TRI UPDATE

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PLUCKING STRATEGIES

In the light of increasing labour shortage in certain tea districts, two agronomic practices have engaged the Institute's attention: **optimisation of bush productivity and mechanical harvesting.**

Studies have shown that **bush productivity** could be optimised by harvesting a higher proportion of 3 leaves and a bud at intervals coinciding with leaf expansion time (phyllochron). This also ensures early regeneration of shoots from mature auxiliary buds left after plucking which are on the verge of swelling and opening.

Recent investigations on leaf initials (primordia) have revealed that removal of tender shoots with less than 3 leaves can delay shoot regeneration. This is due to the absence of a maximum number of primordia (about 5) in the immature auxiliary buds exposed for re-growth. Such a situation could be envisaged under very light plucking systems and mechanical harvesting where tender shoots are also removed.

Studies conducted at low elevations have shown that the day degree concept (thermal time) which is based only on the base temperature (about 12°c) is hardly useful for programming plucking under real conditions. This is because, here, high ambient temperature (>26°c) appears to limit shoot growth.

A higher yield could be achieved by **adopting fish leaf plucking during cropping months and a single or mother leaf plucking during dry periods.** This will also help to control unnecessary rise in the plucking table which results from continuous single leaf plucking. Moreover, the shoot replacement ratio tends to be more than 1:1 when shoots are plucked to fish leaf or below. This is attributed to the simultaneous removal of apical dominance of auxiliary buds at leaf appendages such as fish and scale leaves. This results in the production of multiple shoots which, in turn, increases shoot population density which is the major contributory component of higher yields.

Dearth of labour exerts severe limitations to plucking programmes leading to crop losses. **Mechanical harvesting** with small machines or shears could be adopted during cropping months which coincide with a period of labour shortage. However, single or mother leaf plucking during dry periods is necessary to add leaves to the maintenance foliage and balance the growth.

Clones with longer internodes and horizontal leaf orientation and those producing less banjhi buds are more suited for machine harvesting. Mechanical harvesting should not be done during formative periods of the bush i.e., in young tea and in pruned tea. Moreover, banjhi should be removed by hand after every few rounds of machine/shear harvesting in order to avoid accumulation of banjhi. Plucking rounds could be extended by adopting a hard plucking system such as "Black Plucking" where all the shoots including *arimbus* are removed. This could be adopted during periods of labour shortage like during festive seasons.

The Institute has developed a prototype shear which will be introduced to the industry in the near future.

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