

CONTRIBUTION OF SCIENCE AND TECHNOLOGY FOR A SUSTAINABLE NR ECONOMY

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It has been forecasted by the IRSG that by 2012, a glut of Natural Rubber (NR) was expected to be produced in the world, possibly by the new clearings coming in to bearing mainly in Vietnam and Thailand while the consumption of NR was expected to decline due to the ongoing recession in US and in the EU. According to IRSG, this glut is expected to continue until about 2017 and hence, slightly more depression is expected in the NR price in the next couple of years too.

However, according to Dr Jumpasut of The Rubber Economist Ltd, world NR consumption is poised to increase this year and next year diminishing the surplus and thereby boosting the rubber price to \$ 3.5/Kg by the end of 2014.

Whatever it is, the International rubber prices are beyond the control of farmers. Early during the last few decades, attempts were made by the scientists all over the world to convert NR to derivatives like Chlorinated rubber, cyclised rubber, epoxidised natural rubber etc. to replace synthetic counterparts used in the industry in order to get more attractive prices for such grades of NR. Those attempts were not very successful. Hence, what the NR growers should do now to maximise their profits from the prevailing rubber prices is to cut down the cost of production (COP) of all grades of rubber at the level of the rubber farms using the latest developed technology.

The main factor determining the COP of raw rubber is the productivity or the yield per hectare of rubber lands. In Sri Lanka, some of the RPCs have been able to prove that, if the productivity is increased to 1200 Kg/ha/yr the COP drops down to Rs 180.00/Kg compared to the average estate COP of Rs 250/Kg. Similarly, If the productivity is increased further to 2500Kg/ha/yr, COP can be lowered further to Rs 100/Kg. Hence, even at the prevailing NR prices in the international market today, over 100% increase in profitability can be achieved with this level of land productivity.

In order to achieve a productivity of about 2500Kg/ha/yr, scientifically proven correct agronomic practices that should be adopted at the farm level are:

1. Maintaining a stand of 475 to 500 healthy plants per hectare in new clearings at the time of marking trees for harvesting. In order to achieve this stand:
 - (a) Special care must be taken in land preparation to minimize white root disease damage, which is the main cause for mortality of young plants thereby lowering stands. On average this results in a 10-15% drop in SPH.

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(a) Planting 500 quality young budded plants per Ha at the onset of the monsoon to minimize mortality during dry months.

1. Regular fertilizer application, weeding and disease management to maintain an annual girthing of 10cm in new clearings.
2. Draining, terracing and cover crop management to conserve the fertile top soil and the moisture levels in the soil.
3. Poor performing plants need to be treated differently, i.e. split fertilizer & compost application, to enhance their growth to be in par with the more vigorous plants. Infilling of dead plants & replacing runts during the first year with jumbo plants and in the second year with stumped buddings.
4. Not to commence tapping in new clearings until the girth of 60% of the stand reaches 50cm.
5. Low frequency tapping (S2d3) with four Ethrel applications while having rain guards. This will help to minimize the shortage of tappers also to a great extent whilst enhancing the harvester productivity.
(Apart from that, all latex stimulation techniques tried out using ethane gas have not shown any positive improvement on rubber yields, in Sri Lanka).
6. Use of rain guards to minimize rain interference on tapping rather than undertaking recovery tapping leading to poor quality of tapping & high percentage of dry trees.

Now a day's weed control in estates is a big problem in Sri Lanka; mainly because the commonly used weedicides have been banned by the health authorities. Manual weeding is also expensive due to escalating labour wages. Hence, the use of power mat made out of waste material introduced by the RRISL is worth considering as an alternate way of weed control and moisture retention.

If these measures are taken, obtaining a yield of 2500Kg (5Kg/tree) is not difficult. In addition to these, maintaining the clonal composition of 10% from each of the six group 1 clones and the balance with group 2 and 3 clones (upto 3% per clone) recommended by the RRI is also important for the sustainability of the rubber industry.

Minimizing the Tapping Cost

In order to minimise COP of rubber of which, more than 75% is tapping cost, intake per tapper should be raised to at least an average of 9Kg. Without improving intakes to this level, lowering the COP is impossible. There are problems in increasing the tapping tasks beyond 300 trees, under the prevailing labour laws. Hence care must be taken to give them 275 or 300 selected yielding healthy trees for tapping; but not just 275 – 300 trees, a fair percentage of which may be TPD affected dry trees.

Most of the farmers are not fully aware of the importance of regular sharpening the tapping knives. Sharpness of the tapping knife and regularly heat treating them contributes a lot to the latex flow and while minimizing the bark consumption.

Precautions to be taken during processing:

When it comes to processing, regular documentation of chemicals used, help to minimize the wastage of chemicals, which is not only affecting the COP, but also lower the quality of the rubber (particularly white crepe rubber) produced. Damage caused to the environment by the effluent water is also minimized. Hence following the ISO 9000 regulations too helps to cut down COP of raw NR while helping to minimize the damage to the environment.

Another important matter helping to sustain the industry is cutting down the cost of drying. In this aspect, use of alternate sources of fuel like saw dust, and shortening the drying time of rubber, particularly RSS using the RRISL's newly developed smoke house drying system is also important. This system not only minimizes the cost of fire wood used for drying RSS, but also tremendously improves the colour of the RSS produced.

If these measures are undertaken, even under the slightly dropped price of NR in the world market that is expected during the next couple of years, rubber farmers can still make a substantial profit, for a comfortable living.

Further, it should be specially emphasised here that at this juncture rubber farms should not be converted to other crops like oil palm. This is the period in which all plantations must start replanting old fields to bring new areas into tapping by 2018, by then the rubber prizes are expected to rise up to about US \$ 6.00 per Kg according to the predictions of the IRSG. This is the correct strategy always followed in other rubber producing countries, particularly Malaysia. If not when prizes are booming in the world market we will not have sufficient rubber even to run our own rubber product industries which brings in lot of foreign exchange to the country and provide employment to a large number of Sri Lankans. Alternate crops can be planted in lands not utilized for any agricultural purposes in the intermediate and dry zones in Sri Lanka.