

Una manera de hacer Europa



BUENAS PRÁCTICAS
Actuaciones Cofinanciadas

Research into new technologies to develop differentiated and healthy food products from Castilla y León-INVFOOD

Castilla y León Agricultural Technology Institute

**Programa Operativo
de Castilla y León**

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Good Practise presented by the Castilla y León Agricultural Technology Institute consisting in research into new technologies to develop differentiated and healthy food products from Castilla y León-INVFOOD

The Castilla y León Agricultural Technology Institute, hereinafter ITACyL, co-finances the development of knowledge generation projects related to strategic regional sectors, to improve the sustainable competitiveness of the regional agricultural and agri-food sector. These include those related to research into new technologies for developing differentiated and healthy food products from Castilla y León (INVFOOD).

The food and beverage industry contributes significantly to Castilla y León's economy. To maintain the relevant weight of this industry in our region and to better position ourselves in the national and international context, continuous innovation is required in order to add value and improvements to processes and therefore to products. This innovation can only be achieved by incorporating research and innovation into production systems.

Consumers are looking for foods that are healthy, ready-to-eat, minimally processed or with a processing that does not affect their nutritional properties. Bringing all these requirements together is not easy, which is why generating knowledge in this area is crucial. It is therefore necessary to conduct research on priority lines that guarantee knowledge that serves to improve agro-industrial innovation.

However, despite the availability of many of the technologies and even the industrialised ones, their application to industry is not immediate, mainly in the agri-food sector, and processes need to be optimised to improve their efficiency.

On the other hand, the world faces the challenge of nourishing more than 9 billion people and increasing food production by 70% by 2050. A deep transformation of the production and distribution models of the agri-food sector is urgently required in order for the value chain to generate the required yield to meet the nutritional needs of the population of the entire planet in a sustained and balanced manner.

The INVFOOD project aims to delve in the field of novel and/or non-thermal conservation and/or processing technologies, with the purpose of creating a platform of technological knowledge at the service of companies within the agri-food field that allows for correct advice in the search and implementation of technological solutions.

The project's total budget amounts to 173,908.75 euros, from which ERDF aid amounts to 86,954.37 euros.

Developing this proposal will have a very positive impact on the implementation of new or improved production systems in small and medium enterprises in Castilla y León's agri-food sector. In other words, some 2,458 companies in the food industry sector (9.55% of the total number of companies in Spain) will benefit from this project.

This action is considered a Good Practise because it meets the following criteria:

- 1. The operation has been adequately disseminated to beneficiaries, potential beneficiaries and the general public.**

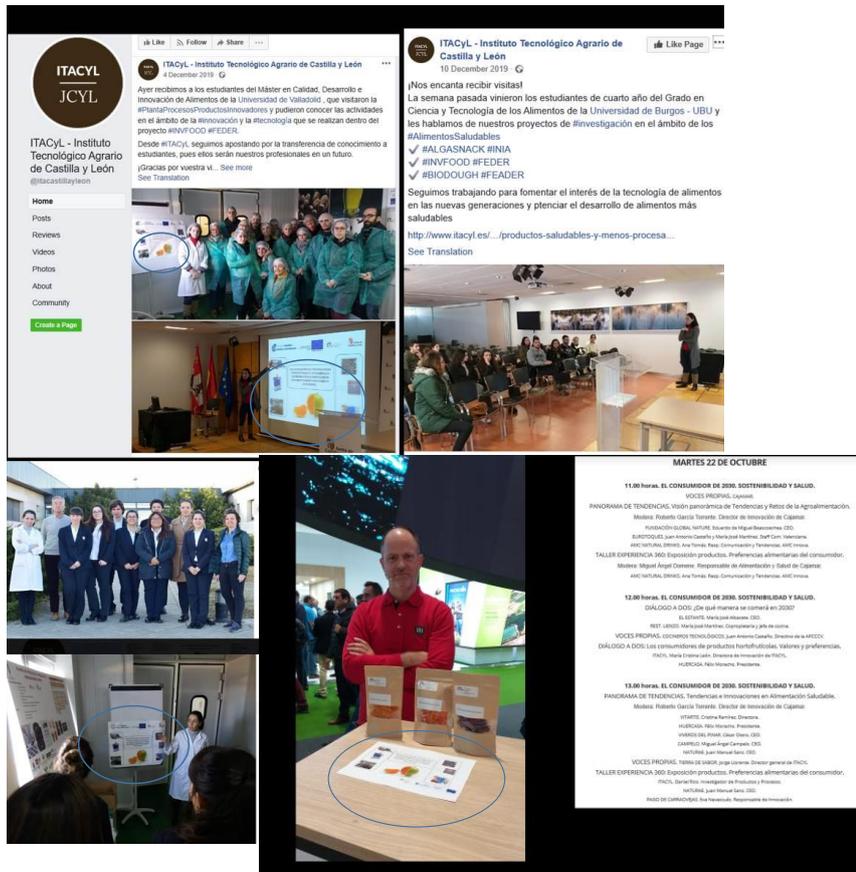
The project can be accessed on the Agricultural Technology Institute's website <http://www.itacyl.es/investigacion-e-innovacion/nuevo-modelo-de-investigacion-agraria-y-agroalimentaria-de-castilla-y-leon/financiacion-de-proyectos/feder?showDifusion=1>.



In addition, ITACyL has its own signs located in the Innovative Processes and Products Plant where the activities are carried out and that will remain throughout the life of the project.



Meanwhile, this project has been disseminated in transfer actions between different groups, for example, groups in training that will be potential professionals in the area, industries and scientific community. These actions have been recorded on ITACyL's social networks.



Transfer actions also include the preparation of scientific publications. Open Access Journal Impacto 3.011 of the article was sent to the Foods magazine: Sprouted barley flour as a nutritious and functional ingredient.




1 Article

2 **Sprouted barley flour as a nutritious and functional**

3 **ingredient**

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623 **Conflicts of Interest:** The authors declare no conflict of interest.

2. The actions incorporate innovative elements.

The action incorporates innovative differentiating aspects. This project seeks to optimise technological processes and their application to industry. That is, creating technological solutions that can be implemented in agri-food processes and new developments of agri-food products for the sector, in addition to continuous assessment of the knowledge obtained through research in this project to the industrial field, ensuring that the knowledge generated is effectively transferred.

It is crucial to research aspects related with the application of technology for both conservation and transformation that will allow for the improvement of productive aspects of the industry and ultimately improve its competitiveness.

An example of an innovative element is the work developed in the production of sprouts. The germination process requires optimisation work depending on the grain being worked on, and on the properties to be achieved. The work carried out has enabled developing a germination process that is suitable for creating a barley sprout flour with improved nutritional and bioactive properties, in addition to developing gelatines. There are currently no muffins or gelatines enriched with barley sprouts on the market. Barley is a cereal with high nutritional and active value, but with little use in the processing industry beyond its use in malting.

3. Adaptation of the results obtained to the established objectives.

The objective is to generate a knowledge platform that allows advice and innovation, and development of innovative and healthy products for companies in Castilla y León.

Unlike other Spanish regions, in Castilla y León, there is a clear prevalence of micro or small enterprises. Therefore, this project shows a great contribution to the type of sector it is addressed to.

Investment in research throughout this project will allow for studies to be undertaken in the field of development, optimisation of industrial processes, technological adaptation to packaging, new formulations and valuations that will enable the objectives to be met.

4. Contribution to the resolution of a problem or weakness detected in the territorial scope of implementation.

The project will improve the preservation and processing of agri-food products by promoting the development of healthy and long-lasting food in the Community's industries.

The application of the knowledge generated will contribute to improving industrial problems within the field of quality and safety of agri-food products, especially for SMEs and micro-SMEs.

Furthermore, through the transfer actions for groups in training, that is, students who will be potential professionals in the field, the foundations for the future of these technologies and their significance are being laid.

5. High coverage of the target population.

With the actions carried out in the context of this project, and described above, it is considered that a transfer of knowledge to agri-food companies of all sizes in Castilla y León is being achieved, but especially to SMEs and MICRO-SMEs. In 2018 and 2019, significant efforts have been made to increase contacts with the target public, i.e. the region's agri-food industries. To such end, the Network of Rural Innovation Agents with agents spread throughout the Community has been used. The INVFOOD project was presented to them all; some work on the INVFOOD knowledge platform, setting up first tests or developments of innovative products.

The same applies to the transfer to future generations of food technologists through the visits of university and vocational training students, institutes, etc. having presented the project to 128 students.

The aim is to increase this transfer in the remaining years of the project and when it has finished, reaching a greater number of companies, especially SMEs and micro-SMEs with the knowledge generated, and the scientific community (in recent years the scientific results of the project will be greater) and so will the training field, seeking to maximise the results and transfer knowledge directly and effectively, even to society.

6. Consideration of the cross-cutting equal opportunities and non-discrimination criteria, in addition to social responsibility and environmental sustainability.

The project is coordinated by an investigator and there is parity in the work team, which is made up of four members.

Innovation in agri-food SMEs and micro-SMEs is particularly interesting, since it significantly mobilises the participation of women who are based in rural areas. The industrial experiences carried out within the project have been proposed mostly by women. Its success will be very positive allowing to fix or incorporate female population to the rural environment and improving its competitiveness.

From the academic field, in the visits carried out the groups were mixed with gender parity or a greater number of women who want to prepare themselves to work in the field of food technology. Through this project, in which the coordinator is an investigator, who is expert in technologies, the importance of women being able to work in this field is transferred to them, favouring the acceptance of young women towards technological matters.

On the other hand, the use of new technologies and in particular 'non-thermal' technologies is of great value in terms of environmental social responsibility and sustainability. They generate impacts on foods similar to those caused by heat, but at lower temperatures than those of heat treatments.

As a result, they are more environmentally friendly than traditional technologies and allow removing the negative impact of heat on the sensory and nutritional properties of food. These technologies are very attractive to the food industry, as they can improve food quality and reduce energy costs and the environmental impact of the process.

7. Synergies with other policies or public intervention instruments

This project is linked to most of the regional strategic sectors identified in the Castilla y León Smart Specialisation Strategy, to improve the sustainable competitiveness in the regional agricultural and agri-food sector.

Furthermore, it is aligned with the European Strategy Horizon 2020. These actions will help to respond to the needs of consumers by providing access to safe, healthy, quality and affordable food and by considering trends and impacts on human health and the environment in food consumption and production behaviour.

This project is also aligned with the objectives of the Common Agricultural Policy (CAP) by helping to respond to needs such as the creation of actions against climate change, implementation of competitiveness, protection of quality and food and health among others.

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