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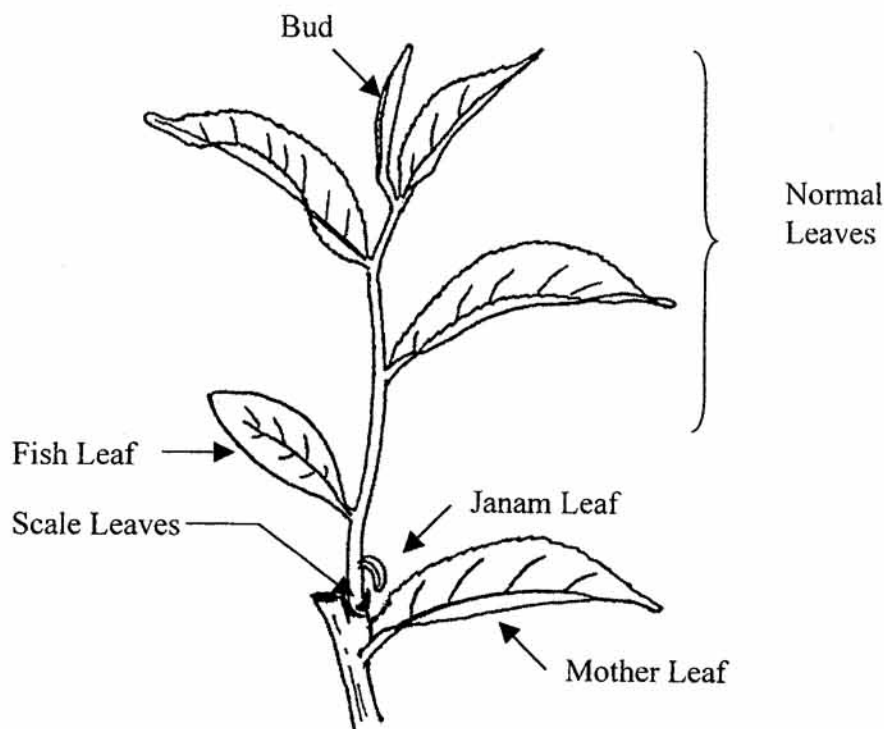
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**Guidelines on Plucking****Introduction**

Picking of young tea shoots having two to three leaves and soft dormant shoots (banjhi) is known as plucking. Plucking is the most labour intensive field operation in tea plantations. Hence, the profitability of tea plantations depends to a large extent on the harvesting policies. Well-balanced plucking policy enhances the yield and optimises the labour use without affecting the quality of made tea.

**Shoot growth and shoot generations**

The production and storing of food materials take place in all growing shoots and growth of a bush depends on such food materials. Plucking removes a greater part of shoots that are in the process of production. The degree of removal of growing shoots can affect the growth and yield of a tea bush. In order to optimise the shoot growth, it is very essential to understand the functions or the importance of different growing stages of a tea shoot.

**Tea Shoot**

## Growth of shoots

- After plucking, shoot growth starts from the axillary buds just below the point of plucking. There is a potential for a number of axillary buds to commence growth after apical growth is interrupted by plucking. But the first axillary bud immediately below the plucking point usually grows first.
- Initially, two small appendages known as scale leaves, which cover the bud, open out. They generally fall off few days after opening. Then another one or two, medium sized, unserrated, blunt leaves are unfolded above these scale leaves. The smaller one immediately above the scale leaves is termed *janam leaf* and the other one is called the *fish leaf*.
- Then the bud starts to produce normal leaves which are commonly included in the harvest.
- After unfurling 4-5 leaves, the terminal bud becomes inactive, and passes through a dormant (resting) period known as *banjhi* or *wangi*.
- The growth pattern having alternate active and dormant growing phases is termed as *periodicity of growth*.
- Initiation of the axillary bud growth is rather slow. It enters into a fast growing period after unfurling the *janam/fish leaf*. This is generally known as *linear phase of growth*.
- Shoot weight, approximately, doubles at the opening of each extra leaf, on a shoot reaching the harvestable size, i.e. with 2-3 flush leaves.

## Shoot generations

There are number of shoots of different growth stages in a tea bush. i.e. growing buds, bud and scale leaves, bud and fish leaf, etc., A group of shoots of the same growth stage or age is called a *generation*. The generations are formed as a result of variation in shoot growth and frequent harvesting. Continuous plucking is possible as there are large number of shoots belonging to different generations in a tea bush. The number of generations usually increases with shortening of the plucking round. Increase in shoot generations helps to increase the shoot population density, which is the major yield component.

Growing buds and immature shoots (*arimbus*) on a plucking table are considered major sites for storing carbohydrates (sink) produced by mature leaves (source). Hence, it is essential to ensure that the immature shoots are left on the bush after plucking.

### Leaf standard (Plucking standard)

This refers to the composition of standard flush/leaf of the harvested crop.

Standard (acceptable) flush/leaf means;

**Shoots with two tender leaves & bud**

**Immature dormant shoots**

**Shoots with three tender leaves & bud**

Immature shoots and coarse leaf are unacceptable.

Percentage of standard flush	Leaf Standard
More than 75%	Fine Plucking
60- 75%	Medium Plucking
Less than 60 %	Coarse Plucking

Plucking coarse leaves will lead to drop in the quality of made tea.

### Plucking style (Severity of plucking)

This refers to the point at which a shoot is plucked. The appropriate plucking style should be selected depending on the prevailing weather pattern, bush vigour and labour availability.

A well-planned plucking policy with a combination of light and hard plucking during different seasons, by maintaining a good canopy depth, should be carried out.

Plucking style (Severity of plucking)	Point of Plucking	Type of leaves left on the bush
Light Plucking or Single leaf plucking or Mother leaf plucking	Just above the first mature leaf	One mature leaf, fish leaf & scale leaves.
Hard Plucking or Fish leaf plucking	Just above the fish leaf.	Fish leaf & scale leaves.

## Plucking round/Frequency of plucking

Plucking round is the number of days between successive plucking.

An ideal plucking round is the number of days taken between successive openings of leaves on a shoot. This period is called leaf period or *phyllochron*.

- The rate of shoot growth depends on factors such as weather & type of clone. Plucking rounds become shorter during wet weather while it is extended during dry weather. Therefore, the plucking rounds should also be determined accordingly.
- Maintaining a proper plucking round that matches the rate of shoot growth helps to increase the yield and to minimize a drop in the quality of made tea.
- Haphazard extended plucking rounds may not only lower the made tea quality, but also reduce the yield.
- Plucking rounds and the plucking standards are independent factors.
- Extended rounds may influence the plucking standards due to high percentage of over-mature shoots.

## Plucking and vigour of the bush

- The tea leaf attains the highest photosynthetic activity when they reach half their final size. It remains at the maximum for about 6 month from full expansion.
- Usually the life span of a tea leaf is about 18 months.

This shows that the older leaves do not contribute to the production because production decreases with ageing of leaves. Therefore, addition of new foliage on the canopy by plucking to a mother leaf for about 6 months per year is required.

- Continuous mother leaf plucking leads to the unnecessary rise in the plucking table.
- Maintenance of a thick canopy (more than 25 cm) is not required, as leaves at the bottom layers of the canopy do not receive sufficient sunlight for photosynthesis.
- Depth of maintenance foliage is less in young tea and in pruned tea. Hence, adoption of mother leaf plucking is necessary to build up adequate leaf canopy.
- Fish leaf plucking could be done during the cropping months, while resorting to mother leaf plucking during the balance periods is recommended.
- Hard plucking will give a higher yield initially, but continuous hard plucking will result in debilitation of the bush and an increase in the formation of *mudichchies* (crow's feet condition).

Continuous hard plucking or light plucking systems will bring about low productivity of the bush. It is therefore, important to adopt a mixture of two plucking systems depending on the prevailing weather condition in the area, the age from pruning and bringing into bearing practices.

## Mechanical harvesting

Mechanical harvesting should be sought if the hand plucking is impractical due to the scarcity of labour. Under such conditions TRI Selective Tea Harvester could be used.

### Other important aspects of plucking

- 1) Plucking table should be even and it should follow the slope of the land. This should be initiated from the time of pruning/tipping and continued with the bush creep.
- 2) Removal of *banji* and crow's-feet should be a routine practice.
- 3) Immature shoots (*arimbus*) must be left unplucked to be taken at the next round as heavier units.
- 4) Coarse leaves and stalks should be removed in the field to maintain a better leaf standard and a plucking table.
- 5) Shoots on side branches and hollows on the plucking table should be left unplucked until they cover the open spaces.
- 6) Pluckers should be instructed not to ram the flush into their baskets.
- 7) Pluckers should be instructed not to retain an excessive number of plucked shoots in their hands.
- 8) Plucking on the rested bushes and on the 'lungs' of pruned bushes should be avoided.
- 9) Possible damages to plucked shoots at the point of weighing, bulking and transporting should be minimized.
- 10) Education of pluckers and careful supervision on plucking will ensure the quality of made tea

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