# Structural Characterisation and Typology of Awassi and Assaf Dairy Sheep Farms in the NW of Spain

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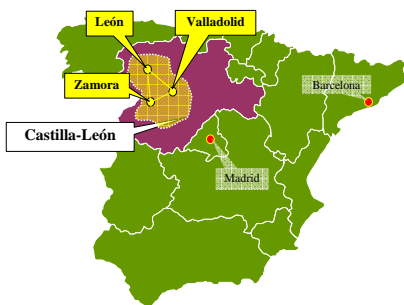
## INTRODUCTION

Castilla-León (Autonomous Community in NW of Spain), has more than 900,000 Awassi (20%) and Assaf (80%) sheep which compete with local breeds for dairy sheep production.

**Aim was:**

to study the structure and performance of Awassi and Assaf dairy sheep farms located in Castilla-León (NW of Spain) and to establish a farm typology to understand the diversity of existing farming systems.

## MATERIALS AND METHODS

Data were obtained from **69 surveys** carried out by farm owners. Collected information referred to:

- Farm location and land use
- Flock size and breeds (including other species)
- Annual Work Unit characteristics
- Feeding and breeding management
- Productive performance (milk, lambs…)
- Farm facilities (buildings and equipment)

Data were processed in a 4 steps statistical analysis:

1) Descriptive analysis
2) Multiple correspondence analysis
3) Hierarchical cluster analysis
4) Separation of the differences between groups

## RESULTS

### Structural characteristics and performance of Awassi & Assaf dairy sheep farms

| Item | Mean ± SE |
|---|---|
| Dairy specialisation, % | 100 |
| Total land, ha | 55.4 ± 10.4 |
| Land ownership, % | 44.5 ± 5.6 |
| Surface: Cereals, ha | 17.2 ± 5.1 |
| Forages, ha | 19.4 ± 4.8 |
| Pastures, ha | 14.5 ± 5.8 |
| Ewes, n | 493.1 ± 29.1 |
| Annual work units (AWU) | 2.1 ± 0.1 |
| Familiar AWU, % | 90.2 ± 2.2 |
| Farmer age, yr | 42.2 ± 1.0 |
| Milk yield, L/ewe-year | 309 ± 8.0 |
| Milk fat, % | 6.5 ± 0.1 |
| Milk protein, % | 5.3 ± 0.1 |
| Lactation length, d | 199 ± 5.0 |
| Lamb weaning, d | 23.2 ± 0.6 |
| Lambing interval, mo | 9.6 ± 0.2 |
| Lamb sold/ewe-year | 1.35 ± 0.04 |
| Age at first lambing, mo | 14.4 ± 0.2 |
| Culling rate, % | 25.2 ± 1.1 |

Main farm characteristics were:

- Big flocks of high yielding ewes, having a full dairy specialization
- Medium size farms devoted to cereal-forage production (1:2).
- High milk quality for dairy products: Fat : Protein ratio = 1.23; SCC < $580 \times 10^3$ cells/ml; CFU < $97 \times 10^3$ colonies
- Machine milking (100%; Casse ×2 sides; ~15 ewes/stall)
- Simplified milking routine including machine stripping & teat dipping
- Accelerated lambing system (1.25 lambing/year) with 1.35 lambs sold/ewe as "lechal" (<1mo of age, ~ 10.5 kg BW)

Clusters by techno-structural indexes:

**Typology**

| | | | |
|---|---|---|---|
| Surface, ha | 26 | 58 | 111 |
| No. ewes | 461 | 531 | 404 |
| UTA (familiar%) | 2.0 (81.4%) | 2.2 (94.7%) | 1.7 (91.0%) |
| Farmer age, yr | 38 | 45 | 40 |
| Awassi:Assaf, % | 14:86 | 31:69 | 67:30 |
| L/ewe-year | 344 | 288 | 319 |
| Lambing interval, mo | 11.0 | 8.5 | 11.2 |
| Lactation length, d | 223 | 180 | 228 |
| Artificial Insemination, % | 57 | 10 | 0 |

## CONCLUSIONS

**Awassi & Assaf** dairy sheep farms in the NW of Spain were **fully specialized in dairy** under **intensive** and **semi-intensive** production systems. They were classed in **3 techno-structural groups** as:

- **High productivity flocks,** dependent on external resources and with **dynamic and young farmers**
- **Low productivity and great flocks,** with a bias towards **forage** production
- **Semi intensive farms with large surfaces** devoted to **cereal** production