MEMBER

Discovery LL On-farm and Research Living Lab

Living Lab Discovery LL | Hungary

Discovery Living Lab (LL) is a nationwide Hungarian LL under Discovery Centre Nonprofit Ltd., facilitating agroecological transformation through on-farm experimentation, participatory research, and precision agriculture. By actively involving farmers, researchers, and stakeholders, the lab co-develops sustainable solutions for soil health, climate resilience, and input reduction. Operating across Hungary, it serves as a dynamic ecosystem for real-life innovation, knowledge exchange, and capacity-building. It promotes equal access to resources and local adaptation while fostering circular and solidarity-based economies.

Aim

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Discovery LL aims to accelerate the agroecological transition in Hungary by fostering co-creation among farmers, researchers, and local communities. It supports sustainable land management, promotes biodiversity, and enhances resilience to climate change through participatory experimentation and precision agroecological practices. The initiative works to integrate scientific knowledge and farmer-led innovation, advancing soil health, reducing external inputs, and contributing to more equitable, circular agri-food systems.

Background information

Discovery LL was established in 2019 under Discovery Center Nonprofit Ltd., with the aim of becoming a leading actor in sustainable soil management and precision agriculture in the Carpathian Basin. From the outset, the LL has operated as a nationwide, research-driven, on-farm experimentation network in Hungary, working with over 60 actively involved farmers. It was developed to address region-specific agricultural challenges while integrating participatory methods, precision farming tools, and transdisciplinary research. Discovery LL's foundation was inspired by the need for co-created, real-life agroecological innovations, particularly under increasing climate variability. Since then, it has become a trusted facilitator of knowledge exchange, stakeholder collaboration, and applied field research across diverse Hungarian agro-ecozones.

Funding structure

Discovery LL operates under the umbrella of Discovery Center Nonprofit Ltd., a research-oriented organization with a stable and diversified funding base. Its core funding comes from national and international research and development grants, including Horizon Europe, Interreg, Erasmus+, and Hungary's EIP-Agri Operational Groups. In the past decade, the host organization has led over 20 EU-funded and 25+ nationally funded projects. Additional financial sustainability is ensured through fee-based consultancy services and laboratory analyses provided by LL partner entities like SC-Lab and AgriDron. While project-based funding underpins most operations, the LL's strategic partnerships and co-funding mechanisms with industry actors and public institutions ensure resilience and scalability without dependence on a single funding stream.

Activities

- Design and execution of on-farm experiments across Hungary in collaboration with 60+ farmers under real-life agroecological conditions

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- Co-development of agroecological practices including cover cropping, reduced tillage, biochar application, and organic amendments.
- Participation in and coordination of national EIP-Agri Operational Groups addressing sustainable soil management, dry bean production, and nutrient cycling.
- Knowledge-sharing and capacity-building through farmer workshops, stakeholder trainings, and open farm days.
- Development of digital decision-support tools and precision farming strategies tailored to Hungarian agri-environments.
- Facilitation of national and international research projects with universities, advisory networks, and public authorities.
- Active involvement in agroecology-related policy dialogues and consultation processes at local, national, and EU levels.
- Ongoing collaboration with farmers' organizations, permaculture associations, and scientific institutions to foster circular, resilient, and participatory agri-food systems.

Remote sensing practices for farmers and university students. Source: Discovery Center

Source: Discovery Center

Brainstorming with one of our farmer partners on field. Source: Discovery Center

Field trip with farmers and university students. Source: Discovery Center

Methods, stakeholder engagements and tools

Discovery LL applies an iterative, co-creative methodology rooted in real-life experimentation and continuous stakeholder feedback. Each project follows a four-phase cycle: planning, design, implementation, and evaluation—always shaped by the needs of end users, primarily farmers.

We engage stakeholders through structured focus groups, one-on-one interviews, and participatory workshops. Farmer-led innovation is central to our method: research priorities often emerge from needs assessments with practitioners. Tools such as stakeholder CVs, co-designed field protocols, and decision-support systems ensure inclusion and traceability.

Our governance model blends cooperative decision-making with thematic coordination. Stakeholder feedback loops are embedded throughout the lifecycle of each innovation. Experiments are tested on pilot plots across diverse agroecological zones, supported by our agrochemical laboratory partner and remote sensing infrastructure.

Achievements

- Coordinated 12+ EIP-Agri Operational Group projects, engaging over 60 farmers in co-creating agroecological innovations across Hungary.
- Established a nationwide pilot field network, enabling real-life testing across thousands of hectares under diverse environmental conditions.
- Contributed to the creation of Hungary's national soil database through a feasibility study co-developed with the Ministry of Agriculture and AKI.
- Recognized as a full member of both the European Network of Agroecology Living Labs and ENoLL (European Network of Living Labs).
- Developed open-access training and dissemination tools, including YouTube videos, scientific publications, and workshops for VET educators and farmers.
- Enabled dry bean production modernization through a five-year OG program that integrated climate resilience and market alignment, now continued beyond its funding phase.
- Built a collaborative research environment with Hungarian and international partners (e.g. 4iG, PlanSys, MATE, INRAE, and universities in Morocco, Turkey, and the Balkans).
- Integrated precision agriculture into agroecology through digital tools,

remote sensing, and site-specific experimentation.

Publications

- Living Lab Overview: https://discoverycenter.eu/liv...
- Research Projects: https://discoverycenter.eu/kutatasok/
- ENoLL Member Profile: https://enoll.org/member/discovery-agricultural-on-farm-and-research-living-lab/
- Prepsoil TV introduction of Discovery LL: https://www.youtube.com/watch?v=UYvXVW-FU04&t=2s

EIP videos:

- Cost-optimized soil sampling: https://youtu.be/EuwOd4hAITw
- Updating the cultivation of dry beans: https://youtu.be/tsyOmYEkVgo
- Reduce soil degradation: https://youtu.be/Wdmg5__vCtg

Articles:

- Talajmintavétel és kijuttatástervezés egyszerű módszerekkel a precíziós gazdálkodásban https://mezohir.hu/2020/08/19/talajmintavetel-es-kijuttatastervezes-egyszeru-modszerekkel-a-precizios-gazdalkodasban/
- The Impact Of Various Primary Tillage Methods On The Yield Components Of Dry Bean https://ojs.bibl.u-szeged.hu/index.php/rard/article/view/39234
- A szárazbab termesztéstechnológia fejlesztési lehetőségeinek vizsgálata a Dél-Alföldön https://www.researchgate.net/publication/356175560_A_SZARAZBAB_TERMESZTESTECHNOLOGIA_FEJLESZTESI_LEHETO ALFOLDON_STUDIES_ON_THE_POSSIBILITIES_FOR_THE_DEVELOPMENT_OF_DRY_BEAN.

- Digital soil mapping approach to estimate soil plasticity using georeferenced technical data of tractors Https://ojs.uni-miskolc.hu/index.php/geosciences/article/view/2492?Fbclid=iwar1qjfdzebnslljl_dzb1jn3ymwntxsrk_M-mgou-lknz4hja_cop-gslpa
- Possibilities of accelerated sowing of autumn cereals https://doi.org/10.36713/epra7449

Contact

Website: https://discoverycenter.eu

LinkedIn: https://www.linkedin.com/company/discovery-center-hu

YouTube: https://www.youtube.com/@disco...

Facebook: https://www.facebook.com/DiscoveryRnD

Instagram: @discovery_center_ag

E-mail: info@drdc.eu

agroecology.ps@ilvo.vlaanderen.be

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