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Project LIFE+ Climagri. Best agricultural practices for Climate Change: Integrating strategies for mitigation and adaptation

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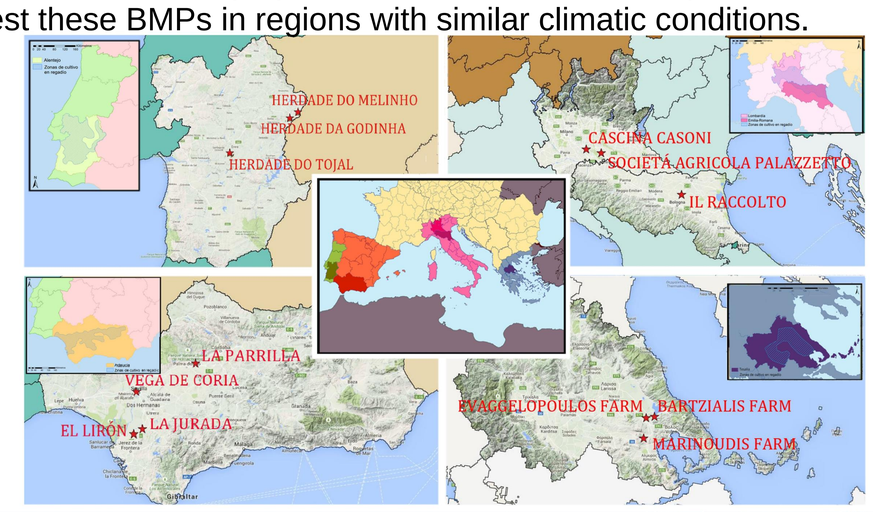
Introduction

The LIFE+ Climagri project presents a holistic approach to the climate change concerns for the agricultural sector, more specifically for the irrigated regions of the Mediterranean Basin. Through improved farming practices based on Conservation Agriculture, LIFE+ Climagri addresses the mitigation of climate change in the geographical area of study, and also favor the adaptation of crops to the future agro climatic scenario, which is likely to happen due to the expected climatic variations in the southern regions of Europe (increase of temperatures, increase of extreme weather events and reduction of rainfall). To this end, the project has implemented adaptation and mitigation measures in irrigated crops, based on a decalogue of Best Management Practices (BMPs), including the three principles of CA: Minimum soil disturbance, maintenance of permanent soil cover, and crop rotations.

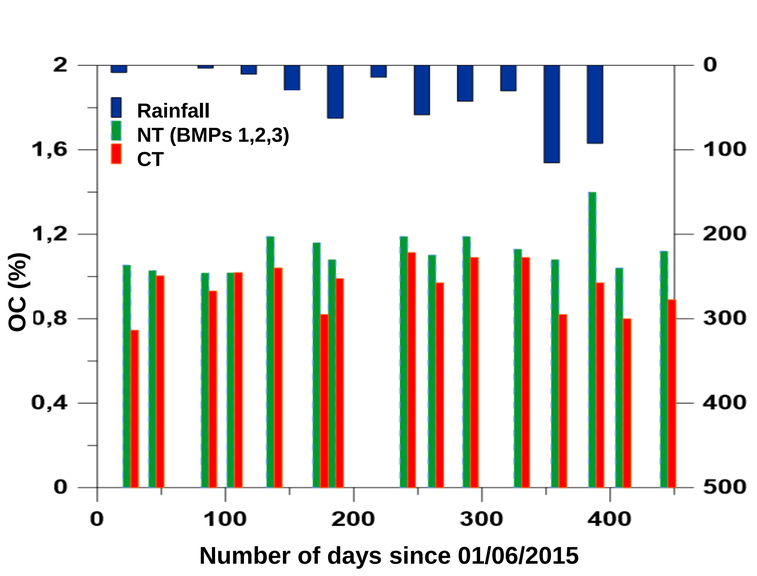
Material and methods

The LIFE+ Climagri project is being developed at two different scales: BMPs effectiveness is being verified at pilot scale both in the present climatic conditions -in several demonstration farms- and in the expected future climatic conditions, through their simulation in a greenhouse under controlled conditions; at global scale, in order to guarantee the replicability of the proposed set of BMPs, the project has established a European network of 12 demonstrative farms in Mediterranean countries (Portugal, Spain, Italy and Greece) to test these BMPs in regions with similar climatic conditions.

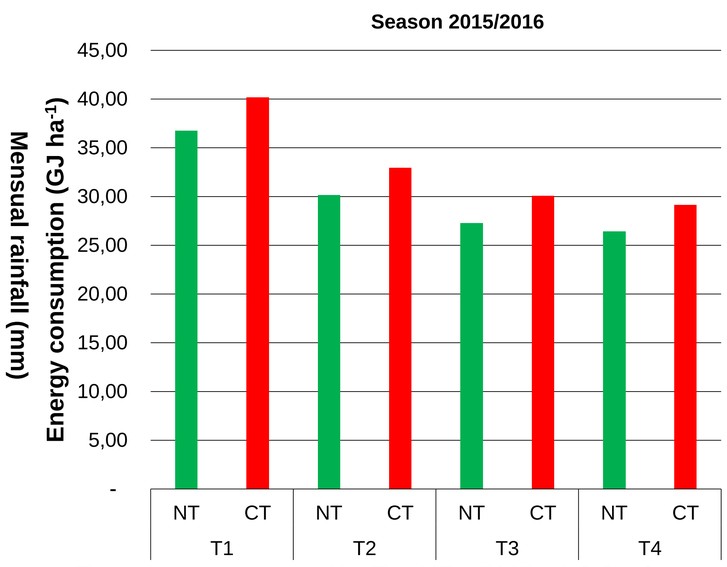
	Best Management Practices (BMPs)	Mitigation (M) Adaptation (A)
1	Permanent soil cover (No-till)	M, A
2	Minimun soil disturbance practices (No-till)	M, A
3	Crop rotation/ diversification (No-till)	M, A
4	Optimisation in the use of agrochemicals	M
5	Appropiate management of agrochemicals products	M
6	Use of advanced technologies (Precision Agriculture)	M
7	Optimum and deficit irrigation strategies	A
8	Optimised agricultural, technical and financial practices to improve irrigation water management	A
9	Multifunctional field margins	M, A
10	Measures for the promotion of biodiversity	A



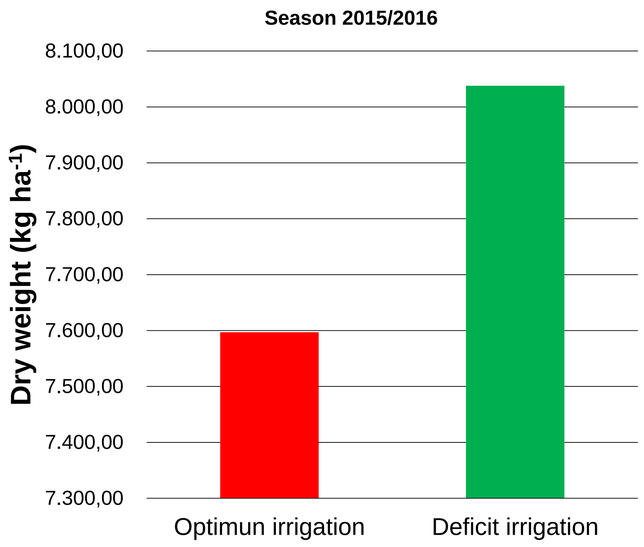
Results



Organic Carbon (OC) content in the top 20 cm of soil. No-Till (NT) (BMPs 1,2,3), Conventional Tillage (CT).



Energy consumption. No-Till (NT) (BMPs 1,2,3), Conventional Tillage (CT). T1: No more BMPs, T2: BMPs 3+4+5; T3: BMPs 3+4+5+8+9: T4: BMPs 3+4+5+6+8+9.



Maize production under two irrigation strategies (optimum and deficit irrigation) (BMP 7).

Conclusions

Preliminary results in pilot farms show that the implementation of the set of BMPs in maize (*Zea Mays*) saves around 20% of energy consumption and increases around 30% the carbon sequestration in soils with respect to the conventional farming practices. On the other hand, the maize production under deficit irrigation was 6% higher than the maize production under optimum irrigation. Additionally, in the framework of this project, a GIS platform has been developed. The GIS is a tool available at project's website (www.climagri.eu) that enables the calculation of a set of 25 indicators that can help farmers evaluate the performance of the current BMPs, and eventually suggest new ones.

Acknowledgements

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