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1982

Rubber  
Tapping

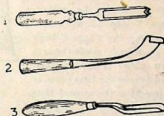


### Tapping

Latex is obtained from the bark of the rubber tree by tapping. *Tapping is described as "controlled wounding".* This is done by removing thin shavings of bark at known regular intervals.

### Tapping Knives

The 'Michie Gollidge' knife used in our country is well adapted for a high standard of tapping with a minimum consumption of bark. The draw knife or the 'Jebong knife' commonly used in Malaysia is well adapted for high tapping and bigger task.

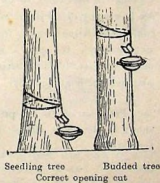


- 1 Michie Gollidge knife
- 2 Jebong knife
- 3 Gouge knife

A third type called "Gouge" is also used in Malaysia.

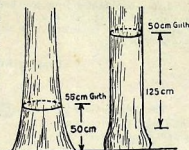
### Stem of Seedling and Budded Tree

The stem of a budded tree is almost cylindrical throughout, but in the case of a seedling tree it tapers to the level of the first branches. Therefore in seedling trees when the cut comes lower and lower the yield also is proportionately increased owing to the increase in length of the cut and thickness of the bark. In budded trees on the other hand the yield decreases as the cut comes down, specially when it is near the union.



### Height of Tapping Cut for Opening

The standard height for opening the tapping cut in a seedling tree is 50 cm. (20") from ground level. The most convenient height at which to open a budded tree is 125 cm. (50") above the union. This height allows ample time for the tapped bark to grow again while the second panel is being tapped and before the first panel is tapped for the second time.

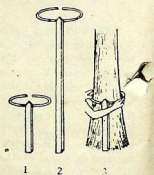


At the time of opening, the seedling trees should have a girth of 55 cm. (22") at a height of 50 cm. (20") from the ground level and budded trees should have a girth of 50 cm. (20") at 125 cm. (50") from the bud union.

### Measuring the Girth

When the trees are ready for tapping the first thing to do is to see how many of the trees have attained the required size, for it is not economic to open a holding unless at least 50% of the trees have attained the minimum girth.

Provision of an equipment as shown in the figure will be helpful for this.

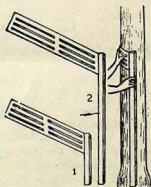


1. For seedlings
2. For buddings
3. Measuring girth

Obtain a straight stick as long as the height at which the trees are to be measured. To the end of the stick a piece of wire 50 or 55 cm. (20" or 22") long, as the case may be, is attached by a staple in the middle. Hold the stick against the tree with one end on the ground and put the wire round the tree. If the ends of the wire just meet or do not meet, the girth of the tree is enough or more than what is required and the tree may be tapped.

### Template

A template may be used to mark out the tapping cuts. A strip of metal 20-23 cm. width is fixed to the top of a stick at the angle at which the tapping cut is to be made ( $25^{\circ}$  for seedlings and  $30^{\circ}$  for buddings). The length of the stick should be adjusted either 50 cm. or 125 cm. depending on the height of opening. The free end of the metal must be on the left hand side of the stick and the stick should be as long as the height at which the cut is to be opened.



Templates:

1. For seedling
2. For budding
3. Template used on a budded tree

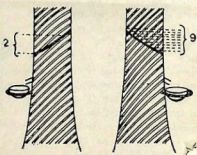
For making the tapping cut on a seedling, the stick is held against the tree with the lower end on the ground (level with the point of union in case of bud grafts). The metal is then

wrapped round the tree to the left and a mark made along its top edge. The tapping cut is to be opened along this mark.

The tapping cut should extend round half the circumference of the tree and a piece of string may be used to decide where the cut should begin. The string is put around the tree and the length required to reach round the tree is halved by doubling the string. The doubled string is then held horizontal against the tree with one end at the lowest point of the mark made to guide the cut. The other end of the string is then exactly halfway round the tree and it is from above it that the tapping cut should start.

#### Latex Vessels within the Bark

The latex vessels within the bark do not run straight up and down but run spirally up the tree from the bottom left to top right at an angle of approximately  $5^{\circ}$  to the vertical. Therefore greater number of latex vessels are cut when the tapping cuts are made *high left to low right*.



Incorrect tapping—  
few vessels cut

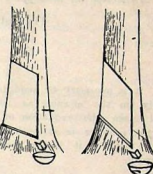
Correct tapping—  
many vessels cut

*More the number of latex vessels cut, more the latex.*

### Slope

The slope of the cut should not be too steep or flat. A very steep cut leads to wastage of bark when tapping reaches the base of the tree. Too flat a cut on the other hand leads to overflowing of latex at the sides of the cut.

Because of the differences in the thickness of the bark, the slope is different for budgings, and seedlings. Owing to the thin nature of the bark the angle advised for budgrafted trees is about  $30^{\circ}$  to the horizontal. Seedlings have a fairly thick bark and so the tapping cuts can provide a broader channel, down which the latex can flow. The angle, therefore, advised for seedling trees is about  $25^{\circ}$  to the horizontal.



Correct cut

Steep cut

### Opened for Tapping

The first cut should take off only a thin layer of bark and not draw any latex. When this cut is made, a vertical channel about 20 cm. (7—8 inches) long should also be cut and the spout and the cup fixed in position.

The first shallow cut is deepened by tapping two or three times before much latex may be expected. The cut should then be of regular slope along all

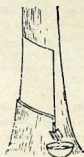
Correctly opened  
for tapping

its length with no unevenness which may cause the latex to overflow the side of the cut.

*To achieve this the tapping knife should be very sharp.*

#### Time of Tapping

It is necessary to send tappers out early in the morning as late tapping will lessen the exudation of latex. As turgor pressure is at its highest in the early morning, it is the best time for tapping.



Flow of latex

#### Tapping Depth

The best yields are obtained by tapping very close to the cambium, since active latex vessels are concentrated close to it. Good tappers do this without injuring the cambium, but absence of injuries is not always a sign of good tapping because shallow tapping with poor yield can be easily done without injuring.

#### Bark Consumption

The rate of bark consumption will depend much on the skill of the tapper. After each tapping the latex flows for a while and then the flow ceases as the latex along the cut coagulates. The flow of latex stops because of the formation of minute plugs of coagulated latex at the top of each of the latex vessels. These plugs are very small and all that is necessary to allow latex to flow at the next tapping is to cut away a very thin shaving of bark with which the plugs are removed.



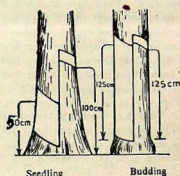
Bark regeneration is brought about by the activity of the cambium. The rate and extent of renewal are determined by a number of factors, the most important being the inherent genetical character of the planting material, others being the fertility of the soil, climate, tapping intensity, planting distance tapping system, diseases etc.

*Cutting away a shaving thicker than is necessary, cannot increase the latex yield in any way but only wastes bark.*

*"A golden rule of tapping is that the rate of bark consumption should not exceed the rate of bark renewal."*

#### Opening new Panel

When the tapping out reaches a height of 6.7 cm. ( $2\frac{1}{2}$ " to 3") from the ground, at its lowest point, tapping should be stopped and a new half circumference panel opened on the opposite side of the tree. This avoids dirty latex so often obtained when the tapping cup is rested on the ground.



NEW PANELS OPENED ON THE  
OPPOSITE SIDES

The second panel on a seedling tree should be opened at 100 cm. (40") above the ground and when this panel has been tapped out a third panel should be opened on the same side as the first at a height of 100 cm. (40"). In each case

tapping should be on a half circumference spiral cut, slopping from top left to bottom right.

The fourth panel on seedling trees may also be opened at 100cm. (40").

On budgrafted trees second and subsequent panels can be opened at the same height as the original panel—that is 125 cm. (50") above the union—as opening at this height gives sufficient time for the bark on each panel to renew before it is due to be tapped again.

### Tapping System

The tapping system selected should depend on the long term view. The future health and yielding capacity should be taken into account, but if large and quick return are looked for, the consequences may be disastrous. No system can be laid down to suit all conditions but it is usual to open up seedlings on S/2 d/3 system as on higher intensity the seedlings are prone to brown bast incidence. The budgrafts (except certain clones like G11) can be opened as S/2 d/2 system. Rubber yields at its maximum about the 14th year of planting onwards.

When a tree is newly tapped the dry rubber content (d. r. c.) will be very high and the total quantity of latex obtained low, but subsequent tapping will bring down the d. r. c. and the quantity of latex brought in will be on the increase.

### Intensive Tapping

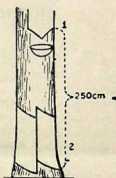
Intensive tappings are practical on old rubber trees intended for felling after some period. The practice to be adopted depends on the condition of the trees and particularly on the previous tapping system, reserves of bark and the length of time before felling. The methods which can be employed include

increased frequency of tapping, increased number of tapping cut and treatment of bark with yield stimulants.

Double cut system in which the upper cut is stimulated and tapped upward on D/3 system has been found a better system of intensive tapping.

#### Ladder Tapping

Ladder tapping is normally recommended when tapping of renewed bark is found uneconomical. A large panel on the virgin bark high above the old panel is opened usually about 250 cm. (8') from the ground. The height at which the cut is opened depends however on the replanting schedule and should allow for a higher bark consumption. A ladder is used by the tapper to tap at such heights. The ladder should be light and should preferably have a platform to enable the tapper to work at ease.



LADDER TAPPING

1. Opened new cut
2. Poor renewed bark

**Puncture tapping:-** A new thinking on tapping.

'Puncture tapping' or 'micro tapping' is a new method of tapping under experimentation. This is done with a small needle on a Vertical band of Stimulated bark. The length of the strip is usually limited to 60 cms and the number of punctures made may be four or five. A spout wider than the width of the band is fixed for collection of latex. The width of the Stimulated band must be 2-4 cms and puncture tapping can be started in an adjacent fresh stimulated band after every four or five week. The length of the needle used for puncture tapping must be adapted to the depth of the bark. The possibility of avoiding the services of a skilled tapper and the possibility of increasing the task size are considered as the major advantages of puncture

tapping over the Conventional method of tapping. However definite recommendation on puncture tapping should await further studies on the physiological and economic aspects of this system.

#### Tapping Tips

1. Tapping knife should always be kept very sharp.
2. Do not tap your trees before attaining the required minimum girth.
3. Slope your tapping cut from upper left to lower right. Slope of the cuts should be maintained at the required angle.
4. Do not tap daily. This will bring on Brown Bast quickly.
5. Tap at optimum depth.
6. The tapping should be uniform throughout the cut and the bark consumption normal.
7. Cups and spouts should be always clean. Do not push the spout and cup hangers too deep.
8. The tappers should start tapping early and collection should start at the required time. Too early collection will result in latex dripping after collection, and late collection will mean coagulation in the field.

9. The tappers should not overlap at the sides and special checks should be made at the sides of the channels to see that too much bark is not left out.
10. The spouts are to be lowered when they are about 3" from the tapping cut.

#### **Rainguard**

During rainy season tapping can be carried out, fixing polythene rainguards to the trunk above the tapping panel. About 35-40 additional tappings could be obtained every year by rainguarding the trees. But chances of bark rot disease are high when the trees are rainguarded and tapping is continued during the rainy season. Hence systematic application of panel protectants at frequent intervals is necessary. Rainguarding is recommended only in areas where the average yield is 700 Kg/ha/annum or more and 25 or more tapping days are usually lost by rain.

#### **Is there any necessity or annual tapping rest**

In South India, the rubber trees shed the leaves during December to February and refoilate soon along with the production of flowers. During refoilation and flowering, the yield will be comparatively poor and normally the trees are given about four week's rest. In view of the fact that a good number of tapping days are lost in our country during rainy season, tapping during wintering and refoilation period may be carried out if the yields are economical.

#### **Use of yield stimulants**

'Ethepon' manufactured by Amchem products Inc. U. S. A. Containing 2-chloro ethyl phosphonic acid as active ingredient is recommended as an yield stimulant for use in the rubber plantations.

Use of Ethepon is recommended for trees tapped on panel D (First renewed bark of the second panel). Trees tapped in

panel C may also be stimulated once in a year. The commercial preparations of Ethephon are Ethrel, Cepha and Ethrul.

#### Method of application

The method of application known as bark application is recommended for general use. Stimulant should be applied with a brush below the tapping cut to a width of 5 cm after light scraping of the outer bark. In small holdings where the owner himself taps the trees, groove method of application can be adopted. In this method the dried tree lace is removed and the stimulant is applied on the cut surface of the bark. More frequent application would be necessary if this method is adopted.

#### Concentration

The ready to use formulation of Ethephon contains 10% active ingredient. The concentration can be diluted from 10% active ingredient to 5% active ingredient as no significant difference in effect could be obtained between these concentrations in our experiments to justify the difference in cost.

#### Frequency of application

Only two or three annual application are recommended. The application may be carried out in April, September and November.

#### Duration of continuous application

There is a declining trend in the response to continuous application of Ethephon and it has been found that it may not be economical to stimulate trees which have been under stimulation for a period of four or five years. Accordingly, continuous application of Ethephon is not recommended for periods of more than three years at a stretch.

#### Points to remember

- Do not stimulate trees which are having late dripping.
- Do not stimulate trees tapped daily.
- Do not apply stimulant on rainy days.
- Do not apply stimulant on the portion of bark previously treated; tap off the treated bark before the next application.

### Rubber Tappers' Training Schools

The Board is implementing a scheme to provide training to the sons or dependents of small growers of rubber who carry out tapping in their own holdings and for tappers sponsored by small growers. Training is imparted on scientific methods of tapping and crop exploitation, yield stimulations, rainguarding, panel protection and processing of latex through Tappers Training Schools. There are 4 such schools, located at Mampad near Nilambur in Kozhikade District, Moovattupuzha in Ernakulam District, Ponkunnam in Kottayam District and Adoor in Quilon District. There will be 5 training courses in an year at each centre providing training to 75 candidates. Training is thus imparted to 300 candidates every year in these four schools. The duration of each course is 8 weeks. During the period of training an honorarium of Rs. 5/- is given to each trainee per training day. Free unfurnished accommodation is also provided to the trainees.



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