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# PATUCHEV: an experimental device to assess low input goat breeding systems, using local resources and complying with agro-environmental sustainability goals

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In France, there is a large variety of dairy goat production systems. Some of them widely rely on off-farm inputs and are therefore subjected to raw materials and energy price variations. The experimental platform PATUCHEV is aimed at assessing and proposing strategies in order to lead to low input and sustainable goat farms. The main issue is self-sufficiency based on local resources, in order to link production and territory.

## Location

In the main area of French dairy goat industry : Poitou-Charentes

Oceanic climate with dry summers :

- Average annual temperature : 20°C
- Rainfall : 600 mm/year

Soil type :

Loamy on clayey soil

Poitiers : 25km

Paris : 1h30 by train



## Objectives and Data

3 main challenges :

- A positive impact on the environment :
  - limitation of high energetic cost inputs
  - limitation of pesticides, veterinary drugs and exogenous hormones use
  - provision of environmental services (landscape, biodiversity, carbon storage)
- A productive and attractive business :
  - consequences of technical adjustments related to environmental issues on productivity and economic output.
- Organoleptic, healthy and good quality products, fitting into the landscape and social surrounding.



To find a compromise between economy and environment

## Multi-disciplinary approach

- Zootechnical performances (milk production, weight and body condition, reproductive and nutritive performance and health) through lactation and throughout the dairy goats' careers.
- Environmental criteria, such as energy consumptions, greenhouse gases emissions, biodiversity and soil biological activity;
- Economic criteria (gross margin).

Input and output flows, including energy, are handled separately for each group

## Organisation and Links

PATUCHEV is supervised by a steering committee involving INRA teams and agricultural development partners, and is open to users interested in the data produced and, more broadly, in low input systems.

For a better dissemination of knowledge, it is strongly linked to a research and development network of goat farms involved in self-sufficiency and grassland-based systems (REDCap).

All the buildings have been built especially for the project and the operational launching is occurred in September 2012.

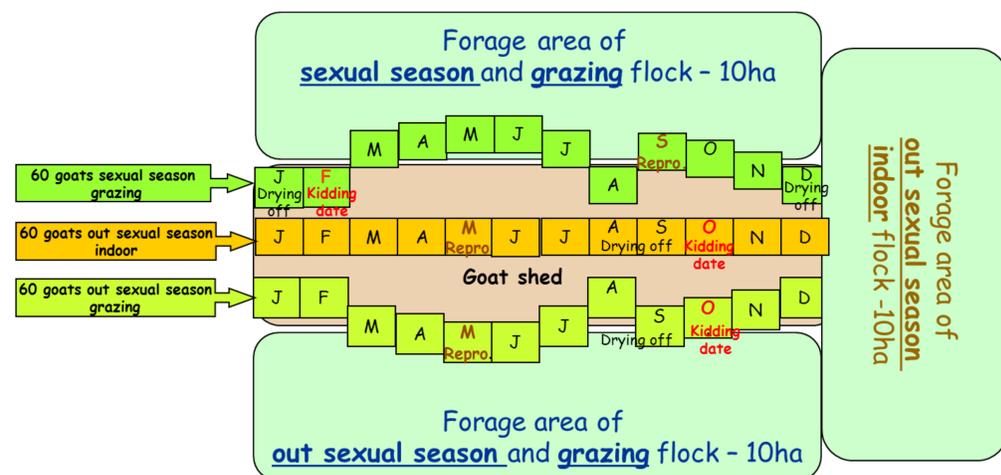
## Experimental device



- 30 hectares of grassland and a 180 French alpine goats-herd equally divided into 3 groups :

→ Reproduction : out or in sexual season

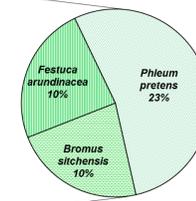
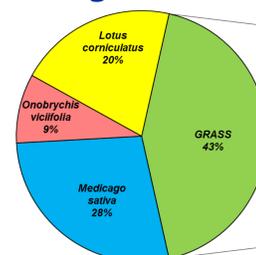
→ Nutrition : grazing+hay or exclusive hay



Independent management and intra-group replacement

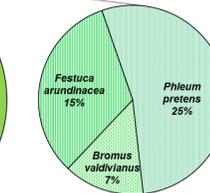
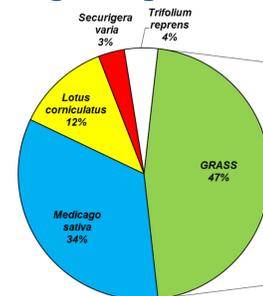
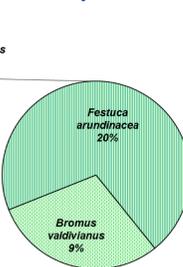
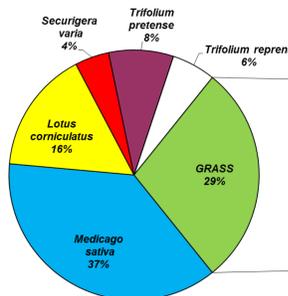
- Multi-specific grassland

3 types of botanic composition (% of seeds) according to management :



1) Exclusive harvest for indoor flock

2 botanic compositions for grazing flocks



2) Mainly grazing

3) Mainly harvest, then grazing

- Solar-heated air dried hay. 8 cells of 20 tons capacity :

→ 2 cells for grazing flocks

→ 4 cells for indoor flock

