

➤ AMDORE

Tools for restoring biodiversity on farms: improving a results-driven approach

BIOSEFAIR Metaprogram

Project summary: 2024 - 2026

January 2026

Halting the erosion of biodiversity in agricultural environments requires the development of approaches and tools that enable farmers and agricultural collectives to take ownership of this issue and manage it more effectively. The ADORE project developed a biodiversity management approach for farms that gave a free hand in deciding what they wanted to do to conserve/promote biodiversity, steering these projects with a “results-based approach”. However, the dissemination of this method could be limited by 1) the commitment of farmers or agricultural collectives to the approach and objectives of biodiversity conservation/restoration and 2) the choice of the most relevant indicators for monitoring the results of actions taken to conserve/restore biodiversity.

The AMDORE project proposed to take this approach further by addressing the methodological elements that enable biodiversity management to be positioned as an

objective for farmers or agricultural collectives. In particular, it sought to test methods for integrating a collective design stage for biodiversity issues.

The project was set up within the Animal Physiology Experimental Unit of Orfrasière (UEPAO, INRAE Centre Val de Loire, Nouzilly site). This unit is structured into five teams that constitute autonomous collectives. Two teams participated in the process (the “equine” team taking care of the horses and the farming team dealing with the crops). The process was structured in three iterative stages based on the Knowledge-Concepts-Proposals (KCP) method (Elmqvist and Segrestin, 2009).

During the first stage, each team member explains the concept of biodiversity in their own way, then a collective choice is made regarding the biodiversity elements to be worked on.

In the second stage, a workshop is held to share knowledge on the biodiversity elements selected in stage 1 and discuss the knowledge, leading to the selection of actions to be taken, objectives for the year and measures to be done by the teams themselves.

The third stage involves reviewing the results, analysing them in relation to the objectives set, and defining new objectives and actions for the coming year.

This iterative process was implemented over two consecutive years for the equine team and over a single year for the farming team. An analysis of the equine team's feelings about the process was carried out as part of an internship.

The biodiversity targeted focused on species considered harmful (coypu, corvids, flies/horseflies and wasps, etc.), heritage species (swallows and bats), ecosystem functions (degradation of organic matter and shade on pastures) and overall biodiversity by increasing the mowing height of pastures.

The actions undertaken were aimed at monitoring and assessing the presence of a harmful species (coypu), installing nest boxes to encourage the establishment or maintenance of heritage species (swallows and bats), measuring the initial state of ecosystem service support functions (soil microbiological activity and shade measurement) and validating a cutting height that limits damage to biodiversity during mowing. While some actions did not achieve the expected objectives (non-use of nest boxes), others helped to change perceptions of harmful biodiversity (impact of coypu) and validate previously implemented practices (mowing height and soil biological activity).

Analysis of the approach showed that the initial functioning of the groups and the presence of a third-party advisor (network engineer) who maintains interest in the approach and in biodiversity encourages the teams to embrace biodiversity as a shared element and to invest in it.

Detailed results

We chose to work with two teams from UEPAO: the team that looks after the herd of horses and donkeys (equine team) and the team that manages the cultures and crops (farming team). Several participatory workshops were offered to both teams.

These two teams were already aware of biodiversity issues, as the plots they manage are used for biodiversity inventories (the equine team in particular) and they are already considering the implementation of agroecological infrastructures (creation of a buffer wetland for the farming team).

For the equine team, five workshops were held between December 2023 and December 2025.

During the first workshop (December 2023), each team member was asked to explain what the concept of biodiversity meant to him/her. A moderator ensured that each team member had the opportunity to express his/her view on this concept and present his/her point of view. At the end of this first round of discussions, each member was invited to list on post-it notes the biodiversity issues he/she would like to see addressed by the group. These ideas were then pooled. In order to prioritize the biodiversity issues on which to take action, each team member was invited to vote on the biodiversity ideas mentioned by the participants by placing a number of tokens of their choice (out of 9 available tokens) in “ballot boxes” (one ballot box per biodiversity idea listed above).

At the end of this prioritization stage, five biodiversity objectives were selected: 1) Assess the presence of coypu, which are vectors of disease for livestock and staff, and promote their control; 2) limit flying insects that are a nuisance to livestock and staff by protecting bats, which are already present on the site, and limiting their “nuisance”; 3) limit flying insects that are a nuisance by promoting the presence of swallows, which are currently absent; 4) Increase the mowing height to preserve wildlife, 5) Plant trees in pastures to create shaded areas for livestock.

At the end of this first workshop, the project members created simplified fact sheets on the selected species/species groups and distributed these sheets to the equine team members ahead of the second workshop.

In February 2024, during the second workshop, these sheets were shared and discussed with the equine team members. The discussions helped to clarify the objectives to be achieved and the measures to be taken (indicators) to ensure that the objectives were met.

In October 2024, the third workshop provided an opportunity to discuss the results observed on the plots and the approach. All five team members were present. Everyone appreciated the approach and said they had learned a lot, even though not all the objectives had been achieved. The whole team wanted to continue in 2025.

In March 2025, a new workshop cycle was initiated. The team was asked to collectively rethink the biodiversity targets for the new year. They wanted to continue the actions already underway, but did not envisage any new actions due to lack of time.

Finally, interviews were conducted in June 2025 with each member of the equine team individually, and a final workshop in December 2025 provided an opportunity to take stock of the two years.

At the end of these workshops, team members reported that their view of biodiversity had changed from one of “biodiversity as a nuisance” to a more comprehensive and positive view of biodiversity. They also reported that biodiversity conservation is now considered more broadly in their work. Individual interviews showed that the approach was appreciated, particularly because the choices were made by the team members themselves, who were “in

control” and were able to take ownership of “their biodiversity”. Biodiversity thus became a unifying force for the team. This ownership was made possible by the team's initial smooth collective functioning, shared leadership and the presence of a facilitator who interacted frequently with the team and acted as a network engineer. This position facilitated and maintained interest in the approach and in biodiversity.

Three workshops were held for the farming team.

In January 2025, during the first workshop, each team member was asked to explain what the concept of biodiversity meant to him/her, using the same methodology as before. The biodiversity identified mainly concerned species considered to be pests or beneficial (wild boar, pigeons, corvids, pollinators), soil functioning and agroecological infrastructure (flower strips and wetland buffer zones).

At the end of this first workshop, simplified information sheets on these topics were distributed to the farming team members.

In February 2025, the second workshop enabled the team to choose biodiversity management objectives, the means to be implemented and biodiversity indicators. Two objectives were chosen: 1) to assess soil biological activity in five plots using Levabag¹, 2) to establish flower strips. Several projects were discussed, particularly in relation to managing damages caused by wild boars, pigeons and crows, but they were not selected due to the time required to implement them, their perceived lack of effectiveness by team members and constraints on the team's practices.

The third workshop took place in November 2025 to report on the actions taken. Only the installation and collection of Levabags were carried out in 2025. The locations for the flower strips were chosen, but they will not be installed until spring 2026. Despite the low turnout of team members at this workshop, it was proposed to consider new actions. The team proposed to replace Levabags in 2026 on the same plots and to install flower strips; no other actions were considered.

Definition of concrete actions and biodiversity indicators to be measured

The approach was first implemented with the equine team, which was already monitoring biodiversity on several plots as part of the Agricultural Biodiversity Observatory. The actions chosen by the team focused on the buildings and plots they manage:

- 1) conducting morning and evening counts of the number of coypus seen on a pasture plot considered to be heavily frequented by this species, contacting the trapper to find out the number of animals trapped, and placing information leaflets on coypus and associated diseases for equines at key locations on site (near ponds and the restaurant);
- 2) installing nesting boxes for swallows under a straw shed and monitoring their presence/absence in the nests during trips to the restaurant;
- 3) installing nesting boxes for bats to encourage them to settle outside the insemination building where they leave droppings and monitor the presence/absence of droppings;

¹ <https://www.levabag.com/>

4) Measure mowing height and record damage to wildlife for two plots (20 measurements per plot).

5) Sketch shaded areas on a grazed plot to estimate tree cover on the periphery and consider planting “parasol” trees for the horses.

All indicators were monitored during the year, with the exception of shade due to poor weather conditions this year.

Two actions were chosen by the farming team during 2025. The Levabags were installed in April 2025 on four plots of the site, and the team wished to continue this assessment of soil life in 2026. The results and analysis are sent directly by the LEVA laboratory at ESA in Angers. The locations for the flower strips have been chosen, and several small plots have been selected on the site, but they will not be planted until spring 2026. Finally, the team has proposed purchasing a bird scarer to limit the presence of corvids and pigeons on the plots without impacting the site's biodiversity.

Impact of the project

The project had numerous impacts on biodiversity conservation at the INRAE site in Nouzilly, as several biodiversity initiatives have been launched and will be continued: installation of swallow and bat nesting boxes, increase in mowing height, involvement of teams in a micro-copse planting project, sowing of flower strips.

The benefits in terms of the two teams' ownership of the approach vary from one team to the other. The members of the equine team have taken ownership of the approach, have undertaken several actions that they have completed and plan to continue, and have clearly expressed their enthusiasm for what the project has brought them in terms of experience and knowledge. The members of the farming team only undertook two actions due to their workload and constraints on their practices, and did not clearly express a desire to undertake new actions.

Scientific perspectives

A wealth of data was collected during various workshops with the two teams and during individual interviews with the equine team. The data on the workshops comes from notes taken during the workshops by three observers and by the workshop facilitators. Transcripts of the interviews are also being analyzed.

Initial findings suggest that the approach aimed at promoting ownership requires certain initial conditions, in particular the presence of a network engineer and shared leadership within the group. Nevertheless, it seems that the proposed method changes perceptions of biodiversity, as can be seen from the evolution of the vocabulary used by participants.

The analysis of the data collected must continue in order to refine these initial results and go further.