AGRI-BIO'DIV

– Organic agriculture and biodiversity: strong links and mutual services to be valued

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Name	Project "AGRI'BIODIV"
Country	France
Biogeographical Region	Atlantic
Region	Hauts-de-France Region
Landscape/ Eco system type / protected area	Agricultural landscapes of the Hauts de France: plains and valleys with a predominance of large crops
Size / Scope	The project perimeter is the Hauts-de-France Region in France.
Type of farm	8 farms, including 7 organic farms, involved in market gardening and sheep and cattle livestock production took part in the project.
Agricultural Use	Field crops, livestock (grasslands)/market gardening
Best-practice/main idea	- Reduced tillage/absence of mineral fertilization and plant protection products; - Links with soil biodiversity
Involved Stakeholders/Partners	- Bio Hauts-de-France (organic farming organization)

	- Terre de liens Hauts-de-France (access to land organization) - Conservancy of natural areas in Hauts-de-France (conservation organization)
Duration	- 2025–2026 - 2027-2029 in preparation
Goals	- Facilitate networking between organic farmers and promoting territorial dynamics; - Evaluate the added value of organic agriculture for biodiversity and identify ecosystem services; - Preserve and restore the biodiversity of partner farms
Activities	An indirect impact of the project is that soil structure and soil organic matter will enhance, resulting in good hydric functioning of the agricultural soils.
Measures addressing water and/or soil management	- Measure and monitor the soil biodiversity of organic farms using 'earthworm' protocols and 'mesofauna – Biological Quality of soils (QBS)'; - Research the link between agricultural practices, in particular the absence of tillage, and soil biodiversity.
Measures addressing biodiversity, climate	- Measure and preserve the overall biodiversity of the project's farms; - Use of land protection tools.
Funding / Financing	The project is funded by the National Funds from the French Office of Biodiversity (OFB). These funds come from the national French budget and are dedicated to biodiversity projects.
Transferability	Possible transfer of the soil biodiversity monitoring methodology (QBS protocol) and earthworm protocol. These protocols can be used on organic or concentional farms.
Tip/suggestion from the farmer	Organic farmers and farm organization are very interested in enhancing soil quality. Do not hesitate to consult them on this topic!
Role of Landcare Associations	- CEN: implementation of farm and soil biodiversity inventory protocols; - Bio Hauts-de-France: implementation of soil protocols.

Further information	More information on: https://www.bio-hautsdefrance.org/systeme_bio/quels-impacts-de-lagriculture-biologique-sur-la-biodiversite-en-region-hauts-de-france/
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"*Organic farmers and farm organisation are very interested in enhancing soil quality. Do not hesitate to consult them on this topic*!"

Matthieu Franquin, Conservatoire d'espaces naturels Hauts-de-France

Project Objectives and Actions for Strengthening Biodiversity in Organic Farming

The project aims to support and empower organic farmers who are committed to preserving biodiversity while enhancing the ecosystem services their practices provide. Organic agriculture already plays a significant role in maintaining ecological balance, but this initiative seeks to further strengthen that contribution by deepening knowledge, encouraging innovation, and fostering collaboration across territories.

One of the central objectives is to highlight the added value of organic farming for biodiversity. By improving and disseminating knowledge on the links between agricultural practices and biodiversity, the project contributes to a better understanding of how farming systems can actively support living ecosystems. At the same time, it seeks to preserve and restore biodiversity in agricultural areas within the 'Hauts-de-France (HDF)' region, where farming landscapes represent both a challenge and an opportunity for ecological resilience.

Another key ambition is to promote territorial dynamics by strengthening connections between farmers and other local stakeholders, including communities, supply chain actors, restaurateurs, and inhabitants. By encouraging dialogue and cooperation, the

project aims to create a shared responsibility for biodiversity and to integrate environmental considerations into local development strategies.
To achieve these objectives, the project is structured around five main actions:

1. Experiment, test protocols and working methods on the 'biodiversity/organic agriculture' link at the scale of farms and territories
2. Carrying out 'biodiversity' diagnostics of exploitation and simplified action plans to improve the reception of biodiversity on farms
3. Support and enhance the commitment of farmers in favour of biodiversity in a territorial dynamic
4. Establish long-term biodiversity preservation on farms
5. Optimize public (and private) policies valuing farmers committed to biodiversity

Key Results and Activities in 2025

In 2025, several important activities and results were achieved, illustrating both the relevance of the project and the strong engagement of stakeholders. Soil wildlife monitoring was conducted across 18 plots, with a total of 108 soil samples collected. These analyses identified 575 earthworms, including 488 endogenic species, as well as 256 micro-arthropods representing 20 taxonomic orders. These results provided the basis for a first analysis of the relationship between soil biodiversity and agricultural practices. They also revealed a strong interest from farmers and agricultural advisors, highlighting the need for further research and knowledge sharing in this area.

Biodiversity diagnostics were carried out on four farms. The findings showed that 41% of the agricultural surfaces had a high interest in biodiversity, compared to 33% in non-organic farms. Farms also featured between 150 and 210 meters of hedgerows per hectare, contributing to habitat diversity and ecological connectivity. Notably, rare and threatened species were identified on all farms studied. These diagnostics enabled the identification of targeted actions to improve the biodiversity reception potential of each farm.

The project also included activities related to land protection, awareness-raising, and knowledge dissemination. A survey and webinar were organized on land management tools, and exchanges took place with stakeholders from the ‘Hauts Avesnois’ territory on the preservation of farmland and bocage landscapes. In addition, farm visits open to the public were organized, along with participation in trade shows and professional exchange events. These initiatives helped to promote the project and engage a wider audience.

Test spade - earthworms

Duration

3 hours per plot (single person).

Dates

January– April (peak activity period earthworms).

Weather

Soil temperature below 12°C.

Soil

Wet, not engorged. Neither dry nor frozen. Little or no stones.

Figure 1: Protocol 'Earthworm Spade Test ©Nolibois M.

Realization

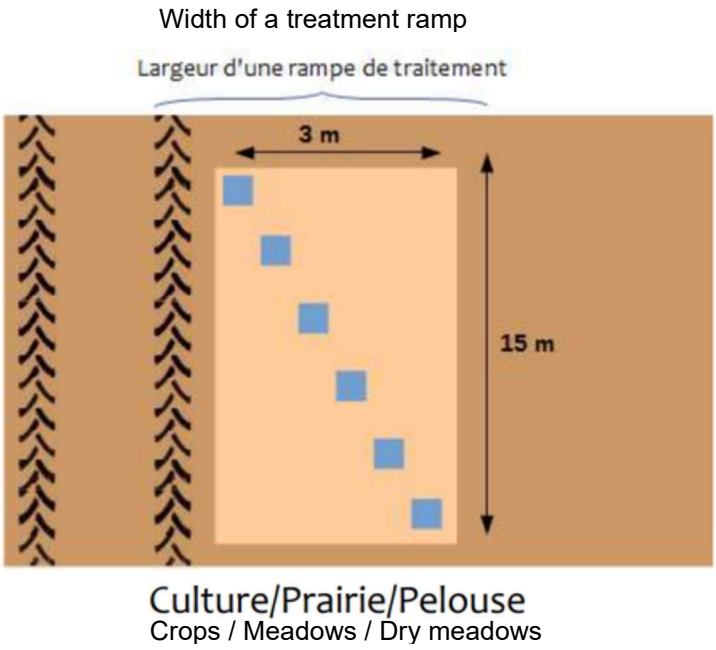

Figure 2: Operating procedure (OPVT - University of Rennes 1, 2025)

First, a 3 x 15 meters area must be defined, representing the inventoried plot as objectively as possible, as shown in Figure 2.

Six soil blocks of approximately 20 x 20 x 25 cm are then removed from the ground one at a time and broken apart, allowing all earthworm individuals present to be counted (see Figures 2 and 3). This should preferably be done in the morning, before any soil work takes place.

The last step consists of classifying individuals by functional groups, thanks to the documents and to the keys provided by the OPVT, and fill in the necessary information on the field sheets (OPVT - University of Rennes 1, 2025)

Figure 3: Protocol "Earthworm Spade test"
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Soil Biological Quality (SBQ)

Figure 4: 'QBS' protocol - Sample collection
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Duration
45 minutes (for one person).

Dates
All year round.

Weather
Not after heavy rains or during a heatwave.

Soil
When the soil is wet but not clogged.

Realization
HARVEST OF SAMPLES

It is necessary to extract 3 soil blocks of 10 cm x 10 cm, to a depth of 10 cm, after clearing away the vegetation cover. Each block is stored separately in airtight pouches and quickly sheltered from heat and light while being treated in the laboratory (see figure 4).

EXTRACTION

The samples must be placed in the extraction module maximum 48 hours after the sampling. They are then crumbled in the device, where any remaining surface vegetation is removed. Composed of a funnel with a fine mesh filter (1mm), halogen bulbs are placed 25 cm above to ensure a brightness and a heat essential for extraction.

Receptacles filled with ethanol are placed below to collect the mesofauna (see figure 5).

Soil quality is then calculated via indicators developed by the creators of this methodology, which gives a score (EMI) to each taxonomic group. Here, the number of individuals (wealth) is not important, what is looked at is diversity.

Figure 5 : Extraction by Berlèze as part of the QBS protocol
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Lessons learned from the 2025 project

First, there is a strong interest among organic farmers, who responded massively to the call for participation. They are increasingly questioning both the functional role of wild biodiversity and their own role in maintaining life on their farms and within their territories. This demonstrates a high level of awareness and a willingness to engage in more sustainable practices.

Second, soil biodiversity has proven to be a relevant indicator of the link between agricultural practices and ecosystem health. However, it remains relatively unknown and underutilized. The acquisition of robust data is therefore essential to establish it as a reliable indicator for decision-making and evaluation.

Third, the partnership between naturalists and agricultural technicians has shown great potential. These two professional worlds, which are often disconnected, can benefit greatly from collaboration. Farmers themselves play a key role as intermediaries, facilitating the exchange of knowledge and practices between these fields of expertise.

Finally, the sustainability of biodiversity-related actions on farms remains a complex issue. It is closely linked to broader challenges, such as access to land for young farmers who wish to establish biodiversity-friendly systems. Addressing these structural issues is essential to ensure long-term impact and to support the next generation of farmers.

Overall, the project demonstrates that organic farming can serve as a powerful lever for biodiversity preservation when supported by knowledge, collaboration, and appropriate policies.

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Water~Farmers

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