



A French classification of permanent grasslands at national level to evaluate their forage and environmental services



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Permanent grasslands

- Important issue to keep and use permanent grasslands in livestock systems
- Provide evidence about their joint interest for production, economy and environment
- BUT a decrease in use and area

→ A lack of scientific and technical knowledge

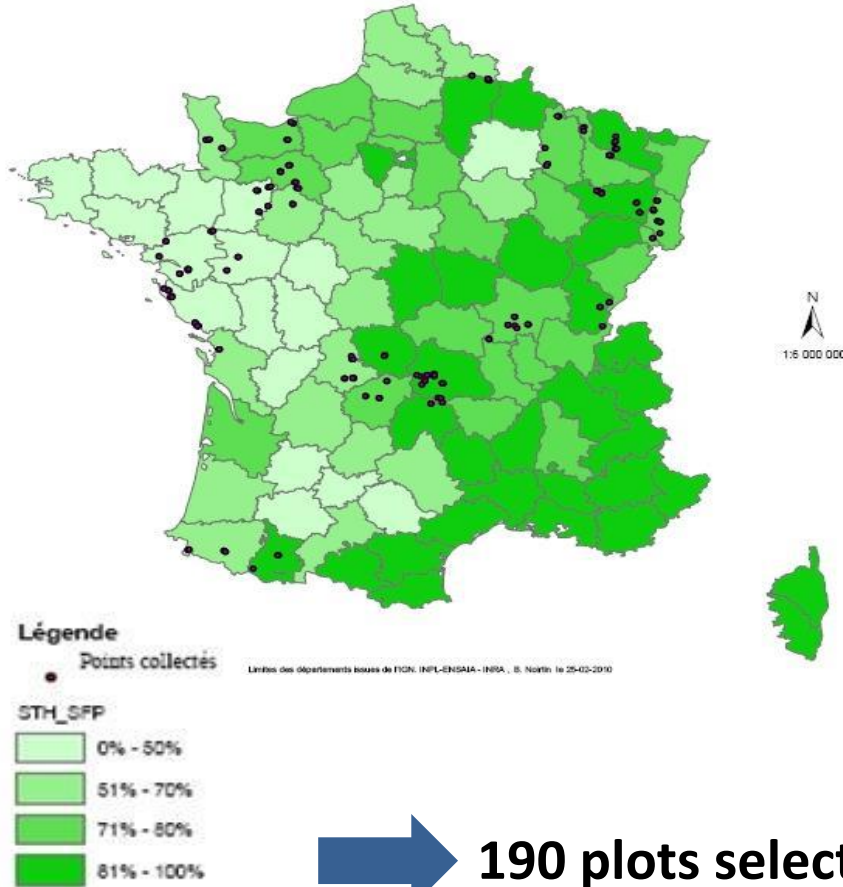


***A national program (2008 – 2011)
to characterise French permanent grasslands
for a better utilisation in livestock farming systems***

=> A tool: classification reporting the diversity of
agronomic and environmental value
and of some ecosystemic services



The design of the study



78 farms with more than 50% permanent grasslands (> 10 years) in the forage production area:

- Recording of practices
- Analyses of the role of grasslands in the forage system

➔ **190 plots selected from 1500 for a survey during 2 years**

The measurements

- ✓ **Botanical composition**

- Botanical inventory in spring 2009

- ✓ A detailed recording of **management practices** (cutting, grazing, fertilisation...)

- ✓ **Grass samples in exclosures:**

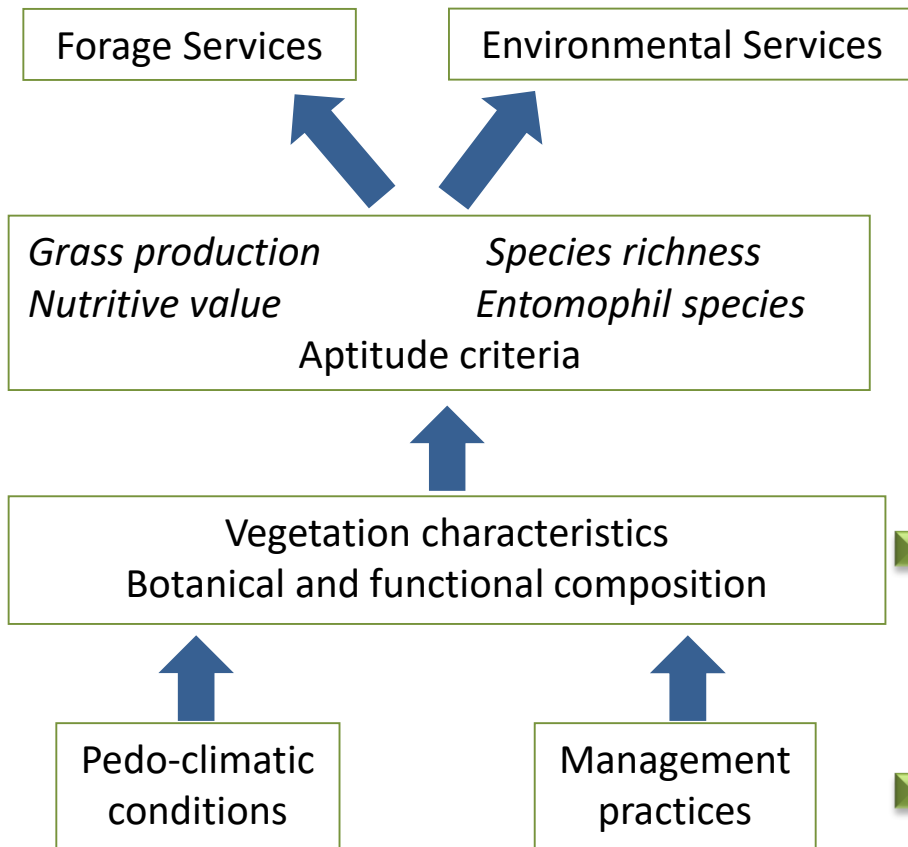
- 4 samples/year: beginning and late spring, summer and autumn regrowths
- Biomass production, Functional composition, Nutritive value

1520 samples →

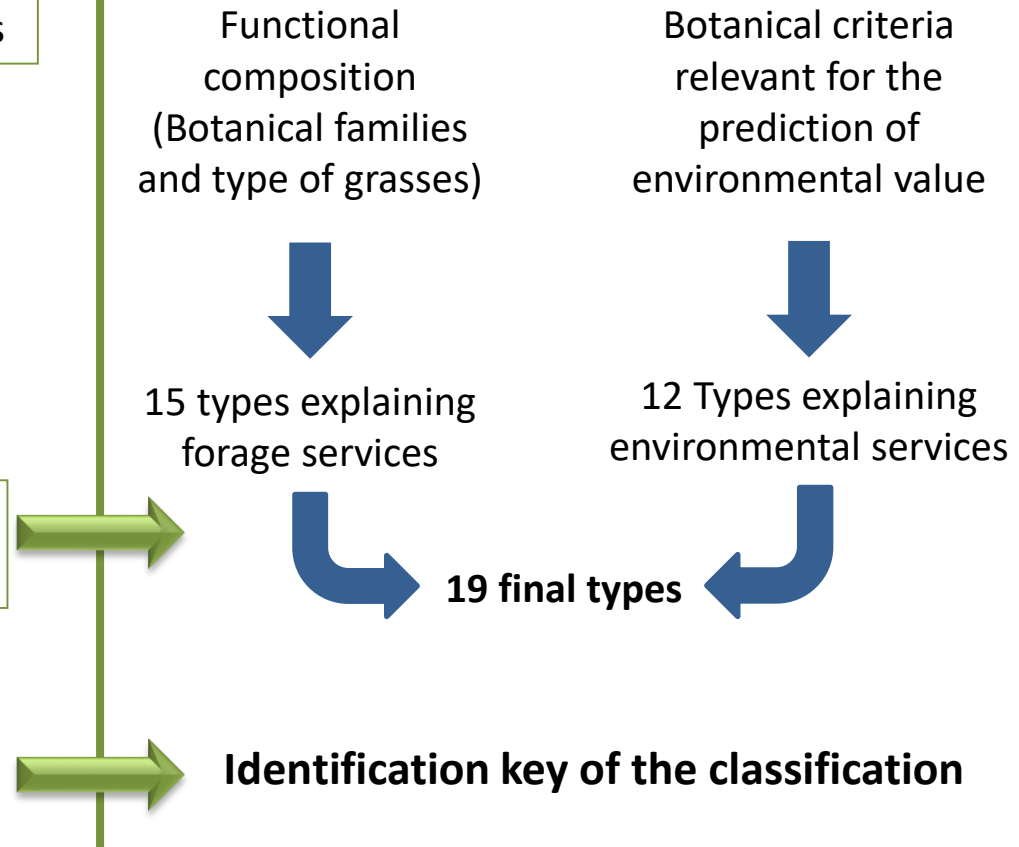


Classification of grasslands

A conceptual background



A method to elaborate the classification



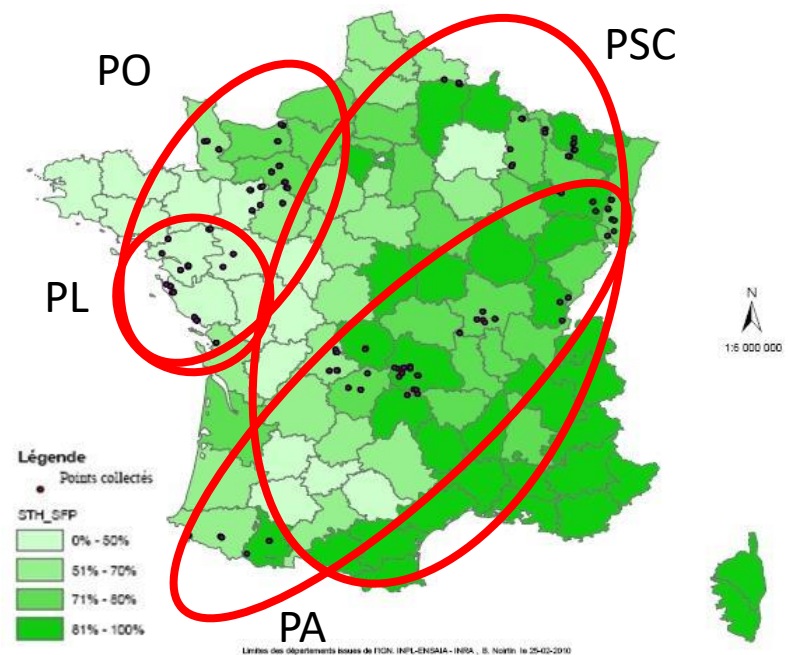
The grassland classification

✓ 19 grassland types classified according to their geographical and climatic distribution :

- Mountain : 5 types (PA)
- Plains and hills with semi continental climate : 6 types(PSC):
- Plains and hills with oceanic climate : 5 types (PO)
- Atlantic coast : 3 types (PL).

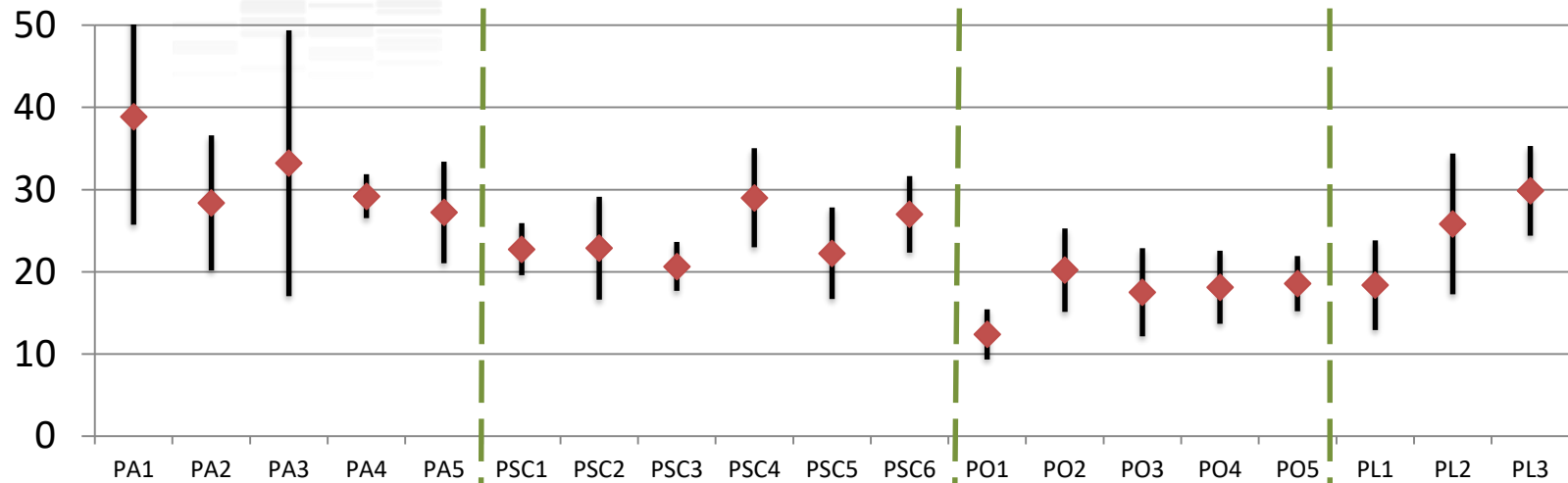
✓ An identification key organised according to 5 levels

- Geography and altitude
- Soil and water regime
- Proportion of forbs and legumes
- Main use of the grassland
- Level of fertilisation



Composition of the vegetation

Species richness (Nb of species)



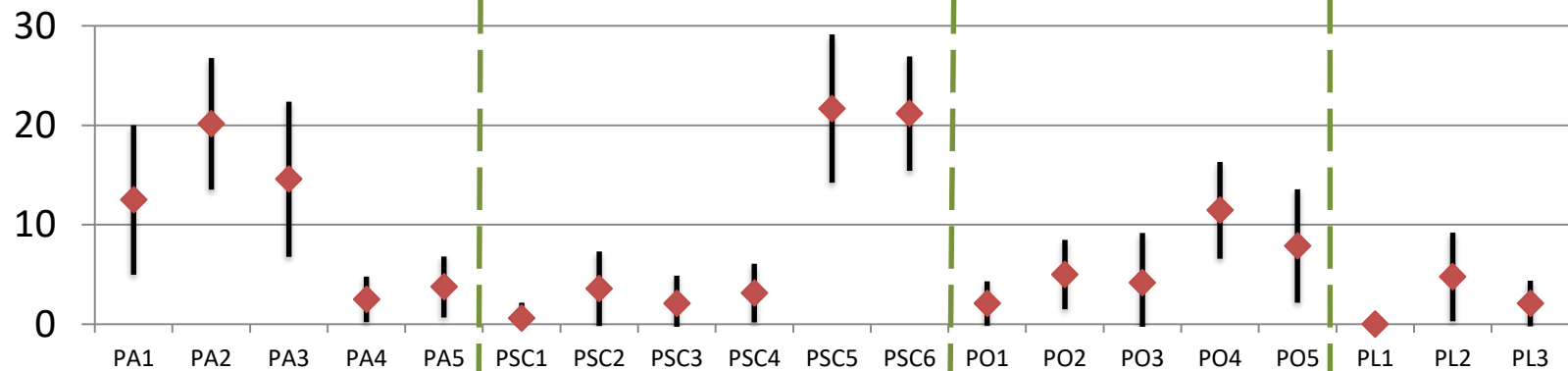
Mountain

Semi-continental

Oceanic

Coastal

Proportion of legumes in end of spring (%)



Mountain

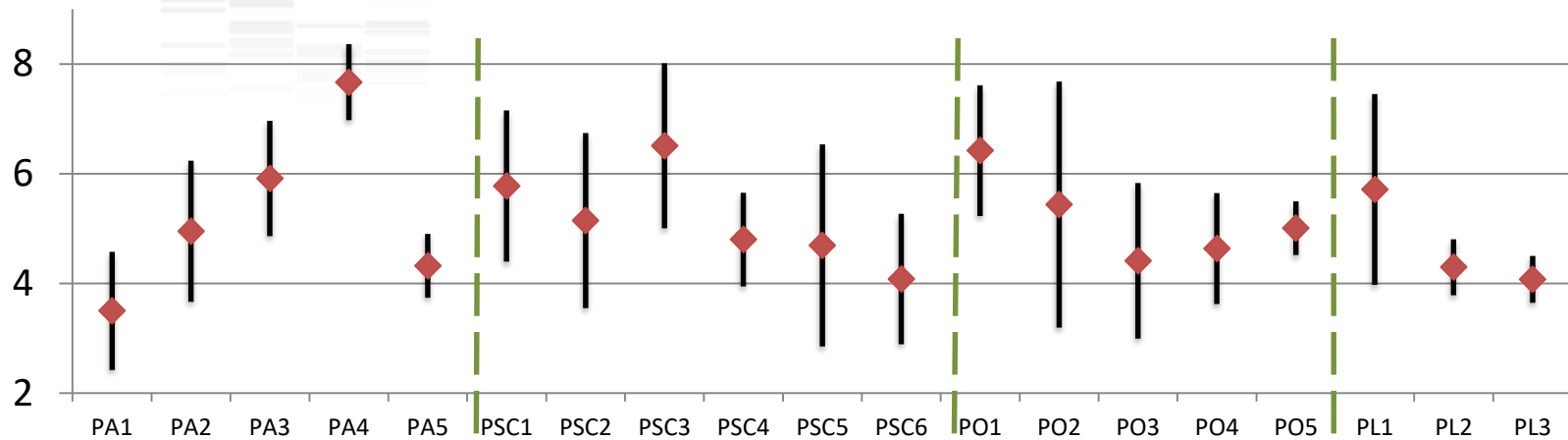
Semi-continental

Oceanic

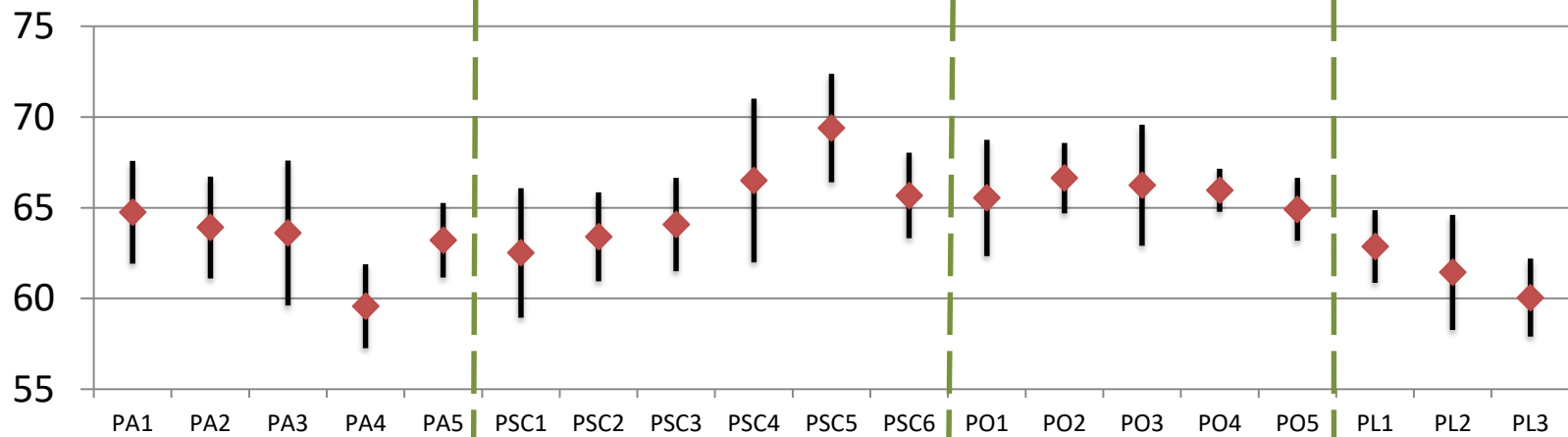
Coastal

Forage production and quality

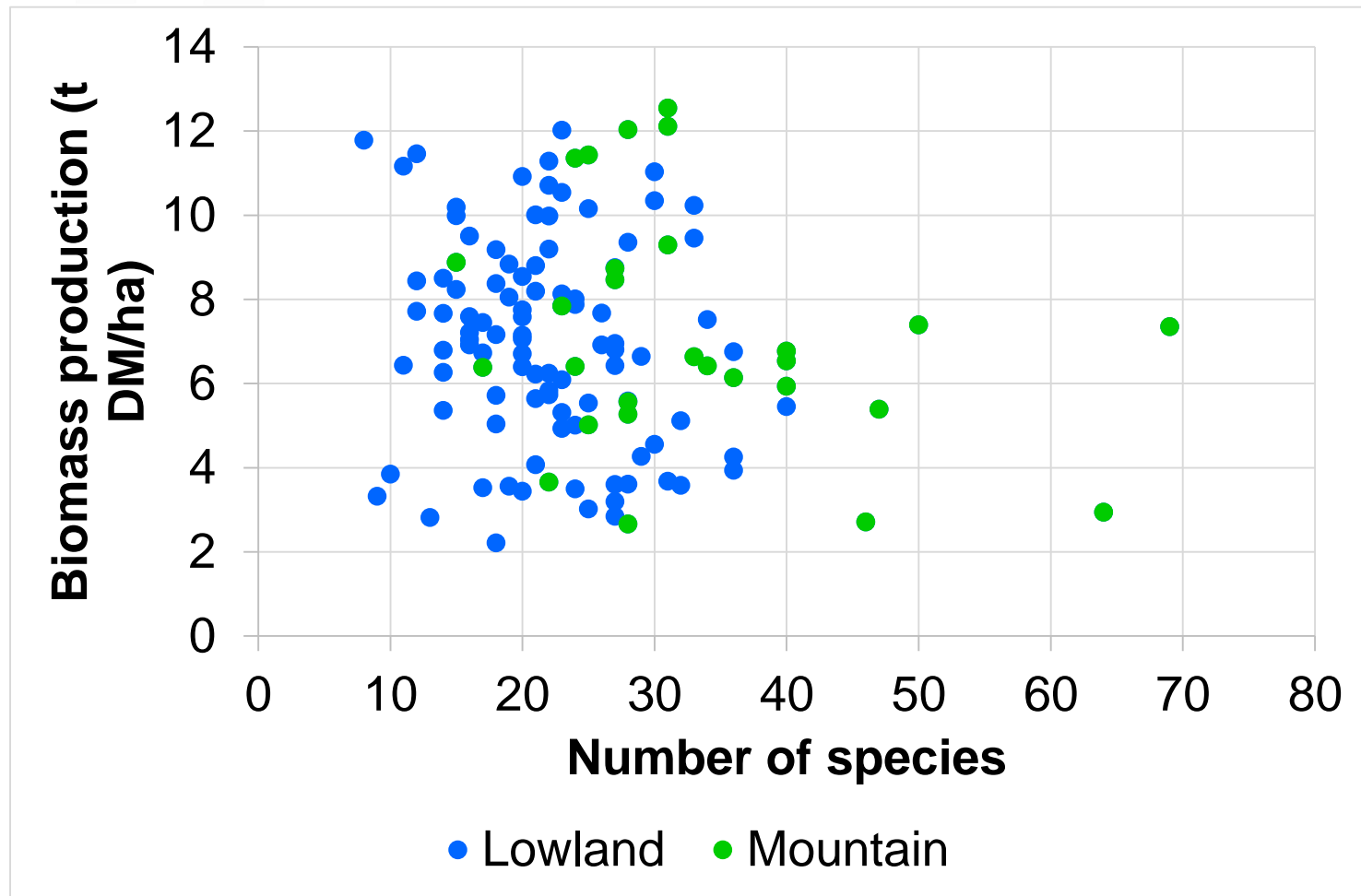
Mean biomass production (t DM/ha/year)



Mean OM digestibility (%)



No opposition between number of species and biomass production



A detailed presentation by type of grassland



PSC5 = Well fertilized grassland
dominated by rye-grass and white clover
Suited for grazing all the year by animals
with high nutritional requirements



PO5 = grassland dominated by
Poa trivialis and *Holcus lanatus*

Suited for spring cut for hay
then for grazing



PA1 = grassland dominated
by *Festuca rubra* and *Agrostis*

Suited for late grazing with low
stocking rate



Conclusion

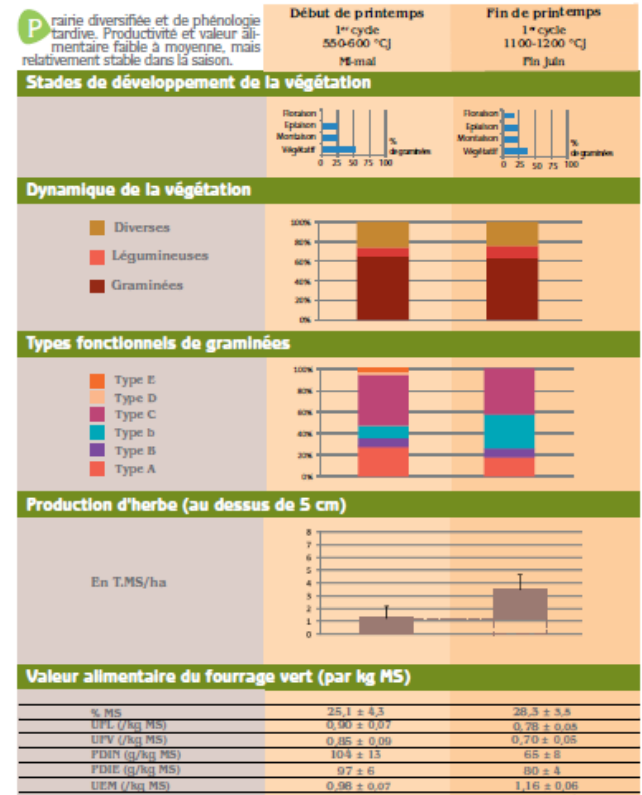
A tool that:

- ✓ Characterize and quantify the diversity of permanent grasslands and of their forage and (some) environmental services
- ✓ Describes the intra-annual dynamic of permanent grasslands and gives reference data for the management

Future prospects:

- ✓ Need to complete the evaluation of environmental services (carbon storage...) and of forage services (links with milk and meat quality, animal health...)
- ✓ Extension at an European level?

Thanks for your attention



PA1

SERVICES ENVIRONNEMENTAUX

Contribution au maintien d'insectes pollinisateurs :



Richesse floristique :



Conservation de la diversité floristique patrimoniale :

