

## ***Innovative plastic materials, natural additives and novel irrigation technologies will improve performance of Mediterranean greenhouses by 15%***

*The innovations proposed by the AZMUD project will help reducing water, energy, nutrients and pesticides, and will promote the use of wastewater in irrigation and soilless systems.*

*Optimization of Mediterranean greenhouse performance by synergic combinations of the different technologies proposed will reduce production costs by as much as 15%.*

**Valencia (7 July 2020).** AIMPLAS, Plastic Technology Centre, is coordinating AZMUD project. The project consortium consists of eight partners from five different countries in the Mediterranean region: AIMPLAS and IDAI NATURE from Spain, SMARTWALL (SW) from France, Packaging Industries Co. (PIC) and Methods for Irrigation and Agriculture (MIRRA) from Jordan, the National Research Centre (NRC) and the Egyptian Russian Company for Advanced Agriculture Eco Farm (ECOFARM) from Egypt, and TABIT from Turkey.

Agricultural production and reaching to healthy food are becoming an increasingly agenda topic in the world. Moreover, greenhouse crop production is now increasing sharply. This method ensures food safety and protects high-value crops from pests and disease. New technologies and methods are helping farmers who have difficulties due to challenging conditions such as changing climate conditions, increased costs, intense labor demand. The ability to monitor temperature, humidity, light and other parameters reduces the importance of weather conditions. In Mediterranean countries, there are around 220 kha of greenhouses, 90% of which are covered with plastic and 10% with glass, according to the FAO ([www.fao.org/3/a-i3284e.pdf](http://www.fao.org/3/a-i3284e.pdf)). However, this process requires a great deal of energy, which is directly related to the water consumption of the greenhouse. The use of drip irrigation systems may be a viable solution, though it involves additional problems regarding degradation of the mechanism. The amount of pesticides used in greenhouse crops must also be monitored and controlled in order to comply with the law. Control release (CR) systems and coating pesticides are starting to be used, but their joint implementation is still problematic.

New projects and studies that will be developed in the field of agriculture, such as AZMUD project, which was created to provide solutions to these questions by optimizing Mediterranean greenhouse performance through synergic combinations of the different technologies proposed with the aim of reducing production costs by up to 15%.

On April 1<sup>st</sup>, AZMUD, this new EU project, was launched with the aim of developing four different technologies to help providing solutions to the agricultural problems mentioned above. AZMUD will address the challenge of reducing the cost and increasing the efficiency of heating systems by developing a local joule heating system for heating plant roots based on electrically conductive plastics integrated into standard soilless systems. It will also adapt and optimize low energy drip irrigation system that will work under soilless greenhouse conditions to increase the use of wastewater (where appropriate, according to the National Standards and Specifications) and reduce water and energy needs. The irrigation system will also be studied to determine if its efficiency can be increased by using magnetically treated water, which has been shown to lead to a better yield of greenhouse crops in terms of both quality and quantity.

The use of magnetically treated water will also make it possible to control the number of pathogens/plant parasites by combining magnetic fields and the use of control released pesticides and optimized agronomic parameters. Other solutions within AZMUD's scope include developing a new control release system with tailor-made biodegradable polymers that can be used in melt state to coat and encapsulate natural pesticides made based on innovative botanical formulations and suitable for several crops.

Moreover, AZMUD transparent agriculture films are three times more resistant than current ones. They are also compostable and can be mixed with plant waste. Any small pieces left in the soil will degrade in a short time (soil biodegradation). Another part of the project is the Smart Farming system based on Vodafone Smart Village tech that will be adapted to the conditions and singularities of low-tech Mediterranean greenhouses.

### About AIMPLAS

At AIMPLAS, Plastic Technology Centre, we have a two-fold mission: to provide added value to companies so that they can create wealth and to meet societal challenges to improve people's quality of life and ensure environmental sustainability.

We are a non-profit research association and member of REDIT (Network of Technological Institutes of the Valencia Region) offering enterprises in the plastics industry

comprehensive and customized solutions, including development and innovation projects, training, competitive and strategic intelligence, and technological services such as analysis, testing and technical assistance.

We also support the 17 SDGs of the UN Global Compact when carrying out our work and corporate social responsibility activities, in particular Responsible Consumption and Production (12<sup>th</sup> SDG) and Climate Action (13<sup>th</sup> SDG).



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**[www.aimplas.net](http://www.aimplas.net)**

Further information: [econes@aimplas.es](mailto:econes@aimplas.es) | Tel. +34 96 136 60 40