

Optimisation of the Segre Valley fertilisation plan in the Alt Urgell-Cerdanya area

Summary

The Pirenaica SCCL cooperative is located in the Pyrenees in an area largely covered by the Alt Urgell and Cerdanya regions, a less well-off area, strongly influenced by its relief.

Traditional dairy farming is a major activity in the area, but the difficulty in adapting to new, increasingly restrictive regulations has led to a search for joint solutions to enable the sector to continue.

The aim of this pilot project is to test a joint mobile livestock waste management system, which will improve management and optimise the fertilisation plan for the study area, consisting of L'Alt Urgell and La Cerdanya.

This project is a commitment to restructuring intensive livestock farms in these regions, modernising them by incorporating new technologies for livestock waste treatment, recovering this by-product and driving the development of the bioeconomy.

The resulting by-product will improve soil structure, thereby preventing erosion, with better water use and a reduction in greenhouse gas and ammonia emissions. At the same time, it will be a major source of nutrients for areas those most deficient in livestock waste and will boost the local economy.

Objectives

-Establish a joint management system for livestock waste from dairy and beef cattle among the members of the Pyrenean Cooperative.

-Optimise the fertilisation of farms in the Alt Urgell and Cerdanya area, carried out by the Pirenaica cooperative, by implementing of a pilot mobile settling system.

-Carry out a thorough characterisation of the soils and livestock waste in L'Alt Urgell and La Cerdanya in order to provide fertilisation advice technicians equipped with the tools necessary for efficient decision-making.

-Reduce transportation costs and the carbon footprint in applying livestock waste.

-Assess ammonia emissions throughout the livestock waste management change in farms in the pilot project as well as the dynamics of soil nutrients.

-Revitalise local agriculture and livestock.

Description of the measures planned in the project

Pirenaica SCCL is a cooperative that has been serving farmers and ranchers, mainly in L'Alt Urgell and La Cerdanya, since 1945. Its aim is to provide members with all the supplies and services necessary for the operation of their farms and livestock. It currently supplies raw materials to farmers in L'Alt Urgell and La Cerdanya, also extending to other neighbouring regions such as El Pallars Jussà, El Pallars Sobirà and L'Alta Ribagorça (and other areas to a lesser extent). Thus it is considered the cooperative of the Pyrenees.

Recently, regulations for livestock waste management have been amended. With these changes, placing greater restrictions on both the amount of nitrogen that can be applied to plots and periods of application, livestock farms will need more land for their livestock waste plans and, at the same time, will be forced to schedule manure application work more carefully with advice from the new figure of livestock waste technical adviser.

The proposed strategy aims to lease mobile equipment (manure settlers) to concentrate nitrogen and phosphorus from livestock waste in the solid fraction and thus reduce transportation costs by reducing transported volumes and increasing their concentrations.

The decanted product would then be sent to farms deficient in livestock manure. This would enrich the soil in these areas, which lack nutrients, and revitalise extensive arable and livestock farms, which are gradually disappearing, with the resulting abandonment of pastures, meadows and cereal fields, having negative consequences of loss of biodiversity and invasion of forests, increasing forest mass and the risk of forest fires. All this also means a loss of cultural heritage and population in the area.

The project focuses on improving livestock waste management to achieve competitive and sustainable livestock farming throughout the area of influence of the operational group (L'Alt Urgell and La Cerdanya), where livestock manure is no longer a problem that needs to be removed but is recovered as a resource. At the same time, the yield from farms deficient in livestock waste needs to be improved. The fact that manure is no longer a limiting factor for both surplus-producing and deficient farms will attract future generations, who will have a sustainable and productive farming model.

The reason for leasing the equipment is to test the technology in order to assess possibilities future purchase of equipment with a greater treatment capacity to be able to include most of the farms in the regions. The project will assess the cost of livestock waste management to evaluate its potential.

Given the geographical distribution of the participating farms, use of mobile equipment is essential so it can be moved among the surplus livestock waste farms. From there we aim to take the settled product to the deficient areas.

To ensure the technicians in the operational group and the livestock waste management centre have all the necessary parameters for decision-making, analyses of soils and livestock manure will be carried out through the University of Lleida Soil and Water Research Group, as well as providing data that will allow better characterisation of the soils, farms and livestock waste generated in these farms within the scope of this operational group.

In addition, all the data from the management of each livestock farm included in the pilot project of the PIRENAICA SCCL Livestock Waste Management Centre will enable an accurate record-keeping of the tasks, thus ensuring greater accuracy and real-time management of livestock waste, its application, the pastures where it is used and the amounts of nutrients provided to other livestock farms. This will greatly simplify the task of keeping the livestock waste management logbook. This task, which is time-consuming and therefore an extra cost to the farm, will be simplified by the Livestock Waste Management Centre logbook.

Finally, a study will be carried out on ammonia emission recovery and soil nutrient dynamics by the Soil and Water Research Group in all phases of livestock waste management. The results will optimise decision-making for managing livestock waste by the livestock fertilisation advice technicians. The data will also be transferred to the soil service of the Government of Catalonia Ministry of Agriculture.

All data will be published by the Research Centre.

Expected results and practical recommendations

Demonstrate the usefulness of joint livestock waste management including administrative management.

- Determine the costs of livestock waste management in L'Alt Urgell and La Cerdanya to facilitate decision-making regarding its management.
- Improve efficiency in the management of manure from farms taking part in the plan.
- Reduce the carbon footprint of livestock waste management.
- Conduct more in-depth study of the dynamics of nutrients in the soil and thus improve fertilisation.
- Improve the agricultural yield in areas deficient in livestock waste (mountain areas and La Cerdanya), allowing people to settle in the area in the future.
- Obtain data demonstrating the technical and economic benefits of using this technology.
- Respond to regional topography by implementing the mobile treatment system.

Leader of the Operational Group

ORGANISATION: PIRENAICA SCCL

E-MCONTACT E-MAIL: montse@coopirenaica.com

Other members of the Operational Group (not recipients of the grant)

ORGANISATION: SOIL AND WATER RESEARCH GROUP (UDL)

CONTACT E-MAIL: joseramon.olarieta@udl.cat

ORGANISATION: SERVEIS CIFISAO SL

CONTACT E-MAIL: cifuossera@gmail.com

Subject area(s) of application

- Agricultural production system
- Agricultural practice
- Agricultural equipment and machinery
- Livestock farming and animal welfare
- Vegetable production and horticulture
- Landscape / Territorial management
- Pest and disease control
- Fertilisation and nutrient management
- Soil management
- Genetic resources
- Forestry
- Water management
- Climate and Climate Change
- Energy management
- Waste and by-product management
- Biodiversity and environmental management
- Food quality/processing and nutrition
- Supply chain, marketing and consumption
- Competitiveness and agricultural and forestry diversification
- General

Geographical area(s) of application

PROVINCE(S)	REGION(S)
LLEIDA AND GIRONA	ALT URGELL AND CERDANYA

Dissemination of the project (publications, seminars, multimedia, etc.)

Organisation of dissemination sessions, editable materials, website and social

More information on the project

PROJECT DATES	TOTAL BUDGET
Start date (month-year): July 2020	Total budget: €163,000.00
Completion date (month-year):	DARP funding: €65,037.00
Current status: Underway	EU funding: €49,063.00
	Own funding: €48,900.00

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