Topic

Environment, Society friendly

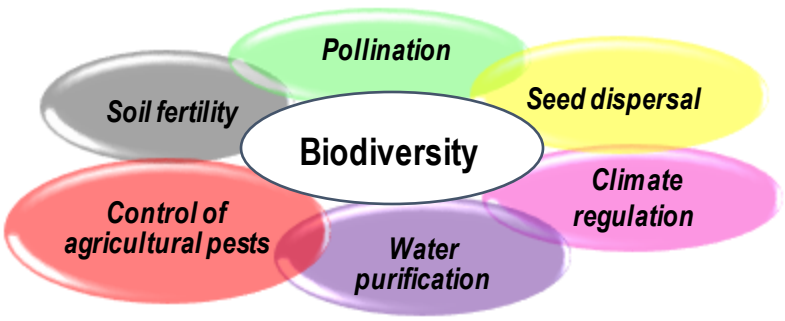
Biodiversity monitoring – A way to assess the impact of farming practices on ordinary biodiversity

Background

Across Europe multiple evaluation processes assess the impact of farming practices on ordinary biodiversity, using indirect indicators. Through an inventory of agricultural practices and agroecological structure, conclusions can be made on the impact of the farm on ordinary biodiversity. This allows for farmers to talk about biodiversity within a structured framework through the example of their farm. Within the dairy chain, tools are available to effectively use these processes to set up an action plan to preserve biodiversity on and around the farm.

① Why looking after biodiversity on farm?

Biodiversity provides crucial services to agriculture. Below are some examples :



Due to their influence on lands and landscapes, farmers can have a key role in preserving ordinary biodiversity.

② How do evaluation processes typically work?

On the farm, qualitative/quantitative data are collected via (semi-structured) interviews with the farmer, use of actual farm data and agroecological structures (AES) such as hedges, bushes, streams are measured on the farm field pattern. Within different monitoring systems, different indicators can be identified that matter or are assessed. Below are typically occurring indicators:

AES management	AES spatial organization	Agricultural land use
Emissions and mineral losses	Crop management	Impact of imports
Herb rich grassland	Soil fertility and management	Permanent grassland management

③ Which kind of individual results?

Figures for each indicator will be produced, with an **evaluation** (favourable, neutral, unfavourable for biodiversity). Individual results are given farmers in individual reports, with a comment for each major type of indicators, and a conclusion.

④ How to use the results?

Target setting, monitoring and certification: within programs, farmers may be able to set short- and long-term targets with regards to improving biodiversity. These can be established through a base assessment and monitoring over time. In case packages have been defined for specific biodiversity aspects (see box 2), certification only applies if specific conditions are met.

Individual advice: adjust agricultural practices to improve effects on ordinary biodiversity, for example: rebuild connections between AES (especially around livestock buildings), trim hedges and forest margins less frequently, delay mowing of some natural grasslands, cultivate more species,

Scenario benchmarking: farmers are able to compare their farm's results to those of other farms

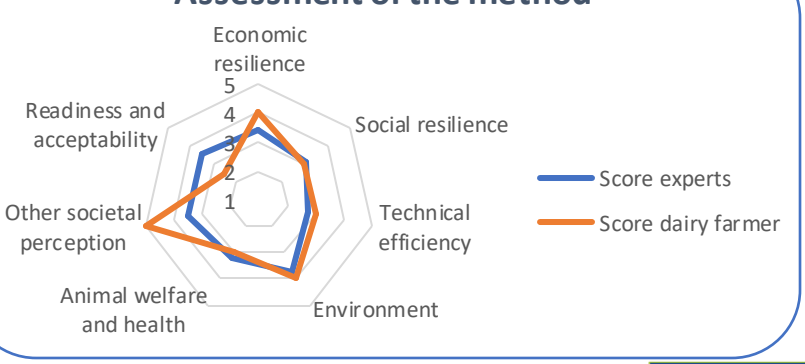
Facilitation for farmers group : discuss, share feedbacks on practices, set up action plans at territory scale.

Fore more information about available tools: french tool BIOTEX, Dutch system: Dutch Biodiversity Monitor

Quote of a farmer:

"We will keep doing things the way we have always done them, but with biodiversity of our farm in mind"

Assessment of the method



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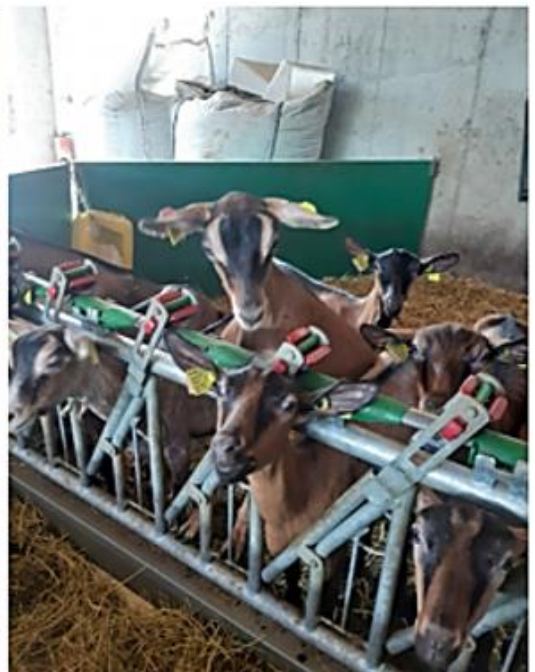
BIOTEX – A way to assess the impact of farming practices on ordinary biodiversity

Appendix : Example of the two first pages of an individual report

GAEC of A.B.
Visited on 17/07/2023



My farm

District : Saint Romain de Popey (69)
PRA: Monts du Lyonnais
Altitude: 465 m
Farming system :Multi-crop and mixed farming
45 dairy cows
162 ha of UAA

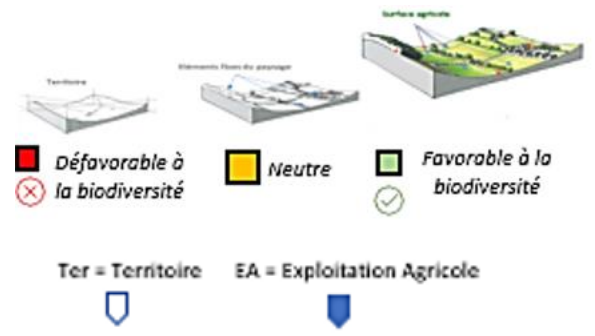
Background

2006: A. B. on a highly diversified farm
2007: Set up of his wife on the farm. Construction of a goat house and cheese factory (start of the goat workshop)
2013: retirement of A.B.'s father, partnership with his mother. Stop growing vegetables and increase of goat herd.
2019: start of barn drying and a small cutting workshop.
2020: installation with S. (neighbour). Consolidation of dairy herd and takeover of free-range laying hens free-range laying hens (80 before and 250 now, sold directly on farm). Development of the veal calf workshop. New producer shop to sell milk-fed calves.

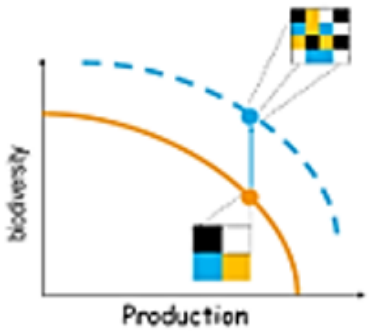
Valorization of products through various short-distance outlets [3 markets, 2 producers' shops, grocery, restaurant, farm sales, etc.].

Assessment Results

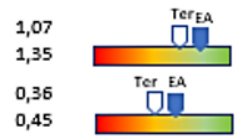
The aim of the approach is to develop ordinary biodiversity at different scales (territory, fixed elements of the landscape and farm). It integrates the components that interact on ordinary biodiversity and is based on the use of indirect indicators that stimulate ordinary biodiversity



Use of agricultural land: the landscape mosaic to promote species resilience



The diversity of land use in cultivated areas provides resilience for wildlife species on an annual basis. The effects of aggressive farming practices on the fauna species that live there are limited when the crop mosaic is diversified



The area in which the farm is located is fairly diversified, with over 70% permanent grassland. The area is considered to be favourable to biodiversity, since the plant species present in the meadows are often diverse, and attract a variety of wildlife. The abundance and diversity of species in this area are therefore sufficient to maintain them. The GAEC of A.B. is a reflection of its region, with a high level of diversity and 71% of its UAA in permanent grassland. It should also be noted that this farm is more diversified than its area, enriching it with plant and animal species.

Spatial organization of the agroecological structures (AES) at the level of agricultural landscapes

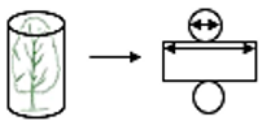
AES are main composites of a landscape. They are refuges and propagation's space for every species. Moreover, they're playing an important role on the particularity of each landscape's territory. That's why, the presence of biodiversity in agricultural space is very dependent of the density, diversity, quality and connectivity of the AES.

1. Density of AES

Density of AES in landscape : 96% Density of AES on the farm : 97%

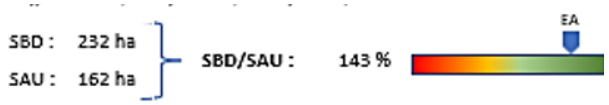
The territory on which is situated the GAEC of A.B. is maintaining a lot of habitats for the biodiversity and their linked are very good. This farm is at the image of it's territory, with a density and a connectivity of AES close of it, even a little superior to it.

2. Landscape heterogeneity : the signature of the number of species that can be accepted



Number of hedges : 2

The surface of developed biodiversity by hectares of SAU is reflecting the landscape's complexity of the farm. This indicator reflects the capacity of the farm to welcome a lot of different species.



The surface of biodiversity developed by A.B.'s GAEC is high, which is favorable to the general biodiversity. The farm is maintaining a lot of natural habitats on it's land, which allow wild species to find a place to be in security to reproduce, feed and sleep.