

PROTECT OUR RUBBER PLANTATIONS FOR LONG-TERM SUSTAINABLE YIELD AND ECONOMY UNDER PREVAILING RUBBER PRICES

A.M.W.K. Senevirathna¹

Demand for natural rubber (NR) in the world market is attractive at present and the statistics shows that there is a supply-demand gap. Therefore, the rubber prices in both local and world market are attractive and seem to be stable (IRSG, 2012). In such a situation, large scale plantations as well as smallholders are trying to make more profits from their rubber plantations by harvesting maximum possible. However, harvesting technique of rubber is unique and rather different compared to that of most of the crops; because of the regular wounding done on the bark for a long period causing a huge stress to the plant. The tree should be healthy for about 30 years for sustainable yield though it is wounded regularly for harvesting latex. When we try to get more yields through intensified wounding, stress to the plant will be tremendous. Specially, during the periods when rubber prices are striking, different chemicals 'said to increase rubber yield', are crept into the market and growers try to achieve maximum yield from their rubber lands using such chemicals without having a sound understanding. In the recent past, such chemicals under different brand names were introduced to the market and sales promotions were launched to popularize those chemicals among growers. Therefore, we should be aware with recommendations on harvesting technologies and special attention should be given to points mentioned below in harvesting latex from our rubber lands.



Latex harvesting according to RRISL recommendations

Latex harvesting systems have been recommended by the Rubber Research Institute of Sri Lanka (RRISL) based on the yield potential of different clones (e.g. half spiral cut once in two days-S/2 d2, once in three days-S/2 d3 etc.). In order to minimize the stress to the tree, these recommendations on latex harvesting should be followed correctly. Tapping at high intensities and at shorter frequencies intending to harvest maximum yield will create problems in the long run resulting in low yields with time; because the rubber tree acts against the wound resulting in less biosynthesis or complete cessation of latex production. Rubber tree needs at least 48 hours rest in order to heal the wound created by tapping to a certain extent. If not, latex production will be decreased or ceased as a defense reaction in the tree. This is the situation we observe in a rubber tree as tapping panel dryness (TPD) or earlier called as brown bast (Senevirathna and Nugawela, 2009).

¹ Rubber Research Institute of Sri Lanka, Dartonfield, Agalawatta

Economical lifespan of the rubber tree is about 24 years and each tapping panel is estimated to be tapped for six years. However, tapping in a panel, in most of the rubber lands, is completed within about four years at present. There are two main reasons for this situation; one is the high intensity of tapping while the other is excessive bark consumption rate. As a result of those two reasons, there is limited time to bark renewal of a panel tapped previously, and therefore the yield of renewed panels will be low due to incomplete bark renewal. This will result in a drastic reduction in productivity of rubber lands affecting economy of the country in the long run. Therefore, tapping at correct intensities and controlling bark consumption rates are prime important in sustenance of the rubber industry in Sri Lanka.

Use of latex stimulants

Latex stimulants, commercially named as Etheral, Ethephone, Ethephone-Plus etc. are only to be used if there is a shortage of latex harvesters to practice harvesting techniques without stimulants that have been recommended. The other important thing is that tapping intensities should be reduced when yield stimulants are used for rubber. Tapping of a clone tapped at every other day (d2) should be converted to once in three (d3) or four (d4) days if trees are stimulated, in order to minimize the stress caused by stimulation. In addition, concentration, quantity and frequency of application of stimulants are vital to be done as recommended; because if over stimulated, yields will be gradually decreased in long-term due to increase in tapping panel dryness. Therefore, we should keep in mind that **use of yield stimulants is not to obtain high yields but to achieve the potential yield with lesser number of tappings per year.**

Remedies to overcome tapping panel dryness

The saying 'prevention is better than cure' is applicable to the TPD of rubber too. In order to prevent or minimize the situation of TPD, attention should be paid from the beginning of planting, *i.e.* land selection, quality of planting material, better agronomic practices, accurate harvesting techniques etc. as previously reported in detail (Senevirathna, *et al.*, 2007, Senevirathna, 2007).

During the periods when rubber prices are attractive, attempts taken to harvest possible yields from TPD affected trees too are appreciable; and also, if TPD affected trees can be recovered, it will increase the revenue of the land owner and also the economy of the country as a whole. With increase of rubber prices, 'chemicals said to recover TPD while increasing the yield' are introduced to the market and attempts are taken to popularize these among growers. However, chemical names or the active ingredients of those chemicals are not known since they are introduced with different

commercial names. Also these information cannot be taken precisely from the manufacturers or distributors. However, **the effectiveness of such differently named chemicals have been tested in the field scientifically by the RRISL; but no such effective chemical has been found yet to recover TPD trees to provide a sustainable yield economically.** Only a yield stimulation effect for a short period like one to two months has been observed from such chemicals tested in the field. Also, it has been observed that the yield obtained could not be able to recover the investment on this chemical treatment. The danger is that, growers tend to apply these chemicals on healthy trees too in achieving high yields, because of this short-term yield stimulation. Although yields are increased short-term, long-term effects might be less economical with the use of these chemicals, as their role in the plant is not well understood.

According to the information given above, **minimizing the stress to the tree** is the only remedy that we have at present for TPD. How can we identify the stress? Sudden and temporary increase in latex production, extended period of latex flow, less dense latex (low DRC) can be experienced as pre-drying symptoms of most of the trees prone to TPD. It is wise to reduce the tapping frequency of such trees, once found, since they will become dry soon. Resting of TPD trees those cannot be harvested economically is the only effective remedy at present (Senevirathna, 2007). After resting, the same panel can be re-opened; and if yielding, tapping can be continued. If the dry panel does not yield effectively, quarter spiral (S/4) upward cut can be introduced on the higher panel opposite to the dry panel. This is the only effective method existing at present to harvest latex from TPD affected trees (Senevirathna and Nugawela, 2009, Perera *et al.*, 2011). Daily tapping or any kind of recovery tapping and stimulation are not recommended to be practised on such trees as those trees are susceptible to be dry again. Since lots of plant nutrients are removed from the tree with latex, they should be replaced by applying fertilizer as recommended and also the other agro-management practices are to be implemented on time.

Attempts to exploit more during periods when rubber prices are high have been observed in the past too. Implementation of ad-hoc harvesting techniques, stimulation practices and use of not recommended chemical formulae in order to make sudden profits can be observed especially during such periods. Although these methods provide short-term benefits, productivity and profitability will be decreased gradually in long-term due to aggregation of unproductive trees in the plantations over years due to TPD.

In this article, more emphasis was given to harvest sustainable yields from our rubber plantations causing minimum stress to plants and so that we can contribute more to the rubber industry and to the sound economy of the country in the long run.

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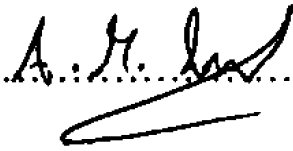
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