

How can Nature-Based Solutions (NBS) be useful for Hungarian farmers and the neighbouring regions?



Experiences from the Hungarian trans4num NBS site demonstrate that nature-based approaches, including crop rotation, the use of biofertilizers and biostimulants, and reduced-till systems, can play an essential role in making farms more resilient and sustainable.

Our field observations suggest several clear benefits:

- **Improved soil health:** Soil organic carbon and biodiversity respond particularly well to these interventions.
- **Enhanced biological activity:** Combining no-till management with biofertilisers and biostimulants boosts soil life and nutrient cycling. This leads to stronger root systems, better soil structure, and more efficient water use.
- **Reduced erosion and nutrient loss:** These practices help preserve soil fertility and protect the surrounding environment.
- **Greater crop diversity:** Introducing a wider range of crops, especially legumes and sorghum, further improves soil health and stabilises yields under both dry and wet conditions.
- **Long-term resilience:** Although yields may fluctuate during the first years of transition, farmers can expect lower input needs, improved water retention, and more stable production over time.
- **Climate benefits:** By increasing organic matter inputs and minimising soil disturbance, NBS practices reduce soil CO₂ emissions and enhance carbon sequestration in both soil and biomass, contributing to climate mitigation.
- **Knowledge sharing:** Through trans4num field events and workshops, farmers can exchange experiences and learn how to apply NBS methods effectively under Hungarian conditions.

Take-away message

Nature-based and biostimulant-based practices offer practical, science-based solutions to mitigate the impacts of climate extremes while enhancing the long-term productivity and natural capital of agricultural land. For farmers, sustainability thus becomes a tangible advantage, one that strengthens both resilience and profitability, rather than remaining an abstract ideal.

