ENVIRONMENT

High technology against the effect of climate change on Mediterranean agriculture

A Moncofa laboratory participates in the European project SusMedHouse with tools and systems that allow sustainable greenhouse production in the Mediterranean region

First in-person SusMedHouse appointment that took place in Antalya, Turkey, at the end of November. **CAD**

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Comment

The Turkish city of Antalya has hosted the first face-to-face meeting of the institutions and companies participating in the R&D&I project SusMedHouse (Sustainability Competitiveness of Mediterranean Greenhouse and Intensive Horticulture) co-financed by the European Union.

Seven partners from six countries, including the company **Wola de Moncofa on behalf of Spain** , are working on this project that **promotes the European circular economy strategy,** as it aims to innovate systems for the sustainability and competitiveness of the Mediterranean greenhouse. . "SusMedHouse aims to achieve sustainable solutions and scientific and technological advances that promote possible future developments in the field of horticulture in the Mediterranean," explains Wola CEO, Teófilo Díez-Caballero.

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Work is being done to contribute to overcoming the problems of climate change in agriculture in this area, challenges that, added to the scarcity of resources, pollution, desertification, crop degradation, demographic growth, loss of biodiversity, among others,

ility, for which this project is

«By combining **high-tech artificial intelligence with innovative applications** , this project will provide **competitive, ecological, sustainable and high-tech greenhouse production** that will also promote year-round safe food production in the Mediterranean (MED) region. », explains the head of the Wola laboratory.

Among the specific objectives are: **increase the quantity and quality of greenhouse production and its efficiency by at least 20%** ; develop new, safer methods for managing pests and pathogens; optimize energy, soil and water resources; prevents eutrophication; contribute to the circular economy in agriculture, providing sustainability; and create automated ecological greenhouses.

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The seven partners from 6 countries (Turkey, Germany, Italy, Spain, Portugal and Egypt) are three SMEs (AR & TeCS, Wola and Proteus); two research organizations (Fraunhofer ISE, CNR-Isafom); an agricultural association from Portugal (Avipe) and an end user from Turkey (Antalya Tarým).

The participation of **the Moncofa firm Wola** (Water On Line Analysis Europe SL) consists of the development of new analytical technologies based on " **microbial biosensors" that,** in an automated manner, **will allow the continuous analysis of characteristics of the quality of the water used in the greenhouse.** «The toxicity that irrigation water may have is analyzed; "the amount of organic matter dissolved in said water and the concentration of microorganisms." At the same time, physical-chemical parameters such as pH, conductivity, turbidity, etc. are analyzed. "This technology is a pioneer at an international level and allows parameters to be measured in reduced time and at a reduced cost." "With this, it will be constantly controlled, automated and in situ, whether the irrigation water used is suitable or not for each type of crop and if at any time it is not, the irrigation will be interrupted, avoiding damage to the crop and the harvest." , Add.

In addition to the application for the agri-food industry, Wola's technology **can also be applied in other fields** , "such as environmental health, fish farms, hydroponic crops, **wastewater treatment and drinking water treatment plants,** toxic discharges generated by industries, protection of wetlands , etc.», he concludes.

THE MEDITERRANEAN NEEDS TO "IMPROVE AGRICULTURAL PRODUCTION"

The world population is expected to reach 9 billion by 2050 and food needs will increase proportionately while agricultural production declines. In the **Mediterranean region (MED**), project engineers warn, **arable land decreased from 0.38 hectares (ha) per person to 0.23 between 1970 and 2000,** with a projected reduction of **0.15 ha by 2050.**

Agriculture is an important economic sector - in employment and income - for a large part of the MED population. «In most of the countries of the southern MED (Morocco, Egypt, Turkey and Tunisia), it employs 20-30% of the population.» "With appropriate breeding practices, this potential can be exploited with substantial economic effect," they explain.

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And the food production of the MED region is not enough to sustain its population. These countries share challenges related to geographic features that decrease agricultural productivity as a result of **climate change.** Their forecasts speak of a temperature increase of between 2 and 4 ° and a reduction in rainfall between 4% and 30% by 2050.

These challenges **require investments to improve productivity, agricultural efficiency and sustainability,** which is why this greenhouse project, Susmedhouse, financed by the EU, is being promoted.

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