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trans4num in Hungary

Farming in harmony with nature in Hungary's Szigetköz delta

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



1. THE CHALLENGE

Farmers need practical solutions to maintain productivity while preserving soil and biodiversity in this sensitive landscape.



The Szigetköz region in northwestern Hungary is an ecologically rich inland delta and a Natura 2000 area, but faces growing pressure from climate extremes, nutrient runoff, and soil degradation.





2. WHAT ARE WE TESTING?

The Hungarian NBS site is testing sustainable crop rotations and soil management systems that include:

- Durum wheat, sorghum, and soybean rotations,
- No-tillage farming to reduce CO₂ emissions,
- Bio-based fertilisers and cover crops to enhance nutrient recycling,
- Sensor-based and drone monitoring for soil and plant health.

The site also integrates education and public engagement, linking research with farmers, students, and citizens.

3. YEAR 2 INSIGHTS

- Early results show lower CO₂ emissions and improved soil structure under NBS management compared to conventional plots.
- Biodiversity monitoring recorded 206 bird species, confirming Szigetköz's high ecological value.
- Farmers participating in engagement events reported greater awareness of NBS benefits and interest in practical applications.
- Data collected from sensors and remote sensing support more precise nutrient management decisions.





4. WHAT IS NEXT?

- Continue multi-year crop rotation trials to assess long-term soil and yield impacts.
- Finalise and deploy mobile educational tools for use in field demonstrations and schools.
- Host new stakeholder workshops and hackathons to co-design sustainable farming pathways for the region.
- Expand data integration for better nutrient and biodiversity modelling.

5. WHY IT MATTERS?

The Hungarian site demonstrates how science, education, and practice can come together to improve soil health, biodiversity, and climate resilience.

By connecting farmers, advisors, and local communities, Szigetköz is becoming a regional model for agroecological transformation, where productive farming coexists with thriving ecosystems.



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