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

Jean Zapata, Clémentine Lacour, Stéphane Violleau, Géraldine Dupic, Pascal Faure, René Baumont, Pascal P. Carrère, S. Hulin, Anne A. Farruggia

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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**

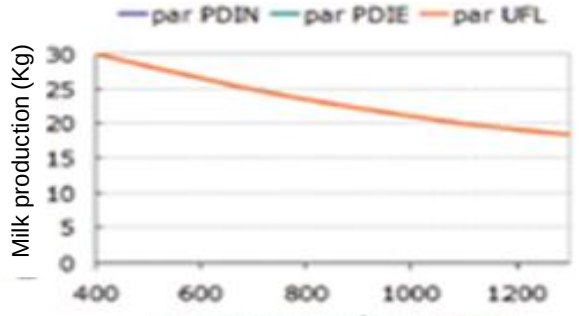
At 400 °C 60% of grass are vegetative
At 800 °C 80% of grass culms above 10 cm soil level

- **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)



Environnemental services

- **Carbon storage**

- **Patrimonial interest (botany)**

- **Florewing color diversity**

- **Pollinisation impact**

- **Fauna interest**

Cheese quality services

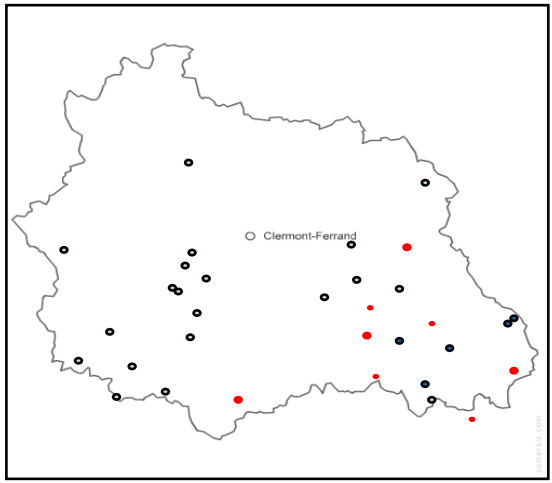
- **Organoleptic potential**

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

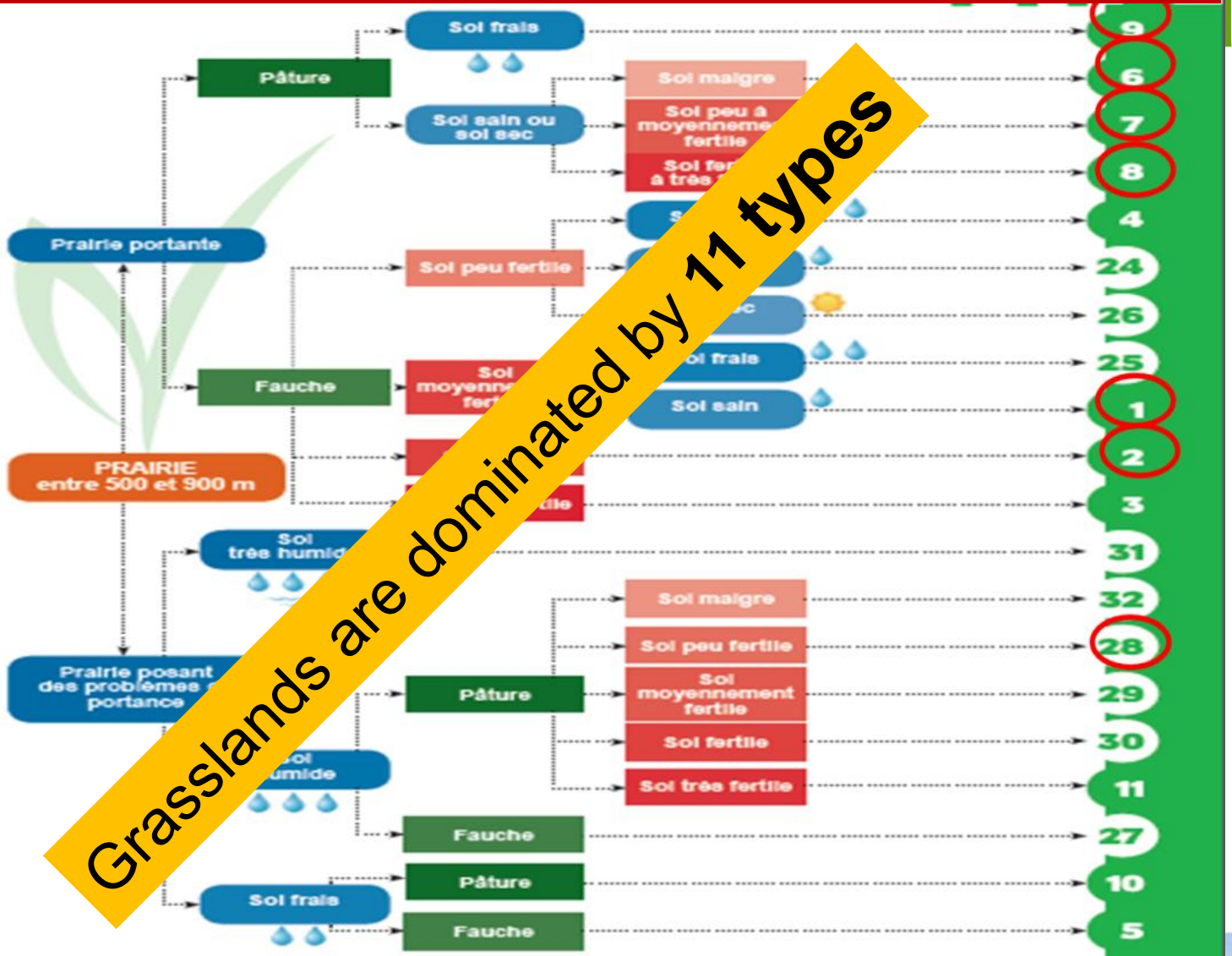


- Half are engaged

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



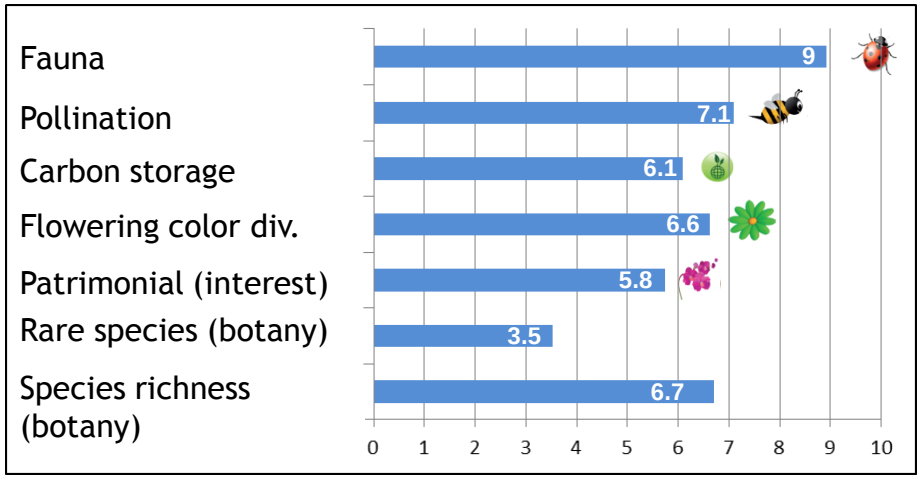
Grasslands are dominated by 11 types

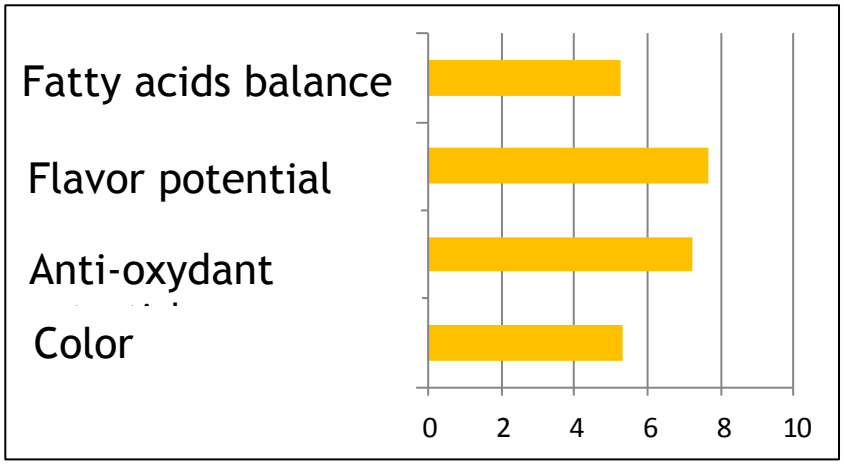
Grasslands diversity characterizes the forage systems

- **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