

# Organic livestock farming systems in the Central France

Evolution of the performances (2008-2011) and drivers



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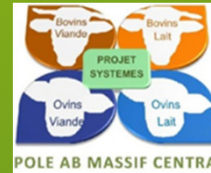
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# INTRODUCTION, AIMS

- The “Organic System” project

- A multi-collaborators project

- Professional organisations
- Research
- Agricultural Extension & Development Services
- Higher education



- 4 objectives:

- Know the organic livestock farming systems in “Massif Central”
- Enhance the technical and economic references
- Improve the advising tools
- Circulate information and knowledge

- 4 productions

- Bovine: beef and milk production
- Sheep: meat and dairy production

- Three types of monitoring at the farm scale:

- **Annual:** a techno-economic appraisal/farm/year
- **Multi-year:** each farm tracked over 4 years (2008-2011)
- **Thematic:** feeding system, work management, sustainability

## 56 farms 2008-2011, constant sample

- **56 farms**

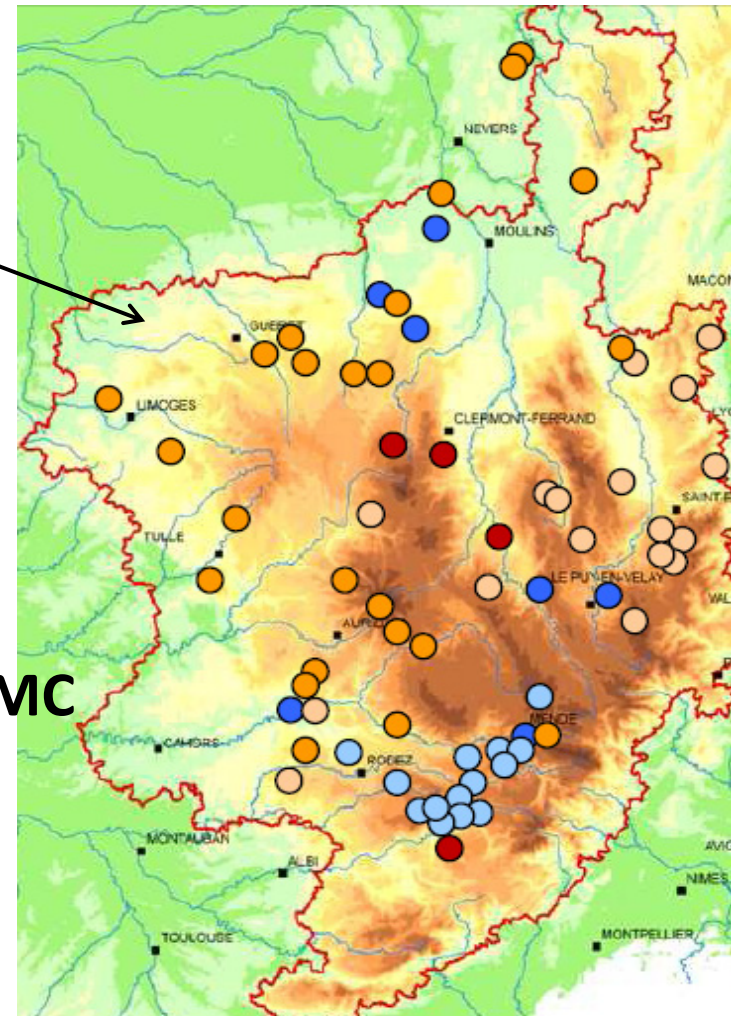
- 23 suckler cattle (SC) ●
- 14 dairy cattle (DC) ●
- 14 dairy sheep (DS) ●
- 5 meat sheep (MS) ●

- **Organic certification > 5 years**

- 80% certified for more than 10 years

- **% of total organic certified animals in MC**

- 590 dairy cows → 8 %
- 1 430 suckler cows → 7 %
- 1 440 suckling ewes → 4 %
- 8 100 dairy ewes → 20 %



# Method: data analysis

- **Multi-year evolution**

- Assessment of the 4 productions as an unique one
- Descriptive analysis: 56 farms, annual average
- Variables with specific dimension according to the production (eg animal productivity): relative values, base 100 in 2008
- Economic variables: constant euros 2011

- **Global variability: Principal Component Analysis**

- 56 farms \* 4 years = 224 observations
- Standardised centred variables/production/year: to eliminate the “production” and year effects
- Weighting of the farms: same weight for each production

- **Determinants of the economic performances**

- Sort variable: income / worker
- Ranking of the farm each year, total of the ranks (score) for each farm
- Ranking according to the total score

# Structures

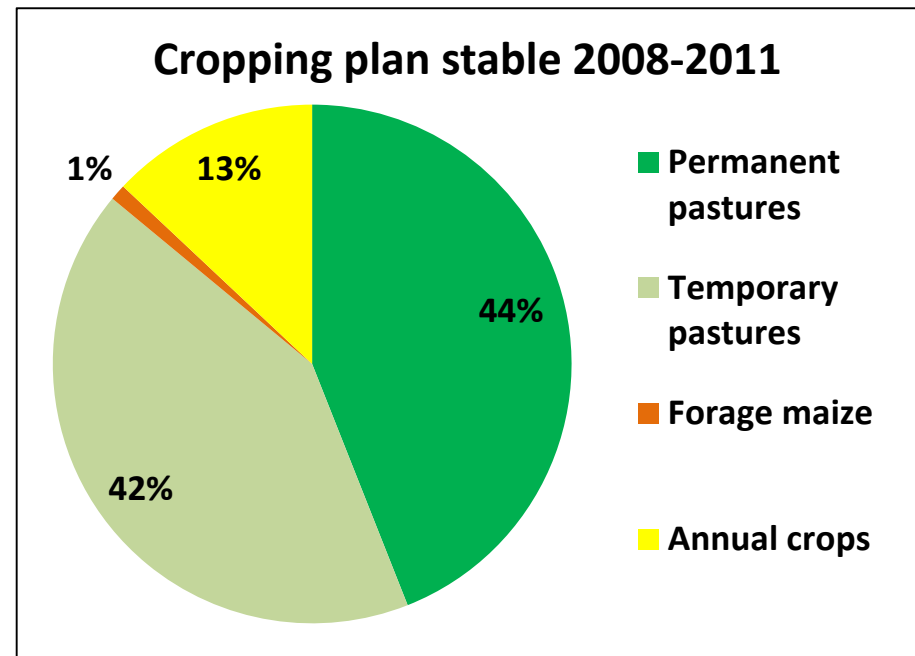
Size, area, herd and cropping plan

- **Enlargement of the farms**

**UAA**      2008      **+ 5%**      2011  
103 ha      →      109 ha

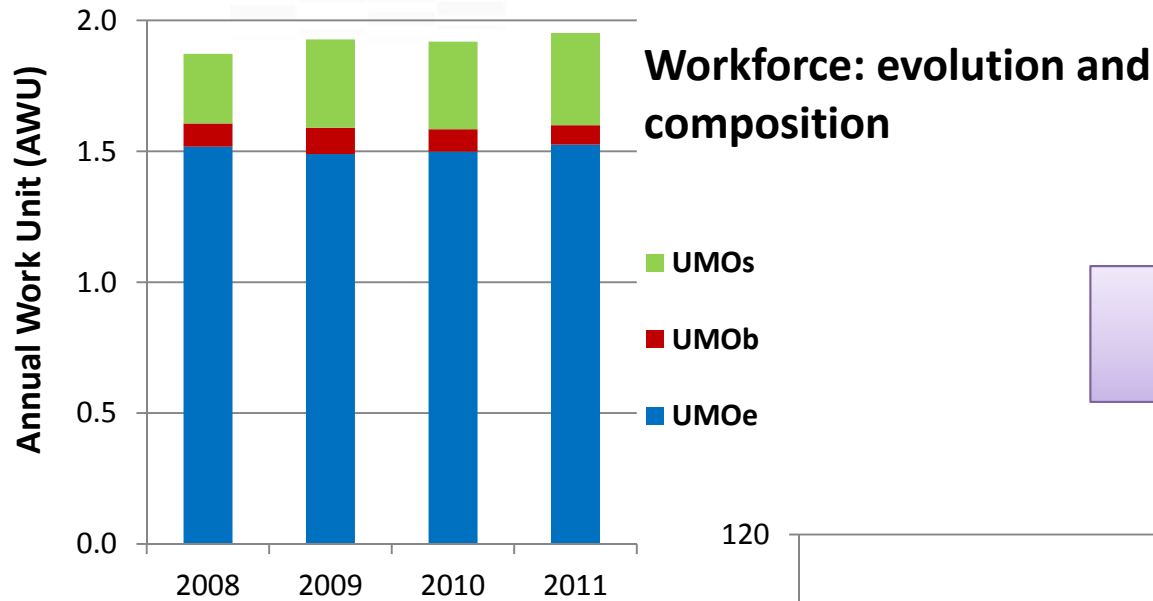
**Stocking rate =  
0,97 LUs/ha MFA**

**LUs**      2008      **+ 4 %**      2011  
84,8      →      88,3



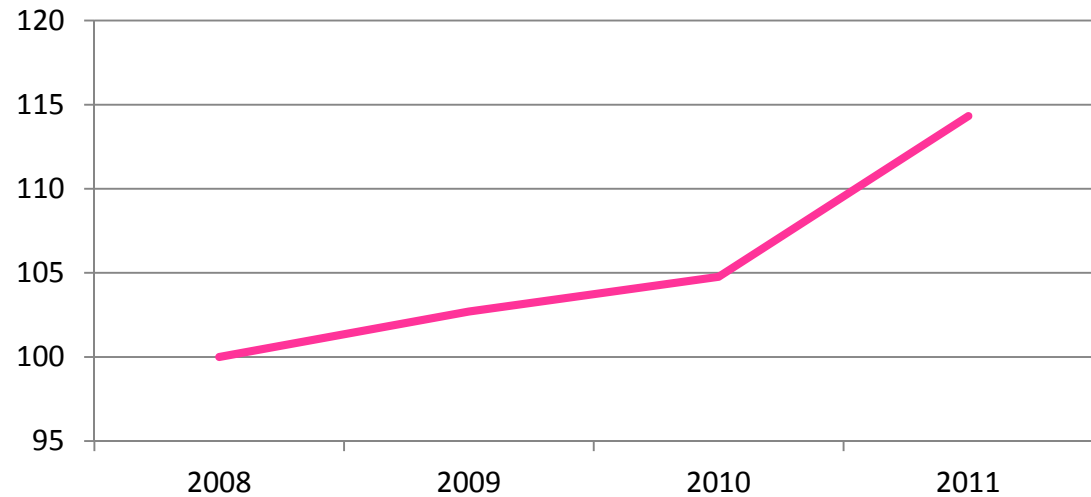
# Structures

## Workforce and labour productivity



59 ha UAA / AWU  
48 LUs / AWU

**Labour Productivity**  
Quantity of agricultural products sold / AWU

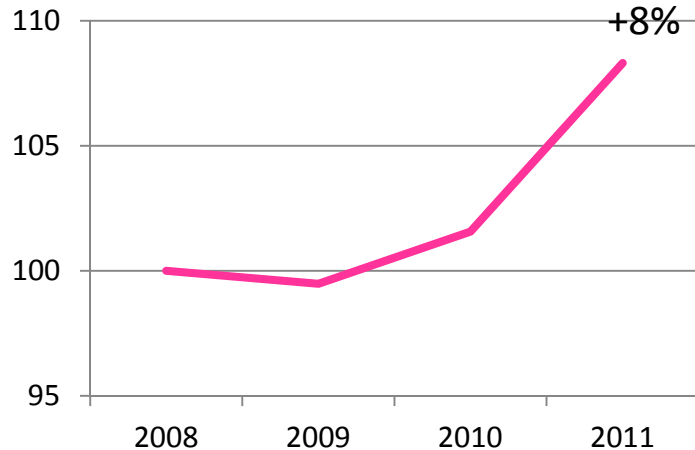


# Animal productivity and feeding

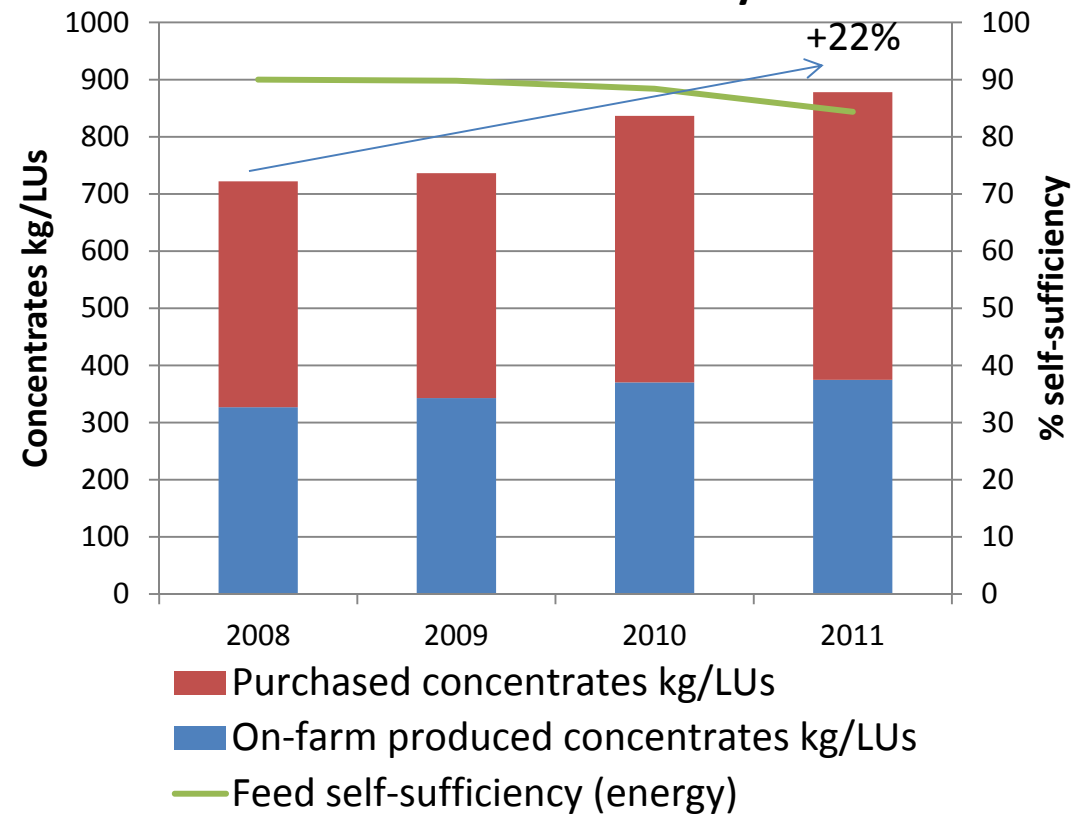
- A better animal productivity, but a lower feed self-sufficiency

## Animal productivity

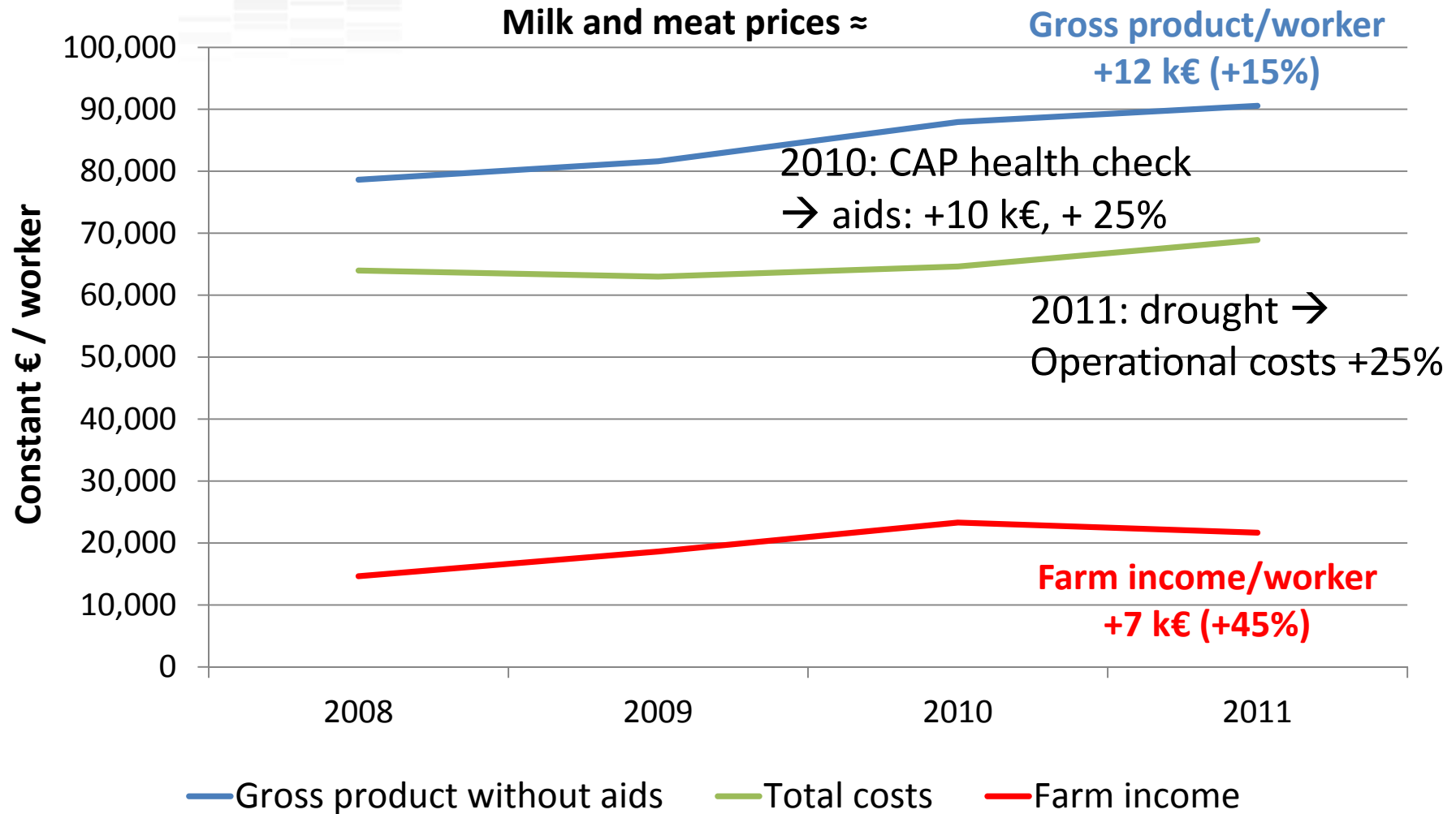
DC: l milk / cow  
 SC: kg live-weight / LUs  
 DS: l milk / ewe  
 MS: lamb / ewe



## Concentrates consumption and feed self-sufficiency



# Economic results / worker





# Variability: Principal Component Analysis

- 3 components explain 52% of the variability
    1. **Size, annual crops area, concentrates self-sufficiency (19,5%)**
    2. **Intensification, productivity per ha (18,8 %)**
    3. **Labour productivity (14,2 %)**
  - Correlations: PCA components and economic results
    - **Farm income/worker**: size, concentrates self-sufficiency (+), productivity/ha (-)
- ➔ Large mixed-crop livestock farms, concentrates self-sufficient => farm income +++**

## Highest & lowest farm income / worker

	Highest farm income/worker	Lowest farm income/worker
Nb of farms	13	12
incl. dairy cattle	6	1
Incl. beef cattle	3	5
Incl. dairy sheep	3	5
Incl. meat sheep	1	1
<b>Farm income €/worker (average 2008-2011)</b>	<b>45 280</b>	<b>9 729</b>

- Each production can be profitable
- Highest farm income / worker: 4x higher than the lowest!

# Highest & lowest farm income / worker

## Structure

	Highest farm income/worker	Lowest farm income/worker	signif.
UAA (ha)	127	102	*
Cropland % UAA	17	11	***
Livestock Units	100	89	.
Stocking rate (LUs/ha MFA)	0,98	1,00	0
Annual Work Units	2,42	1,82	***
UAA ha/AWU	54	62	0
LUs/AWU	42	53	**

- Highest income group:
  - larger farms with more cereal crops
  - More annual work units
  - ➔ Lower labour productivity

# Highest & lowest farm income / worker

## Animal productivity and feeding

	Highest farm income/worker	Lowest farm income/worker	signif.
Animal Productivity Index 100: average of the sample	111	91	***
Concentrates self-sufficiency %	54	42	.
Forage self-sufficiency %	96	89	
Feed self-sufficiency % (energy)	91	86	.

## Animal Productivity **AND** feed self-sufficiency

# Highest & lowest farm income / worker

## Economic results

	Highest farm income/worker	Lowest farm income/worker	signif.
Gross farm product (GFP) €/ha UAA	1 930	1 527	***
Aids & subsidies % GFP	25	35	***
Operational costs % GFP	25	29	**
Fixed costs % GFP	48	60	***

**A good gross farm product  
AND a good control of costs**

# CONCLUSIONS

- From 2008 to 2011:
  - Enlargement of the farms. Same rate than French livestock farms
  - Improvement of the animal productivity
  - Decrease of the feed self-sufficiency
  - Improvement of the techno-economic results
  - Sensitivity to exogenous factors (CAP, climatic hazard)
- Main determinants of techno-economic performances:
  - Animal productivity
  - Feed self-sufficiency
  - Control costs / gross farm product
- ➔ **Techno-economic performances are more dependent on the efficiency of the production system than on the labour productivity**



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