trans4num Newsletter #2

In this issue of trans4num newsletter we will dive deep in the work carried out by our partners on the NBS sites. trans4num has research sites in Denmark, Hungary, the Netherlands, and the United Kingdom, with additional studies conducted in China by the trans4num China project. We start in this issue with the NBS sites in **Hungary and Denmark** and a description of the trans4num INSPIRE Hackathon challenges.

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:

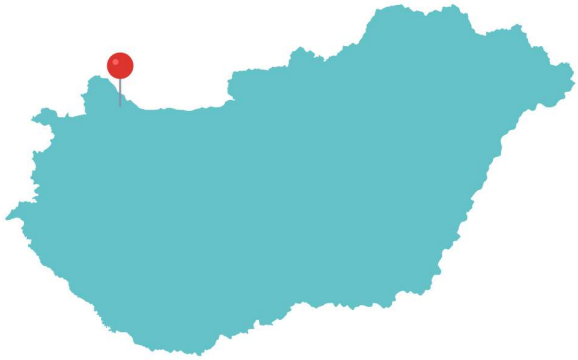
- crop rotation and bio based fertilisers in **Hungary**
- legumes, strip-cropping and agro-forestry in **The Netherlands**
- biomass crops and crop rotation in **Denmark**
- crop rotation, biomass crops and farmyard manure in **The United Kingdom**

Hungarian NBS site

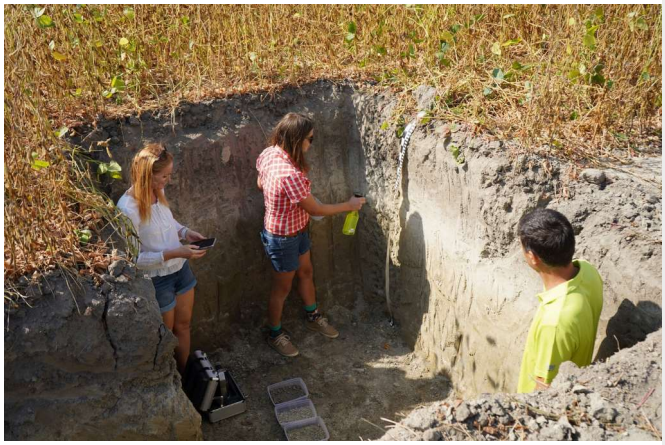
trans4num Hungarian NBS site is located in Kimle, within the Szigetköz region, a Natura 2000 site recognized for its significant nature conservation importance.

HUNGARY

Szigetkoz Region



The **HU NBS** site aims to conduct a socio-economic and agronomic baseline assessment of the site and address nutrient management challenges through field trials, modelling, and expert input. **A key objective is to explore the potential of selected NBS compared to conventional intensive farming systems.**



Field experiments

The Hungarian team is carrying out field experiments on a 20-hectare plot, comparing NBS potentials with conventional farming practices using a **three-year crop rotation of durum wheat, sorghum, and soya**.

Monitoring

Throughout the growing season, continuous monitoring is conducted, including **soil and plant sampling, remote sensing techniques, and CO2 emission measurements.**

Stakeholder Engagement

The NBS site emphasises stakeholder engagement, particularly involving **local farmers**, to share knowledge, gather feedback, and promote the adoption of sustainable practices.

Biodiversity Monitoring

In addition to agronomic trials, the NBS site in Hungary includes **biodiversity monitoring**, specifically ornithological surveys, to assess the impact of NBS on the rich birdlife in the Szigetköz region.

Preliminary findings

Initial results from the first year of the study indicate *no significant differences* in **leaf and soil samples or yield results** between conventional and NBS treatments. However, **significant differences were observed in soybean pod size and the number of beans, with the NBS site showing better results.**

Next steps

The HU team will continue monitoring and evaluating the effectiveness of NBS in the coming years, focusing on refining practices, assessing long-term impacts, and ensuring scalability. Additionally, efforts will be made to engage policymakers and advocate for supportive policies and regulations to facilitate the broader implementation of NBS.

Hungarian Team

SZÉCHENYI EGYETEM
UNIVERSITY OF GYŐR

PANNON-MAG-AGRÁR KFT.

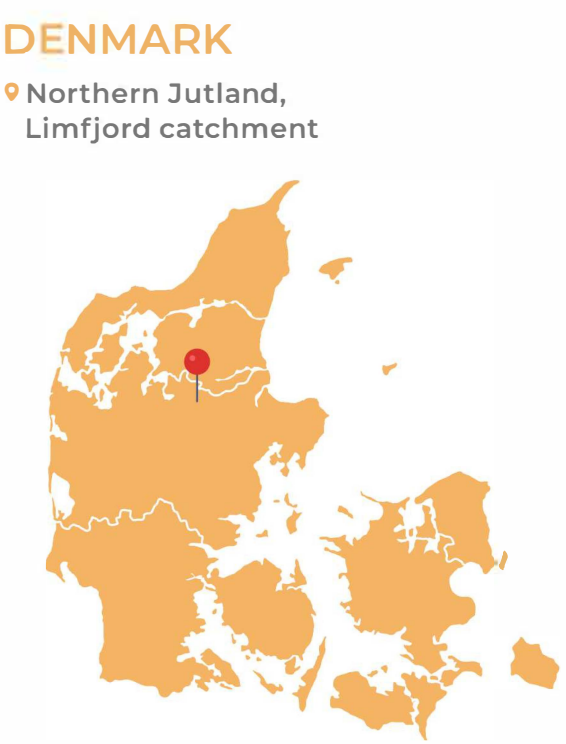
Pisztráng Egyesület

Dr. András Vér | Zsolt Kovács-Csomor | Zoltán Fűzfa

Danish NBS site

trans4num Danish NBS site is situated in Northern Jutland and represents part of the Limfjord catchment, which connects the North Sea and the Kattegat and covers an area of 260,000 ha where approximately 63% is agriculture.

The work on the Danish NBS site is progressing, **employing a collaborative and interdisciplinary approach** that actively involves stakeholders in the co-creation of the targeted transformation.



In Denmark, the **trans4num** focuses on two main NBS approaches:

- **Adjusting crop rotation**: This involves incorporating more biomass and perennial crops, such as grass and grass-clover mixtures, into existing rotations. These crops can be used for biorefinery purposes, producing protein for animals and improving nutrient balances in the soil.
- **Utilizing bio-based fertilizers**: This approach emphasizes the use of organic waste streams, such as manure, to create nutrient-rich fertilizers. This promotes nutrient circularity and minimizes nitrogen loss, benefiting both the environment and farm productivity.

Stakeholder engagement

Interviews with key actors in the NBS value chain (biogas facilities, biorefineries, farmers and regulators) have been conducted. The information collected is guiding the future work and the planning of a major stakeholder workshop scheduled for Autumn 2024.

Preliminary findings

Preliminary findings that assess the economic and environmental impacts of the proposed NBS interventions suggest that incorporating more **grassland into crop rotations could significantly reduce nutrient leaching and improve economic outcomes for farmers.**

Regulatory Sandbox

Klimafonden Skive is engaging with four Danish ministries to establish a **regulatory sandbox**, a controlled environment that allows for the testing of new regulations and policies. This will facilitate the implementation of necessary regulatory adjustments to support large-scale NBS demonstrations.

Next steps

The Danish NBS site aims to make a significant contribution to the development and implementation of sustainable agricultural practices in Denmark by **promoting collaboration, using cutting-edge research, and engaging policymakers** to build a more resilient agricultural sector.

Danish Team

Klimafonden skive

Innovationscenter for Økologisk Landbrug

Cordulus

AARHUS UNIVERSITY

[Anton Rasmussen]

[Morten Birk]

[Anne-Mette S. Langvad]

[Prof. Dr. Tommy Dalgaard]

trans4num INSPIRE Hackathon

Are you ready to tackle real-world problems and join a vibrant international knowledge community?trans4num invites you to collaborate with experts and innovators in solving critical challenges across various sectors!

As a participant, you'll have the unique opportunity to work under the guidance of experienced mentors, gain hands-on experience in innovative problem-solving, and receive a diploma recognizing your active involvement.

Click on the challenges below to find out more and to register for the trans4num INSPIRE Hackathon!

The next issue of the trans4num newsletter will tell the story of the Dutch and British NBS sites, as well as the past and future project events. Make sure you subscribe to receive further updates!

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