



Transformation for sustainable nutrient supply and management

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trans4num Newsletter #3

In the previous issue we talked about the work carried out in the Hungarian and Danish NBS sites. If you missed it you can find it here - [trans4num newsletter](#).

In this issue of the trans4num newsletter we will continue describing the work carried out by our partners on the NBS sites. trans4num has research sites in Denmark, Hungary, the Netherlands, and the UK, with additional studies conducted in China by the trans4num China project. We continue today with NBS sites in **The Netherlands** and **The United Kingdom**.

trans4num EU NBS sites

trans4num has selected four European and three Chinese sites. Different NBS innovations will be studied and tested on each site using a multi-actor systems approach designed to define, monitor, and assess the effects of each innovation at the field, farm, landscape and regional levels.

The main innovations studied on the four **European NBS** sites are:

- crop rotation and bio based fertilisers in **Hungary**
- legumes, strip-cropping and agro-forestry in **The Netherlands**
- biomass crops and crop rotation in **Denmark**
- crop rotation, biomass crops and farmyard manure in **The United Kingdom**

Dutch NBS site

The Dutch NBS site in trans4num has two locations where different nature-based solutions are being tested.

- **Ebelsheerd Location:** On this site the winter wheat test fields are nearly harvested and the results will be processed to generate yield figures and crop observations. Construction for the 2025-2026 growing season is ongoing.
- **Kollumerwaard Location:** On this site, the potato trial is in full swing, with observations continuing throughout the growing season.

NETHERLANDS

1. Kollumerwaard
2. Ebelsheerd



Stakeholder engagement

SPNA has organized meetings with farmers to discuss trial field results and practical applications of the research. A meeting was held at the *Ebelsheerd site* to discuss winter wheat trials, attracting around 50 attendees. At *Kollumerwaard* meetings focused on potato trial fields.

Methodologies for trials

- 1) **Conventional Winter Wheat Trial:** Different nitrogen application strategies are being tested with the Bennington variety to optimize fertilization for improved crop performance.
- 2) **Organic Winter Wheat Trial:** The Calgary variety is being used to compare the effects of organic inputs, including bio-fertilizers and organic amendments, on crop health and yield.
- 3) **Potato Trial Field:** The Fontane variety is being studied to evaluate the effectiveness of NBS in protecting seed potatoes from virus infections through aphid control.



Preliminary findings

Soil and crop samples have been collected and analyzed to evaluate the impact of different crop rotations and fertilization strategies. Analyses include soil physical and chemical properties, as well as microbial community assessments. Findings show distinct differences in nutrient content, soil structure, and microbial diversity across the fields, with notable variations between conventional and organic management practices.

Next steps

Initial results from the 2023 sampling and trials have been compiled and analyzed, demonstrating promising outcomes in terms of yield, soil health, and microbial diversity.

Findings have been documented in scientific articles and reports. A new cycle of trials for 2023-2024 has begun, building on the findings from the previous year and incorporating adjusted methodologies.

Dutch Team



[Henk Westerhof](#)



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British NBS site

There are three NBS sites in The United Kingdom: one at Rothamsted Research's main research farm in **Harpenden**, Hertfordshire (north of London), one site in the east of England (**Brooms Barn** in Suffolk) and one at the **North Wyke** research farm in Okehampton, Devon (southwest England).

UNITED KINGDOM

- 1. Harpenden
- 2. Brooms Barn
- 3. North Wyke



North Wyke Site

Field trials faced difficulties due to drought conditions after spring wheat and oat sowing in April 2023, and excessive winter rainfall post-winter wheat and oat sowing in September 2023. While spring crops yielded lower than expected, a harvest was achieved. However, the winter crops failed due to field flooding, leading to plot abandonment.

Harpenden & Brooms Barns Sites

The wet conditions led to the failure of late-sown winter wheat at Harpenden and the discontinuation of this technique. Spring wheat also struggled due to the wet May weather. Wheat crops fared better in the wet conditions at Broom's Barn with its sandy loam soil. Oilseed rape harvest is expected to begin at both sites.



Research Focus and Preliminary Findings

Fertiliser Trial at North Wyke: A replicated block fertiliser trial commenced in April 2023, comparing the effects of standard industrial fertilisers, a farmyard manure and standard fertiliser mixture, and a novel bio-based fertiliser blend on spring wheat, spring oats, and a grass & clover ley. Plant biomass production was assessed, but conclusive results are pending due to unusual weather patterns.

Large-Scale Rotation Experiment (LSRE): This experiment, running from December 2022 to May 2024, investigated the interactions of phased rotations, cultivation methods, nutrition approaches, and crop protection strategies on crop yields at both Harpenden and Brooms Barn. Initial findings revealed a significant cropping system effect on annual system calorific yield.



Stakeholder Engagement

Several stakeholder engagement events, both in-person and online, have been conducted, focusing on themes like soil health, pests, and compost management. The British NBS site, despite facing weather-related challenges, is actively conducting research, engaging stakeholders, and exploring innovative approaches to sustainable nutrient management in agriculture.



ROTHAMSTED
RESEARCH



ROTHAMSTED
RESEARCH

[Dr. Martin Blackwell](#)

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PROJECT HIGHLIGHTS

01

June 2024

General Assembly in The United Kingdom of both project consortia EU and China.



02

June - July 2024

trans4num project present at the 15th IFSA conference, Trapani (Italy)



03

Sept 5 - 7

trans4num project represented at the Sino-German conference, Chengdu (China)



04

Sept 9 - 15

Joint Seminar, Workshop and Field Tour of the European and Chinese Consortia



05

Sept 17 - 19

trans4num present at the Landscape 2024 Conference, Berlin



06

Sept 27

Joint stakeholder conference organised by Econutri, trans4num and PestNu, Thessaloniki



07

Oct 9

trans4num first project review meeting for the first 18 months



08

June - November

trans4num INSPIRE Hackathon



April 2024 - September 2024

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The next issue of the trans4num newsletter will introduce the trans4num China project and the interesting work carried out so far. Make sure you subscribe to receive further updates!

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