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LE SCIENZE AGRARIE NELL'ANTROPOCENE:
DALLA PRODUTTIVITÀ ALLA TUTELA
DEL PATRIMONIO MATERIALE E CULTURALE

BOOK OF ABSTRACTS

26-27 GIUGNO 2024

UNIVERSITÀ DI FIRENZE,
CAMPUS DI NOVOLI, EDIFICIO D6

110 anni di Agraria

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DIPARTIMENTO DI SCIENZE E TECNOLOGIE AGRARIE, ALIMENTARI, AMBIENTALI E FORESTALI

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SHORT COMMUNICATIONS

S8 - SC02

Mediterranean Climate Change: Is Organic Agriculture an Option to Face a Perfect Storm?

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Abstract

The current climate, energy and food crises require a reflection on the suitability of agricultural production systems. We analysed the data collected in the Montepaldi Long Term Experiment (MoLTE) field trial, where organic and conventional arable farming systems are running since 1992.
Yields significantly decreased with time in both systems (about -79% and -37% since the beginning of the experiment for spring and winter crops, respectively), which is most probably due to the reduced cumulative rainfall from seeding to harvesting (-40%). Organic winter crops constantly yielded about 21% less than the conventional ones while spring crops did not show significant differences.
Regarding soil parameters, available P_2O_5 decreased over the years both in organic and conventional systems. On the contrary, soil organic matter and total N remained constant. Differences between the two systems were noted only for organic matter, which showed significantly higher values in the organic system compared to the conventional one.
The Energy Use Efficiency (*EUE*) in organic system was higher than in conventional one. Organic winter crops showed a 33% higher *EUE* compared to the conventional counterparts. Even greater efficiency was observed for spring crops, with a 44% higher *EUE* in the organic system.
In conclusion, the farming sector in the Mediterranean area is facing climatic, energy, and food crises. In the face of increasing climate change impacts and amid the ongoing long-forecasted energy crisis, organic system showed a higher *EUE*. Therefore, organic management could serve as a viable alternative to mitigate the impact of the global food system on present challenges while enhancing the overall sustainability of global food systems.

Keywords

organic and conventional agriculture, Mediterranean area, energy balance, climate change