



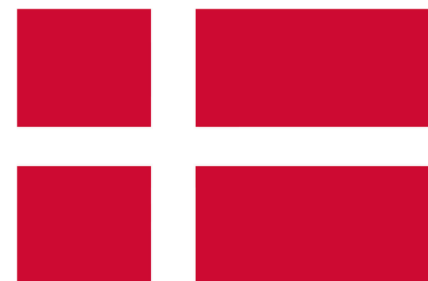
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trans4num in Denmark

Turning nutrient challenges into circular opportunities in the Limfjord region

<https://trans4num.eu/en/>



1. THE CHALLENGE

Balancing food production, local livelihoods, and ecological recovery requires new, practical solutions.



The Limfjord catchment faces some of Denmark's strictest nutrient reduction targets.

Farmers must cut nitrogen losses by 1,500 tonnes per year to protect water quality and meet EU environmental goals.





2. WHAT ARE WE TESTING?

trans4num NBS team is testing circular crop rotations with perennial biomass crops (grass and grass-clover) that:

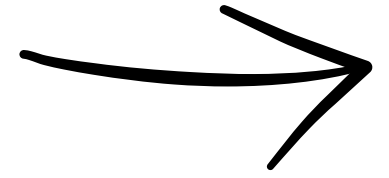
- Reduce nitrate leaching and improve soil health,
- Provide feedstock for green biorefineries, and
- Generate bio-based fertilisers from residual pulp and biogas by-products.

The site also uses nutrient-flow modelling and a regulatory sandbox to explore flexible policy frameworks.

3. YEAR 2 INSIGHTS

- Pilot farms show that perennial rotations can lower nitrogen losses while maintaining yields.
- Modelling tools now offer real-time visualisation of nutrient flows.
- Stakeholder engagement has expanded, linking farmers, biorefineries, regulators, and advisors in joint learning.
- Early policy dialogue has begun around the Green Tripartite Agreement and nutrient trading options.





4. WHAT IS NEXT?

- Testing the Decision Support Tool (DST) with farmers and policymakers to assess trade-offs and nutrient scenarios.
- Expanding the regulatory sandbox to explore incentives for early adopters.
- Integrating social, economic, and environmental data into a unified model to support regional policy decisions.
- Strengthening links with energy and biogas sectors to scale nutrient circularity.

5. WHY IT MATTERS?

The Danish site shows how nature-based and circular farming practices can meet strict environmental goals without reducing agricultural productivity.

By aligning innovation, regulation, and cooperation, the Limfjord region is becoming a living laboratory for climate-resilient, nutrient-smart agriculture – a model for Europe's Green Deal and Zero Pollution ambitions.



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