

DURCAT: Meeting the demand for durum wheat through local production with low environmental impact, short distribution chains and total traceability

Summary

Catalonia generates more than 60% of Spain's pasta and semolina business and the Catalan company Productos Alimenticios Gallo SL is the industry leader. Given that durum wheat is not produced in Catalonia, this significant level of internal demand is met through importation. The project aims to create a productive and commercial framework to meet the internal demand for high-quality durum wheat, with the following advantages:

- For the producer: a new cultivation alternative with associated technological packages. These include recommendations concerning varieties and precision agriculture production, with agronomic practices based on latest-generation remote detection and sensor techniques that optimise irrigation and nitrogen fertilisation. Diversification of production and improvement of the economic and environmental sustainability of farms.
- For the industry: coverage of demand with local, high-quality production and full traceability. Integration of all the links of the pasta value chain, including the choice of variety, raw material production methods, the preparation of the product, and delivery to the end consumer.
- For the environment: cereal crop diversification, implementation of a production model designed to reduce environmental impact and the emission of greenhouse gases caused by goods transport.

The project (2019-2020) includes the following stages: 1) Identification of the best varieties, 2) Definition of innovative technological packages for sustainable production, 3) Establishment of a short distribution chain oriented to quality and sustainability, 4) Assessment of the environmental and economic impact of the production model, 5) Dissemination of the results to the sector.

Objectives

General: Offer durum wheat to the cereal crop sector as a new sustainable alternative, implementing a production model oriented to quality that connects the production and consumption of pasta in a short distribution chain, while providing a response to the industry's internal demand in Catalonia.

Specific:

1. Establish the potential of durum wheat in Catalonia, selecting the varieties best suited to each area.
2. Determine economically sustainable technological packages based on innovative decision-making tools to produce high-quality grain that respects the environment.
3. Create a short distribution chain integration model.
4. Assess the environmental and economic impact of the proposed model.

Description of initiatives outlined in the project

- Establishment of the potential of durum wheat in Catalonia. The varieties that optimise the production-quality-sustainability balance will be identified for each area.
- Determination of technological packages. Decision-making regarding irrigation and nitrogen fertilisation strategies will be based on latest-generation remote detection and sensor techniques.
- Implementation of the short distribution chain model from field to industry.

- Assessment of the impact of the production model. The life-cycle assessment and the economic study will cover grain production, transport and pasta production.
- Transference of the results to the industry, including training for young agricultural entrepreneurs.

Expected results and practical recommendations

The expected results are as follows:

- Establishment of the production potential of the various areas of Catalonia and knowledge of the varieties most suitable for the production of high-quality durum wheat.
- Quantification of the effect of the factors that limit production in each area.
- Determination of the seasonal threshold water status values to be used by means of thermal remote detection in order to implement irrigation recommendations. These models may subsequently be applied to other annual crops and different climate conditions.
- Innovative methodology for the transformation of satellite data into irrigation recommendations.
- Validation of new remote detection and sensor tools for irrigation and fertiliser recommendations to ensure economically and environmentally sustainable farming.
- Determination of the potential reduction of the use of water and nitrogen fertiliser for the production of high-quality durum wheat.
- Optimisation of the agronomic practices in each area.
- Environmentally quantitative indicators of the various options analysed.
- Assessment of the improvement of the homogeneity of the quality of batches of grain through differential fertiliser applied in accordance with the internal variability of the plot.
- Detection of any environmentally critical points and improvement proposals.
- Model for the adhesion of farmers for the production of durum wheat under contract.
- Materials to raise the environmental awareness of producers.
- Critical mass of farmers interested in incorporating the cultivation of durum wheat into their production systems.
- Initial group of trained farmers that can start to implement the techniques.
- Widespread dissemination of the project.

Task force leader

Entity: **PRODUCTOS ALIMENTICIOS GALLO, S.L.**

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Typology of entity:
Agri-food company

Task force coordinator

Entity: **CENTRO TÉCNICO ALIMENTARIO, S.A.**

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Typology of entity:
Other actors in the sector

Other task force members (grant beneficiaries)

Entity: **CAYCSA**

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Typology of entity:
Agrifood co./ind. assoc. or group

Other task force members

Entity: **ASSOCIACIÓ DE COOPERATIVES DE LES TERRES DE LLEIDA, S.C.C.L.**

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Typology of entity:
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Entity: **ASSOCIACIÓ CATALAMA DE MULTIPLICADORS DE LLAVORS (ACML)**

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Typology of entity:
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Entity: **IRTA**

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Typology of entity:
Research centre

Entity: **JOVES AGRICULTORS I RAMADERS DE CATALUNYA (JARC)**

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Typology of entity:
Agricultural producers group or association

Subject area(s) of application

Agricultural production system
Biodiversity and nature management
Farming/forestry competitiveness and diversification
Farming practice
Fertilisation and nutrients management
Food quality/processing and nutrition
Plant production and horticulture
Supply chain, marketing and consumption
Water management

Geographical area(s) of application

Province(s)	Region(s)
Tarragona	Noguera
Lleida	Pla d'Urgell
Girona	Segarra
Barcelona	Segrià
	Urgell
	Vallès Oriental

Dissemination of the project *(publications, conferences, multimedia...)*

The planned dissemination activities include:

- Visits by farmers and technicians to the pilot and experimental plots.
- Organisation of a specific technical seminar on the cultivation of durum wheat in Catalonia.
- Sheets recommending varieties and good agronomic practices.
- Publication of technical and dissemination articles in specialist magazines.
- Specific training for a group of young farmers on decision-making about irrigation and nitrogen fertilisation based on remote detection data.
- Dissemination at other scientific and technical seminars (e.g. seminars on remote detection applied to agriculture and transfer seminars included in the PATT (Annual Technology Transfer Plan of the DARP (Ministry of Agriculture, Livestock, Fisheries and Food)).
- Publication in various media such as websites, social media, bulletins, technical sheets, the Ruralcat website, etc.

Project website

More information on the project

Project dates

Budget approved

Starting date (month-year): June 2018

Completion date (month-year):

Current status: *Underway*

Total budget:

€177,396.57

DARP funding:

€72,498.24

EU funding:

€54,691.66

Own funding:

€50,206.67

With funding from:



Generalitat de Catalunya
**Departament d'Agricultura,
Ramaderia, Pesca i Alimentació**



**Fons Europeu Agrícola
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Order ARP/133/2017, of 21 June, approving the regulatory bases of grants for cooperation for innovation through the promotion of the creation of European Association for Innovation task forces in terms of agricultural productivity and sustainability and the execution of innovative pilot projects by these groups.

Resolution ARP/1868/2017, of 20 July, calling for applications for grants for the year 2017.

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