RELACS
IMPROVING INPUTS FOR ORGANIC FARMING

Factsheet
A European roadmap for phasing-in new nutrient sources

The RELACS project has explored pathways for phasing-in alternative sources of plant nutrition in organic farming. These are needed to avoid negative nutrient balances and reduce the dependency on contentious nutrient sources. In particular, RELACS has analysed the opportunities for new technologies to recycle nutrients from waste streams, focusing on three recycled inputs: struvite, anaerobic digestates and calcined sewage sludge ash.

In terms of scientific results, the recycling technologies assessed by RELACS show a good potential to be integrated into organic nutrient supply strategies. However, despite promising research outcomes, the uptake of alternatives by farmers is not straightforward. Therefore, RELACS has worked on:

- Assessing the acceptability of the alternatives by farmers;
- Identifying with stakeholders of the organic sector and EU policymakers the measures that would facilitate the implementation of alternatives in practice.

This multi-actor approach and fact-based dialogue allowed the development of a "European roadmap for phasing in new nutrient sources in organic farming systems", with the aim to propose fair, reliable and implementable rules and agree on a feasible integration of new recycled inputs into organic nutrient supply strategies.

Pathways for reducing contentious nutrient sources and phasing in recycled fertilisers

The RELACS project has shown that the importance of nutrient supply in organic farming has been underestimated so far. Current soil fertility management in organic farms may pose a risk either for soil fertility as indicated by negative balances, or for the environment due to high surpluses. In addition, the 'dependence' on conventional sources may appear low at the aggregate level, but there are significant inter-regional variations, and some production systems remain highly dependent on external sources of N besides biological nitrogen fixation, such as stockless arable and low animal-intensive farms.

Reducing the dependence of organic farms on conventional manure and external nutrients from non-renewable sources may nevertheless be possible in the medium term, but it needs to be well prepared considering potential risks to the soil and the environment. This pathway relies on the recycling of societal waste streams, where recycled fertilisers can help to replace fertilisers from conventional origin to some extent. Matching the regional demand with the local availability of nutrient sources is a prerequisite of this pathway.

Components of contentious nutrient reduction pathway

- Regional approach to nutrient management
- Alternative nutrient sources based on recycling

RELACS policy recommendations for reducing contentious nutrient sources and phasing in recycled fertilisers

- **Reach a common position within the organic sector on acceptable recycled fertilisers for organic production**. Once the organic sector will have a common position, a dialogue should be started with EU policymakers on how to design fair and responsible rules for the use of recycled fertilisers in organic farming. The Integrated Nutrient Management Action Plan that will be presented by the European Commission in 2022 could offer the right platform for this discussion.
- **Adopt an evaluation framework for the compatibility of external nutrient inputs with the principles of organic production**. This framework should provide an overall evaluation, covering fitness for purpose, responsible sourcing, assessment of the production process, and assessment of potential pollution.

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- **Ensure policy support for further research into the recycling of societal waste streams**. Future research should focus on long-term experiments in different regions/climates, to evaluate the effects of various materials on yields, soil and plant health, determine the fate of contaminants, and reduce the source of contamination where it is known.
- **Develop a regional approach to nutrient management,** in order to adapt sourcing strategies to what is regionally available. This includes the mapping of nutrient needs and available resources for a better spatial distribution of nutrient recycling plants, in particular biogas plants.
- **Improve separate household waste collection** to avoid the presence of contaminants in the waste source, facilitate the recycling process, enable better traceability and ensure the safety of the recycled fertiliser and its compliance with the principles of organic production.
- **Invest in the development of supply chains of recycled nutrients from societal waste streams**. Significant financial and logistical support may be required in some cases, as it involves the redesign of waste collection systems. Good infrastructure (transport, storage) is also needed.
- **Develop farm advice on nutrient balances** by increasing the use of 'farm gate nutrient budgets'.

Contribution to the EU Green Deal

While the Farm to Fork strategy sets a target of 25% organic farmland by 2030, it also contains a target to reduce nutrient losses by at least 50%, while ensuring that there is no deterioration in soil fertility. This is supposed to lead to a reduction of the use of fertilisers by at least 20% by 2030. In terms of sustainable soil fertility management, organic production standards demand, as a minimum, that nutrients removed from the system through harvest shall be replaced by biological N-fixation, recycling, regeneration and/or addition of organic materials and nutrients. However, given that considerable nutrient exports are unavoidable, organic farms will inevitably require a degree of import of nutrients . Assessing the potential of recycled fertilisers compatible with the principles of organic, as was done in RELACS, is, therefore, key to reaching the Farm to Fork targets related to organic farming and fertiliser reduction.

Finally, it is important to emphasise that the challenge of soil fertility in organic farming (and beyond) is strongly linked to the expected level of land use efficiency, which is in turn strongly influenced by market constraints and the policy framework.

Link to the roadmap:
https://relacs-project.eu/wp-content/uploads/2022/09/RELACS_D7.5_European_roadmap_Nutrients_202204_Revised.pdf

About this factsheet and RELACS

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RELACS: 'Replacement of Contentious Inputs in Organic Farming Systems' (RELACS) builds on the results of previous research projects and takes far-advanced solutions forward. As a system approach to sustainable agriculture, organic farming aims to effectively manage ecological processes whilst lowering dependence on off-farm inputs. The RELACS partners will evaluate solutions to further reduce the use of external inputs and, if needed, develop and adopt cost-efficient and environmentally safe tools and technologies.

Project website: www.relacs-project.eu

Social media: Facebook (RELACSeu) & Twitter (@RELACSeu)

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