

TiO de Camp - Oilseed meal and cold pressed camelina oil

Summary

Camelina (*Camelina sativa* (L.) Crantz) is an oilseed crop in the cruciferous family. The species has a short growth cycle, and tolerates droughts and cold well. These characteristics mean that its management can be more flexible than winter cereals especially in terms of seeding dates, and make it an interesting alternative from a technical point of view for implementation in rotation in dry farming cereal fields, and one which contributes to sustainable crop production. However, it is not widespread, partly because it is a less productive crop than cereals. Oil and oilseed meal rich in healthy fatty acids (omega-3), antioxidants and vegetable protein, among other products, are also obtained from pressing camelina seeds. These compounds can enhance the value of the crop, making it attractive to farmers. Although oil from the first pressing, without any prior refinement, may not be used for human consumption in Spain (Royal Decree 308/1983 of 25 January), its use in cosmetics, pharmaceuticals, industry and in animal feed is permitted. Oilseed meal is also used on fish farms to feed salmon, and can also be used as an ingredient in feed for other domestic animals, and is included as such in Regulation (EU) 2017/1017 of the European Commission.

Objectives

The project aims to classify ten different varieties of camelina produced in two areas with different climates: one area with a semi-arid Mediterranean climate, (<400 mm) and another with a sub-humid Mediterranean climate (400-600 mm), with two seeding dates in the field located in the wetter area. The varieties will be classified based on three aspects:

1. The adaptation and yield of each variety of camelina from an agricultural point of view.
2. An exhaustive analysis of their nutritional characteristics (fatty acid profile, phenolic compounds, tocopherols, crude protein, digestibility, etc.) in the oil and oilseed meal obtained from the first cold pressing.
3. Assessment of the potential for including the meal produced in animal feed.

Description of the measures planned in the project

August-September 2020: Selection of the fields where the experiments will be carried out.

October 2020: Preparation of the fields for planting.

November 2020: Marking of plots and seeding of the ten varieties in the two selected fields. Analysis of soil samples from the selected fields.

January 2021: Marking and seeding of the ten varieties on the second date (sub-humid area).

December 2020-March 2021: Management and maintenance of field experiments: fertilisation; phytosanitary treatments where necessary; redefinition of plots with a herbicide application campaign. Additional measurements may also be taken during this phase, such as the coverage and height of the camelina varieties, in order to parameterise their development and growth.

May 2021: Harvest and estimation of production. End of field trials. Transportation of the samples for

processing and obtaining the end products by cold pressing.

May-June 2021: Pressing of the samples. Return of the end products to the University of Lleida.

June-October 2021: Laboratory analysis (oil and oilseed meal).

October 2021: Provisional assessment and selection of three most adaptable and highest quality varieties from the products obtained.

December 2021-March 2022: Management and maintenance of field experiments, similar to the previous year.

January 2022-March 2022: Data analysis and preparation of results.

May 2022-July 2022: Dissemination of the results obtained. Participation in transfer sessions in the sector. Presentation of papers at technical meetings and national conferences. Dissemination of the results through the media provided by the AEI.

Expected results and practical recommendations

The anticipated results are:

1. Identification of the most productive varieties and those best suited to sustainable cultivation techniques and suitable for the climate in different areas of Catalonia where dryland cereal crops are the cornerstone of the agricultural economy.
2. Complete characterisation of the oil and oilseed meal from ten varieties of camelina in terms of being able to determine potential uses of high value.
3. Determination of the potential subsequent use of camelina oilseed meal, in the production of animal feed, among other areas.
4. Selection of at least three varieties that can be used as crops in rotation, and which can contribute to boosting a local network for products obtained from camelina.
5. Impact on the Catalan productive sector and the agricultural processing sector as regards the benefits of camelina as a potential crop for diversifying current rotations in dry farming areas.

Leader of the Operational Group

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Subject area(s) of application

- Agricultural production system
- Agricultural practice
- Agricultural equipment and machinery
- Livestock farming and animal welfare

<input checked="" type="checkbox"/>	Vegetable production and horticulture
<input type="checkbox"/>	Landscape / Territorial management
<input type="checkbox"/>	Pest and disease control
<input type="checkbox"/>	Fertilisation and nutrient management
<input type="checkbox"/>	Soil management
<input type="checkbox"/>	Genetic resources
<input type="checkbox"/>	Forestry
<input type="checkbox"/>	Water management
<input checked="" type="checkbox"/>	Climate and Climate Change
<input type="checkbox"/>	Energy management
<input type="checkbox"/>	Waste and by-product management
<input type="checkbox"/>	Biodiversity and environmental management
<input checked="" type="checkbox"/>	Food quality/processing and nutrition
<input type="checkbox"/>	Supply chain, marketing and consumption
<input checked="" type="checkbox"/>	Competitiveness and agricultural and forestry diversification
<input type="checkbox"/>	General

Geographical area(s) of application

PROVINCE(S)	REGION(S)
Lleida	Segrià, Urgell, Noguera

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

The dissemination of the results will vary according to the target group. The project managers and coordinators will disseminate it to **direct target groups** at regular meetings of all the members and partners (participating companies, research groups, farmers and collaborating companies).

The **external target groups** will be farmers, specialists, advisers, agricultural companies, feed production companies, companies consuming cold pressed vegetable oils, technology centres and universities. Dissemination to these target groups will take place through publications in specialist magazines for the agricultural sector (Phytoma, Rural Life, Lands, etc.), participation in working groups and technical meetings of various societies (Spanish Weed Control Society (SEMh); Phytoma Technical Seminars; the Spanish Federation of Compound Animal Feed Producers (CESFAC); and the Spanish Federation for the Development of Animal Nutrition (FEDNA)). Reports in technical document format are also planned (technical data sheets, contributions to newsletters, etc.).

Finally, the **general target groups** will be organisations, companies and public and private institutions (CSIC, INIA), the media and society in general. Participation in round table and dissemination discussions is planned to that end (workshops, science week, science and agriculture programmes, television, radio and print media) on news and dissemination websites.

Project website

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More information on the project

PROJECT DATES	TOTAL BUDGET
Start date (month-year): July 2020	Total budget: €193,369.50
Completion date (month-year):	DARP funding: €77,154.43

Current status: Underway	EU funding: €58,204.22
	Own funding: €58,010.85

With funding from:

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Order ARP/133/2017 of 21 June, approving the regulatory bases for grants for cooperation for innovation by promoting the creation of European Association for Innovation operational groups in the areas of agricultural productivity and sustainability and the execution of innovative pilot projects by those groups, and Resolution ARP/1531/2019, of 28 May, announcing the call for the grant.

