

Assessment of current agri-residue management and stakeholder preferences for innovative value chains

Agricultural and food residues provide a large pool of underutilized resources which have the potential to generate additional value (in terms of proteins, biopolymers or other valuable products). This research was aimed at generating a dataset estimating the volumes and compositions of major residues in Europe, together with potential yields to biopolymers, proteins and other value-added products, with the intention of screening the routes with a higher environmental performance. It identified potential market opportunities for innovations creating value from agri-residues focusing on two from the AgriLoop project: polyhydroxyalkanoates (PHA) and extracted or microbial proteins.

Project activity

First, a desktop study identified and quantified residue streams from apples, tomatoes, grapes, potatoes and brewer's grains, and determined the main processing countries for each feedstock. Then, 17 expert interviews were conducted with value chain stakeholders, including partners of the consortium, using qualitative research methods. The aim was to identify: promising residue streams, regional focus areas, relevant applications, business to business markets, safe and sustainable by design (SSbD) criteria and to prioritize pathways.

Key findings and recommendations

Desktop research revealed encouraging volumes of agri-residues for valorization through the AgriLoop project. Stakeholder interviews indicated:

- PHA, PHA-applications and extracted/microbial proteins are promising target products with high market potential.
- Several barriers to production and valorisation exist, including novelty, setup and upscaling challenges.
- Valuable insights were provided on potential valorisation pathways and opportunities.
- Data gaps remain regarding environmental parameters, which AgriLoop is addressing.



Quantifying the unexploited potential of agri-residues is an important step towards meeting the urgent need for sustainable agricultural and food production practices to mitigate environmental impacts.

Where residue streams already have a function in the current system (e.g. as feed, bedding or fertilizer) it may be that valuable compounds can be extracted and the regular application maintained. If not, the economic and sustainability value for alternative and regular applications must be compared.

References

Agriloop project deliverable 1.1: Analysis of the current management of agri-residues and stakeholder preferences and expectations regarding innovative agri-residue based value chains https://www.agriloop-project.eu/wp-content/uploads/2024/05/D1.1_20231130_Ecozept.pdf

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For more information about the AgriLoop Project, visit:

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