

## **BITTER SIDE OF THE OIL PALM FRUIT**

**L M K Tillekeratne**

The bitter side of the oil palm fruit, which in recent media publications referred to as the fruit of the “Golden Crop or the Millennium Crop” was clearly exposed at the seminar organised by the Sri Lanka Association for the Advancement of Science (SLAAS) in April 2002 on the oil palm uproar which has become a big issue in the Plantations in recent times. The presentations at the seminar were made by Dr U P de S Waidyanatha, Chairman CRI, Mr S Srikumar, The General Manager Watawala Plantations, Prof C Panabokke, Retired Professor of Soils Chemistry, and Dr L M K Tillekeratne, Director RRI. The members served in the discussion panel were Dr U Pethiyagoda, Former Director of the CRI, Dr Nihal Samarappuli, Director Research, BOI, Mr L Paranawithana, Consultant to the Rubber Cluster Dr Ms Kodittuwakku of the Environmental Foundation Ltd. and Malcolm Peries, former Director Rubber, of Pussellawa Plantations.

The points raised at the seminar in favour of the continuation of the rubber plantation in the South of Sri Lanka were:

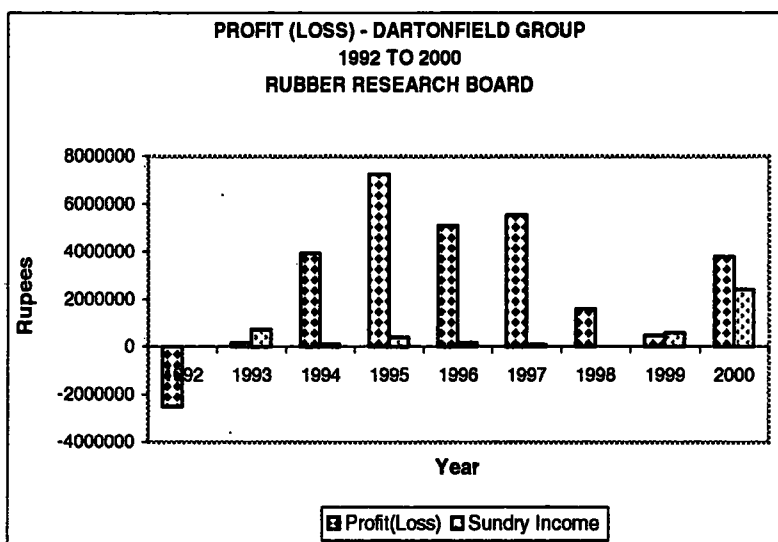
1. Rubber is a known crop existing in this district for over a century and the social life styles of the people living in the district are directly connected with this plantation.
2. From the rubber based industries and from the export of 40% of the rubber production in raw form the country earns over Rs.24 billion annually which is over 4.7% of the GDP.
3. Sri Lanka already has a name in the world market as the sole producer of the latex crepe which is the highest quality grade of raw rubber produced anywhere in the world.
4. As the largest producer of Solid tyres catering to 25% of the world demand.

It was revealed that in Thailand, Indonesia, Vietnam and in some of the African countries rubber industry is a profitable industry because their management of the plantation is more efficient and hence their annual productivity is over 1600 kg per hectare whereas in Sri Lanka the annual productivity in plantations is below 1000 kg per hectare per year and hence the cost of production (COP) of a kilogram of rubber is very high.

Further, the general charges per kilo of rubber in most of the companies in Sri Lanka are over Rs.30 per kg and that is the reason for the estates under the control of

those companies incurring losses. But, by quoting from the COP recorded by the Manager Nakiyadeniya Estate in his newspaper article dated 10<sup>th</sup> February it was shown that the profit made by the Nakiyadeniya estate is over Rs.3 per kg in the estate though it has been reported as Rs.30 per kg loss due to unexpectedly high general charges charged to the estates. Further, the general consensus was that when the economy of the country is so bad, plantation companies must curtail overhead charges as much as possible such as by cutting down expenditure incurred in running offices in Colombo at very high cost.

Quoting from the accounts of the Dartonfield estate owned by the RRI which is one of the average level estates in the district, it was shown that by introducing new technology developed by the RRI it has been possible to lower the COP of Dartonfield estate, thereby incurring profits until today since 1993. The question was raised as to why the privately managed estates too follow the same instead of diversifying crops at very high costs.



### Index

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000
Profit (Loss) (Rs/ha)	(18542)	1188	25280	43395	30517	33514	9684	2548	20491

Productivity levels recorded by the privately managed companies for the new high yielding RRIC clones are given bellow. This indicates that achieving the productivity levels recorded by Thailand and India is very easy for the PMC's with these under proper management.

## Productivity levels achieved

### Individual field level

Estate	Clone	Productivity (YPH, kg)
A'kande	RRIC 100/121	2223
Payagala	RRIC 100	2486
Sorana	RRIC 102	2007
Padukka	RRIC 100	2555
	RRIC 100	2614
Bibile	RRIC 100	2643
	RRIC 100	2779
Dartonfield	RRIC 100/121	2059

The major factors for the low productivity levels reported by the estates are, not applying fertilizers to mature plantations due to high cost of fertilizers, poor stands in mature areas, very high tapping costs incurred by low intakes per tappers and the poor quality of the crepes produced due to central processing of latex in one division where some times there is no adequate drying or milling facilities to do so. It was also noted that the fertilizer requirement to oil palm is far more than in the case of rubber.

### Fertilizer recommendation (mature) (g/plant/yr)

Crop	N	P	K	Mg
Rubber	92	24	100	15
Oil Palm (CRI recommendation)	735	210	1750	218

Hence if the main reason for the plantation management companies to record losses in rubber estates is the high cost of fertilizer, the question was raised as to how they are going to manure oil palm plantations at 10 to 15 times higher cost when they manage oil palm with a marginal profit? Could this cost be covered with the Rs.1.50 per kg profit reported in the CRI report for oil palm. The position with regard to the nutrient outflow per 1000Kg of yield was also of very high concern of the audience present.

## Nutrient outflow per 1000 Kg of yield

Crop	Nature of Product	Nutrient (Kg/ha)		
		N	P	K
Rubber	Dry rubber	9.9	8.9	1.8
Oil palm	Palm oil	64.8	56.8	12.0

From these figures it is clear that the Rubber tree is an ideal machine created by the nature for the conversion of carbon dioxide gas, which is responsible for global warming, into an important industrial raw material while consuming least amount of nutrients in the soil.

It was also emphasized the fact that under the clean development mechanism (CDM) lot of money is paid by the industrialized countries in the world, for growing perennial crops in Developing countries which has the ability to sequester carbon dioxide gas, under the Kyoto protocol. From the data reported in this table, rubber is the most suitable crop for the same. In the case of oil palm, so far useless biomass produced by the oil palm tree has to be destroyed by burning during replanting to prevent coconut beetle breeding in the decaying wood, thereby releasing CO<sub>2</sub> gas back to the atmosphere.

Under the very close relationship built up by Sri Lanka recently with the government of Norway which is the country liable to pay most for carbon sequestration next to USA, a large some of money can be earned by the rubber plantations in Sri Lanka in the future from Norway under the above scheme. But, conversion of prime rubber areas to oil palm will hinder this opportunity for the government of Sri Lanka. The fact that the coconut cultivation in Malaysia has been destroyed by the red beetle, breeding in the trunks of uprooted old oil palm trunks was also emphasized in the presentation.

### Rubber wood

Importance of rubber wood to industries was also a matter of concern to the rubber scientists. Already in Malaysia, rubber wood products earns almost the same amount of foreign exchange earned by the export of raw rubber and rubber products industries jointly. In year 2000, Malaysia has earned US \$ 11.1 billion from rubber wood products exports alone while their total income from the rubber and rubber products exports this year was only US \$ 11.6 billion.

The technology they use in Malaysia in the rubber wood treatment is the technology developed by Sri Lankan scientists. Hence, possibilities of re commencing treated rubber wood based industry in Sri Lanka should also be examined carefully.

When 10-15% of the timber volume of the rubber tree is reserved for the treated wood industry, the balance 85% of the wood available can be made use in other industries. Without rubber wood, those industries will not be able to continue in the future. Out of the 500000 to 800000 cm<sup>3</sup> of rubber wood produced annually by

the rubber-replanting program in the country, nearly 43 % is utilized for tea drying. The balance go for domestic cooking as well as the fuel for bread, lime, brick and tile kilns.

If rubber wood is not available for these purposes they will start felling trees in the limited forest reserves in the country (18.5%), thereby creating a huge ecological problem in the South of Sri Lanka. Electrification of any of these industries is not practical as the electricity tariffs in Sri Lanka today are very high and are may be the highest now, in the South East Asia.

The participants of the seminar and the panellists expressed their greatest concern over the ignorance of socially, economically and ecologically important matters, by the decision makers in permitting oil palm plantation in south of Sri Lanka.

### **Rubber products industry**

The two expert panelists Dr N Samarapulli of BOI and Mr Paranawithana of the rubber cluster expressed their concern over the plight of the rubber-based industry earning Rs.25 billion per annum if the raw rubber is going to be scarce in the country in the future. They reported that the rubber industry was recognized as a Niche industry in 1998 and the Board of Investment has plans to bring in new rubber based industries to the country under the BOI, because highest value addition is possible in the rubber industry which is about Rs.345/kg and it is the highest figure for all the raw materials produced in the country. Hence, they cautioned that, if rubber becomes scarce in the country in the future, not only new investors will not come to Sri Lanka, but also the multinationals who have already invested in Sri Lanka like Loadstar Ltd. and Ansell Lanka Ltd. will pack up and go to other Asian countries for investment. The cluster coordinator raised the question as to why the plantation management companies are not investing these very high investments in the rubber products industry where more profits can be generated while creating more jobs for our youths.

At the discussion an officer dealing with commodity markets at the EDB quoting from the "Public Ledger", which is worlds commodity price report published weekly, indicated that there is a palm oil glut in the world market now and hence the price of palm oil is declining steadily. He further pointed out quoting from the Public Ledger that even Malaysia who criticized Sri Lankan RRI Director's report on palm oil plantation appeared in Ceylon Daily News dated 28.02.2002 is hunting for markets in the middle east for palm oil as the demand for palm oil has vastly declined due to over production all over the world.

### **Present position of rubber industry in Malaysia**

Malaysia reduced their NR plantations vastly during the past decade and hence their total production fell down to 615,000 MT in year 2000 thereby placing them in the 4<sup>th</sup> place among NR producing countries in the world. Hence, in order to cater to their end products industry, now they are importing nearly 30% of their needs from their neighbouring countries. This is not a very healthy situation for a fast

developing country to depend their major industry on the raw materials supplied from a neighbouring country and hence Malaysia now encouraging the oil palm growers to replant rubber in their lands by offering them a higher subsidy of RM 100 over the subsidy paid for replanting with oil palm.

Further, recently the government of Malaysia has appointed a high-powered committee chaired by the Deputy Prime Minister comprising of 4 cabinet Ministers to monitor the successful implementation of the NR replanting policy. In order to accelerate this programme a stimulus package of RM 700 million has been reserved by the government.

### **Use of Crude Palm oil**

A former manager of Lever Brothers Ltd. with 25 yrs experience in the field of using palm oil indicated at the seminar that only refined palm Stearin can be used for edible purposes while only about 3% of the crude oil is used for laundry soap manufacture and hence, there is no point producing crude palm oil without purification. Crude palm oil can never be used for a useful purpose in the country and there is no market for exporting the same. He further added that crude palm oil is poisonous. All the dogs and cattle in the neighbourhood of Nakiyadeniya are loosing hair after eating the factory refuses was also reported.

In response to this Mr Srikumara replied that they have no plans so far to go for a purification plant for the crude oil at a cost of Rs.300 million. But in a future date they will decide to do so when the production is large. The audience raised the question to him whether total palm oil production is sufficient for a palm strain factory to run continuously.

### **Effluent treatment and other environmental factors**

Effluent in the oil palm industry is extremely difficult to treat before disposal to rivers and streams. Some literature reports that the effluent from the palm oil industry is causing problems as much as the total effluent problem caused by the human population in the country. Hence, even the treatment system developed by the RRI for the treatment of rubber factory effluent is not sufficient to treat factory effluents at the Nakiyadeniya palm oil factory and hence they have imported a costly centrifuging machine device from Westfaliya Company, Germany to couple with the RRI treatment plant at a very high extra cost.

Plantation of oil palm cause severe soil erosion and the rate of leaching out nutrients is also very high. Hence, oil palm is generally not recommended for planting in terrains of elevation over 3%. But already, companies in Sri Lanka have started planting oil palm in terrains over 30% in some areas.

Oil palm plantation use pesticides in the field to minimise pest attack unlike in the rubber plantation where no pesticides are used after planting in the field.

Water transpiration in the oil palm (5.5 mm/day) is higher than in the case of NR (4.5 mm/day). Further, during the drought times, the rate is further increases to 7.5 mm/day by the oil palm tree where as rubber tree lower it to (2.5mm/day) to

conserve limited water availability during the drought. In the case of rubber, the tree does this by shedding all leaves during the driest months of the year. Even the latex system play an important role in this affair of controlling water evaporation supported by the waxy layer on the leaf surfaces of rubber. This is the reason why Malaysia does not permit oil palm plantation in paddy growing areas of the country. But both Malaysia and Indonesia can grow oil palm in other areas as they have forest reserves in their countries exceeding 55% of the land area.

Animal population, soil vertebrates and even microbial populations in the soil have been reported to be effected by the oil palm plantation vastly. Hence, based on these observations, the panel of experts decided to request the Ministry of Plantation Industries to do a complete feasibility study of planting oil palm specially in the traditional rubber lands of Sri Lanka, taking into account the social, economic and ecological factors together and request the ministry to reject the preliminary survey report submitted by the CRI after a 2 day visit to the oil palm growing areas and thereby recommending planting up to 20,000 ha of oil palm in the southern province of Sri Lanka.

The CRI Officers also agreed that the survey report submitted by them has been misunderstood by the PRU of the Plantation Ministry as a complete feasibility report.