



## Partners

Four companies are working together in the European Project DRIUS; the Spanish company Extruline Systems, the Israeli Metzerplas, the Spanish research organization AIMPLAS (Technological Institute of Plastics) and OWS N.V. (Organic Waste Systems N.V.), in Belgium, as coordinator.

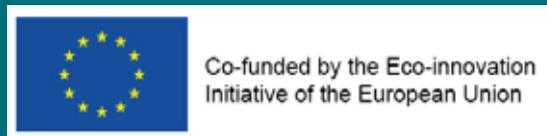
The specific role of AIMPLAS in the project will be to optimize the suitable material for drippers to make possible the industrialization of the micro-irrigation system. Extruline Systems will be responsible for manufacturing the complete micro-irrigation system (pipes and drips) at industrial level. Metzerplas is going to design the new moulds and will be the injector for flat drippers. Lastly, OWS N.V. will carry out the complete study of biodegradation and compostability in order to obtain the compostability logo.



## Contact

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## Financing



DRIUS project receives funding from the European Community's Competitiveness and Innovation Framework Programme (CIP/2007-2013), under grant agreement ECO/12/332883. DRIUS started in November 2013 and has duration of 24 months.

# DRIUS

**Industrial implementation of a biodegradable and compostable flat micro-irrigation system for agricultural applications**





## About DRIUS Project

The main focus of DRIUS Project is to industrialize the process and technologies related to the fabrication of biodegradable-compostable micro-irrigation systems (pipes and drippers) obtained through extrusion and injection technology, for agriculture crops.

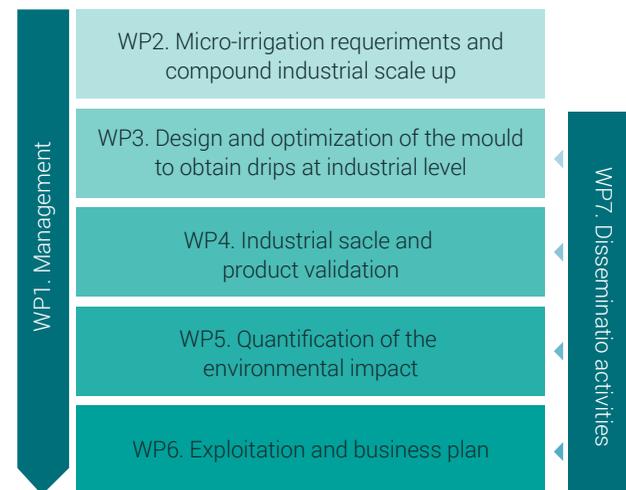
DRIUS is the continuation of a previous European project called HYDRUS (FP7/2007-2013-Grant Agreement 231975), where new biodegradable micro-irrigation pipes were developed and satisfactorily manufactured in industrial extrusion lines. However the complete system (pipes + drippers) was not obtained in HYDRUS because of some limitations: 1) Demoulding problems of drippers during the injection process; 2) The weldability between the flat drips and pipe was not enough to fulfill the current requirements for industrial production.

The main applications of the system to be developed in DRIUS will be crops of small plants such as strawberries and tomatoes with short periods of cultivations, less than a year. Currently, the problem after the crop period is the difficulty in the recycling of the irrigation system because of the mix of plastic with plants and soil, so the common solution is the burning of the waste generated. However, the new compostable system will make possible to treat the waste in a composting plant.

## Objectives

- Industrial scale-up of compounds with small modifications to improve process robustness.
- To obtain a complete micro-irrigation system (pipe and drippers) at industrial level that fulfils the requirements of the current polyethylene pipes.
- Optimization in the injection process and design of new mould to obtain biodegradable drippers.
- Good weldability between the biodegradable pipes and flat drippers at the extrusion speed used at industrial level.
- To reduce the thickness wall of the pipes to achieve the same weight than conventional system.

## Methodology



## Advantages of compostable micro-irrigations system

The unique solution to manage the waste from the conventional micro-irrigation pipes systems (pipes and drips) is landfill disposal or incineration. By using DRIUS compostable micro-irrigation systems there are some environmental advantages:

- Reduction of plastic waste
- The new system will not require the separation of plastic and green waste or the burning of the pipes and green waste.
- Energy saving in the elaboration of the pipes and drippers due to lower melting temperature of the biodegradable plastic compared to conventional polymers.
- Moreover, the new development will have a high additional value as compost will be produced at the end-of-life of the micro-irrigation systems.

