

Why is this project necessary?

Plastic has become fundamental in agriculture - **the total consumption of plastic films for agricultural purposes in Europe exceeded 500.000 metric tons in 2013**. This material has different applications in agriculture. For example, it can be used for **mulching**, avoiding soil evaporation and weed control. It also can be used to manufacture **bags for fruits**, which protect them from insects and larvae. But the problem is that this plastic it is not usually recycled (since it is time-consuming and expensive), but rather burned or buried in soil, provoking extreme **environmental damage**. Therefore, governments and farmers demand **cost-efficient, and environmentally responsible solutions**.



Objectives

The general objective of this project is to demonstrate that **sustainability** and **efficiency** of agricultural practices can be achieved by introducing **an innovative, economically viable and fully biodegradable plastic** that eliminates waste completely

Development of new **biodegradable plastics** films with a very low **carbon footprint** impact

Elimination of waste management

Improvement of **soil** and **post harvest** product quality

Expected Results

- ❖ **100% waste reduction** in demonstration sites.
- ❖ **CO2 emissions reduction by 50%** since our biodegradable plastics will not use fossil fuels as raw materials and emit less carbon emissions during production.
- ❖ **Competitive market solution** for biodegradable plastics
- ❖ **Soil and post harvest quality improvement by 15% and 10%, respectively.**



International consortium comprised of organizations from Spain, Italy and Belgium.



Innovative fully biodegradable mulching films & fruit protection bags for sustainable agricultural practices



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What is it about?

The project, led by AITIIP Technological Centre, intends to **develop a new bioplastic film made from renewable raw materials that are not petroleum-based** and do not compete in food markets. Moreover, this film will be completely **biodegradable**, avoiding waste management and environmental damage.



Where does it take place?

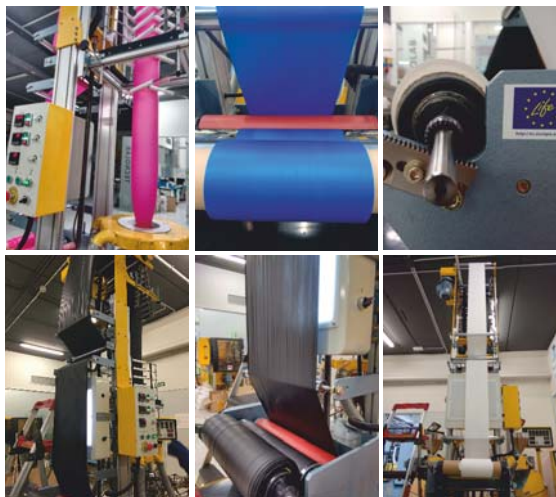
The project is being carried out in four countries: Bioplastic **production** and the **demonstration trials** will take place in **Zaragoza** and **Calanda** (Spain) while the **proof of concept** trials will be done in **Kruishoutem** (Belgium) and **Calès** (France). The laboratory analyses regarding **biodegradability** will take place in **Pisa** (Italy).



Main project activities

BIOPLASTIC PRODUCTION

A protocol for the manufacturing of agricultural **films, bags and clips** will be designed and rolled out in three phases corresponding with the on-field demonstration trials. In total, 5.300 m² of film and 7.400 bags will be produced.



DEMONSTRATION SITES

First, the **produce** that will be used in the trials will be selected (peppers, cucumber, tomato, apple and peach). Then, during the 3 years of the project, **small and large scale trials** will be carried out and **monitored extensively** for **technical** information in order to verify results and study the changes in soil quality.



MATERIAL VERIFICATION

Laboratory tests will verify the functionality and quality of the bioplastic. The experiments will focus on comparing its **mechanical properties** and **permeability** with conventional agricultural plastics. The **biodegradability** of the plastic will also be studied with the intention of obtaining **certification** before the end of the project.



POST HARVEST QUALITY ANALYSIS

Commercial quality and **nutritional content** of the crops produced with the Multibiosol bioplastic will be analyzed in order to compare the results with conventionally produced crops. Improvements in quality are expected due to **innovative microperforations** and the incorporation of **Oligo elements** to the soil.

