



**SOURCEN**

*Project results*

Exploratory project  
2022-2024

### **Coordination**

Daphné Durant  
UE St-Laurent-de-la-Prée  
daphne.durant@inrae.fr

Sandra Novak  
UE Ferlus  
sandra.novak@inrae.fr

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## **Exploring resources derived from the natural capital of farms for the feeding and health of ruminants in organic agriculture**

In a context of global population growth, major climate uncertainty and declining biodiversity, there is an urgent need to rethink feed resources for animals in ruminant livestock farming. The use of new plant resources may be an alternative. SOURCEN explored the extent to which atypical resources derived from the natural capital of livestock farms could be mobilized in terms of forage supplementation and "health value", without compromising their sustainability and their role as habitats for biodiversity.

Three types of resources from four INRAE experimental sites and two farms were evaluated: aquatic or wetland plants, plants from interstitial environments (woody formations, orchard grass cover), and marginalized natural grasslands. From a nutritive value perspective:

- Duckweed and azolla appeared to be palatable to cows and could supplement their total nitrogen intake in winter when cows are fed hay from natural grasslands;
- Woody leaves were attractive forage resources due to their contribution in energy, nitrogen, minerals and condensed tannins.

**METABIO**



Contact METABIO  
metabio@inrae.fr

## INRAE units

**Saint-Laurent-de-la-Prée**

**FERLUS**, Lusignan

**ASTER**, Mirecourt

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## Partners

Conservatoire Botanique National de Brest (CBNB)

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From the point of view of health value:

- Concentrations of secondary metabolites and antioxidant capacity differed considerably between resources;
- Certain tree leaves (e.g., black locust) were sources of secondary metabolites and antioxidants.

Further trials are necessary to confirm their benefits for animal health and the quality of milk and meat.

A second phase of the project analyzed the use of atypical resources, derived or not from the farmland in question, on four livestock farms: wooded areas, abandoned wet meadows and moors, roadsides, and including vegetation in flooded and/or aquatic environments. An analysis of nitrogen flows shows that these resources can substantially contribute to the autonomy of the systems, either through grazing (during summer droughts) or through winter stocks of fodder or litter. However, their use requires farming practices that allow for their renewal. Animal learning must also be taken into account since animals are not always attracted to trees, for example, when they are first introduced to them.

**METABIO**



Contact METABIO  
[metabio@inrae.fr](mailto:metabio@inrae.fr)

