Bulletin of the Rubber Research Institute of Sri Lanka, (2010) **51**, 15-22

INCREASING PRODUCTIVITY: A TOOL TO MITIGATE ADVERSE IMPACTS OF WAGE HIKES ON THE PERFORMANCE OF PLANTATIONS

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Plantation workers are given a wage increase once in every two years following the collective agreement between the Plantation Management Companies and the relevant trade unions. This is necessary to ensure the services of the workers to the plantations by discouraging them moving into other sectors that may offer better daily wages and also to ensure them a comfortable life. However, wage increases will invariably increase the cost of production. Therefore, sustaining performance whilst accommodating such wage increases is a challenge the management has to face. This scenario demands the adoption of proper strategies aimed at keeping the cost of production at the lowest possible level. This is mandatory as the growers are unable to increase the selling price of their produce when the cost of production increases since the rubber prices as for any other commodity is determined elsewhere by the global supply and demand situation. This article is aimed at discussing strategies the growers could adopt to minimize their cost of production to mitigate increasing costs due to same in wages and other inputs.

Recent wage hike

The basic wage and the other financial benefits the estate workers get subsequent to the recent wage increase is compared to the same prior to the recent wage hike in the Table 1. To get an idea about the annual wage it is also calculated assuming 330 days of work per annum. It is proven that the rubber harvesters could work for such number of days per annum with the correct use of rainguards. With the latest rubber clones and tapping systems rubber harvesters could achieve a mean productivity level of *ca.* 14 kgs of dry rubber per day. If the norm for the harvesters is kept at 8 kg, the harvester could earn an additional income of 90 rupees per day at the rate of 15 rupees per over kilo. This together with other financial benefits, the workers currently have an earning potential of around Rs.586.50 per day in a reasonably well managed estate (Table 1). It should be mentioned that this potential daily wage includes apart from the monthly payments, the monthly component of their other annual and terminal benefits.

Accordingly, with two members of a family working the earning potential of a family per month including other annual and terminal benefits is about Rs.33,000 per month. This income together with other benefits like free housing, education and medical facilities is sufficient for the workers to live a relatively comfortable living provided that the finances are well managed. It is a common practice in estates that hard earn money is wasted due to alcoholism and also due to the lack of knowledge on how best the hard earned money could be used. This situation needs to be

corrected in the plantations through continuous educational and monitoring programmes.

Table 1. *The present and the past wage structure of plantation workers*

Item	Present (Rs)		Past (Rs)	
	Daily	**Annually (330d)**	**Daily**	**Annually (330d)**
Basic wage	285	94,050	200	66,000
Attendance incentive	90	29,700	70	23,100
Productivity incentive	30	9,900	20	6,600
EPF/ETF	42.75	14,108	30	9,900
Over kilos	90	29,700	90	29,700
Holiday pay (17 days wage)	14.68	4,845	10.30	3,400
Attendance incentive (Annual)	2.58	850	2.58	850
Profit bonus	18.18	6,000	18.18	6,600
Gratuity	13.30	3,990	8.48	2,800
Total	586.50	193,143	449.54	148,350

On the other hand paying such wages to the workers whilst providing wide range of benefits discussed above is a constraint on the cash flow situation of the plantations. This scenario becomes even more severe under poor trading conditions. Anyhow wage increases come every two years as per the current understanding between Plantation Management Companies and the Unions. Hence the Plantation management Companies need to be proactive and should implement strategies upfront to prevent adverse impacts on the performance of the plantations caused by increasing wage bills.

Impact of recent wage hike on the COP of rubber

Through a survey carried out recently data were collected on the cost of production of a kilogram of natural rubber in the Plantation Sector (Table 2). This cost of production is an average value for different types of raw rubbers such as crepe, RSS, centrifuged latex *etc*. In an attempt to estimate the cost of production after the wage increase the labour component of the different items in the cost of production was identified. This component was increased by 40% to accommodate the recent wage hike which is also in the same range. Based on these figures the probable cost of production after the wage hike was estimated and is given in Table 2.

The data given in Table 2 indicates a 21% increase in the cost of production of a kilogram of rubber in the Plantation sector after the recent wage hike, *i.e.* from Rs.132.79 per kg to Rs.160.37 per kg. Unless integrated into value addition, the Plantation Companies have no control in the selling price of their produce as

discussed previously. Also, the Plantation Management Companies can not always expect the rubber prices to absorb additional costs and ensure them sustaining profits.

Table 2. *Actual COP for a kilogram of rubber (average for different types of raw rubber) in the Plantation Sector during financial year 2008/09 and the estimated value after the wage hike*

Cost item	Cost/kg (Rs)	Labor component (%)	Estimated cost/kg(Rs) (After wage hike)
Tapping	54.12	80	71.44
General charges	46.80	30	52.42
Up-keep	13.94	50	16.43
Manufacture	17.93	30	20.08
Total	132.79		160.37

Impact of land productivity on the COP of rubber

A recent survey on the land productivity levels achieved by 18 different Plantation Management Companies revealed that the land productivity during the financial year 2008/2009 had varied from 550 to 1479 kilograms per hectare per year. Based on the data collected, the mean land productivity of all the Plantation Management Companies was estimated and it was found to be around 977 kilograms per hectare per year.

The estimated cost of production with the recent wage hike, *i.e.* Rs.160.37/kg (Table 2) is at a mean land productivity level of 977 kilograms per hectare per year. In order to study the impact of land productivity on cost of production, the cost of production was estimated, taking a mean land productivity level of 1500 kilograms per hectare per annum (Table 3).

Table 3. *Cost of production at different land productivity levels*

Cost item	COP (Rs/kg) @ 977kg YPH	Estimated COP (Rs/kg) @ 1500kg YPH
Tapping	71.44	50.00
General charges	52.42	35.00
Up-keep	16.43	11.15
Manufacture	20.08	20.08
Total	160.37	116.23

The cost of production of a kilogram of rubber will reduce from Rs.160.37 to Rs.116.23 with the increase of land productivity from 977 to 1500 kilograms per hectare as evident from the data given in Table 3.

Potential land productivity and ways to achieve it

Land productivity of a plantation is determined by many factors and some major determinants of it are listed below:

1. The yield potential of a tree determined by the clone, quality of planting material, immature upkeep, tapping system and quality of tapping
2. Tappable stand per hectare
3. Tapping days
4. Tapper out-turn

With the optimum levels of above parameters achieved, a land productivity level of around 2500 kilograms per hectare annum could be obtained. Nevertheless, as pointed out earlier, the actual mean productivity level of the plantation sector is currently around 977 kilograms per hectare per annum. The possible reasons for this low productivity need to be identified in order to develop methods to improve it.

Monitoring of performance in plantations reveals that what is actually achieved with regard to above mentioned determinants of land productivity is far below the optimum levels and therefore need to be further improved. The mean yield per tree per tapping, an indicator of the yield potential of a tree is *ca*. 20-24 grams where as it could be increased up to around 30 grams. The mean tappable stand per hectare is also lower than what it should be. It is around 325-350 where as the mean for all revenue areas in an estate could be maintained at 375-400 tappable trees per hectare. The tapping days recorded in the plantations including normal, late and recovery tappings are about 280-300 days per annum. With the use of rainguards the tapping days per annum could be increased up to 340 days per annum out of which about 300 days will be high yielding normal tapping days. Apart from the shortage of skilled latex harvesters the out turn of them is also low due to social, agricultural and other family commitments of them. The wide gap between the potential and actual yield could be mainly attributed to the low level of performance in some major determinants of land productivity described above.

The adoption of high yielding clones alone will not improve the yield potential of trees. It needs to be coupled with other agronomic practices such as the use of quality planting material, correct timing of planting and technique, maintaining the correct tree architecture, fertilizer use and disease control.

Apart from agricultural practices discussed above land selection, preventing animal damage, timely infilling and minimizing the incidence of tapping panel dryness are also necessary to maintain a high tappable stand during the entire economic life span of a rubber clearing.

In order to harvest the potential yield, tapping needs to be commenced only when a clearing reaches the growth standards determining tappability of a new clearing. Further the tapping systems recommended for the clone planted should be adopted. Quality of tapping, *i.e*. angle, depth, thickness of a shaving and length of cut

together with the correct use of latex collecting utensils are necessary to harvest potential yields.

Depending on the clone, a rubber tree could either be tapped once in two or three days and this should be practically achieved to harvest potential yields. This could be done through the correct use of the rainguarding technology. It is apparent that in the absence of rainguards excessive recovery tapping is undertaken when weather conditions are conducive for harvesting. Excessive recovery tapping results in lowering of the quality of tapping, reducing the economic life span of rubber clearings, increasing tapping panel dryness with no increase in yield as expected by the estate management.

Plantations will not be able to harvest potential yields if adequate number of latex harvesters are not available. The adoption of low frequency tapping whilst solving this issue, will help the estates to reduce the cost of harvesting, prolong the economic life span of the tree and to increase the earnings of the latex harvesters. Therefore it is a technology with multiple benefits to the plantations.

Economic viability of some major recommendations

The correct adoption of rainguards could enhance productivity by more than 25% (Fig. 1). The impact of this gain in productivity on the cost of production and profitability are estimated and given in Table 4. Accordingly, the profitability could be enhanced by 37% with the correct adoption of the rainguarding technology. In addition, with the use of rainguards both the estates and the latex harvesters are guaranteed of a continuous income even during adverse weather for harvesting of rubber.

Fig.1. Use of rainguards to enhance profitability and harvester income

Most of the currently existing rubber cultivations in the country are in the 3rd or 4th generation of planting. Soils could get depleted during land preparation for

cultivation and also during the early immaturity period. Hence the rubber growing soils could be currently depleted of nutrients and therefore it is mandatory that artificial fertilizer is applied to rubber cultivations in order to sustain the vegetative growth and latex yields (Fig. 2). Depending on the soil fertility, use of artificial manure on mature rubber could increase the land productivity by 15 to 25%. Even at a yield increase of 15% the use of chemical fertilizer is a profitable investment for the grower (Table 5). Accordingly, the financial gain per hectare per annum will be Rs.21,500 for an investment of Rs.16,000.

Table 4. *Economics of the use of rainguards*

Cost and yield parameters	Without rainguards	With rainguards
Productivity (kg/ha)	1,000.00	1250.00
Tapping cost (Rs/kg)	71.44	64.30
General charges (Rs/kg)	52.42	41.94
Upkeep costs (Rs/kg)	16.73	13.38
Manufacture (Rs/kg)	20.08	18.90
Total costs (Rs/kg)	160.17	138.52
NSA (Rs/kg)	250.00	250.00
Profit (Rs/kg)	89.83	111.48
Gross profit/ha(Rs)	89,820.00	139,350.00
Rainguard cost/ha(Rs)	-	16,000.00
Net profit/ha (Rs)	89,830.00	123,350.00
% gain in profitability	100.00	137.00

Fig. 2. Correct use of fertilizer to sustain vegetative growth and high yields

Visits under taken to the plantations reveal that there is room for improving the quality of tapping. The standards with regard to tapping slopes, depth, and thickness of the bark shaving and length of cut are very often not achieved. The loss in productivity due to poor quality of tapping can be very significant both in the short and long term. Guidelines should be marked correctly on the trees to assist the rubber harvesters to carry out quality tapping (Fig. 3). Further, by ensuring that the latex harvesters will commence tapping early, use quality tapping knives, tap and collect latex from all trees, place spouts, cup hangers and cups correctly on the trees will also help the plantations to improve productivity with no additional costs.

Table 5. *Economics of the use of chemical fertilizer on BO-1 & BO-2 tapped areas*

Cost, yield and benefit parameters	
Total cost/ha (Rs)	16,000.00
Gain in productivity (15% of 1000) (kg/ha)	150.00
NSA (Rs/ha)	250
Additional income (Rs/ha)	37,500
Net income (Rs/ha)	21,500

Fig. 3. Marking of guide lines to help harvesters to achieve quality tapping

Wage hikes for workers result in significant increases in the cost of production. However, similar increases in net sale averages can not be guaranteed. In a scenario where the prices do not increase with increasing costs the management should be in a position to prevent negative cash flows that will erode the return on investments of the investors. To achieve this situation the plantation management needs to be proactive. They need to adopt appropriate agricultural practices upfront to optimize productivity levels so that the cost of production is kept at a minimum level.

Such efforts will enable investors to maximize gains under fair trading conditions whilst being able to face the challenges imposed by wage increases and poor trading conditions. It needs to be emphasized that some commonly adopted management responses like increasing the intensity of tapping, commencement of tapping when clearings are not yet ready for it and curtailing of fertilizer applications are not the answers for improving cash flows in plantations under any situation. In fact such responses are sure to erode the profitability of the investors both in the short and the long run.