



Consortium
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ORGANIC4ORGANIC

Consortium results

Potential benefits and risks of organic waste and effluents for nutrient circularity in organic farming at farm and territorial levels

In the long term, the development of organic farming is dependent on the availability of nutrients, particularly nitrogen (N), which limits agricultural productivity. Organic waste and effluents play a key role, especially because of their ability to close nutrient cycles and improve circularity.

The aim of the Organic4Organic consortium was to develop a systemic approach to understand the different challenges (health, closure, efficiency, consistency, regulations, etc.) at different scales (plot, farm, region) by bringing together the relevant disciplines and identifying new frontiers of science at the interfaces of two continuums:

1. animal - effluent - soil - plant
2. agricultural system - processing - food

The first phase involved pooling knowledge within a multidisciplinary group comprised of members from research and technical institutions during four webinars.



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The results of these discussions, supplemented by a review of the current state of the art, identified 22 levers for closing cycles and optimizing circularity in connection with organic waste and effluent management, including 13 applicable at the farm level (management of storage pits, grazing, agroforestry, fertilizer optimization, etc.) and nine at the regional level (biowaste management, optimization of exchanges between farms, human urine, etc.). Fourteen levers were selected from among them and evaluated using a metabolic flux approach on three typical farms to assess their ability to increase nitrogen self-sufficiency.

Upon completion of this work, the consortium was able to identify research issues related to three scientific areas:

- The development of synergies between crop and livestock farming at the farm and regional levels;
- The potential and complementarity of livestock farming and methanization for the development of legume crops;
- The potential of agroforestry to improve the closure of nutrient cycles (fodder, litter, reduction of losses, impact on effluent distribution, etc.).

The work begun through Organic4Organic continues as part of three research projects, including the MethAB project (METABIO 2024-2025).

METABIO



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