How can Nature-Based Solutions (NBS) help Dutch arable farmers transition to circular nutrient management?

Results from the Dutch trans4num NBS sites in Kollumerwaard and Ebelsheerd demonstrate that plant-based nutrient management (using green manures, alfalfa pellets, and grass-clover compost) can effectively substitute animal manure or synthetic fertilisers. This approach closes the nutrient cycle, helping to maintain high productivity while protecting water and soil quality in the Netherlands' intensive farming areas.

Our field observations suggest several clear benefits:

- **Plant-based fertilisers** supply organic nitrogen and improve soil biological activity, enhancing soil health and structure over time.
- **Cover crops and green manures** capture residual nitrogen, reducing losses to groundwater and promoting microbial diversity.
- The **NDICEA model** supports farmers in assessing nutrient balances and timing fertiliser applications to crop needs.
- **Workshops and field visits** confirm strong interest among growers in integrating these low-input practices into existing rotations.
- **Yield stability** remains comparable to conventional systems once nutrient timing is optimised, despite reduced external inputs.
- **Combining organic amendments** with precision tools allows better synchrony between nutrient supply and crop uptake.
- Over time, these methods **can help Dutch farmers** meet national nitrogen and phosphorus reduction goals without compromising profitability.

Take-away message

Plant-based fertilisation and circular soil management offer Dutch farmers a credible pathway toward low-input, high-efficiency systems. By combining data-driven tools with practical experience, Trans4num helps turn nutrient recycling into a cornerstone of future-proof, sustainable arable farming.

Learn more about the project at https://trans4num.eu/en/

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Funded by the European Union

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