

UNTAPPED RUBBER HOLDINGS A LOST ECONOMIC OPPORTUNITY FOR RUBBER GROWERS

James Jacob and Binni Chandy

Rubber Research Institute of India, Kottayam - 686 009, Kerala, India

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The large share of mature natural rubber (NR) holdings now remaining untapped, the undesirably high share of old/senile holdings and recent stagnation in the total NR cultivated area in the country are indications that growers' interest in NR cultivation is on the wane. This is happening at a time when the domestic demand for NR is steadily on the rise. The prevailing low price of NR is blamed for this predicament. Results of the present study clearly indicate that harvesting rubber is still a profitable option for growers, provided weekly tapping system is adopted. Adopting self-tapping and confining tapping to the peak yielding period (May to January) will further enhance profitability of rubber tapping, especially when the price is low. Since there is no guarantee that rubber prices will increase considerably in the near future, not tapping the mature rubber trees is bad economics and a lost economic opportunity for the grower. It is likely that the grower is perhaps unaware of this. Creating awareness among growers about the futility of leaving mature rubber holdings untapped and how low frequency and self-tapping can substantially increase profits should be a central theme of extension efforts.

Key words: BCR, Lean season, Natural rubber, Net revenue, Peak season, Untapped holdings

INTRODUCTION

While natural rubber (NR) price has crashed on several occasions in the past, the present price decline that began in 2011/12 is unique even as the low price is lingering on for so long (Rubber Board, 2000; 2013; 2019). If poor performance of global economy and increasing supply of cheaper NR from low cost countries in recent years put pressure on NR price, lockdown due to the COVID-19 pandemic since March 2020 has only worsened the concerns of the grower. Natural rubber growers in India have been always concerned about the high

input costs and rising labour wages. Coupled with this, the prevailing low NR price has made rubber tapping less profitable, if not non-remunerative, particularly in old holdings with low productivity. Citing low profit as a reason, many growers have stopped tapping their mature rubber holdings. It is estimated that nearly 25-30 per cent of the mature rubber holdings in the country is remaining untapped presently (Rubber Board, 2018, 2019a). If these holdings are brought back to tapping, it is quite possible that domestic NR production can be as high as 9-10 lakh tonnes during

2020-21. This may be just about sufficient to meet the current year's reduced demand due to the lockdown and keep NR imports to a minimum.

Riding on a buoyant NR price, the first decade of the new millennium saw considerable expansion of NR cultivation in India, especially starting from 2005 onwards until 2015 (Rubber Board, 2013; 2018; 2019). However, total area under NR cultivation began to stagnate in recent years (Jacob *et al.*, 2018; Rubber Board, 2019); thanks to the prolonged low price of NR. Even prior to the NR area curve flattened, replanting was on a low rate and over the years the share of the old/senile areas increased to an unhealthy proportion of the total mature area (Jacob and George, 2016). As of 2018-19, it is estimated that the immature area was 204200 ha and mature/yielding area was 669568 ha (Rubber Board, 2019) and nearly 50 per cent of the mature holdings were more than 23 years old and fast getting senile (unpublished). Low yield from old holdings has made tapping untenable for the grower during the current low price scenario. It was always the high productivity of the Indian NR holdings that contributed the most to high profitability of NR cultivation in the past (Chandy *et al.*, 2010).

The large extent of holdings now remaining untapped, the high share of old/senile holdings that has accumulated over the years and the flattening of the NR area curve in recent years are indications that NR growers in the country are beginning to lose confidence in the future of the NR plantation sector. Ironically, this is happening at a time when the domestic demand for NR is

steadily rising and projected to grow at healthy rates for the foreseeable future (Joseph and Jacob, 2018). Analyses show that NR consumption in India will increase at a higher rate than its domestic production resulting in rising deficits, necessitating increased imports (Joseph and Jacob, 2018) even if the existing production capacity for NR production is realized.

While there may be several socio-economic reasons behind the growers losing interest in NR cultivation, including alternate sources of livelihood, the current long spell of low NR price seems to be the proximate cause behind the present crisis. No institutional/government bailout packages are likely and no marked improvement in NR price is on the horizon as the global economy is bound to contract substantially due to the COVID-19 lockdown and a recovery is likely to be slow and unpredictable (Abraham and Madhavan, 2020).

In the international market NR has been available at much cheaper price (Rubber Board, 2013; 2019) and imported NR could be in principle cheaper than domestically produced NR even after adding the import duty¹. However, Indian rubber products manufacturers do not stay away from the domestic market (at least not for long periods). Sustaining a robust domestic NR production base is vital to sustaining the long term interests of the Indian rubber products manufacturing industry. Growers losing confidence in the NR plantation sector at a time when domestic demand is certain to remain high for several years can have major implications for the Indian rubber

¹ As this article is in press NR price has started to improve and international price remained above domestic price making import of NR more expensive.

products manufacturing industry. While it is debatable whether the stakes are higher for the grower or the manufacturing industry, for those growers for whom NR cultivation is their primary source of livelihood, the present crisis due to low price is indeed a serious issue. It is in this context that one must take a critical look at her mature NR holdings and ask herself the question: can tapping the rubber trees be still a profitable option?

MATERIALS AND METHODS

Benefit cost ratio (BCR) was used to compare the value of benefits with that of costs. The benefit cost ratio is calculated by using the formula:

$$\text{BCR} = [\text{PV (Benefits)}] / [\text{PV (Cost)}]$$

Where PV is the Present Value

The benefit considered in the study is the farm income received by the grower from the sale of rubber from one hectare of land, which is estimated by multiplying the annual average productivity per hectare with the annual average price of RSS 4 grade rubber. Since the study considers only the operational cost during mature phase the cost items selected are, tapping cost, stimulation cost and the cost for processing sheet rubber.

RESULTS AND DISCUSSION

Tapping is profitable

Tapping cost is the single largest cost component in maintaining a mature NR plantation, accounting for nearly 60 per cent of its total maintenance cost (Rubber Board, 2017). Expenditure towards other operations such as fertilizer application (4%), plant protection (7%) and weeding (11%) can be significantly saved by adopting the latest scientific recommendations evolved by Rubber Board (Rubber Board, 2018a). Obviously, tapping cost cannot be avoided if latex has to be harvested. A considerable savings in tapping costs can be achieved by resorting to low frequency tapping, particularly weekly tapping and self tapping. Saving tapping wages and other costs will be particularly relevant to increase profitability of rubber tapping when NR prices are low.

Monthly distribution of annual rubber yield in traditional areas clearly shows that at least three months (February to April) are lean yielding months. The cumulative yield share of these three months is hardly 13-15 per cent (Gireesh *et al.*, 2005; Reju *et al.*, 2017) whereas if tapping is continued during this period, the tapping cost would have been 25 per cent of the total annual tapping cost.

Table 1a. BCR and net revenue (NR) of rubber production employing hired tapper during peak season (May-January) under different productivity scenarios and price Rs. 125.95/-*

Tapping system	BCR and NR (Rs. ha ⁻¹) under different productivity scenarios							
	Productivity (kg ha ⁻¹)							
	850		1000		1453		1750	
	BCR	NR	BCR	NR	BCR	NR	BCR	NR
d/2	1.00	448	1.17	16216	1.66	63834	1.96	95053
d/3	1.40	26961	1.63	42729	2.28	90346	2.68	121566
d/7	2.12	49799	2.45	65566	3.36	113184	3.91	144403

*Price of RSS 4 grade sheet rubber during 2018-19

Table 1b. BCR and net revenue (NR) of rubber production employing hired tapper during peak season (May-January) under different price scenarios and productivity at 1453 kg ha⁻¹*

Tapping system	BCR and NR (Rs. ha ⁻¹) under different productivity scenarios							
	Price scenarios (Rs. kg ⁻¹)							
	100		125.95		150		200	
	BCR	NR	BCR	NR	BCR	NR	BCR	NR
d/2	1.32	30653	1.66	63834	1.97	94585	2.63	158517
d/3	1.81	57165	2.28	90346	2.71	121097	3.62	185029
d/7	2.67	80003	3.36	113184	4.01	143935	5.34	144403

*National average productivity during 2018-19

Naturally, profitability of tapping during the lean months is less. This becomes all the more relevant when NR price is low, labour wages are high and productivity is low as is the scenario now.

In the present study, the benefit cost ratio (BCR) and net revenue of rubber production (*i.e.* operational profitability of mature NR

holdings) was worked out at different price and productivity scenarios. It can be seen that there is clear improvement in profitability as productivity (Table 1a) and NR price (Table 1b) are high and this is further improved by resorting to weekly tapping during the peak yielding months (Tables 1a, 1b) and completely skipping

Table 2a. BCR and net revenue (NR) of rubber production employing hired tapper during lean season (February-April) under different productivity scenarios and price Rs. 125.95/- kg⁻¹*

Tapping system	BCR and NR (Rs. ha ⁻¹) under different productivity scenarios (kg ha ⁻¹)							
	Productivity scenario (kg ha ⁻¹)							
	1453		1750		2000		2500	
	BCR	NR	BCR	NR	BCR	NR	BCR	NR
d/2	0.60	-14873	0.71	-10615	0.81	-7032	1.00	0
d/3	0.78	-6035	0.94	-1778	1.06	1806	1.31	8973
d/7	1.08	1577	1.28	5835	1.45	9418	1.78	16585

*Price of RSS 4 grade sheet rubber during 2018-19

Table 2b. BCR and Net Revenue (NR) of rubber production employing hired tapper during lean season (February-April) under different price scenarios and productivity at 1453 kg ha⁻¹*

Tapping system	BCR and NR (Rs. ha ⁻¹) under different price scenarios (Rs. kg ⁻¹)							
	Price scenarios (Rs. kg ⁻¹)							
	100		125.95		160		212	
	BCR	NR	BCR	NR	BCR	NR	BCR	NR
d/2	0.47	-19397	0.60	-14873	0.76	-8936	1.00	0
d/3	0.62	-10560	0.78	-6035	1.00	0	1.32	8968
d/7	0.86	-2947	1.08	1577	1.37	7514	1.81	16581

*National average productivity during 2018-19

Table 3. **BCR and Net Revenue of rubber production during peak and lean yielding seasons by employing hired tapper and self-tapping at different frequencies**

Yielding season	By employing hired tapper			Self-tapping by grower		
	Tapping frequency			Tapping frequency		
	d/2	d/3	d/7	d/2	d/3	d/7
Peak yielding season BCR	1.66	2.28	3.36	12.45	11.91	10.53
Peak season Net Revenue(Rs. ha ⁻¹)	63834	90346	113184	148109	147518	145746
Lean yielding season BCR	0.60	0.78	1.08	2.28	2.24	2.11
Lean season Net revenue (Rs. ha ⁻¹)	-14873	-6035	1577	12338	12141	11550

Peak season: May to January; Lean season: February to April

Productivity: 1453 kg ha⁻¹ and price: Rs. 125.95/- kg⁻¹

tapping during the lean yielding months (Tables 2a, 2b), particularly so when NR prices and productivity are low.

BCR analyses for peak yielding season (May-January) under different productivity scenarios (Tables 1a, 1b) show that at the price and productivity levels of 2018-19, the BCR is 1.66 under d/2 tapping system, but this increased to as high as 3.36 with d/7 tapping frequency. BCR analyses under different price scenarios (Tables 1a, 1b) show that if tapping is done only during the peak yielding season, even at a lower price of Rs.100/- per kg the BCR is as high as 2.67 with d/7 tapping system and even for d/2 tapping frequency this is higher than the breakeven point (1.32), with a net revenue of Rs. 30653/- ha⁻¹.

BCR analyses during the lean season (February-April) under different productivity scenarios (Table 2a) show that when the price is Rs.125.95 (annual average price of RSS 4 during 2018-19) and productivity is 1453 kg ha⁻¹ the BCR is only 0.60 under alternate daily (d/2) tapping system and the net revenue is negative. Under d/2 tapping system with the same price level (Rs. 125.95/- kg ha⁻¹) the breakeven (BCR=1) productivity is as high

as 2500 kg ha⁻¹. But substantial increase in BCR (1.08) is observed with changes in tapping frequency to d/7 even when the price and productivity are remaining the same (1453 kg ha⁻¹ productivity and Rs. 125.95/- kg⁻¹ price). BCR during the lean season under different price scenarios (Table 2b) and steady productivity of 1453 kg ha⁻¹ shows that under d/2 tapping system the BCR reaches breakeven point (BCR=1) only when the price is Rs. 212/- per kg whereas even for d/3 the breakeven BCR is at a price level of Rs. 160/- kg⁻¹.

There is clear economic benefit by reducing tapping frequency and restricting tapping only to the peak yielding season and this is more significant at low productivity and low price scenarios. It can at best become marginally profitable with low frequency tapping during the lean yielding season. If the grower resorts to self-tapping, his returns are increased several fold and this advantage is substantial if tapping is limited to the peak yielding season (Table 3).

Even with self-tapping, profitability is rather poor during the lean yielding season when productivity and price are low (Table 3).

CONCLUSION

The above results clearly indicate that harvesting rubber is still a profitable option for growers, provided this is done in a scientific manner as explained above. Reducing frequency of tapping and restricting tapping only to the peak yielding season when rubber price is low- help improve profitability of rubber production. Profitability increases several fold if grower does the tapping by himself. Assuming that

rubber prices may not pick up substantially in the coming years, not tapping the mature rubber trees is bad economics and a lost economic opportunity for the grower. It is likely that the grower is perhaps unaware of this. Creating awareness among growers about the futility of leaving mature rubber holdings untapped and how low frequency and self-tapping can substantially increase profits should be a central theme of extension efforts.

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