Assessing ecosystem services provided by livestock farms in upland areas in the French Massif Central

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What were our objectives with DIAM?

- Underline the importance of the **GRASS RESOURCE** and grasslands diversity within farm

- Give a **NEW VISION** of livestock breeding shared with farmer and all the partners

How DIAM works?

Agricultural services

- **Yield**

- **Production seasonnality**

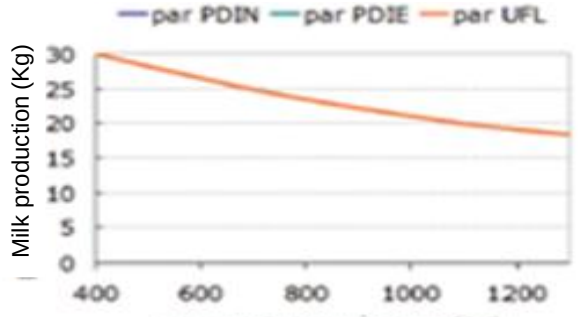
At 400 °C 60% of grass are vegetative
At 800 °C 80% of grass culms above 10 cm soil level

- **Forage nutritive value at 500°C**

- **Management flexibilty**

- **Allowed milk production**

(milk production allowed at grazing, with a diet intake from 16-20 Kg MS/day for a standard dairy cow)



thermal time (degree day, C)

Environnemental services

- **Carbon storage**

- **Patrimonial interest (botany)**

- **Florewing color diversity**

- **Pollinisation impact**

- **Fauna interest**

Cheese quality services

- **Organoleptic potential**

Color 4/4

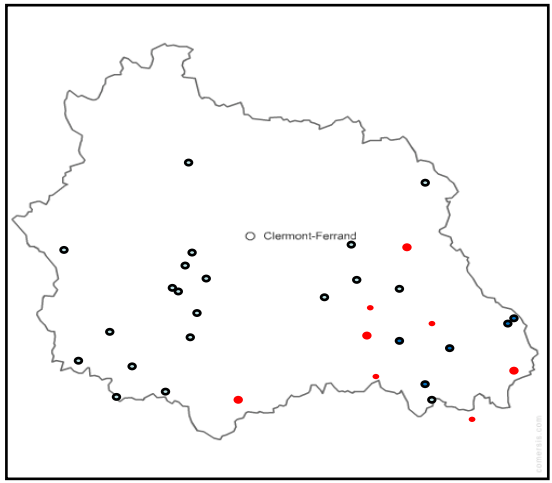
Flavor 1/4

- **Nutritional potential**

Antioxydes 3/4

insaturated fatty acids 3/4

DIAM has been tested on a group of 36 farmers

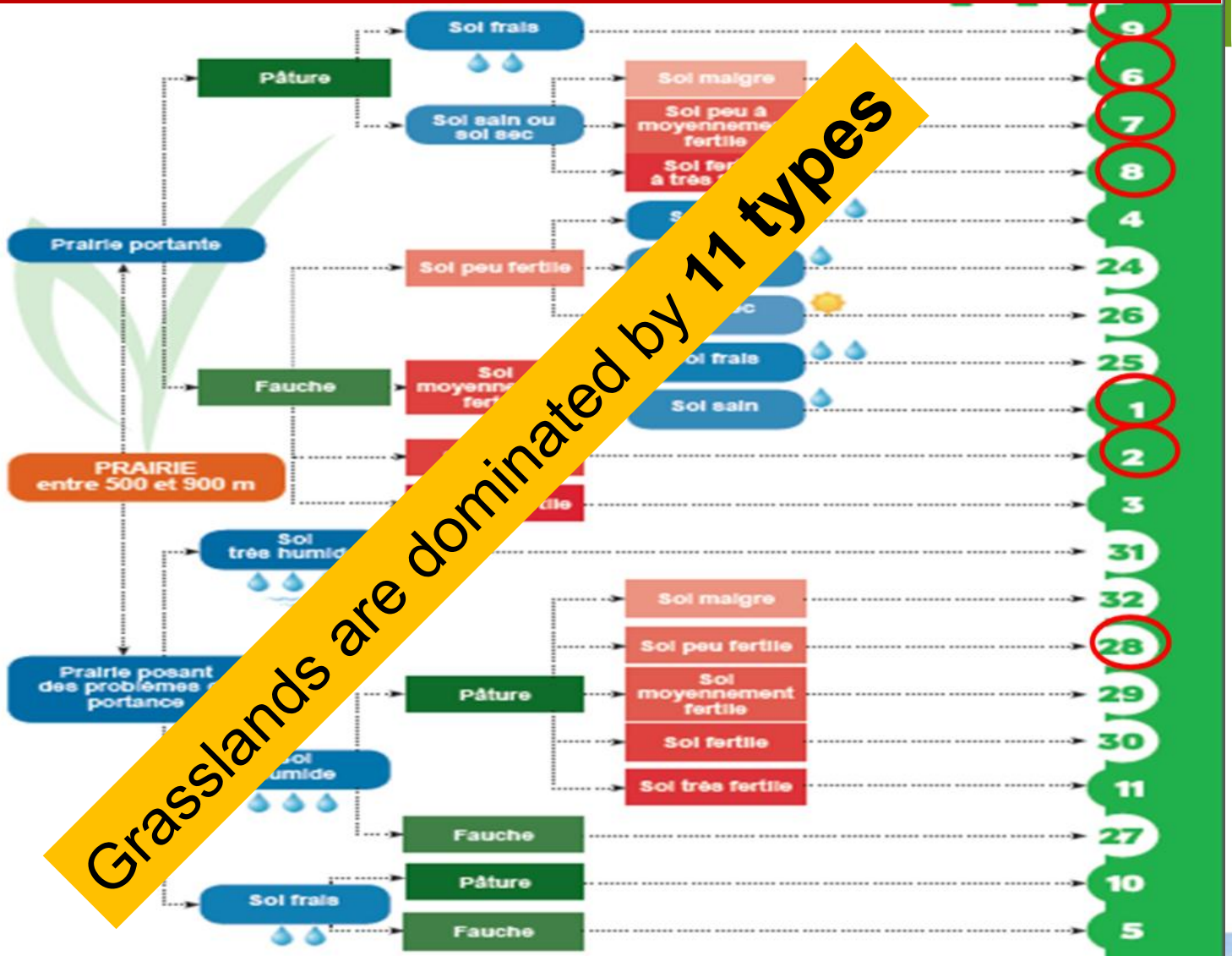


- Half are engaged

in **local food supply chains**

- A quarter are **organic farmers**
- Two third of the farms are **oriented towards dairy cows**
- All are **grass-based** systems

KEY 1 - Grasslands between 500 and 900 m



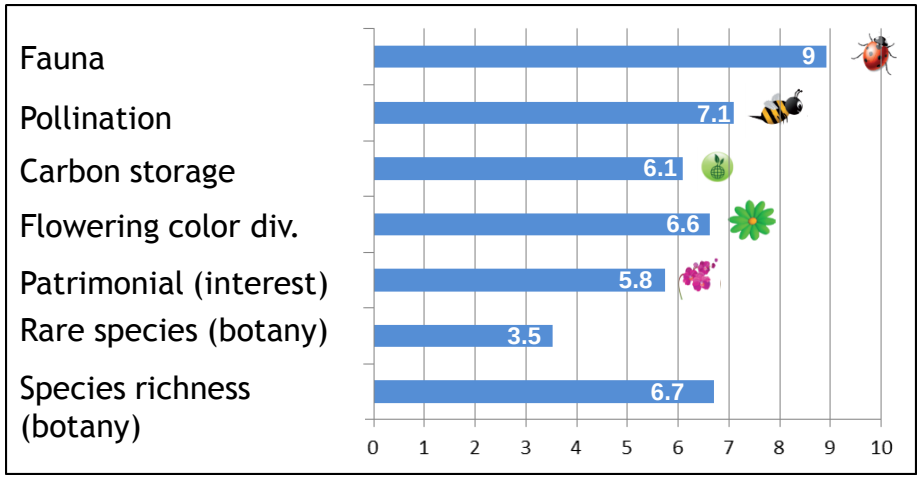
Grasslands are dominated by 11 types

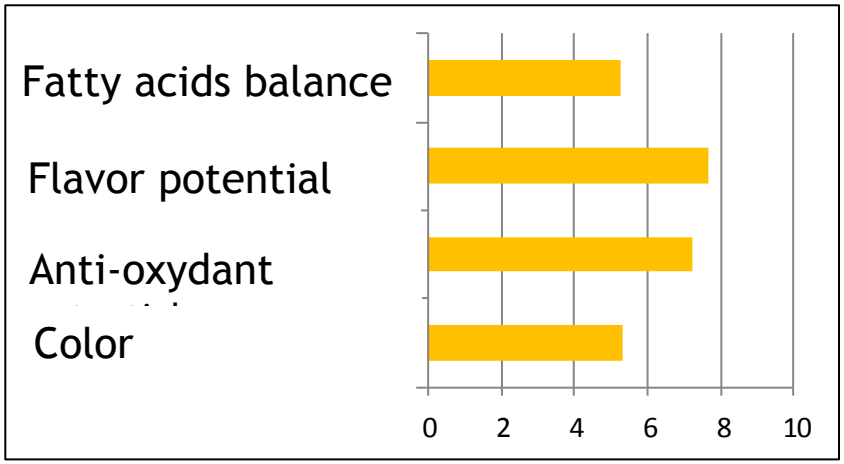
Grasslands diversity characterizes the forage systems

- **10 types** of grassland per farm (**5-16 types**)
- Grasslands that offers assets in terms of **productivity co-exists** with grasslands offering greater management **flexibility**
- But **grazed herbage** is not the main feed




Environmental and « cheese » services provided by a farm





A PCA to study the relationships between services and farms

> 900 m

Biodiversity
Flowering

Cheese aroma
Anti oxydant content

Flexibility

< 900

Livestock systems
Organic farms

Productivity

Stocking rate

Yellow cheese

Learnings …

☹ The tool needs an **EXPERTISE** to correctly allocate type to plot

☹ Many of the indicators are still **ABSTRACT** for individual farmer, and advisors are still **UNCOMFORTABLE** with the process of reporting the results

☺ A **GLOBAL** vision and a **NEW PERCEPTION** on the environment previously experienced as a source of constraints

☺ A tool of **DIALOGUE** and exchange with other stakeholders

☺ Brings a new **AWARENESS** that there is not just one 'grassland' but a **MOSAIC** of many different grasslands which is a way into **SUSTAINABILITY** in mountain areas