

Rainguarding for better yield

Rubber is predominantly grown in the region between 10°S and 8°N latitude where an equatorial monsoon climate prevails (Vijayakumar *et al.*, 2000). Geographically India is just outside the traditional rubber growing regions of the world, with major portion of rubber growing area confined to the west coast of the country (8° to 12°N). The annual average rainfall is over 2000 mm which mainly occurs in 6-7 months period (May-November).

The rainfall pattern in Kerala is bimodal (Fig 1) with two monsoons, south-west monsoon, peak during June-July with predominant morning rains, and north east monsoon (usually in the afternoon or night) during October-November. Both the monsoons result in wet bark during morning hours hindering tapping operation. In our climatic condition regular tapping is possible only by effective rainguarding. Owing to this, compared to other major rubber growing countries, our cultivation cost is higher.

One of the cost escalating factor during the tapping phase is rainguarding and allied panel protection. Kerala has nearly 72 per cent of rubber area in India,



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and the wonder clone RR11 105 occupies almost 90% of the tapping area. Under well protected tapping panel by rainguarding and regular tapping during the monsoons, peak yielding months for this clone is June-July. Depending on geographical position and field conditions, absence of rainguard can lead to crop loss of 150-500kg/ hectare/ year (Fig 2). Skilled tapper shortage is a reality and as a result more and more growers are adopting low frequency tapping. With the introduction of Low Frequency Tapping even under low rainfall regions rainguarding is essential (Karunaichamy *et al.*, 2012). Optimum yield can be achieved by correct and regular tapping under any tapping system.

By fixing a suitable device on the trunk just above the tapping cut, flow of water through the main trunk is channeled out. This method is found to be effective in keeping the tapping

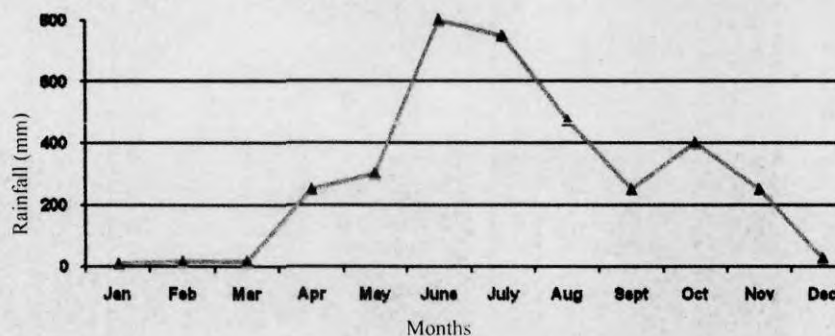
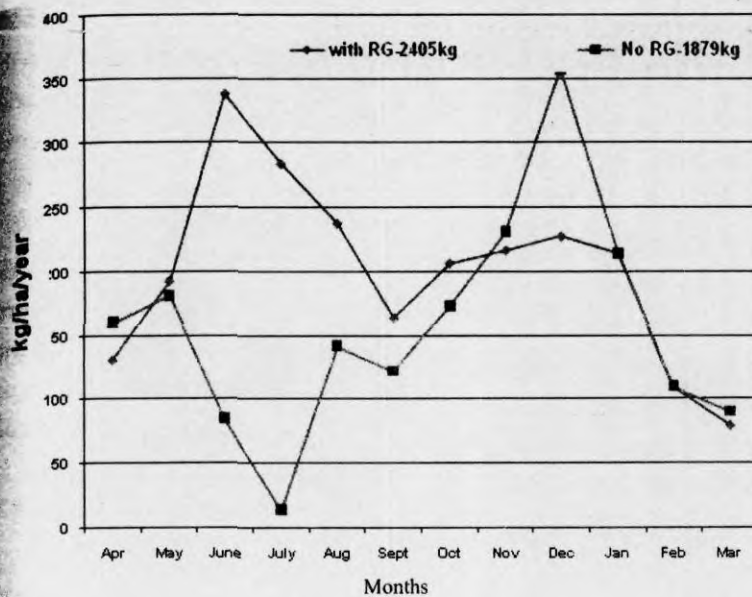


Fig 1. Annual rainfall pattern in Kerala

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**Fig 2. Illustration of Annual Rubber yield (kg/ha)
– with and without rainguard in Clone RR11 105**

cut, bark below and above within the rainguard in dry condition during rainy season. To obtain optimum yield, timely fixing of good quality rainguard material and maintaining it leak proof throughout the monsoons is essential (Thomas, 2013). Rainguarding is generally done during April-May, before the south-west monsoon, and it

ensures 80-100 additional tapping man days. Polythene skirt, Tapping shade and Guardian/Kissan rainguards are popular (Fig 3, 4 & 5). Among these, skirt type is cheaper and efficient in our rainfall condition. Price of tapping shade and labour rate for fixing it is highest, but part of it can be reused in the next one or two year, if handled carefully. Frilling of polythene using sewing machine (before fixing on trees) enhances efficiency

of rainguard and reduces polythene requirement. One meter polythene after frilling should measure 60 cm (size of frill is 7 mm and space between adjacent frills should be 1.5cm). Irrespective of the type of rainguard, panel washing using fungicide solution should be a regular practice if trees are tapped during



Fig 3. Polythene skirt



Fig 4. Kissan rainguard



Fig 5. Tapping shade

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monsoon. The interval varies between weekly/10 days/fortnightly depending on severity of rain.

Ready to use quality rainguard adhesive should be used for fixing. Bituminous compound should not be heated on fire or mixed with kerosene to make it loose.

Before use, irrespective of the brand, rainguard compound may be tested for phytotoxicity. For this, a band of adhesive may be applied on one or two trees on the bark above the tapping cut. If no phytotoxicity symptoms like exudation of latex from bark underneath the applied band and tissue damage are observed within a week, the compound may be used for rainguarding.



Fig 6. Mini rainguard

Since the rainguards are fixed during April-May, there is chance for leakage (due to tree growth) as high as 50 per cent or more during North-East monsoon period, leading to considerable crop loss on rainy days and partial loss during few more subsequent tappings.

This can be prevented by fixing a mini rainguard (Fig 6). For this, during August – September a three inch wide LDPE (300 gauge) sheet need to be fixed just like normal rainguarding above the current year's rainguard, but without frill and second coating of compound. The material cost for miniguard is around Rs 3/ tree.

The cost of rainguarding is meager (Rs 15-20) compared to the crop loss prevented, even at the lowest loss of 150kg/ha (375g/tree) and at a price of Rs 150/kg, it is worth Rs 56/tree. The additional benefit per tree is Rs 36/- under rainguarding. It also ensures regular employment to the tappers.

In the non-rainguarded condition, when the tapping is resumed and yield is stabilized, growers observe temporary peak yield and are happy with it assuming that crop lost is recovered. From the illustration (Fig 2), it is evident that under rainguarded condition the yield was 2405 kg whereas in the absence of it crop was only 1879 kg, with an annual crop loss of 536 kg.

The practice of rainguarding and resultant regular tapping in all the tapping area in traditional region it self can lead to considerable enhancement in production and productivity. It also will ensure regular employment to rubber tappers (Thomas *et al.*, 2013).

References

- Karunaichamy, K., Thomas, K. U. and Rajagopal, R (2012). Yield performance of clone RR11 105 under low frequency tapping in BO-2 and BI-1 panels. *Natural Rubber Research*, 25(1), 52-59.
- Rubber Board (2014). Harvesting. In *Rubber growers Companion* PP. 32-40
- Thomas, K. U., Karunaichamy K., Rajagopal R. and Sreelatha S. (2013). Strategies for Labour Management and Productivity Enhancement in Indian NR Industry. Presented in International Workshop on Latex Harvest Technology organized by IRRDB and Rubber Research Institute of Vietnam
- Thomas, K. U. (2013). Low frequency tapping. *Rubber Board Bulletin*. 31(3), PP 17-21
- Vijayakumar, K. R., Chandrasekhar, T.R., and Varghese Philip (2000). Agroclimate. In *Natural Rubber: Agro management and crop processing*. Eds. P J George and Kuruvilla Jacob. pp.97-116. ■