

New Practices of Turn-out to pasture: which new practices to improve grassland management in the ewe milk production ?

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Agenda

-  Stakes and aim
-  Case study
-  Few aspects of methodology
-  Results
-  Conclusions



Grassland use's stakes

-  Grassland has multifunctional role in particular in the less favored areas.
-  Grassland use is encouraged in PDO labels cheese production.
-  Grassland-use-returning is a lever of the adaptive capacity of the farms.
-  Increase of the grassland use in animal feed is underpinned by the grass growth management.



Our study's aim

 After many years of intensification technical changes are necessary to improve the grassland management.

 Grazing during grass growth period is one of the favored practices in the PDO label.

 Milk production level and persistency are impacted by grazing conditions.

 Farmers need knowledge to improve their grazing practices required during the turn-out to pasture period.



Case study: "Grands Causses" region

🐑 Limestone plateau 3270km²
Altitude: 700 to 1200m above the sea level

🐑 Climate obeys to three influences:
✓ oceanic during spring and autumn,
✓ Mediterranean during summer
✓ continental during winter.
Average rainfall is 700 to 1000mm/y
Average temperature is 12°C (-20 to +40°C)



Case study: Roquefort cheese production

Specific vegetation: native calcareous grassland and pastures based on grass seed mixtures



Farming activities are mainly sheep livestock rearing systems based on the *Lacaune* breed



Methodology (1)

 To study the impact of turn-out to pasture period on the milk production we need to know better current farmers' practices.

 Participatory research project (Diverba) have been built in renewal and use of better adapted grassland. Our partner is AVEM: farmers and veterinaries association. This study is based on a 20-farms sample.

 To define the evolution of milk production we use milk production data M_0 , M_2 , M_4 , M_8 to calculate ΔM_2 , ΔM_4 , ΔM_8 and Stage of Lactation (SL).

 Milk data have been analyzed with PCA, ... Milk Profiles are defined and differences are tested with Anova.



Methodology (II)

- 🐑 To have an insight into the grassland, turn-out and herd management's practices we have interviewed these 20 farmers.
- 🐑 Farmer's interviews have been analyzed with the methodological proposal of Girard (2005):
 - ✓ a well adapted tool for problem finding approach
 - ✓ cognitive theory on prototypical categorization
 - ✓ categorization of different practices.
- 🐑 This descriptive and multivariate intuitive approach has defined the patterns in turn-out to pasture management practices.



Results (1): persistency of milk

$$M_0 = 2.00 \pm 0.45 \text{ l/ewe/d}$$

$$SL = 85 \pm 23 \text{ days}$$

10/20 farms $\Delta M_2 \Rightarrow$

3/20 $\Delta M_8 \Rightarrow$ 12/20 $\Delta M_8 \searrow$ 18-28% 5/20 $\Delta M_8 \searrow \searrow$ 30-45%

Independence between persistency of milk production and stage of lactation (tested with PCA)

5 profiles

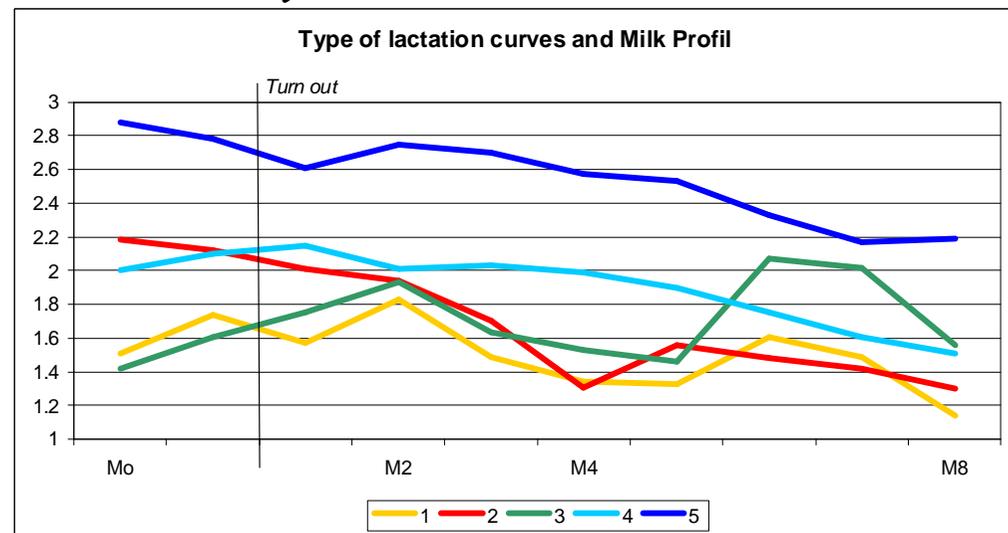
P1: $M_0 - \Delta M_8 \searrow$

P2: $M_0 + \Delta M_8 \searrow \searrow$

P3: $M_0 - \Delta M_8 \Rightarrow$

P4: $M_0 + \Delta M_8 \searrow$

P5: $M_0 ++ \Delta M_8 \searrow$



Results (//): grassland use practices

We have defined different practices within the turn-out to pasture period:

- A-Diversity of the grassland used
- B-Combination of resources during one day
- C-Rangeland grazing use
- D-Types of grassland used
- E-Forage supplementation
- F- Concentrate supplementation
- G- Grazing time after 4weeks
- H- Grazing management
- I- Area per ewe at the start of one parcel use
- J- Grazing habit during rainy day



Results (//): grassland use practices

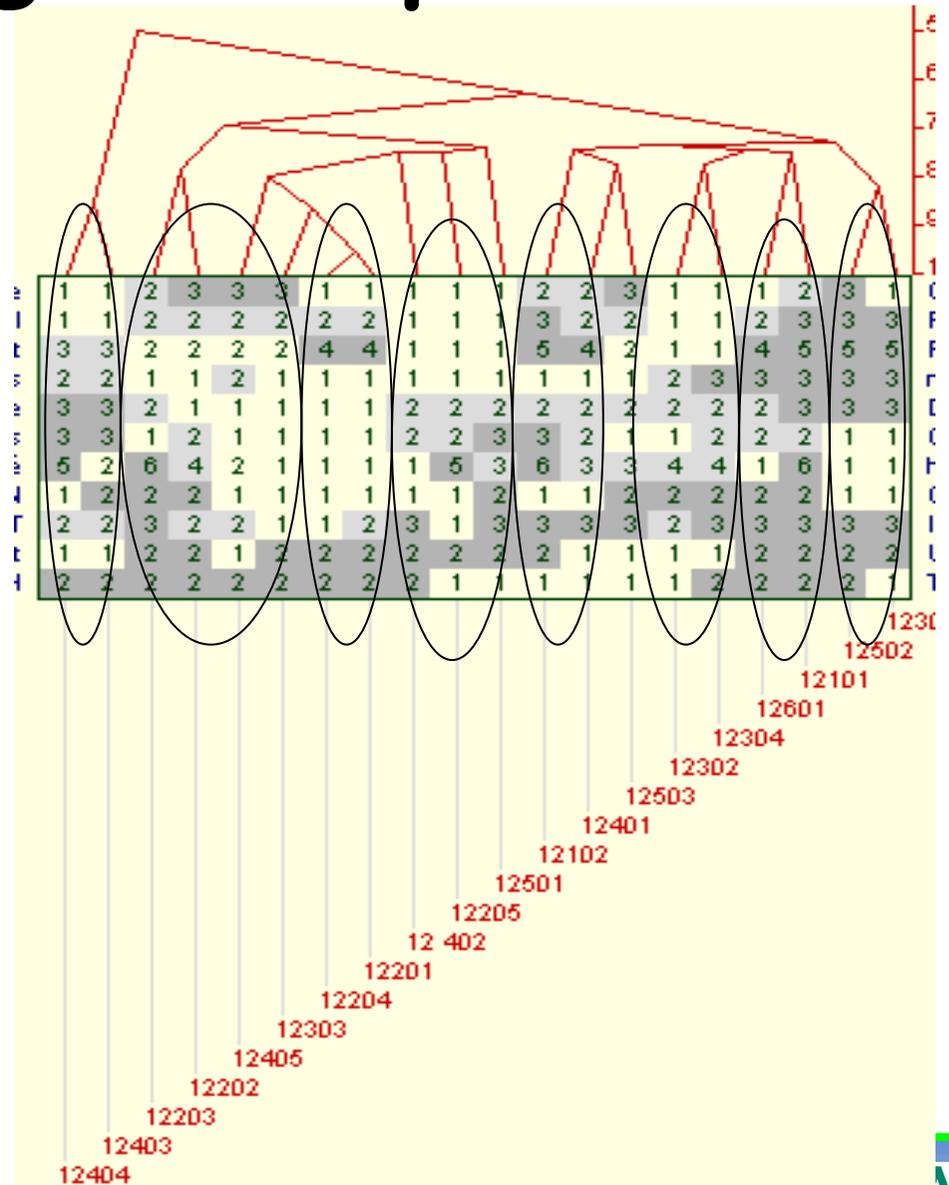
Definition of different types of "grassland" used by the farmers:

- **Cereals grazing:** immature cereal, single or blend
- **Sown pasture:** annual pasture based on 1-2 grasses
- **Seeded grassland:** short time pasture (4-5 y)
based on 1-2 grasses and 1 legume (alfalfa)
- **Grassland:** long time pasture (7-8Y)
based on grass seed mixtures
- **Permanent grassland:** no frequently in this area
- **Rangeland:** native grassland on the calcareous soil



Results (III): management patterns

- 🐑 Studying relations between practices
- 🐑 Combining practices to explain synthetic criterion
- 🐑 Proposing management patterns
- 🐑 Validating results with farmers and a veterinary



Results (III): management patterns

What are the practices which lead to the failure of the turn out to pasture?

Intensive grazing P2

- ✓ Sown pasture
- ✓ Large time of grazing
- ✓ Maintaining N and forage supply

Limited grazing P1

- ✓ Grassland based on grass seed mixtures
- ✓ Short time of grazing
- ✓ Maintaining forage supply



Results (III): management patterns

What are the practices which lead to the success of the turn out to pasture?

Alternative grazing P5

- ✓ Cereal grazing
- ✓ Large paddock or small with high stocking rate
- ✓ Day-to-day combination of grassland use and cereal grazing
- ✓ Maintaining N supply

Supplied grazing P4

- ✓ Grassland based on grass seed mixtures
- ✓ Long time of grazing and large paddock
- ✓ Maintaining N and forage supply

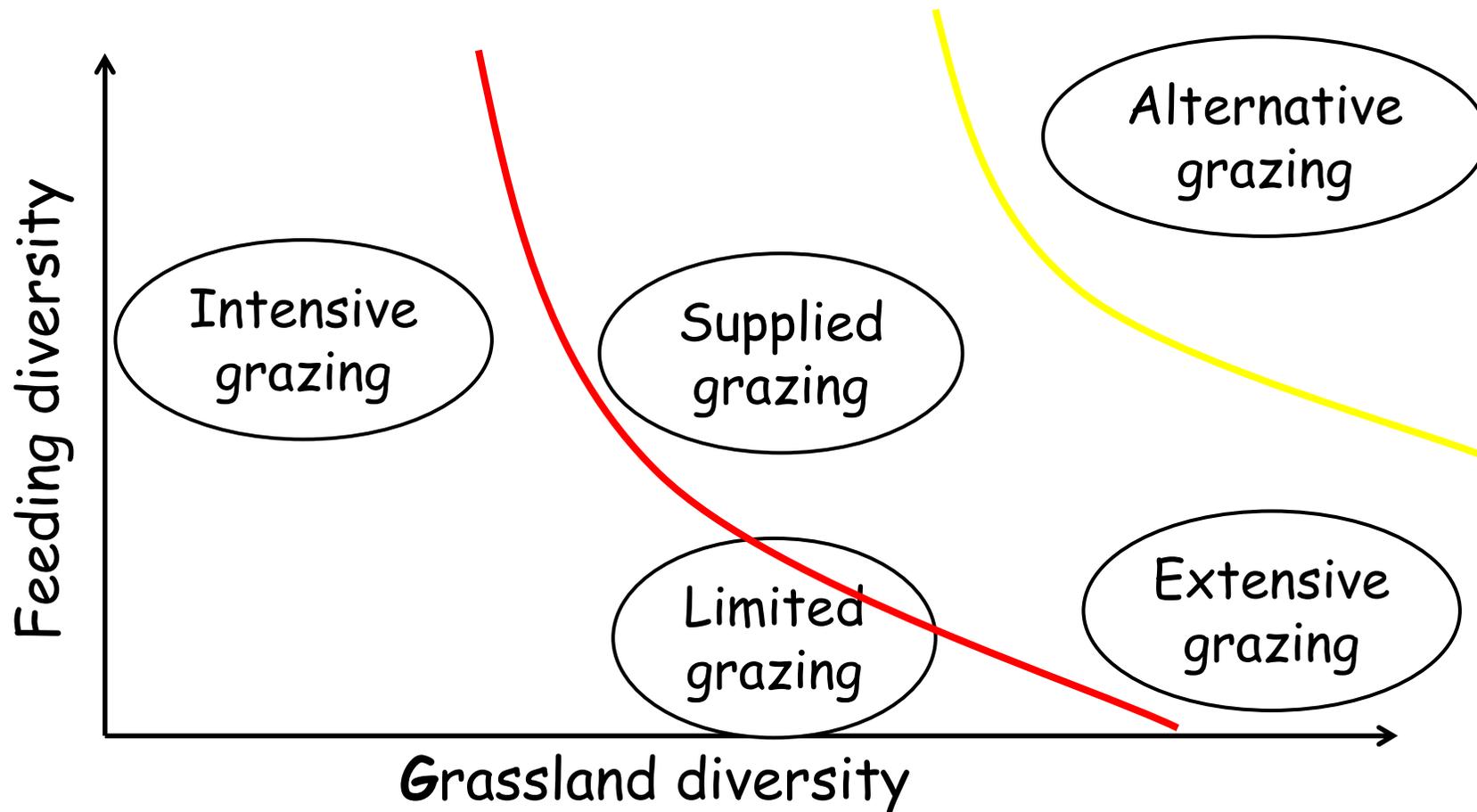
Extensive grazing P3

- ✓ Grassland based on grass seed mixtures
- ✓ Day-to-day combination of grassland and rangeland use
- ✓ Long time of grazing



Discussion:

Management patterns as trade-off between diversification of feeding and diversity of the grassland used



Conclusions

 The links between persistency of milk and practices are complex.

 To ensure the success of practices within the turn-out period to maintain the milk level farmers need more knowledge on:

- ✓ the robustness of these patterns during different climatic years

- ✓ the real quality of the grassland eaten by ewes



Conclusions and perspectives

 Diversity of grassland and feed provided to the ewes seem to be determining in the persistency of the milk ...

Next steps:

 *Analyze data on the protein content of the milk*

 *Define the features of grassland used to qualify them*

 *Develop farmers' study to enhance the knowledge of this period.*

