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*FACTORS AFFECTING PRODUCTIVITY ON TEA ESTATES IN SRI LANKA

2—INFILLING VACANCIES IN TEA FIELDS

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When a tea field is planted, an uniform stand of plants is ultimately achieved after the replacement of dead or weak plants. In course of time, deaths of plants continue to occur due to unfavourable climatic conditions, disease, drastic cultural operations such as hard pruning, pest attacks, lightening, competition from neighbouring tea plants and interspersed shade trees or due to senility. Unfavourable soil conditions, drastic cultural operations and competition will gradually eliminate weak plants but pests or disease will eliminate healthy plants as well. If dead or weak plants are not replaced, the yield will decline and the field may ultimately become uneconomic.

The presence of vacant patches in tea fields may also lead to the untimely deterioration of the soil due to erosion and the collapse of soil structure. It is therefore imperative that vacant patches should be infilled continuously in order to maintain productivity at the highest possible level.

SELECTION OF AREAS TO BE INFILLED

It is necessary to demarcate areas on a tea estate where infilling is desirable. For this purpose the scheme of identifying areas (Manipura 1972, De Silva 1973) for replanting, diversification and retention in seedling tea should be studied and the estate divided on this basis into the following three groups:

Group 1—Land to be replanted in the near future;

Group 2—Land not earmarked for immediate replanting;

Group 3—Poor, steep, rocky or eroded areas, earmarked for diversification away from tea.

It will be clear that no useful purpose will be served by infilling vacancies in Groups 1 and 3. Attention should therefore be concentrated on Group 2.

It may also be worthwhile to consider the uprooting of living, but weak or low jat bushes and replacing these with clonal supplies in generally high yielding stands of tea. Also, in extremely high yielding areas with only average stands, clonal selection would be well worth considering because it may be possible to select very high yielding clones in such fields.

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TIMING OF INFILLING

Infilling vacancies should be carried out in pruned fields. Pruning in fields due for infilling should, where necessary, be advanced so that by the time vacancies are ready to be supplied, prunings will not be a hindrance. It is *not* advisable to leave this operation till all new clearing work is over. Supplies must be put out as early as possible during the monsoon.

The point to be remembered when infilling is that supplies have to compete for water and nutrients with mature bushes unlike in clearings where competition is with plants of comparative size. It is essential, therefore, that every possible assistance be given to enhance the growth of the supplies.

WHERE TO INFIL

In areas affected by root disease, the usual practice of uprooting bushes suspected of being infected, as well as a ring of healthy bushes, must continue to be followed. The uprooting, clearing and fumigation of infected areas should be undertaken well in advance of the monsoon so as to ensure that supplies go in with the rains.

Bare patches (other than root disease areas) should receive attention before double or single vacancies in any infilling programme. The question of infilling single vacancies would be dependent on the priorities already mentioned having been satisfied, and also on the yield of the particular field. High yielding tea would in the normal course of events be retained for a longer period and would merit the infilling of single or double vacancies before low yielding tea which is likely to be replanted. The availability of funds and the extent of new clearing work to be handled in a particular year would also govern the extent to which the supplying of vacancies could be undertaken.

In new clearings, all patches, double and single vacancies must be supplied with the appropriate clone. Priority should be given to the best seedling tea fields, and to those areas with root disease.

WHERE NOT TO INFIL

Infilling should *not* be carried out in the following areas :

1. China jat tea areas. Good clones will grow faster and require more fertilizer than china tea and will lead to serious management problems later.
2. Areas with underlying slab rock. These are best planted in grass, the loppings from which can be used profitably in other areas as thatch, or as fodder.
3. Ravines. If the infilling of ravines has already been undertaken it is vital to ensure that drains are deep and weed-free. It would also be useful to ring the ravines with two rows of very closely planted Mana Grass so that the grass would form a natural boundary and keep the tea free from weeds particularly Couch Grass.
4. Water-logged areas or areas with hard clay pans should not be infilled unless drained or deep forked.
5. Steep areas. If it is not possible to terrace and drain these areas so as to make them suitable for infilling, Mana Grass should be planted in vacancies and the loppings used to thatch poorer areas.

NURSERY TECHNIQUES

1. Select the right clone. Diyagama N, CY 9 and TRI 2025 are suitable in the Up-country and TRI 2023 is good for the Low-country. In eelworm infested areas use eelworm tolerant clones.

2. Do not raise the plants in *small* polythene bags.

3. Use well-grown, healthy plants for infilling as no purpose will be served by putting in immature or poorly developed left-overs after clearings have been planted.

FIELD TECHNIQUES

1. Fork up areas, particularly patches left vacant for some time, to assist root growth in young plants. Vacant patches should be planted with Guatemala Grass until the field is pruned and infilling commences.

2. Dig large and deep planting holes.

3. In eelworm areas use either ¼ oz Terracur (5% granules) mixed with the planting soil or 1/8 oz Nemagon (10% granules) which should not be mixed with the soil, but which should be placed at the bottom of the planting holes (Sivapalan 1972).

4. Use protective baskets wherever possible.

5. Cut the side branches of adjacent bushes in order to permit sufficient light to reach young supplies.

6. Apply fertilizer, as for young VP tea plants, regularly.

7. Supplies should be protected against Blister Blight during wet weather.

8. Keep the areas weed-free and thatched with loppings of grass.

9. Do not undertake an area larger than you can conveniently handle. Mistakes mean unnecessary expense.

Before any infilling is undertaken a proper programme should be drawn up, covering several years; if necessary, estimating, where this is possible, the likely number of vacancies to be supplied. This programme could then be reviewed each year and provision for infilling made accordingly.

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