

LIFE AGROMITIGA

HOW DO AGRICULTURAL PRACTICES AFFECT A CROP'S CARBON FOOTPRINT?

PROJECT CODE: LIFE17 CCM/ES/000140

CALL: LIFE 2017 CCM

PERIOD: 51 MONTHS

BUDGET: 2,782,957 €

PRINCIPAL INVESTIGATOR: JESUS ANTONIO GIL RIBES



In an age of heightened awareness about the problems that climate change brings with it, a great number of citizens are taking an interest in the carbon footprint of the food that reaches their tables, and the products they use on a daily basis, the carbon footprint being understood as the totality of greenhouse gases emitted directly or indirectly by the production of those elements.

While taking into account the energy expended in production, or the miles travelled by products, international standards that measure carbon footprints overlook aspects such as the way in which products generated by agriculture are cultivated. The emission of greenhouse gases varies depending on the agricultural techniques employed and the quantity of consumables used.

To find a solution to this lack of information the 'LIFE Agromitiga - Development of climate change mitigation strategies through carbon smart agriculture' came about, coordinated by the Spanish Association of Conservation Agriculture, in concert with the 'Mechanization and Rural Technology' research group at the University of Cordoba, led by researchers Jesus A. Gil Ribes, Gregorio Blanco Roldán, Emilio J. González Sánchez, and Francisco Márquez García, from the ETSIAM.

The two objectives defining this European project are, on the one hand, the generation of coefficients that can be used by standards that measure carbon footprints (such as ISO 14067), making it possible to quantify the impact of agricultural practices on the generation or mitigation of carbon footprints; and, on the other, the implementation of management systems based on Conservation Agriculture that enhance the "sequestering power" of the soil in the Med-

iterranean Basin for herbaceous and woody crops. For this, all the energy involved is calculated, according to type of soil management, conventional or conservation, consumables, machinery, etc.

This methodology, in addition to improving knowledge about the carbon content of agricultural soils, will make it possible to demonstrate the capacity of Conservation Agriculture as a mitigator of Greenhouse Gas Emissions, and to raise awareness of this potential in the agricultural community, and, above all amongst the political and technical managers who are in charge of designing rules and regulations.

In the first steps of the project the researchers began to characterise the main crops and the main edaphoclimatic zones in Andalusia, establishing a network of 35 farms in the 5 zones demarcated. This will make it possible to look for similar areas in the rest of the countries of the Mediterranean Basin covered by the project (Italy, Greece and Portugal). The UCO's research group benefits from the results of a decade of Conservation Agriculture experiences at the experimental farm of the Campus Universitario de Rabanales, providing data on how organic matter evolves, the efficient use of consumables, and the control of adventitious herbs.

Another relevant element of the project will be the development of a technological tool to assess and quantify carbon increases due to Conservation Agriculture, which will serve as a basis for the development

and monitoring of policies linked to climate change and emissions trading. Through the development of this tool, which will feature a mobile application format, the project will provide farmers with knowledge about the state of their soils and how to shift towards a healthier soil with more mitigating power. In addition, they will benefit from the optimisation of consumables through the improvement of soil quality achieved with the Conservation Agriculture system, increasing economic sustainability.

The LIFE Agromitiga project studies how to calculate the carbon footprint of agricultural production and Conservation Agriculture's capacity to reduce it

In the four years of the project's life, in addition to good practice manuals and applications that guide farmers on their way towards 'low carbon' agriculture, CO₂ capture coefficients will be generated for Spain and other Mediterranean countries, applicable to the Paris Agreement on Climate Change, the 2030 Agenda for Sustainable Development, and the CAP, so that those who must prove compliance with these agreements, and those who draft them, have the necessary tools to develop and promote environmental policies on climate change and agriculture in the European Union based on scientific knowledge; policies that are beneficial for society in general, and farmers in particular.

