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Cleaner production options for rubber tapping: An economic analysis

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Cleaner production (CP) is a strategy that is applied to the entire production cycle to increase productivity by ensuring a more efficient use of raw materials, energy and water and promote better environmental performance. The study intends to apply CP principles to the rubber plantation especially for the latex tapping and to determine their economic viability.

Rain guard application and early tapping were selected as CP options among the available options. Data collection was done through primary and secondary sources for the Millewa rubber estate in Kalutara District which has extent of 219.60ha. As primary data, latex and scrap from 300 trees in virgin bark and renewed bark trees and 200 trees of intensified trees were collected from 3 tappers within 3 days in 2 months (December and February which provide highest and lowest latex yield in a year). This was based on the number of trees tapped by a tapper per day from each aged tree. For each month, first week, last week and middle of the month was selected to get the average latex amount per month. Primary data related to rain guard establishment was gathered from field officers of Rubber Research Institute during December 2007 to April 2008. Benefits of rain guards which were number of days of tapping that are annually lost on the average (84 days) due to rain were collected from estate records. The cost of rain guards were derived using the adjusted market prices of materials required for rain guard establishment and benefits were derived using market price of latex (1kg) for increased latex amount from increased tapping days.

Finally, a cost benefit analysis was carried out for each option for a 30 year period (the rotation age of a rubber) at 10% discount rate considering the country's interest rates. Variation in prices of latex was not however considered in the computations. Results show that even though both options were capable of increasing latex production, early tapping has provided more benefits than rain guards. A sensitivity analysis also shows the higher positive value for early tapping than rain guard. The results imply that the need for proper emphasis of such cleaner production options at the policy level and promotion of adoption of such practices at the farmer/plantation level. Technical and financial constraints associated with the introduced CP options are also discussed.

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