LowInputBreeds

IMPROVING "LOW INPUT" SHEEP PRODUCTION SYSTEMS IN EUROPE

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Sheep production in EU represents more than 100 millions heads which are mainly found in less favoured areas throughout Europe. Small ruminants are usually kept in geographical areas where other livestock or crop industries are difficult to implement.

By comparison to the main conventional systems of production in other livestock species, (eg dairy cattle, pig and laying hen production included in the Low Input Breeds project), the current situation of sheep production is first characterised by its diversity in production (meat or milk, wool being usually considered as a by-product in Europe) which corresponds to a diversity of breeds, including the maintenance of several local (or traditional) breeds. Compared to monogastric species, the use of extensive systems of sheep production remains also frequent throughout Europe. The links between outdoors practices in a specific territory and sometimes the use of a local breed are often valued by the occurrence of premium products identified by labels of quality or of geographical origin for both dairy or meat products.

Within this frame, the general aim of the sheep subproject within Low Input Breeds is to explore the interactions between breeding and environment in Low Input systems to improve the animal health, production and quality of products. The studies concern in priority systems of production which occur in Mediterranean or mountainous/alpine areas within Europe and which are dedicated either to milk or meat production. The scientific teams involved in the subproject are the research institutions: FiBL (Switzerland), NAGREF (Greece), INRA (France), the University of Catania (Italy) and the University of Lincoln (New Zealand), each of these teams having strong interactions and supports from national groups of stakeholders.

The overall issue addressed within the sheep subproject is how to determine the optimal balance between genetic improvement and/or management methods depends on the different environments and objectives of production related to performance and the quality of products This concerns 3 main issues which will be addressed in 3 different workpackages. However, it is important to underline that strong interactions exist between the different WPs.

1. The genetic ability of sheep to adapt to abiotic (heat stress) or biotic stress factors (nematodes of the gastrointestinal tract (GINs) and agents of mastitis) will be examined within a dairy sheep breed in Greece, firstly, by a wide phenotyping of their response to these stress factors; secondly, by exploring whether or not this can be improved /accelerated by the use of available molecular assisted markers (WP2.1)

2. The control of GINs by a combination of methods based on i) the possible use of tannin rich resources with natural anthelmintic properties, ii) the hygiene of pastures (grazing management) and iii) the possible improved host response (evaluation of genetic resistance between local vs more intensive breed) will be examined in the second workpackage (WP 2.2)

3. The consequences of the choice of breed/genotypes; management systems and the feeding regime and their possible interactions on the nutritional and sensory quality of lamb meat (and milk) will be examined in the different previous studies (WP2.3).

The main ethical issues which will be addressed within the Low Input Breeds project in the sheep subproject concern
- the animal health and welfare
- the sheep behaviour
- the interactions with local environments in a wide, diverse range of situations including the preservation of diversity

Besides, these issues will also be examined in relation with some economical issues to illustrate how Low Input Breedings in sheep might be efficient and economically viable in a highly competitive sector.