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Value chain analysis of utilisation of pineapple residues - a case study from Costa Rica

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Abstract

The management of agricultural waste in pineapple production causes severe financial, environmental, and social challenges for farmers and society in Costa Rica, the world’s leading pineapple producer. Despite research findings on pineapple plant residue (PPR) utilising options, environmentally harmful disposal persists as a common waste management practice. Research on the implementation of large-scale utilisation projects of PPR in Costa Rica is also lacking. Based on a value chain analysis, this study aims to investigate the barriers regarding utilising PPR in northern Costa Rica and address these gaps in research. On this basis, we analyse the pineapple industry network in Costa Rica to derive concrete recommendations for action. Semi-structured interviews constitute the research method of this paper to investigate explicit knowledge. A heterogeneous group of stakeholders from industry and government agencies participate in the interviews. The evaluation of the data follows the methodology of a Qualitative Content Analysis. We find that primary financial aspects pose an obstacle to implementing waste utilisation projects in practice. Other barriers include insufficient mindset, awareness, and lacking knowledge in society about the consequences of PPR management and the necessity for alternative recovery methods. External circumstances regarding inadequate infrastructure and immature technologies also lead to arduous conditions utilising pineapple waste in Costa Rica. The findings highlight the need for targeted policy measures to create an enabling environment for large-scale recycling of agricultural waste from pineapple production. Identified stakeholders from supporting organisations are particularly suitable for implementing these measures due to the extensive connectivity in the pineapple cultivation system. The findings could be valuable in developing an interlocking network to improve PPR utilisation practices.

Keywords: Agricultural waste, pineapple plant residues, waste utilisation