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RESEARCH PROJECT

MultiCAS

In progress 01/06/2026 → 31/05/2029

Multi-dimensional performance assessment of complex agroecological systems



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Summary

The European agricultural landscape is dominated by industrial monoculture farms, which results in biodiversity loss, rural area homogenisation and environmental pollution. Small-scale farms that are closely integrated into local community networks have the potential to reverse this trend. They can enhance agrobiodiversity, spatial and temporal complexity, producer-consumer relationships and community responsibility. However, their agroecological (AE) performance and contribution to AE transition remain under-explored. Documenting these dimensions is crucial in order to identify and communicate context-specific best AE practices, thus fostering the broad adaptation of agroecology and the bottom-up transformation of the food system.

MultiCAS aims to co-create a context-sensitive, multi-dimensional tool for assessing AE performance and guiding AE transitions. This overarching goal is pursued through five interconnected dimensions:

1. Knowledge integration across environmental, economic, and social sustainability aspects;
2. Participatory co-creation with farmers, local administrations, and consumers using a multi-actor living lab (LL) approach;
3. Environmental assessment of practices at various scales from crop to landscape, taking into account the complexity of the agroecosystem;
4. Economic evaluation of AE value chains and their contribution to resilience and sustainability;
5. Social analysis to strengthen actor engagement and food system transformation.

Integrating multi-perspective knowledge into the agroecology-based assessment tool is key to identifying context-specific criteria for AE practices and performance and developing strategies for AE transition at farm and territorial levels.

Community supported agriculture (CSA) will form the core of the LL approach. CSAs are typically small-scale farms that follow AE principles and are embedded in short food supply chains with close producer-consumer relationships. LL will also integrate other actors such as local administration representatives and policy makers.

Within the LLs, MultiCAS will adapt the Tool for Agroecological Performance Evaluation (TAPE) from the FAO (Food and Agriculture Organization of the United Nations) through a multi-actor co-creation process. The adaptation will focus on the main limitations of TAPE's methodology: lack of contextualisation of the assessment with regard to regional socio-economic and environmental conditions.

Relevant indicators (so-called ParSNIPs: PARticipatory Selected Native Indicators of Performance) will be selected by the actors themselves, in order to reflect all dimensions of sustainability and organisational complexity. By encouraging the engagement of actors in the cocreation of the AE assessment, MultiCAS will improve its applicability and enhance the forecasting of local socio-economic and environmental impact. During the co-creation process, LL actors will develop implementation and scaling-up for AE practices, thereby promoting AE transition at European and global levels. LL actors will be empowered to interact with policymakers to strengthen AE practices, innovations and transition. Improving the uptake and development of AE practices will increase AE and organic production, thereby contributing to the sustainability of food systems and the EU's Green Deal and Farm to Fork strategy climate targets.

Top image: Feldgarten in Bingenheim, Germany. Source: Tom Mühlbauer

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