

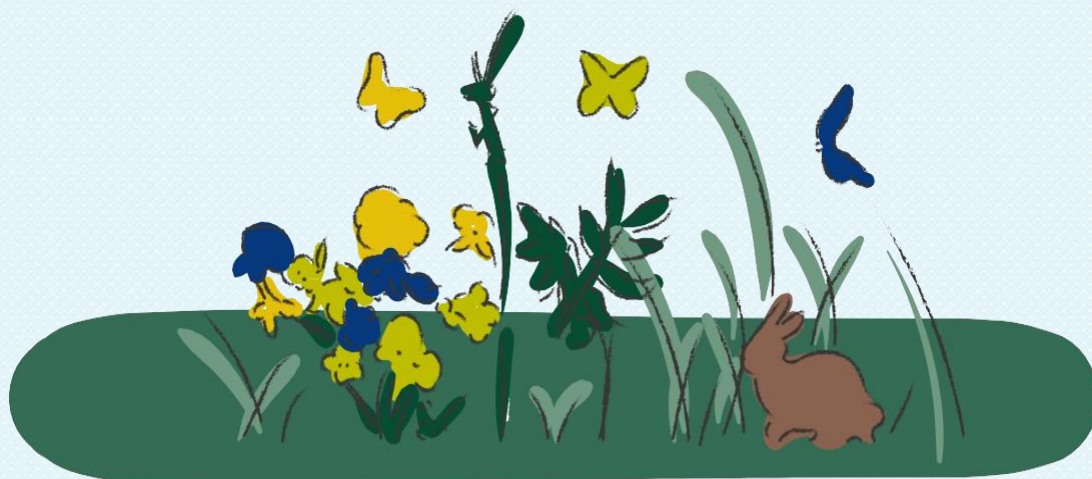
PREPARATORY ACTION

EU plant and animal genetic resources in agriculture

Compendium of projects

ITALY

Start-up of a conservation plan of the Altamura sheep breed



The publication is part of the study “Preparatory action on EU plant and animal genetic resources in agriculture”. The Preparatory Action has been initiated by the European Parliament and financed by the European Commission.

The objectives of the Preparatory action are to better understand the stakes of European neglected genetic resources in agriculture and to tap onto their economic potential.

It aims to provide inspiring examples of how to make the conservation of neglected breeds and varieties economically viable and encourage farmers and other stakeholders to engage.

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1 Introduction



Altamurana sheep breed is native to the rocky hills of Murgia in Puglia region. Nowadays, the dramatic decline in its population size is affecting the economy of the territory, still dependent on farming activities.

The INCIPIT program aims to preserve this breed on-site through the definition of a conservation plan, thus revitalising biodiversity in the area.

2 Description of the genetic resource



Altamurana, a rare native breed from Puglia region, belongs to the subgroup of South European dairy sheep. Its traditional breeding area is in the arid and rocky hills of Murgia, where for centuries it represented the primary economic resource of local farmers. In 1963, the estimated herd size of Altamurana sheep amounted to around 140 000 heads; a dramatic decline in herd size was

experienced in the following 30 years. At the beginning of the 90's, there were only 450 heads left. This declining trend had a severe impact on the fragile local economy which is still strongly depending on farming activities.

In the Mediterranean sheep farming system, which is strongly focused on production of milk, dairy products and meat, the Altamurana sheep is considered as a breed with valuable genetic traits such as survival and foraging abilities, self-sufficiency, disease resistance, fertility and longevity.

Altamurana sheep breed is included in the FAO global databank for farm animal genetic resources, where it is classified as an endangered breed.

3 Objectives of the project

The research project conducted by the University of Bari, in Puglia, aims to report on the status of the Altamurana breed. The “Start-up of a conservation plan of the Altamura sheep breed (INCIPIT)” project was funded by the Alta Murgia National Park with the objective of revitalising and preserving on-site the Altamurana sheep breed. The first step was the carrying out of a genetic

analysis of the breed to verify its current status and subsequently define the degree of biological sustainability for the preservation project.

Main objectives of the project:

- Monitoring the number of local farms rearing Altamurana sheep;
- Monitoring total population size;
- Monitoring productive, reproductive and health parameters of the breed;
- Monitoring genetic polymorphism at the “alpha” and “beta” globin *loci*; and
- Enhance stakeholders’ involvement in the project and their sensitisation about biodiversity issues.

4 Actors involved and roles

A number of actors and stakeholders are currently involved in the project, each with different roles:

- The University of Bari first undertook the research project on the status of the Altamurana breed in 2012.
- The University of Bari (Emergency and organ transplantation veterinary clinic and animal production department) and “Alta Murgia National Park” organisation subscribed a convention for the implementation of the breed preservation project in 2012.
- Farmers’ associations are in charge of the review of the breed’s productive parameters.
- “De Benedetto” and “Tortorelli” farms were in charge of controlled cross-breeding.

5 Steps and activities undertaken

Since the beginning of the project, activities have proceeded on different directions to allow a better definition of productive and health parameters, to implement a controlled cross-breeding program and to promote improved awareness about the Altamurana breed.

More specifically:

- Monitoring of productive parameters: the aim was to measure the trend of sheep milk production in order to identify the most productive ewe to use for the revitalisation of the breed. The organisation of this activity was slowed down by lack of farmers’ participation (farmers were directly in charge of performance measurement).
- Monitoring of health parameters: veterinarian assistance was assured on a regular basis in order to monitor health conditions and detect possible diseases. Preventive treatments were also implemented, such as delivery of specific products against parasites of the intestinal mucosa, hemochromatosis tests, blood samplings and genotype analysis.

- Program of controlled cross-breeding: the program was conducted in autumn and successfully completed by the two selected farms. The aim of this activity was to increase the frequency of genotypes which were immune from scrapie and to maintain the genetic polymorphism at the “alpha” and “beta” globin *loci* alterations, in particular with reference to the “alpha D” type which seems to be responsible for the sheep’s tolerance to ticks.
- Improving farmers’ awareness: efforts in this respect were made during farms tours, by highlighting the importance of the Altamura breed for preserving sheep-rearing heritage as well as by informing farmers about the preservation activities implemented by the “Alta Murgia National Park” organisation and the University of Bari.
- Promotion of the project: two international meetings were held, one in 2005 and one in 2006.

6 Results to date



The gross operational margin from rearing Altamura sheep was compared to the one for the Comisana sheep, reared in the same territory, in order to assess the level of economic sustainability of the Altamura breed preservation project.

The results showed that Altamura sheep farming has a lower gross operational margin than Comisana sheep farming (around 76% less, also taking into account EU support payments), mainly due to lower milk productivity that negatively affects farmers’ revenues. This lower profitability can be considered the actual cause of the progressive decline in the size of Altamura sheep population, as farmers tend to shift towards rearing of more productive breeds.

On the other side, the analysis also showed that the Altamura sheep has lower rearing costs (around 40% less), mainly thanks to its higher level of adaptability.

The economic sustainability of Altamura sheep farming seems to represent the crucial aspect to address with a view to a long-term preservation of the breed.

7 Next steps

In the next future, the project aims to promote the development of rural tourism activities led by local farmers, enhancing promotion of the Altamura sheep as one of the tourist attractions of “Alta Murgia National Park”. The creation and use of trademarks to certify the local origin of sheep products may also be important to further promote the area.

Besides the positive results already achieved, a number of additional objectives are foreseen for the next future. Firstly, the reduction of the inbreeding rate, as well as a better management of

genetic contributions across generations (only achievable through pedigree recording). Secondly, the objective is to achieve a better balance in the number of male and female breeding animals, in order to increase population size.

8 Lesson learned and good practices

The research activities undertaken so far seem to demonstrate that further efforts to improve the quality of both animals and their derived products (milk and meat) would allow achieving economic sustainability for Altamura sheep farming in comparison to the rearing of other breeds. This would help the sustainability of the whole preservation project in the long run.

The conservation of genetic resources and of their variability also has a significant socio-cultural added value. Indeed, the preservation of local breeds also implies the preservation of the culture and tradition of the related territory.

The creation of an institutional network of both private and public entities improved the project's feasibility. The efforts for increasing farmers' awareness about biodiversity issues can be considered as the turning point of the project, due to the farmers' crucial role for an effective preservation of the breed.

The most significant bottlenecks derived from:

- Lack of farmers' aggregation, with potential risks for the sustainability of the project in the future.
- Lack of qualified personnel in farming management.

9 Participation to other projects and networks / Funding

The project has no linkages with other projects.

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