



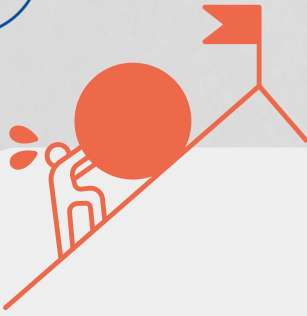
NBS CASE

Ready-for-practice recovered nitrogen and phosphorus fertilisers in Europe

NUTRIMAN was a Horizon 2020 thematic network focused on improving the uptake of mature nitrogen and phosphorus recovery technologies, products, applications and practices in European agriculture. The project did not primarily develop new technologies; instead, it compiled, assessed and disseminated knowledge on solutions that were already close to, or ready for, practical use.

The project connected researchers, technology developers, advisers, farmer organisations, chambers of agriculture and practitioners through a multilingual online platform, EIP-AGRI practice abstracts, training materials, demonstrations and workshops.

For the trans4num NBS inventory, NUTRIMAN is best understood as a European knowledge-transfer and uptake mechanism for NBS-relevant nutrient recovery. Its relevance lies in making circular nutrient-management options more visible, understandable and usable for farmers and advisers.



Challenges addressed by the NBS

- Dependence on mineral nitrogen and phosphorus fertilisers derived from finite, imported or energy-intensive resources.
- Insufficient uptake of nutrient recovery technologies and products that are technically mature and potentially ready for practical use.
- Limited knowledge exchange between technology developers, researchers, advisers, farmers and producer organisations.
- Low awareness among farmers and advisers of recovered fertiliser products and nutrient recycling opportunities.
- Nutrient losses from organic residues, by-products and secondary raw materials that could otherwise contribute to circular nutrient management.
- Regulatory, market and information barriers that affect adoption of recovered fertiliser products.
- Need for practical, multilingual and user-oriented information to support farmer and adviser decision-making.

Which biophysical, agronomic, and farm management implications does the NBS have at field and farm level?

- **Biophysical implications:** Recovered nitrogen and phosphorus products can contribute to more circular nutrient flows when their composition, quality and safety are appropriate for agricultural use. Soil and environmental effects depend on product type, nutrient release behaviour, contaminant levels, soil conditions and application practice.
- **Agronomic implications:** Selected recovered fertilisers may partially substitute or supplement mineral fertilisers. Their practical value depends on nutrient availability, consistency, crop-specific recommendations, application timing and compatibility with existing nutrient-management plans.
- **Farm-management implications:** NUTRIMAN reduces information barriers by providing practical guidance, product and technology descriptions, training materials and implementation examples. Farmers and advisers gain better access to information on sourcing, handling, application, regulatory compliance and integration into fertiliser planning.
- **Value-chain implications:** Adoption may involve cooperation between agriculture, waste management, food processing, technology providers and advisory systems, because recovered fertiliser products often depend on cross-sector nutrient recovery chains.

Which indicators/criteria are used to assess the success of the NBS in addressing the challenge?

- **Agronomic performance:** yield response, crop quality, nutrient-use efficiency, fertiliser replacement value and consistency of product performance.
- **Nutrient circularity:** quantity of recovered nitrogen and phosphorus reused in agriculture and displacement of mineral fertiliser demand.
- **Soil and environmental effects:** soil nutrient status, possible organic matter contribution, nutrient-loss risk, climate impact, eutrophication risk and product safety.
- **Technology readiness and usability:** maturity above TRL 6 where relevant, commercial availability, farmer usability, operational reliability and availability of supplier or advisory support.
- **Economic viability:** product price, transport and storage costs, spreading costs, fertiliser savings, market competitiveness and overall profitability.
- **Knowledge transfer:** accessibility and usefulness of practice abstracts, infosheets, videos, training materials, demonstrations and multilingual resources.
- **Adoption and governance:** farmer and adviser willingness to use the products, producer-organisation interest, legal compliance and policy readiness.

What methods/tools are used for the NBS assessment?

- Compilation and synthesis of knowledge from European research, innovation and industrial practice.
- Identification, screening and prioritisation of mature nitrogen and phosphorus recovery technologies, products and practices.
- Assessment by experts and potential end users, including farmers, farmer associations and producer organisations.
- Development of EIP-AGRI style practice abstracts, infosheets, videos, training materials and multilingual communication resources.
- Online knowledge-sharing through the NUTRIMAN farmer platform and related databases.
- Stakeholder engagement through demonstrations, workshops, knowledge exchanges and dissemination events.
- Collection of practitioner feedback on opportunities, bottlenecks, incentives and adoption barriers.

More about NUTRIMAN

Website: <https://nutriman.net/>

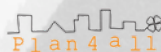
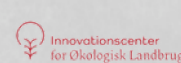
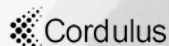
This profile is an independent trans4num synthesis based on publicly available information from NUTRIMAN, CORDIS and related public outputs. It follows the Trans4num NBS inventory framework and does not reproduce original project materials verbatim.

Site and scale of implementation

NUTRIMAN operated at the European scale and targeted actors across agricultural value chains, including farmers, advisers, technology providers, producer organisations, chambers of agriculture and policymakers. While the project itself was primarily a knowledge-transfer network, the promoted technologies and products are relevant at field, farm, regional nutrient-system and market scales.

trans4num is a four-year project funded under the Zero Pollution call as an EU-China international cooperation action on nature-based solutions (NBS) for nutrient management in agriculture.

trans4num ambition is to broadly enhance the NBS implementation in Europe with an integrative and tested multi-level approach, in dialogue with academic partners, practice partners and societal stakeholders.



@trans4num



<http://trans4num.eu>



Funded by
the European Union