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Mediterranean agriculture facing climate change: Challenges and policies

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1. BACKGROUND AND OBJECTIVES

This special issue of Bio-based and Applied Economics (BAE) features a selection of four papers previously presented at the 9th Conference of the Italian Association of Agricultural and Applied Economics (AIEAA) (10-12 June 2020, Valenzano-Bari, Italy), titled "Mediterranean agriculture facing climate change: Challenges and policies".

Changes in climate conditions consistently point to increasing risks to societies all over the world in uneven and multiple ways. The increasing average temperatures, frequency and intensity of extreme weather events are expected to severely affect agri-food systems in the next decades. According to figures, climate change is responsible for around 80-90% of projected changes in water availability and soil loss due to desertification processes and erosion. In many areas agricultural land and crop suitability is affected by the climate change that modifies the production patterns. The expected fall in the food production will have important consequences in the gross domestic product in the worst affected regions. All these phenomena will have important consequences for the global social stability.

The harmful effects of global climate change on agriculture are unequally distributed across regions and countries, both in relation to the physical and environmental conditions, and depending on the sensitivity, exposure and adaptive capacity of local natural and social systems. The Mediterranean area is one of the most vulnerable regions in the world to the impacts of global warming, according to international reports and projection scenarios. The European Environmental Agency (2019) states that in the coming decades, the entire Mediterranean region is expected to experience severe climate events with diversified consequences on agriculture, depending on the adaptation capacities of different areas.

The debate on impacts and consequences of climate change on Mediterranean agricultural and food systems is particularly sensitive and controversial, considering historical, socio-economic and political diversities. The Mediterranean region turns out to be a crucial crossroads for people movements induced by climate change. Relocation and movement of people will cause an increased pressure on certain areas in terms of production and consumption,

while other geographic regions will suffer further erosion and desertification, due to land abandonment and reduced level of land protection. Such migrations put increasing pressure on the geopolitical role of the region as well as its internal relations and domestic politics. Mediterranean countries, due to their geographical location, play a central role in the EU international relations. Programs within Euro-Mediterranean Partnerships often promote initiatives for climate change mitigation and adaptation. Current and future policies for agricultural and sustainable development of Mediterranean countries need to prioritize climate risks considering agriculture multiple objectives such as providing adequate food for growing populations, protecting the environment and ensuring resilience to future climatic change.

Against the above scenarios, the 2018 evaluation report of the EU Adaptation Strategy invites enhancing the knowledge base and encourages new research and development, as well as innovation, in the field of climate change adaptation and mitigation policies.

The purpose of this special issue is to address some of the challenges that agri-food systems in the Mediterranean area are facing due to climate change.

2. THE PAPERS IN THIS ISSUE

The four papers in this issue are very different in scope and methods and provide examples of different and complementary issues in addressing the topic of climate change in the Mediterranean agri-food system.

Vaquero Piñeiro (2021) focuses on GIs and their impact on the economic development of Mediterranean rural areas. Especially the paper aims at identifying whether territorial features drive the success of GIs, thus affecting their capacity to stimulate the local development. The findings demonstrate that PDO-food localized in less-developed regions struggle to achieve the highest GIs market shares. The unique presence of food quality designation does not guarantee the development of the rural area where such food is produced. The study thus invites European, national and local policymakers to intervene in the areas with weaker socio-economic conditions, by applying more flexible production regulations and creating synergies between producers, associations and regional authorities prior the designation.

Raina, Zavalloni, Targetti, D'Alberto, Raggi and Viaggi (2021) focus the attention on the farmers' decision to participate and their willingness to accept (WTA) a particular agri-environmental scheme (AES). According to literature the design of the contracts proposed to farmers influences their choice. The paper thus investigates which are the most successful attributes of the contracts, as highlighted by the scientific literature that uses choice experiments to test farmers' preferences. Results show that monetary attributes, in terms of compensation measures are highly preferred by the farmers and can increase their participation in AES, along with general contract attributes, such as the possibility to include smaller area or a shorter duration, and flexibility attributes, such as higher flexibility of participation, or different kinds of management. The study thus has the ambition to serve as a repository of possible attributes to be used in other choice experiments at disposition of other researchers and policymakers.

The paper by Lamonaca, Santeramo, and Seccia (2021) highlights the connection between climate change and wine productivity in different regions in the world. In particular, the paper aims at analyzing the effect of climate change parameters, such as increasing temperature and precipitation on production patterns in different producing regions such as Old-World Producers and New World Producers. Results seems to suggest that the effect may be different between them: while New World Producers may suffer from precipitation patterns, Old World Producers may suffer from increasing temperature. The paper thus invites other future research to examine how the entry of new world producers in the global markets may affect the global trade of wine and to understand how importers and exporters could react to new trade dynamics, due to climate change, in terms of trade regulations.

Zucaro, Manganiello, Lorenzetti, and Ferrigno (2021) in their article aims at presenting the feasibility and usefulness of Multi Criteria Analysis (MCA) in identifying the most effective project proposals in the field of water management. The issue is relevant considering the increasing effort of European and national institutions to adequately tackle the environmental effects of climate change by means of funds that follow public calls. The paper thus demonstrates that MCA can be useful tool for choosing between different investment alternatives, since it allows for the inclusion of different quantitative and qualitative criteria that can be measured in a single evaluation process. Nevertheless, the methodology is highly complex and there is the high risk of influencing the results of the method, by introducing subjective choices. For this reason, proper methods should also be applied to make MCA a useful informative support for policy decisions.