

VEGETATIVELY PROPAGATED TEA PLANTS: GROWING AND TRANSPLANTING ECONOMICALLY

©Arthur Watt
Endane Estate

The replanting of tea with vegetatively propagated material or the planting of new clearings from jungle or patana grass is still in its infancy, and very few estates have got beyond the experimental stage of planting from one to five acres per annum.

Where experimental planting has been done, the internode cuttings have usually been rooted in various types of soil and afterwards transplanted into supply baskets. This method undoubtedly gives excellent results and is all very well where only a few acres are involved, but what is to be the position if planting in subsequent years has to be increased and becomes annual? From where are the large quantities of good soil to be procured to fill the baskets? What about the cost, and what about the large areas of land which will have to be laid to waste by removal of top soil to fill supply baskets? The method, apart from being expensive, is very wasteful and cannot continue indefinitely. Alternative methods will have to be adopted.

The following are a few details of a simple and economical method of producing planting material. It has been tried for a number of years, during which time over 70 acres of clearings have been planted, of which 20 are in bearing.

During the period a few very bitter lessons have been learnt. The first was never to try to be economical with planting material in relation to the size of the clearing. The nursery should contain about twice the number of plants estimated to be required. Any surplus left over after the first planting will be most useful for filling in vacancies a few weeks later. A second or even a third round of resupplying can go a long way in giving an even and regular stand. If surplus plants are still available, poor and exposed parts of the clearing will greatly benefit by doubling the number of plants in the rows. Plant selection in the nursery should not be overlooked.

The nursery site should be central, to cover the planting areas programmed over a number of years; this avoids making new nurseries at frequent intervals, which works out to be more expensive than reconditioning. The site should have a gravity-fed water supply or, failing this, enough water that can be pumped from a reasonable distance.

Nursery beds are best if built on the contour, a convenient width being three feet, with about one foot between the beds. Good drainage is essential; to ensure this, beds should be raised twelve to fifteen inches in height. To check erosion or earth-fall from these high beds, round timber can be pegged along the sides up to a height of six to eight inches. If timber is not available, a more expensive alternative is a stone terrace.

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Having completed the building of the beds, soil fumigation is advisable. The next step is the construction of wooden frames to support a fern canopy for shade. This frame-work need not be expensive and can be made from round timber such as *Gliricidia* poles or branches from jungle trees. Fern when spread on top should be sufficiently thick to prevent the direct rays of the sun penetrating to the bed, but at the same time to allow a little filtered light to get through.

The figure on page 55 indicates the types of bed and of shade suggested.

Having placed the shade, cuttings can be planted, provided at least two weeks have elapsed since the soil was fumigated. Best results have been obtained by planting the cuttings at 4 inch spacing on the diagonal. On this basis, it has been found that a one-acre nursery will take about 400,000 cuttings, thus allowing nearly 12 square inches per cutting, plus space between the beds.

From the time of planting, fern shade requires careful watching and should be thinned out as the growth of the plants proceeds. It should be completely removed at least 2 months before the plants are due for transplanting into the clearing.

For watering, one of the many types of sprinkler system is strongly recommended; the saving in labour costs will pay for the installation over a year or two. Provided a gravity-fed water supply is available with sufficient head for pressure purposes, a sprinkler installation of sufficient size to water a nursery containing 750,000 cuttings can be purchased for Rs. 2,000/-.

While in the nursery, the plants require frequent manuring at intervals of not more than two months; excellent results have been obtained by the exclusive use of refuse tea applied after the cuttings have rooted.

At an elevation of approximately 1,000 ft. above sea level, the plants have been found ready for transplanting direct into the clearing at eight months; at this age they are about pencil thickness and from 15 to 18 inches in height.

The following are details of costs of producing plants ready for transplanting into clearings from a nursery in its second year of cultivation. To start a new nursery on new land, the cost per plant will be increased by three cents. The costs are calculated on 600,000 plants, grown from approximately 750,000 internode cuttings planted, with cost of labour at Rs. 2.43 per head per day:—

Item No.	Description	Total cost	Cost per plant
		Rs.	Cents
1	Digging old beds and thoroughly loosening soil ...	793	.13
2	Levelling and remaking beds ...	3185	.53
3	Transporting and laying new jungle soil approximately 1/2 inch thick on top of beds ...	3062	.51
4	Collecting sticks, making shade frames, and fixing fern ...	4400	.73
5	Cost of fern and transport ...	932	.16
6	Taking internode cuttings and planting into beds ...	6149	1.03
7	Watering ...	782	.13
8	Weeding, etc. ...	890	.15
9	Transport of refuse tea and application ...	787	.13
10	Cost of two watchmen ...	1190	.20
11	Cost of Nematox, fumigating soil and application of fungicides for Blister Blight, etc. ...	856	.13
12	Sundries ...	135	.02
13	Part cost of sprinkler system ...	500	.08
	Total ...	23661	3.94

Removing plants from nursery beds and transplanting into clearing

Considerable care is necessary when removing plants from nursery beds to avoid damaging the roots. A good method is to dampen the bed thoroughly with water before loosening up the soil with a digging fork; the plants can then be removed easily, with soil still attached to the roots. They should be carefully placed into transport boxes measuring about 2 ft. × 1½ ft. These boxes will hold up to 45 plants and can be either transported by lorry or carried by labourers.

Only reliable persons should be used for transplanting; the job requires and deserves the closest supervision possible. Each labourer should be given a small hand fork to loosen up the soil thoroughly in the hole, remove stones or other solid matter, and shape a suitable bed to take the plant, with its roots spread out in their natural position. If the latter procedure is not carefully done, casualties will result. The plants must be planted at their nursery level; this is most important.

Immediately after planting, they should be shaded with fern; if this is not available, baskets will suffice, but best results have been obtained with fern. It not only provides shade, but acts as a good anchorage for the plants until the roots have taken hold. Should the clearing be in an exposed area and subject to strong wind, it will be found beneficial to cut the leaves across to about 50% in size and tie the plant to a peg.

The following are approximate costs:—

				Per 100 plants.
Cost of removing plants from nursery, transporting to field and planting	...	...	...	Rs. 1.42
Cost of fern (collecting and transporting)	...	...	...	" 1.28
Labour fixing fern, etc.	...	...	...	" 1.30
Total				Rs. 4.00

