Bio-Based Technologies

Technologies or practices that use non-food feedstock, circularity principles or both to deliver diverse products

Indicative examples

Energy

- Energy production using fruit tree pruning wood that generates farm-scale gasifiers
- Hydrogen production from pyrolysis and in line steam of agroforestry biomass wastes (e.g. pine wood, citrus wastes and rice husk)
- Biocoke production (commonly used as a substitute for traditional petroleum-based coke in various industrial processes) using agricultural residues (e.g. rice straw, corn stalks, palm oil residues) as feedstocks
- Biogas production from converting farm by-products with farm-scale anaerobic digesters
- Ethanol production from sorghum milling wastes

Animal Feedstock

- Press cake and protein for cattle and pig feed, respectively, using green biorefineries processing grasses and other green leaves
- Animal feed compounds using waste products from olives and grapes

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Soil Management

▷ Fertilisers produced by sheep's wool, which can absorb many times its own weight in water to slowly release it to the soil/plant

▷ Biochar for soil amendment, feed, and other applications produced with pyrolysis from various waste streams

▷ Compost and vermicompost from olive-mill wastewater

▷ Processed natural fertilisers of animal origin (RENURE - Recovered Nitrogen from manure)

▷ Struvite, a digestate with a mineral addition obtained from pig manure

Nutrition

▷ Nutraceutical compounds from stone fruit (pits) waste products

▷ Functional drinks from fresh, cloudy apple juice and bee bread or propolis extract

Business Applications

▷ Straws made of wheat, used as a viable eco-friendly alternative to single use plastic straws

▷ Cosmetics from processing seeds and skins of apples left over during the production of organic apple juice

▷ Material woven by microorganisms from bio-waste consisting of cellulose fibres and/or nanocrystals

▷ Biopolymer trays from tea grounds used as packaging materials (e.g. for storing salmon)

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