





Development of integrated livestock breeding and management strategies to improve animal health, product quality and performance in European organic and 'low input' milk, meat and egg production




## Subproject 2: Improving low input Sheep production systems

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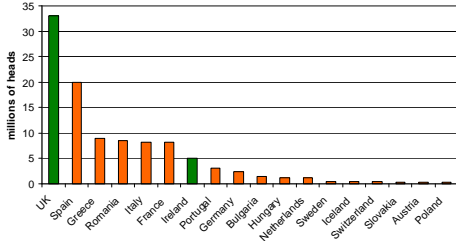


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## SHEEP PRODUCTION in EUROPE




- › 105 millions sheep in EU / 133 millions in Europe (FAO stat 2008)
- › Unequal distribution

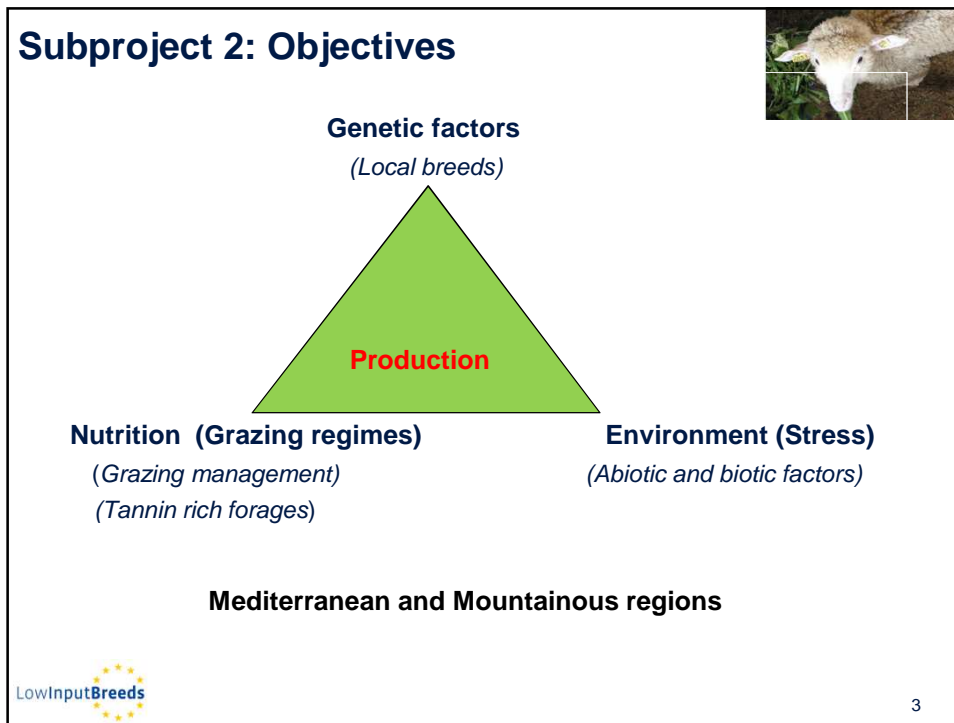


Country	Millions of heads
UK	33
Spain	20
Greece	8
Romania	8
Italy	8
France	8
Ireland	6
Portugal	4
Germany	3
Bulgaria	2
Hungary	1
Netherlands	1
Sweden	1
Iceland	1
Switzerland	1
Slovakia	1
Austria	1
Poland	1

- › DIVERSITY in:
  - Production: Meat /Milk (Wool)
  - Breeds (Persistence of local breeds)
  - Systems of production : intensive to extensive (Pasture).
- › SIGNS /LABELS OF QUALITY, both for meat and milk products



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## Subproject 2: Objectives



1. To examine the genetics of sheep resistance to abiotic and biotic factors
2. To develop integrated methods of control of GI Nematodes
3. To examine feeding and breed factors affecting the meat quality



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## Subproject 2 : Objectives



**2.1 Development of **WITHIN BREED SELECTION** systems to improve abiotic and biotic stress resistance and performance traits; comparing marker assisted and traditional quantitative genetic selection systems for functional traits.**

**2.1.1. Phenotyping of Sfakiano sheep for biotic (nematodes, mastitis) and abiotic (heat) stress resistance.**

*Dr S. Sotiraki (NAGREF) / Collaboration with stakeholders in Crete*

**2.1.2. Genotyping of sheep breeds used in different macro-climatic zones of Europe (Greece, Switzerland, France, and NZ)**

*Dr S. Sotiraki (NAGREF), Dr V Maurer, F Heckendorn and S. Werne (FiBL), Dr H. Hoste and S. Prache (INRA); Pr J. Hickford (Lincoln Univ.)*



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## Subproject 2: Objectives



**2.2 Development of improved ENDOPARASITE MANAGEMENT STRATEGIES** based on integrating: **(a)** feed supplementation with tannin rich (TR) forages; **(b)** strategic use of clean pastures and/or **(c)** the use of parasite tolerant breeds.

### 2.2.1 CONTROLLED STUDIES:

Quantification of **(a)** condensed tannin profiles in TR-forages and concentrate feeds, **(b)** 'in vitro' and 'in vivo' anthelmintic (AH) activity and **(c)** the potential contribution of non-tannin compounds to AH activity.

### 2.2.2 FIELD TRIALS (Mediterranean production systems):

Effects of (and interaction between) **(a)** different TR feeding regimes and **(b)** Sfakiano sheep genotypes on animal health, yield and product quality.

### 2.2.3 FIELD TRIALS (Mountainous/Alpine production systems) :

Effects of (and interaction between) **(a)** different TR feeding regimes **(b)** grazing regimes and **(c)** different sheep genotypes on animal health, yield and product quality



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## Subproject 2: Objectives



**2.3 Development of strategies to improve LAMB MEAT QUALITY** in sheep production systems based on optimising  
**(a)** TF feed supplements  
**(b)** grazing regimes and/or  
**(c)** the use of stress tolerant breed

### 2.3.1 FIELD TRIALS and LABORATORY STUDIES

Effects of (and interaction between) using **(a)** robust breeds/genotypes **(b)** TF-feed supplementation and **(c)** different grazing regimes on carcass and meat quality (including samples from trials under WP2.2.).

- Two studies in mountainous conditions (INRA Clermont Ferrand) S. Prache, J. Ballet (FiBL V. Maurer, F Heckendorf and S Werne)
- One study in Mediterranean conditions (Univ Catania) A Priollo, V. Vasta



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