Abstract submission for a poster presentation

LIFE CYCLE ASSESSMENT OF GUAYULE NATURAL RUBBER PRODUCTION IN EUROPE

Cécile BESSOU[1*], Didier SNOECK[1], Thierry CHAPUSET[1], Fiona JÄGER[2], Sophie MOK[2], Iris LEWANDOWSKI[2], Daniel PIOCH[3], Serge PALU[3], Yannick BIARD[4]

[1]CIRAD, UPR Systèmes de pérennes, pôle ELSA, F-34398 Montpellier, France
[2]Hohenheim Universität, D-70599 Stuttgart, Germany
[3]CIRAD, UPR BioWooEB, F-34398 Montpellier, France
[4]CIRAD, UPR HortSys, pôle ELSA, F-34398 Montpellier, France
[*]corresponding author: cecile.bessou@cirad.fr

Guayule natural rubber may offer an interesting alternative to synthetic or Hevea natural rubbers. It presents unique properties beneficial in both heavy tire and non-allergenic medical furniture productions (De Livonnière, 1997). In temperate regions, guayule is the sole potential source of natural rubber, as Hevea rubber can only be produced in tropical countries. Nowadays, commercial productions of guayule only exist in the USA but recent studies within the EU-PEARLS project framework (Snoeck et al. 2011; van Loo et al. 2012) have proven the technical and economic feasibility of guayule growth and rubber extraction in the European context (Sfeir et al. 2014). In order to further assess the overall feasibility of guayule rubber development in Europe, there is a need to also investigate the environmental impacts or benefits of such a natural rubber source compared to synthetic rubber.

We conducted a comprehensive analysis of guayule natural rubber environmental impacts (1 kg of crude rubber) using Life Cycle Assessment, ILCD 2011 midpoint+ Simapro 8.2 and ecoinvent 3.2, Allocation, Recycled content. We included in the system analysis, all background processes from input production and transportation to the field up to the crude rubber extraction at the mill gate (Figure 1). Data for the field cultivation were taken from 3 field experiments carried out in France and Spain (Sfeir et al. 2014). We also compared the impacts of guayule natural rubber with those of a synthetic rubber provided in the ecoinvent database, Synthetic rubber [RER] production, Allocation, Recycled content. The LCA results will be presented.

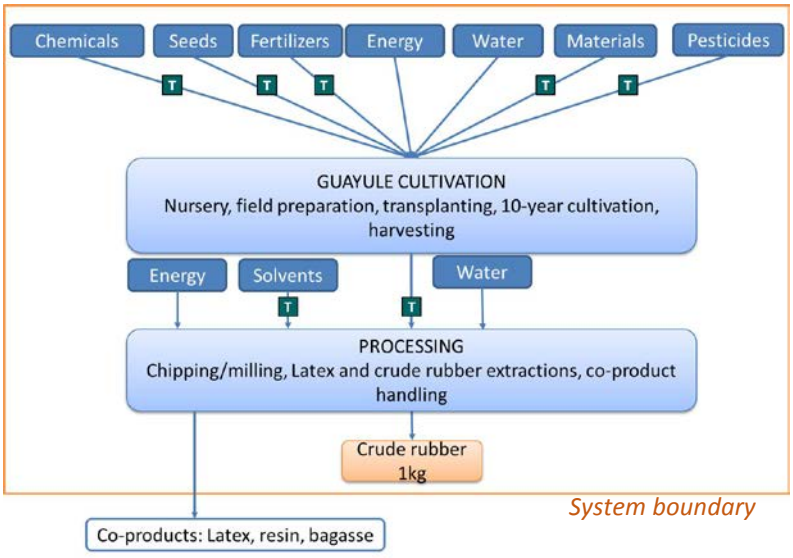

Figure 1: LCA system boundary of guayule rubbre. T: transport

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