



SERIDA

**The Regional Agrifood Research
and Development Service**



www.serida.org

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SERIDA TODAY

The Regional Agrifood Research and Development Service (SERIDA) is a public entity of the Principality of Asturias with legal personality, attached to the regional ministry competent in agrifood affairs, in accordance with its founding law (Law 5/1999 of 29 March).



Purpose

To contribute to the modernization and improvement of the capabilities of the regional food industry through research and technological development in farming, forestry and food, in order to diversify the sector, improve productivity and increase the profitability of primary assets.



Functions

- Design and execution of research and development projects that result in improved competitiveness of the food industry in Asturias, adaptation of production methods to ensure respect of the natural environment, and improvement of product quality and marketing structures.
- Updating the scientific, technical and environmental knowledge of educators and professionals.
- Establishment of an Agro-Technology Development Programme within the Regional Research Plan, capable of having an impact on productivity improvement in the primary sector of Asturias.
- Promotion of relations between technological research and development centres and all public and private institutions as needed to strengthen scientific development and the specific lines of research.
- Services to the food industry within its competencies.
- All other duties as determined by the Governing Council as part of its objectives, particularly in terms of improving the productivity of livestock and agricultural activity as well as training in the field of agrifood.



Organizational Structure

SERIDA is organized into the following main bodies: Governing Council, President, Vice Presidents and Managing Director.

The **Governing Council** is chaired by the regional minister responsible for agricultural and food affairs, with the participation of the DGs responsible for Agribusiness, Universities and Research, Economics and Consumption, the most representative professional organizations and agricultural cooperatives, the managing director of SERIDA and a representative of the workers.

SERIDA has a **Regional Agribusiness Development Council**, a consultative body for advice and participation of a technical nature and support for the agriculture and food sector, consisting of representatives of agricultural, livestock and agro-industry associations, the University of Oviedo, the Parliament of the Principality, the Foundation for the Promotion in Asturias of Applied Scientific Research and Technology (a collaborating institution of the Government of the Principality of Asturias in the management of the Science, Technology and Innovation Plan), Agro-Food Cooperatives, SERIDA technical and trade-union staff, as well as a number of relevant scientific figures in the field of agrifood sciences or techniques.

MANAGING DIRECTOR

Research Department

Animal Husbandry Systems Area

Nutrition, Pastures & Forages Area

Animal Health Area

Animal Genetics & Reproduction Area

Horticultural, Fruit & Forestry Crops Area

Vegetable Genetics Programme

Vegetable Pathology Programme

Fruticulture Programme

Forestry Programme

Food Technology Area

Technology & Services Department

Livestock Experimentation & Demonstration Area

Agro-Forestry Experimentation & Demonstration Area

Animal Selection & Reproduction Area

Agrifood Area

Transfer & Training Area

Administration & Support Department

Budget Control, Contracting & Human Resources

Support & Auxiliary Resources Area

Economics, Estatisitics & IT

Library, Archive & Documentation

Coordination Area for the Grado Experimental Station



TERRITORIAL STRUCTURE

To carry out its tasks, SERIDA has several experimental centres, stations and farms located in the Asturian municipalities of Villaviciosa, Gijón, Grado, Illano and Quirós.



SERIDA Villaviciosa

The central services of SERIDA and the Administration & Support, Research and Technology and Services departments are located in Villaviciosa.

The facilities include a 90-hectare estate to carry out R&D in the areas of: Animal Husbandry Systems, Nutrition, Pastures and Forages, Horticultural, Fruit and Forestry Crops . It has an experimental cider cellar and installations and laboratories for research in the area of Food Technology, as well as an official analysis service for beverages and a livestock food analysis service. It also houses phytopathology and genetics laboratories and a tasting room for sensory evaluation of food. SERIDA Villaviciosa also houses the library, the Livestock and Agro-Forestry Experimentation & Demonstration Area as well as the Transfer and Training Area.

SERIDA Deva. Centre for Animal Biotechnology

This centre houses SERIDA's Genetics and Animal Breeding, Animal Health and Animal Selection and Reproduction areas. With an area of 12 ha, its facilities include offices, laboratories, a zoogenetic resources repository, necropsy room, aquarium, animal house, stables and stores.

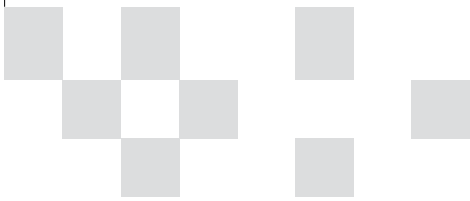
Research and development are carried out in animal biotechnology, especially in conservation of endangered indigenous breeds, reproduction and genetic improvement of Asturian livestock, development of new reproductive technologies and health checks.



Experimental agricultural station of La Mata (Grado)

With an area of 20 ha, this centre complements the research programmes in animal husbandry systems (ecological agro-husbandry with beef cattle, sheep and goats, and diversification options), nutrition, pasture and forage (evaluation of forage varieties) and horticultural and fruit crops and forestry. The forestry programme is carried out at this centre.





"El Carbayal" experimental station (Illano)

Located in western Asturias, at 1,000 metres altitude, "El Carbayal" has an area of 250 hectares where research is carried out on the revitalisation of disadvantaged areas, land management and extensive animal husbandry systems and their impact on the conservation of biodiversity.



"Cueva Palacios Experimental Farm" (Quirós)

Located at 1,650 meters above sea level, this farm covers an area of 60 hectares of natural mountain pastures and constitutes the seasonal support for studies in animal husbandry systems in mountain pass valleys. It is located in the Biosphere Reserve of Las Ubiñas - La Mesa.



Research Department



The research department is responsible for the scientific management of research programmes and coordination of research actions and resources with activities running in other departments of SERIDA.



Animal Husbandry Systems

Research focuses on the development of strategies for sustainable land management that integrate animal husbandry, meat quality and plant dynamics within multidisciplinary lines of research aimed at:

Improving the productive efficiency of beef production systems in low-lying areas, such as organic production and study of meat quality in terms of the management strategy and genotypes of indigenous breeds.

Developing sustainable animal husbandry systems in mountain areas by means of different management strategies with cattle, sheep, goats and horses, while studying their effects on plant and animal biodiversity (invertebrate fauna) in the environment and paying attention to health aspects such as control of gastrointestinal parasites by means of bioactive plants.

The study of agro-livestock systems as an additional option for sustainability and productive diversification such as the combination of sheep farming with cider apple production.

Research into the *post-mortem* evolution of meat quality, by developing innovative initiatives leading to the identification of quality biomarkers (enzymatic, proteomic), animal stress and its effect on the quality of the meat while maturing, and the development of NIRS applications for predicting, *on-line* and *on-site*, parameters indicative of quality that can be used for quality control and traceability of meat products.



Nutrition, Pastures and Forages

The main lines of work focus on:

The characterization of animal feeds and the study of their influence on milk production through feeding strategies for sustainable and competitive improvement of cow milk production, while at the same time contributing to the natural enrichment in polyunsaturated fatty acids and other functional nutrients in milk.

The use of control methods to detect food ingredients, incorporating innovative technologies and implementation of reflectance in the near infrared (NIRS) as a tool in decision making for traceability, quality and safety control in the agro-livestock sector.

Optimization of strategies for production and conservation of forage resources under conventional and organic management,

and evaluation of commercial and local maize varieties, according to the nutritional needs of livestock systems.

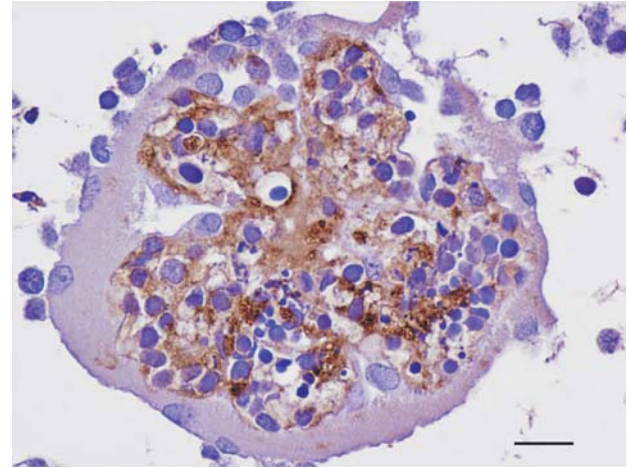
The use of wooded pastures under semi-extensive and extensive management for the native pig breed, the Gochu Asturcelta (Astur-Celtic Hog), for characterization of the carcass and its products.

The facility also has a test laboratory, the Nutrition Laboratory (category 0), accredited by the National Accreditation Body in accordance with the criteria of UNE EN-ISO / IEC 17025 norms.

Animal Health

This activity is mainly oriented towards knowledge of the most important diseases of domestic livestock, several of them shared with wildlife that can be transmitted in both directions. This is achieved through two lines of research, (a) epidemiological studies: distribution, frequency, determining factors and interactions between species and (b) control measures: development of new and better diagnostic techniques and immunological testing to obtain new vaccines.

Notable work has been done in processes such as tuberculosis, paratuberculosis, leptospirosis, sarcoptic mange, vector transmitted diseases (ticks), rabbit haemorrhagic disease and fish diseases. This area also provides technical support to the regional administration in the national campaign for the detection of viral agents in fish and in the diagnosis and control of emerging processes.



Animal Genetics and Reproduction

The main objectives of this area are:

To improve reproductive performance and the efficiency of programmes for genetic improvement and species conservation, in order to reduce the number of animals as well as the human and material resources needed to achieve gestation.

To characterize animal populations through the development and application of molecular and quantitative genetics and population tools that allow better management of diversity.

To improve reproductive and productive efficiency of farms with suckler cows.

Research activity takes place mainly through two programmes:



Animal Breeding Programme

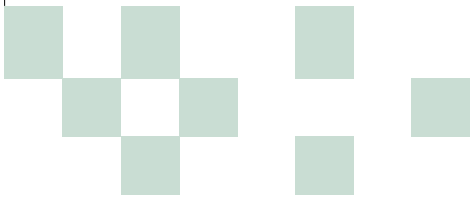
This programme studies bovine embryo development *in vitro* and *in vivo* to increase gestation success rates of the desired sex and to improve the survival and health of animals born.

New strategies are examined to assess the reproductive fitness of young bulls for natural service. After semen collection by electro-ejaculation and rectal massage, morphology and sperm motility are assessed using eosin-nigrosin techniques and CASA image analysis, respectively.



Animal Genetics Programme

This programme develops and applies technologies to assess economically important features in livestock breeding and improve the conservation of the regional livestock genetic heritage. This multidisciplinary research can be used in rural development and for improved knowledge of human history and evolution.



Horticultural, Fruit and Forestry Crops

This programme aims to contribute to improving the potential of vegetable, fruit and forest products in the Principality of Asturias.

Research activities are carried out through the following programmes:



Plant Genetics Programme

This programme is involved in the following lines of work:

- Conservation and use of plant genetic resources for food and agriculture purposes, particularly in wheat, hazelnut, blueberry and vegetable species including the common bean.
- Identification, with the support of genomic tools, of genes involved in controlling the expression of features of priority interest in genetic improvement, with special emphasis



on the analysis of the response to biotic and abiotic stresses related to climate change.

- Development through classical genetic improvement of varieties of beans and blueberry to increase the yield of local crops and promote sustainable production.



Plant Pathology Programme

This deals with the study of those pathogens that are of greatest interest for our crops, using microbiology and molecular biology techniques. The most relevant aspects are: to establish the aetiology of little known diseases, characterization of pathogens, and epidemiological studies. As regards control, efficacy studies of plant protection products have gradually given way to work

aimed at setting up biological control with hypovirulent strains, in the case of chestnut blight, or finding potential biocontrol agents for other pathogens. Another element to note is the sanitation of Asturian farm bean varieties before making them available to the sector.





Forestry Programme

The general objective of the Forestry Programme is the assessment of forest materials relevant to Asturias. These studies cover various aspects from the field to the laboratory. In particular, the programme seeks to address three specific objectives, which are to:

Meet common challenges of sustainability, while increasing the production of quality wood and the multiple use of deciduous hardwood stands and rapid growth varieties that grow in the north of the Iberian peninsula.

Evaluate our forest resources, their ability to adapt to the changing environment, and assess their potential as producers of both

traditional and new resources (bio-products).

Develop models and forestry management tools of different types and for different species.

The species under study are: *Castanea spp*, *Pinus pinaster*, *Juglans spp* and *Prunus avium*.



Fruit-growing Programme

The main lines of work are:

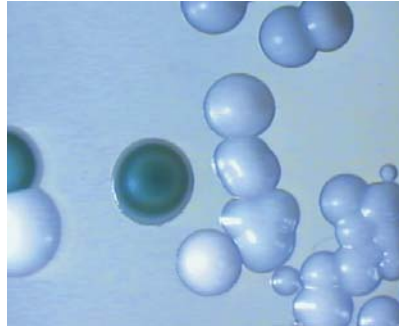
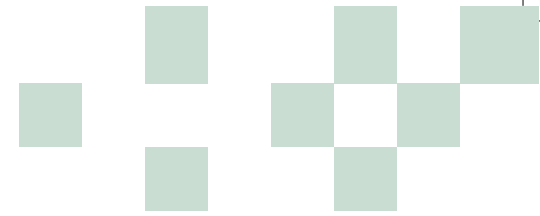
Conservation, characterization and analysis of the genetic diversity of the apple tree and other fruit species.

Evaluation, selection and genetic improvement of varieties of apple tree. Improvement of resistance, productive regularity and quality of fruit. Studies on the host - parasite relationship.

Development of ecological production systems in apple and other fruit trees adapted to local conditions. Interaction soil-tree, plant defence, pollination and regulation of production.

Survey of local varieties and support for recovery and revival of traditional fruit crops (table apple, pear, walnut, cherry, ...) within a framework of commitment to diversification.





Food Technology

Activity focuses on process design and characterization of products derived from apple and grape. Fields of action include the development of new products, upgrading and adding value to by-products of the cider industry, characterization of indigenous microorganisms of interest for agri-food, and clonal selection to obtain a certified wine-growing stock.



The Cider and Derivatives Laboratory covers a wide range of physical and chemical analyses of accredited drinks (ENAC 430/LE930), and forms part of the Network of Agrifood Laboratories for the official control of food products. In turn, it is recognized by the European Union to perform analyses in the winegrowing sector. Finally the department also offers technical advice aimed at both private individuals and professionals in this sector.



Technology and Services Department



The key role of the Technology & Services Department is to disseminate and channel to the food industry the technology derived from activity in the various research projects, by providing to technicians, farmers and society in general the knowledge and proven techniques most applicable and which result in improved productivity and working conditions for farms and companies. The department works in close connection with the Research Department.



Livestock Experimentation and Demonstration

Work is done on improving technical skills on farms and in companies belonging to the meat and milk producing sector and on production potential for fodder and its nutritional quality, in order to raise awareness, in a practical way, of the knowledge gained in efficient herd handling from the economic and environmental point of view.

The department is also concerned with launching pilot farms showing options for diversification, the revitalisation of abandoned or underused areas and consequently the enhancement of biodiversity in these areas, while taking into account the socio-economic aspects of rural development.



Agroforestry Experimentation and Demonstration

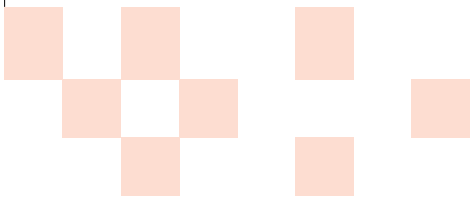
This activity aims to contribute to the revitalization of horticultural, fruit and forestry production in Asturias, by:

The consolidation and modernization of traditional productive activities, by providing the sector with innovative technologies and new plant materials resulting from SERIDA research programmes.

Obtaining technical and economic references for improving the efficiency of existing operations and planning and commissioning of new farms.

Encouraging diversification and the use of cultivation techniques that ensure sustainable use of natural resources.

The department operates through a network of demonstration and experimental plots on working farms throughout the territory of Asturias, in collaboration with industry associations, local and financial institutions, cooperatives, companies and, in general, all stakeholders or institutions involved in the development of rural areas.



Selection and Reproduction

This area is responsible for providing technical support to the livestock sector in terms of genetic and reproductive services. To do this, it is engaged in:

The development of genetic improvement programmes for bovine livestock in collaboration with ASCOL, ASEAVA and ASEAMO:

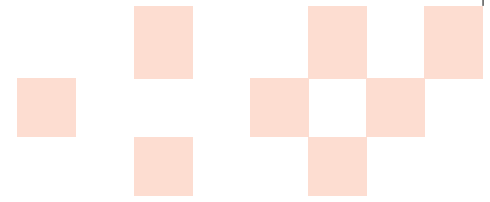
production and quality control of semen doses, cryopreservation and embryo transfer.

The use of new reproductive technologies: Ovum Pick-Up (OPU).

The establishment of the Zoogenetic Resources Bank of endangered native domestic breeds of the Principality of Asturias: cryopreservation of semen

and embryos of the Asturian Mountain cattle, the Asturcón horse, the Bermeya goat, Xalda sheep and Astur-Celtic Hog.

Conducting various tests of sperm quality in different species, using new technologies (CASA and flow cytometry).



Transfer and Training

The mission of this area is to disseminate the research work performed at the centre and deliver technical and scientific information to society in general and the food industry in particular.

The main objectives are to facilitate communication between the scientific community and the food industry, transfer the results obtained and stimulate interest in research and technology in the field of food and agriculture.

The activities in this area include: organization of workshops and conferences, open days, seminars, visits, publications, audiovisual productions, website content management, corporate image, dissemination of news and scientific and technological information, and participation in fairs and other events where the research work of Serida is made public.





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GOBIERNO DEL
PRINCIPADO DE ASTURIAS

CONSERVIA DE AGROGANADERIA
Y RECURSOS AUTOCTONOS