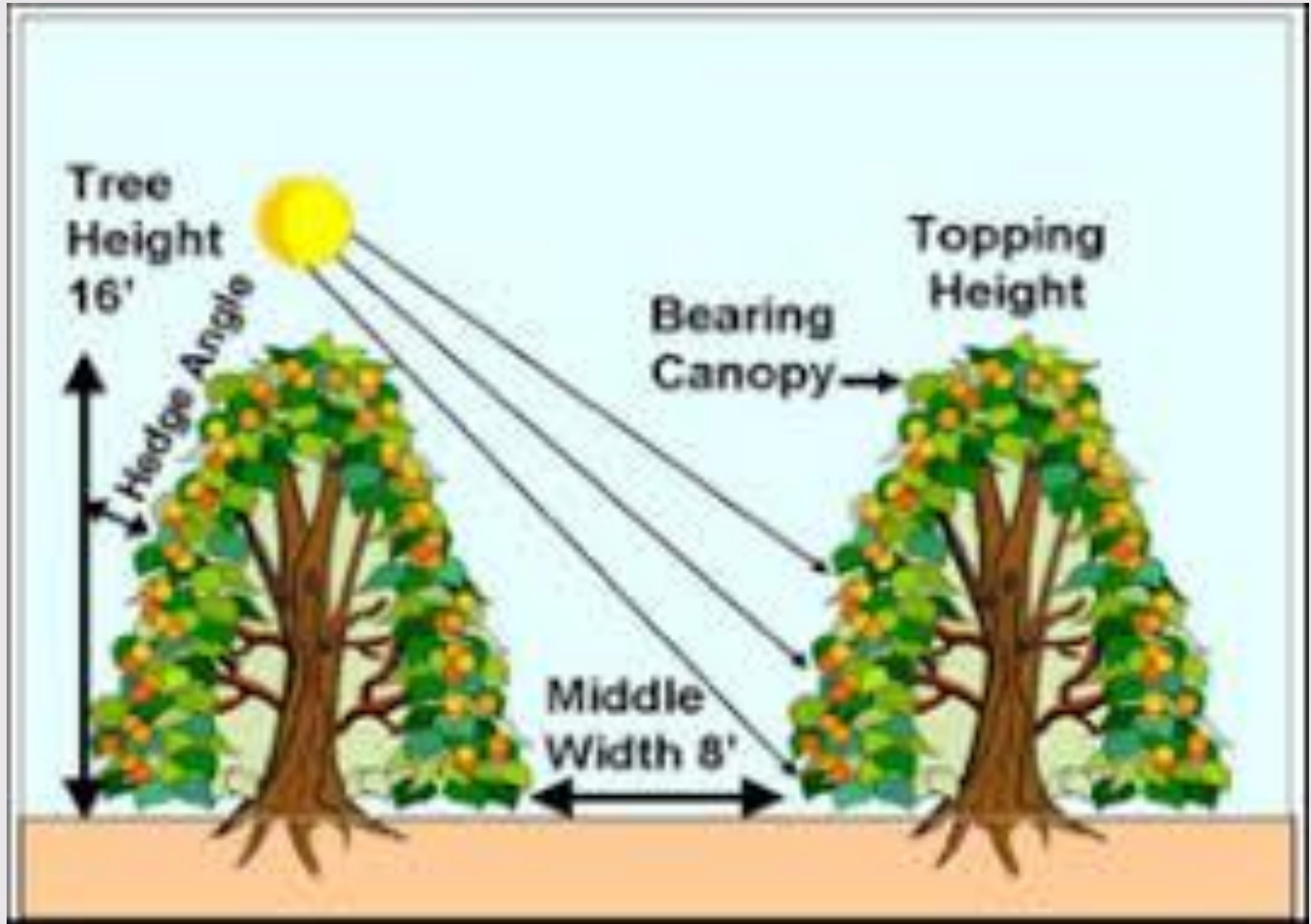
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- Canopy management refers an interrelation of the physiology underlying the relationship between vegetative growth and production.
- 1. Orchard architecture largely depends upon orchard production system which is a combination of variety, rootstock, tree spacing, training and pruning
- 2. These factors strongly interact to develop a specific production system and determined yield, fruit quality and longevity of the trees.



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- Canopy management refers an interpretation of physiology of light penetration and interception which are critical components of overall tree productivity.
- Thus, the ultimate goal of canopy managements is to optimize carbon allocation in fruit sinks without disturbing growth and development in other parts of the tree.
- The influence of temperature, light, humidity and tree vigour on the productivity and quality of fruit and manipulation of tree canopy through training systems, pruning practices and use of growth retardants for the best utilization and harvest.



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CANOPY MANAGEMENT PRACTICES

LOPPING

Tree lopping is the process of trimming various sections of a tree. Lopping may involve clearing away branches or limbs, or even shortening trunks.



THINNING

A felling made in an immature stand for the purpose of improving the growth and form of trees that remain, without permanently breaking the canopy.



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- **Essential feature of an ideal canopy:**
- 1) It should have adequate number of fruiting units.
- 2) It allow sufficient light and ventilation in to canopy
- 3) It should support adequate foliage and protect the fruits from sunburn.
- 4) It avoid overlapping of foliage to minimize parasitic leaves.
- 5) It offers scope for effective coverage of sprays.
- 6) It should avoid the buildup of microclimate congenial for pest and disease development.



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- **Objective of canopy management:**
- 1) To get the higher yield with good quality.
- 2) To maintain a good balance between root and shoot growth.
- 3) Formation of strong crotches.
- 4) To remove unwanted, overcrowding, dead disease and pest affected shoots.



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- 5) To regulate the tree architecture or form desire shape for high density planting system.
- 6) To facilitate the management practices like spraying, harvesting etc.
- 7) To utilize air, light and temperature efficiently.
- 8) To regulate exposure of plant to light and air.
- 9) To make accessibility to machinery between rows.



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- **Importance of canopy management:**
- 1) In many fruit crops, improved production and fruit quality has come from producing more fruit from smaller trees.
- 2) Rejuvenation of declining in productivity and fruit quality in large over grown orchards.
- 3) Small trees are better in capturing and converting sunlight in to fruit then large trees.
- 4) Reduction in extra expense in harvesting at large trees.
- 5) Safety risk for the harvest (pickers) of bigger trees.



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Thank
you

