

Biochar: Can it put the tea industry back in the black?

The answer to this specific question is Unlikely or a definite No, if it is the SL Tea Industry. However, Biochar can **improve crop production, improve quality, reduce the cost of production and improve estate productivity**.

The SL Tea Industry (TI) started with the planting of *Camellia sinensis* almost 150 years ago beginning with the deforestation of lands under natural forest cover. Today there are 190,000 ha in bearing (CBSL 2010) under this crop. Let a plucker demonstrate the art of plucking the green tea leaves and it will be the two leaves and a bud that will be picked. Sri Lankans know this and it is not a secret. What is essential is good made tea and it can be produced with good quality tea green leaves. Then why is this simple method which every tea green leaf plucker is well aware of not practiced in order to produce good tea? The main reasons, I believe are;

1. Average low yields.
2. High and rising costs.
3. Adverse effects of climate change.
4. Reduced demand due to competition from other beverages.

The average low yields can be improved by replanting all the low yielding Tea but, will not be done due to the high investment involved. The other three reasons are beyond the control of the plantation management. What then is the solution to overcome the sad situation on the Tea plantations?.

One is to let small holder growers manage and produce the green leaf as they are obviously better off than the large plantations and already supply 60% of the total production. Second solution is Biochar, which will no doubt show definite improvements. But, is Biochar able to improve the 190 m. ha of Tea in bearing appreciably to put the TI in the black?. Can the SL TI get back in the black with such an improvement?. The big doubt is;

1. What is the total volumes of biochar required and the cost per unit area of land for its application?.
2. What is the total area under Tea to be given this application and how long will it take for the required volumes of biochar needed to be produced?.
3. Are the Tea plantations able to meet this cost of the investment?.

The replanting of Tea has not been undertaken due to financial constraints. Will the application of Biochar have to overcome this same obstacle?. However, Biochar will be able to improve the extent of the best yielding Tea based on the promising results indicated so far. Further, I believe care must be taken not to arbitrarily increase the yields as over production may not be worthwhile improving the yields. I understand that the required annual production in SL to supply the demand is 340 – 350 m. mt. If this is correct, at least the supply needed is known and the goal should be to produce it from the best extent under Tea to achieve the goal of “Putting the SL TI in the black”.

The present SL TI is dependant on the production of green leaves from 190,000 ha. What about the low yielding extent under what is known as Uneconomical Tea (UT)?. Is it to be abandoned or diversified?. If it is to be diversified, with what or how?. Has there

been any worthwhile diversification of UT so far?. Once again, it is a matter of investment and returns.

The TI in SL started with the deforestation of natural forests. If this deforestation has had adverse effects to the country, reforestation with suitable species is one of the obvious solutions to diversify the UT taking into account the capital investment as well as the returns expected. Are there any suitable tree crops and if so, why has this never been carried out?.

Two species that must be seriously considered are *Pentadesma butyracea* and *Garcinia indica* (Kokum). The seeds of both yield a vegetable fat in good demand from globally important major industries. *Pentadesma* is more suitable in regions where the rainfall is high and Kokum even in the dry zone. *Pentadesma* is the more suitable tree crop for the UT and the potential is briefly described below.

1. The species is suitable for afforestation, comes into bearing in five or six years and continue to be in good bearing for well over a century. It can be established on a plantation scale and by small holder growers. It is suited in regions where the rainfall is high. This species is the one that can be established at the lowest cost to obtain the best benefits to the economy and to the environment, which is equally important.
2. The vegetable fat extracted from the seeds with fairly simple technology is a substitute for cocoa butter. The demand for it will be from the cosmetic, food and confectionery industries. It is suitable for the production of biodiesel.
3. When in good production, the yield is likely to be the highest from any species giving a v. oil or fat and will have the lowest cost of production.

The growing of *Pentadesma* will at least partly restore the lands under a good cover of a tree crop, with added benefits of carbon sequestration under CDM.

Identified major companies are willing to buy this fat for the food and confectionery industries as well as for the production of biodiesel if there is sustained production of large volumes of the commodity. The interested companies are from EU, USA and S. Korea.

I must reiterate that while Biochar can improve the better Tea plantations, *Pentadesma* can do the needful in the UT. The result will be an improved SL TI, producing Good Tea with improved economic benefits to the individual plantation and the country as a whole.

“Biochar and *Pentadesma*, together, can put the SL tea industry in the black”. A question mark is not necessary!.

If you care to seek, you will find the truth!.

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