



PRUNING TECHNIQUES IN GUAVA

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Introduction

In guava as the flowers and fruits are born on current season's growth, a light annual pruning is considered necessary to encourage new shoots after harvest. Pruning refers to removal of parts of, roots, limbs, buds or nipping away of terminal parts. It is more productive and bears quality fruits. Some fruits trees bear on current season shoots while others do so on the past season growth. Pruning also reduces tree crown area and improves fruit quality. A yield and quality guava fruit is significantly influenced by improved pruning technology. Guava growers have good reasons to consider pruning trees growing too tall, broad and dense. The resulting crowding and shading reduces yield and fruit quality, and makes difficult grove access, maintenance of irrigation, fertilizer delivery, spraying, and harvest. However, adopting an appropriate and effective canopy management strategy (CMS) solves these problems, and prevents trees investing energy in misdirected- or poor quality growth (Krajewski, 1996; Krajewski and Pittaway, 2000). Fruit quality originates in the groves. It is strongly affected by cultural practices, and pruning exerts powerful effects on both yield and fruit quality (Krajewski, 1996; Krajewski and Pittaway, 2000).

Pruning

Definition of pruning: -

Pruning is a judicious removal of plant part to obtained better and qualitative yield.

Objective of pruning: -

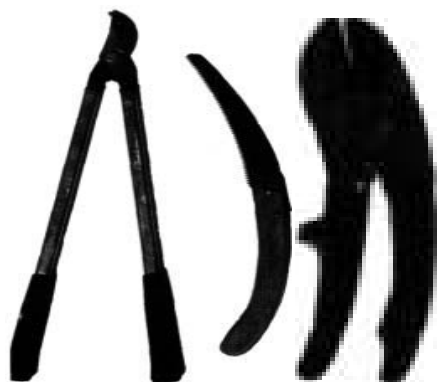
Principle of Pruning

To control flowering and fruiting.	Remove water sprout branch.
augment production in plants which bear on new shoots.	To remove a shoot completely it should be remove from the base.
To obtain regular bearing.	Avoid bark injury while pruning.
To remove disease, damaged, insect infected and weak shoots	To do saw the branches of vigour diameter should be cut from downward surface.
To thin out flower and fruits.	Pruning should be completed well in advance in flowering season.
To insure asses in sunlight to bearing shoots.	In deciduous plants pruning should be done in advance in winter so that low temperature injury may be minimized
To have balance between vegetative and reproductive growth	

Required Pruning Tools

- Lopping shears with 2-foot handles extend ones reach high n up a tree and are capable of cutting branches up to 1 inches in diameter.
- A pruning saw with coarse teeth and a curved handle is most often used to cut large limbs.

- ⊙ Hand shears are most often used for training one- to three year-old trees.
- ⊙ A sturdy ladder is essential for pruning larger trees.
- ⊙ Hydraulic or pneumatic pruners or power saws or sickle-b mowers are sometimes used in the commercial orchard for hedging and topping.



Methods of Pruning

Heading back: - Removal of the terminal portion of shoot leaving basal portion intact is termed as heading back.

Thinning: - Selective and complete removal of part of the plants is termed as thinning.

Ringing or Girdling: - In this process a circular ring of bark measuring about 3 cm in length is removed. It hastens bearing by allowing greater

Tools commonly used for tree pruning

accumulation of photosynthates in upward portion of the plant.

- ❖ **Notching :** - Making a notch above a bud by removing a wedge shaped piece of bark is termed as notching. It checks the influence of hormone and encourages growth.
- ❖ **Nicking :** - Making a notching below a bud by removing a wedge shaped piece of bark is termed as nicking. This ensure accumulation of carbohydrates from the leaves to the bud and may results in the formation of fruit bud. All the above kind of pruning are practiced in case of stem.
- ❖ Root and leaves pruning are also in vogue.
- ❖ Root pruning is very essential operation in developing bonsai and growing potted plants.
- ❖ In citrus fruits, root pruning regularly done by tilling the soil during December and January.
- ❖ In guava to regulate flowering root pruning is done by digging trenches.
- ❖ Leaf pruning is very common practice in bonsai.
- ❖ A portion of leaves is removed to maintained the plant in dwarf form.
- ❖ In guava, newly emerged flush of leaves are pruned to regulate flowering.

Types of Pruning

1.Heading back:

Removing a portion of a growing stem down to a set of desirable buds or side-branches leaving basal portion intact is known as heading-back.

2.Thinning :

Thinning is the complete removal of an entire shoot, limb, or branch at its point of origin, this is usually employed to revitalize a plant by removing over-mature, weak, problematic, and excessive growths.

3.Topping:

Topping is a very severe form of pruning which involves removing all branches and growths down to a few large branches up to the trunk of the tree.

4.Directiona or Formative Pruning:

Removal of appropriate branches to make the tree structurally sound while shaping it.

5. Crown canopy lifting:

It is the removal of the lower branches from a tree in order to raise the tree canopy from ground level up to a desired height, the branches are normally not lifted to more than one third of the tree's total height.

6. Vista Pruning:

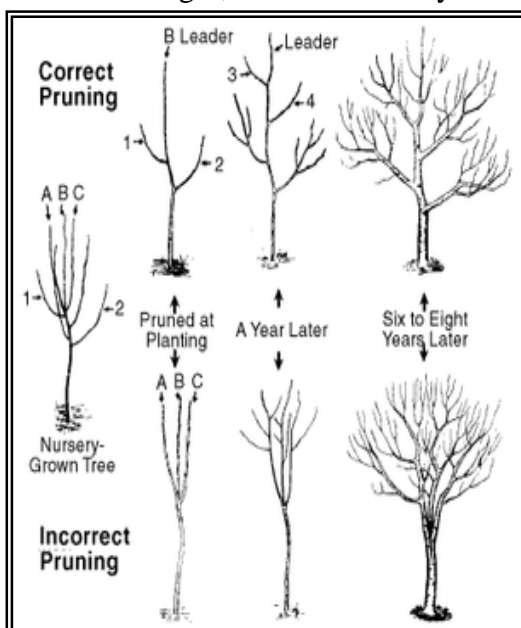
Selectively pruning a window of view in a tree.

7. Crown Reduction:

Reducing the height or spread of a tree by selectively cutting back to smaller branches for increasing light interception and enhancing fruit quality.

8. Dead wooding:

Removal of dead branches to speed up the natural abscission process which will help remove unwanted weight, increase amenity value of the tree and trigger wind resistance.



Ultra High Density Planting

- Plants spaced at 1x2 m accommodates 5000 plants per hectare
- Plants are topped 2 months of planting in October for emergence of new shoots below cut ends
- 50 per cent length of each new shoot, pruned again in December-January for induction of more shoots; good spread is attained by May; flower buds differentiate
- Production starts from very first year of planting, 12.5 tons reaching up to 55 tons per hectare by 6-7 years
- Lalit performs very well in UHDP system

This technology for meadow orcharding in guava developed at CISH, Lucknow which has spread to different parts of the country especially in Maharashtra, Andhra Pradesh, Jharkhand and Uttar Pradesh; Lalit Guava responds very well.



High Density Planting of Guava

- Field planting (3.0 x 1.5m; 3.0 x 3.0m and 6.0 x 3.0m),
- Top the trees at a height of 60 - 70 cm from the ground level after 1-2 months of planting,
- New shoots emerge below the cut point Retain 3 to 4 shoots (equally spaced),
- Prune the shoots after 3 - 4 months of shoot emergence (Cutting back to 50% of their total length),
- New shoots emerge below the cut end,
- Further prune the shoots after 3-4 months of emergence (Cutting back to 50% of their total length),
- Continue shoot pruning during the second year for desired tree shape,
- After second-year Shoot pruning is done in

1. January - February
(for rainy season crop)

2. May - June
(for winter season crop)

- Continue shoot pruning (50%) on the tree every year to maintain the tree shape and size.

High Density Planting

It refers the accommodation of the maximum possible number of the plants per unit area to get the maximum possible profit per unit of the tree volume without impairing the soil fertility status is called the high density planting.

Advantages of High Density Planting

- High density planted plants are precocious easily manageable as a higher yield potential with better quality fruit and higher yield per unit area
- Facilitate better utilization of solar radiation and increase the photosynthesis efficiency of the plant
- It is amenable to modern inputs application techniques such as drip, fertigation, mechanization etc.
- Higher harvest index as well as early economic returns.

Disadvantages of the High Density Planting

- Initial investment become little costly than conventional system
- Intercultural operation become difficult
- Fruit size and weight become under size
- Economic life span of orchard is become lower
- Plant architecture maintaining become a tedious job

References

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