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Genomic management Tools to Optimise Resilience and Efficiency

Evolution of suckler cattle farming systems in the Spanish Central Pyrenees

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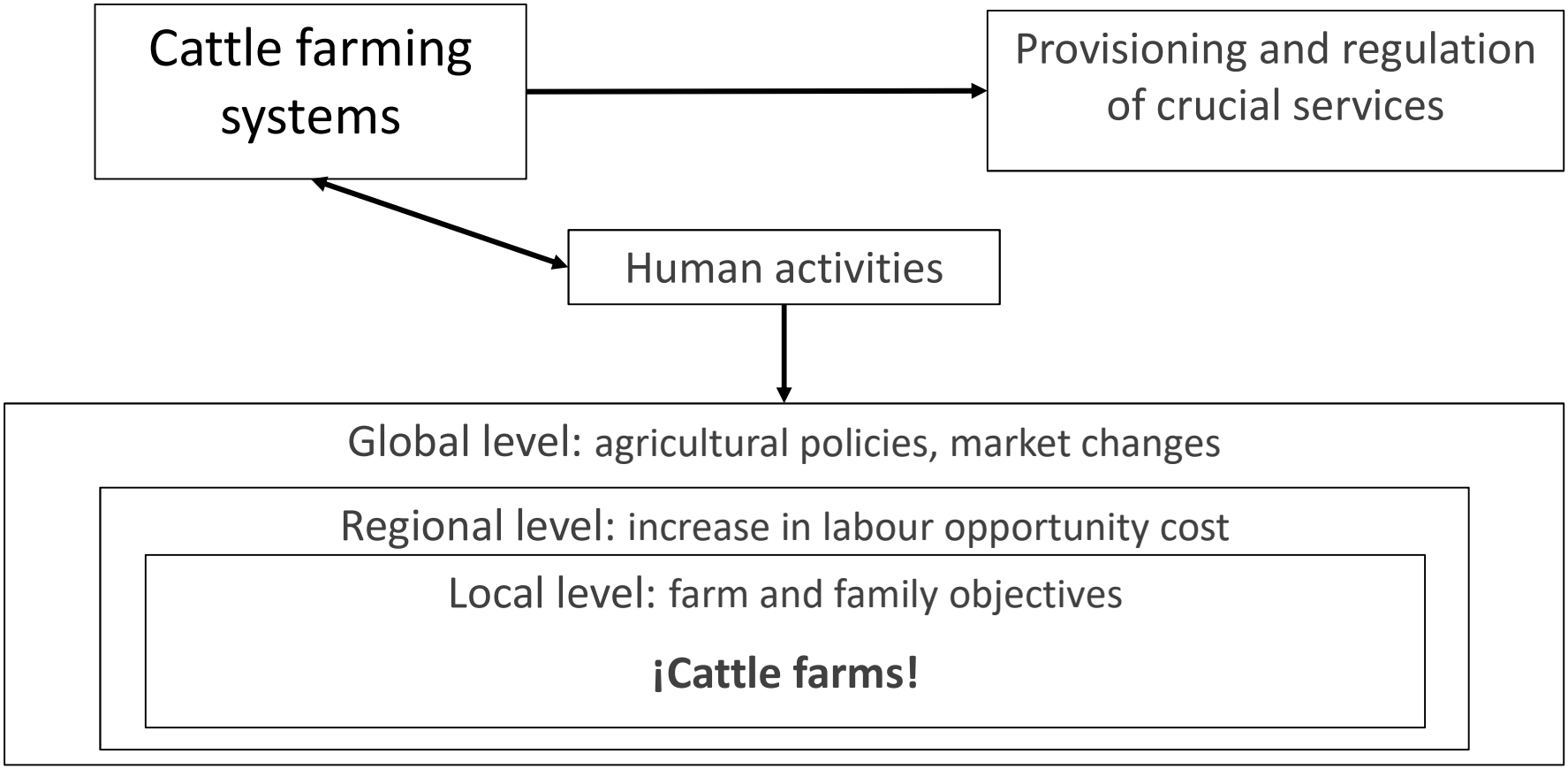
This project has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement No 727213

INTRODUCTION



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OBJECTIVE

- The objective of this study was to analyze:

i) The main changes occurred in cattle farming systems in the Spanish Pyrenees from 1990 to 2018 and,

ii) explore the diversity of trajectories of evolution that have taken place.

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METHODOLOGY

- **Data collection**

Survey to 50 farms

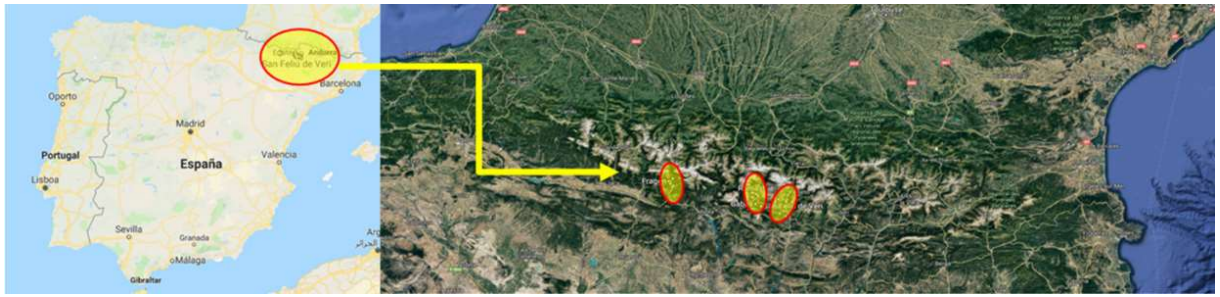
Broto, Benasque and Baliera-Barrabés valleys

1990, 2004 y 2018

Farm structure: herd size, utilised agricultural area, …

Management: grazing period, on-farm fattening, …

Farmer profile: Farmer level of education, family size, …



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METHODOLOGY

- **Data analysis**

- General farming evolution, a set of variables defining:
  - Structure
  - Management
  - Economic performance

  ✓ ANOVA and Kruskal-Wallis

- Trajectories of evolution, 9 key variables:
  - Utilised agricultural area
  - Herd size
  - Livestock unit/Work unit
  - % Income fattening/Total income
  - Grazing season length
  - Variable cost/Livestock unit
  - Gross margin - subs/Work unit
  - Stocking rate
  - % herd using mountain pastures

  ✓ Principal Component Analysis (PCA)

  ✓ Cluster Analysis (CA)

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RESULTS

- **General evolution of farming systems**

Variables	Dates		
	1990	2004	2018
% Dairy farms	78.0 ± 41.9 % [a]	2.0 ± 14.1 % [b]	2.0 ± 14.1 % [b]
% Fattening farms	4.0 ± 19.8 % [a]	42.0 ± 49.9 % [b]	20.0 ± 40.4 % [b]
Utilized agricultural area (UAA; ha)	44.1 ± 48.4	53.3 ± 36.5	51.4 ± 36.5
Herd size (Livestock Units; LU)	44.1 ± 22.7 [a]	65.1 ± 30.3 [b]	82.9 ± 48.0 [b]
Labour input (Work units; WU)	1.87 ± 0.6 [a]	1.33 ± 0.5 [b]	1.36 ± 0.6 [b]
LU/WU	23.7 ± 9.5 [a]	53.7 ± 26.4 [b]	64.7 ± 33.1 [b]
Grazing season length (days)	232.3 ± 40.8 [a]	259.1 ± 43.7 [b]	248.7 ± 45.6 [ab]

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RESULTS

- **General evolution of farming systems**

Variables	Dates		
	1990	2004	2018
Variable costs (VC; €)	19523 ± 14845 [a]	31204 ± 24633 [b]	30315 ± 26417 [b]
Variable costs/LU (€/LU)	440.6 ± 224.4 [a]	476.4 ± 400.8 [ab]	346.4 ± 127.4 [b]
Feeding costs/LU (€/LU)	329.0 ± 194.3 [a]	339.8 ± 378.6 [a]	199.4 ± 117.3 [b]
Total output (TO; €)	47695 ± 30577	46333 ± 31855	49829 ± 35839
Total income/LU (€)	1195 ± 409.1	1266 ± 615.3	1062 ± 363.4
GM/LU (€)	755.5 ± 267,0	789.2 ± 295,8	715.1 ± 358,4

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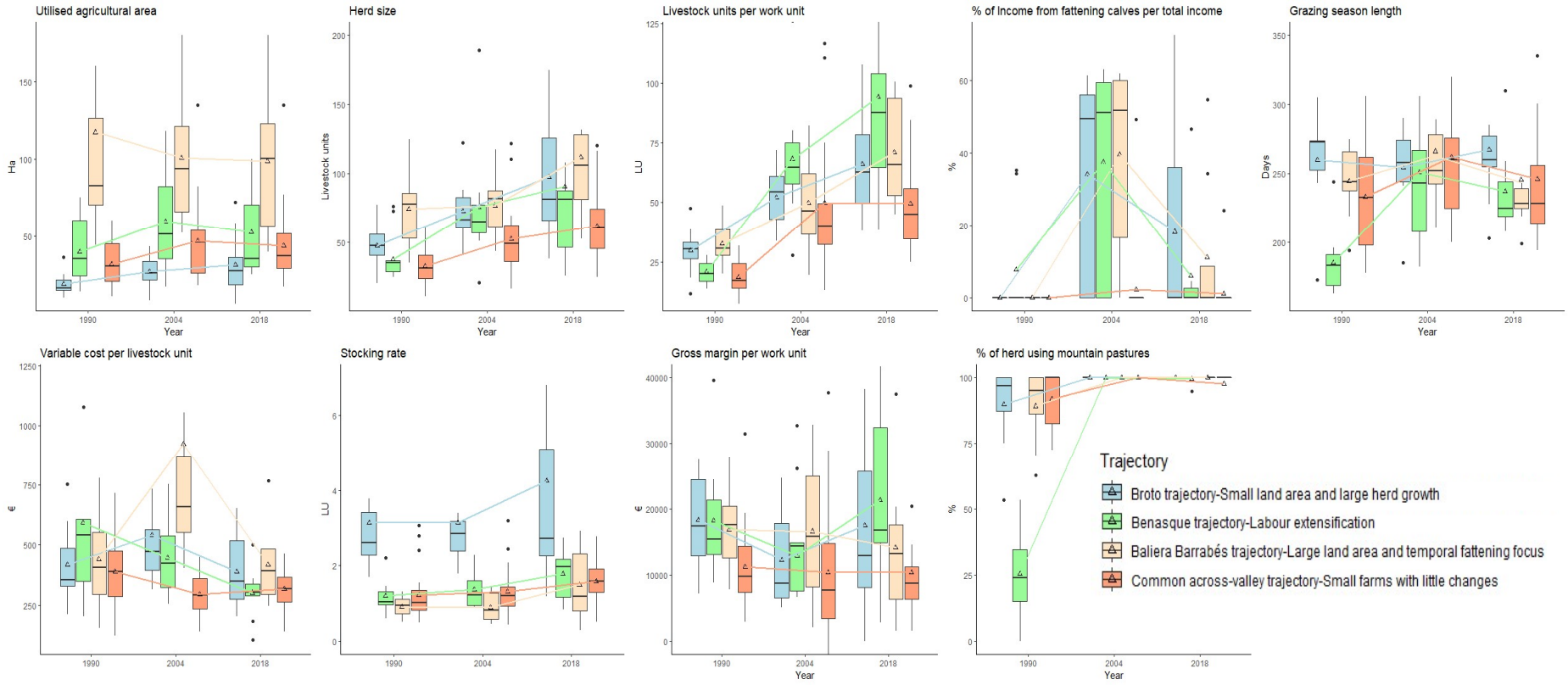
RESULTS

- **Trajectories of evolution**



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FINAL REMARKS

- We observed a clear process of extensification regarding both land and labour force production factors in the 1990-2018 period.

- Besides this common trajectory, faming systems in different valleys have followed distinct trajectories, highlighting the existence of regional factors that influence farming systems evolution.

- In future studies, we aim to identify internal farm factors and external policy and socioeconomic conditions, both at local and national level, that drive the different trajectories of evolution observed.

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THANK YOU

FOR YOUR ATTENTION!

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