

# VEGETATIVE PROPAGATION IN RELATION TO THE REPLANTING OF POOR YIELDING AREAS

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I have been asked to give a brief talk to you to-day and to give you my experiences, in the hope that it may help some of you who have taken or contemplate taking up vegetative propagation as a means of ~~replacing~~ old or poor yielding areas. I stress the point "~~replacing~~ old or poor yielding areas" as I do not wish to say anything regarding the question of using vegetative propagation as a means of supplying individual vacancies in tea.

In 1946, Ottery Estate had in mind a long term policy of the replacement of poor yielding areas and, in consequence, when opportunity permitted, certain bushes were selected as mother bushes. Over the whole estate, some 30 such bushes were selected and the business of pruning, checking for yields, quality of manufactured teas etc., was put in hand.

Shortly after having made the selection, blister blight made its appearance and, in consequence of this, after a lapse of time, further selection was of course made very much easier. Bad subjects to blister blight were automatically rejected. I will however refer to this matter later on.

Having made an initial selection, the question of poor yielding areas and the treatment of such areas had to be decided upon, bearing in mind the fact that the policy was a long term one and that eventually all poor yielding areas would be replaced by good yielding clones.

It was decided, therefore, that in the first instance an area of roughly three acres should be uprooted and the reconditioning of the ground put in hand. This work was commenced in July 1947.

The uprooting was then rather a laborious and costly business as the bushes were removed by hand. This is a different matter now as the bushes are removed by a mechanical grubber and the cost of uprooting has, of course, been very considerably reduced.

The tea having been removed over a 3 acre area, the reconditioning of the ground was the next consideration and as a means of doing this the area was first re-drained and re-roaded, where necessary. Incidentally, the drains were entirely re-cut. They were cut at a slope of 1 in 120, the bund principle being employed as against the pit—3 foot bunds being placed at intervals of 15 to 20 feet. This having been done, the area was planted up with a legume and *Tephrosia vogelli* was broadcast throughout. Thatching was also done as a means of re-conditioning the soil.

Meanwhile, the testing of the clones had been going on and, owing to blister blight and other causes the original 30 or so mother bushes had been considerably reduced. There were various causes which accounted for this reduction, such as (a) poor yielders (b) poor liquoring teas (c) slow and bad rooters in the nursery (d) bad blister blight subjects etc. It is perhaps advisable to point out that, after pruning the mother bushes, they were allowed to return to the tipping stage, after which tests

were taken for yield and quality of teas. This having been determined, cuttings were taken and planted out in the nursery. The next step was the selection and construction of a multiplication nursery.

As pointed out previously, one of the reasons for the rejection of some of the mother bushes was — *slow and bad rooting*. This was very soon manifest in the nursery beds. Poor yielders were, of course, not given the chance to show their paces in the nursery and were discarded before cuttings were taken.

Likewise "bad tea makers" were discarded, it being an obvious waste of time to persevere with them. In this connection it is perhaps of interest to know how the leaf from any particular mother bush was tested for quality. For the purpose of rolling, a small roller with a 3" "box" was made by the estate baas and for firing a small cage made of fine brass mesh, which could be turned by a handle. This was placed into one of the inspection holes of the ECP and turned by hand to keep the tea moving. Both these home made make-shifts worked quite satisfactorily then and produced teas which, although perhaps not all that one could wish for, were good enough for the Colombo taster to make a fair report on and to give an idea as to whether the particular clone was worth persevering with or not.

The first lot of cuttings were transplanted into the multiplication nursery. After these had been established, work on the supplying of the up-rooted area was started. Needless to say, planting was on the contour system, plants being spaced at 5 ft. between rows and 1½ ft. along rows.

In every case, cuttings have been transplanted by means of the Hersall Transplanter and results could not have been more encouraging.

The first plants were transplanted in December, 1949 and since then there has been steady progress until to-day. It is estimated that some 5 or more acres have now been planted up. This expansion has of course necessitated the clearing and grubbing up of further areas and in consequence 1½ acres was grubbed out in 1951, 1½ acres in 1952 and further 1½ to 2 acres have just been completed this year.

As time goes on, the speed of expansion must of course increase as cuttings from clones in the multiplication nursery come into bearing. This is actually happening now. In this event, the necessity for nursery space becomes apparent and this naturally depends on the area available for making nurseries. If space is restricted as it is on Ottery, one must look for other outlets and this has been overcome by the method of planting cuttings direct into holes in the clearing. By this means, 3 cuttings are planted into one hole and considerable success has been achieved. If two or three cuttings survive, the extra one or two can of course be transplanted when big enough. In this connection I would stress that the watering of these cuttings during drought periods is absolutely necessary. This has been achieved by means of water supplied by a ram pump.

It has been found that during monsoon months, it is advisable to plant cuttings into nursery beds where they can be better attended to and the possibility of cuttings dying through "wet feet" is not as liable to occur as when planted direct into the holes. Direct planting should therefore cease say in April/May and start again in Sept/October.

In the case of individual transplanting, all plants have been protected by a protection basket and lightly shaded with "Meena pillu." Where cuttings have been planted direct, three to a hole, old plucking baskets have been cut into two or three and used as a protection. In cases where this has not been possible, shade fern only has been used. The incidence of "die-back" has been very small indeed and this is attributed to the fact that the plants have been protected. In nearly all cases of "die-back," the cause has been due to the ringing of the bark at ground level, this being done by fine particles of top soil having been blown against the bark by strong winds.

I mentioned earlier that the first plants were planted into the clearing in December, 1949 and it will no doubt be of interest to know that these are now in plucking, light plucking have been undertaken in the first instance in November last year, just 35 months since they were transplanted. It goes without saying however that regular manuring has not been overlooked and for this purpose "Black Label" sterilised animal meal has been applied at six monthly intervals. The dosage has of course been progressive according to the age (in years) of the plant. It is, I think, advisable to point out that this organic fertiliser does not produce flush but is initially a frame and root builder and care should therefore be taken to switch over to a flush building mixture well before one expects the bush to come into light plucking.

It is natural to expect that the progeny of the mother bush should, as time goes on be true to form and, in this respect there has been no disappointment on Ottery. As stated before, there have been many rejections of mother bushes until to-day, six main clones are relied upon.

Now comes the question as to whether or not yields and tea-making factors have been maintained in the progeny. The answer to this is a very emphatic "Yes." In so far as the former is concerned, it is of interest to note that during November and December last, the equivalent of 600 lbs. per acre per year of made tea was yielded from the 1727 bushes which were in plucking — plucking having been commenced on November the 11th.

As to the resultant teas, the reports on them from Colombo has been most encouraging. I quote from an instance — "I have just examined the clonal samples and I must say they are the most successful natural manufacture on a miniature scale that I have seen. The make is far above the level of the usual clonal samples. As regards the teas themselves, I consider that No. 3 is a really excellent bush. There is fair colour in the liquor with excellent quality and some flavour. The infusions are bright and even." That, I think you will agree, is at least encouraging.

Now, in so far as miniature manufacture is concerned, I suggest that one can make the necessary equipment on the estate without much trouble or expense and, in order to substantiate this, statement, I have put on view here, a small roller with an 8" box, and a small desiccator. Both these were made on the estate. The only material bought outside in the case of the roller was the crown and pinion wheels and the small length of shafting. The rest was found on the estate. In the case of the desiccator, the material is practically all bought but, in any, event the cost of this was only in the region of Rs. 175/-.

The foregoing will, I hope give you some idea of the merits of a long term policy of resuscitation of poor yielding areas.

I leave the rest to you.