

More sustainable, resilient, and competitive food systems through the development of intermediate food value chains



PRACTICE ABSTRACT No: 23

Life Cycle Assessment (LCA)

The Swiss case study aims to analyze the co-product valorisation and generation of additional added value and enriched value proposition for SMEs. This is done via two sub cases within the Biofruits value chain.

- Alternative cleaning agent (vinegar) via bio fermentation of co-products (pulp from Biofruits) unfit for consumption
- Sharing of equipment to valorise co-products like fruit kernels: piloting a regional scale regenerative agriculture and CO2 sequestration strategy via a pyrolysis-based innovative business model

For the environmental assessment of the two sub-cases, LCA is performed by RISE. It is a standard method which allows quantifying the potential environmental impacts of the entire life cycle of a system (product, production process, value chain). LCA was performed for a current scenario of Biofruits value chain where fruits which are currently unfit for consumption are sent to a local biodigester; BIOFRUIT must pay to eliminate these co-products. Moreover, fruit kernels are not valorised locally nor transparently. A screening level LCA was performed for pits/kernels from Biofruits to investigate different handling technologies (compost, combustion, pyrolysis). In addition, LCA was performed to see the environmental impacts of the current vinegar production by Cogiterre to compare with future vinegar (cleaning agent) obtained from co-product (pulp) of Biofruits.

Various positive externalities are expected from pyrolysis and vinegar to be used as a cleaning agent. LCA will be used to compare the new value chain to the current one and then to quantify environmental benefits.

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End Users

Farmer & Cooperative,
Industry & Retail, Policy
maker, Technology provider,
Consumer

Country

Switzerland



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ABOUT FAIRCHAIN

The FAIRCHAIN project launched in 2020 and coordinated by INRAE, is developing intermediate food value chains in the fruits and vegetable and dairy sectors. Through technological, organizational and social innovations and by developing business models FAIRCHAIN will enable small and mid-size stakeholders to scale up to supply fresh, sustainable and high-quality food products to consumers at a regional level.

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