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The special edition of the Millennium Journal publishes the abstracts of the plenary sessions and communications (oral and poster) presented at the "International Conference on Multidisciplinary Research - CMR", which took place in a hybrid format, and whose program was developed under four thematic lines: education, technologies, health and agrarian sciences, corresponding to the central areas of activity of the Polytechnic of Viseu's R&D Units.

Inclusive education and information and communication technologies were the themes of the invited plenary talks by José Fernández Batanero (University of Seville) and Bárbara Mariana Gutiérrez Pérez (University of Salamanca), in the area of Education. "Literacy and Mental Health in Higher Education Students" and "Promotion of Health, Literacy and Lifestyles in Higher Education" were the titles of the invited interventions by Carlos Sequeira (School of Nursing of Porto, Cintesis) and Ana Rita Pedro (National School of Public Health). Agricultural Sciences and Technologies were the thematic lines of the second day of the Conference. Invited talks in the areas of food science and technology, given by Elena Bartkiene (Lithuania University of Health Sciences), and sustainable agriculture, by António Dinis Ferreira (Cernas – Polytechnic Institute of Coimbra), were the starting point for the debate that took place during the morning. Barry Feeney (Dublin Institute of Technology) and Ana Lúcia Ferreira (Veolia Water Technologies Techno Center Netherlands B.V.) were the invited speakers who, in the afternoon, spoke about the connection between polytechnic institutes and companies and the treatment of industrial water, respectively.

Over the two days, the meeting promoted, simultaneously, the presentation of communications, oral and digital, in parallel sessions, resulting from a broad "open call" with the participation of researchers from 11 countries (Brazil, Cape Verde, Canada, Spain, United States of America, Ireland, Lebanon, Lithuania, Poland, Romania, Sri Lanka).

This Congress provided an opportunity for learning and scientific growth, through the dissemination and sharing of science, having an expected impact on the scientific community and society in general.

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## PRESENT AND FUTURE LAND SUITABILITY ANALYSIS FOR EMERGING FRUIT CROPS USING SPATIAL MULTICRITERIA DECISION SYSTEMS

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In recent years there has been an increase of investment in so called emerging fruit crops. It is agreed that the choice of uses and practices best suited to soil and climate conditions promotes the sustainable use of rural areas, with positive economic impacts.

The objective of this study is to determine the suitability of emerging fruit crops based on the analysis of the limiting factors. The suitability was examined for the present time and in the face of two future emission scenarios (RCP 4.5 and 8.5). For this purpose, the biophysical criteria determining the cultivation of pistachio tree, strawberry tree and almond tree were processed using ArcGIS 10.8.

The Analytical Hierarchy Process (AHP) was used to determine suitability for the crops. A pairwise comparison between environmental criteria (temperature, rainfall, chilling hours, crop heat units, relative humidity, topography, and soil properties) was performed to calculate the weights of these criteria. As a result of the AHP suitability maps for each crop in the present conditions, for the RCP 4.5 and the RCP 8.5 scenarios were produced.

In the present conditions about 16.4% of the study area is classified as highly suitable for almond tree, 15.8% to strawberry tree, and 15.9% to pistachio tree. For the future scenarios, the area with high suitability will increase for almond tree and pistachio tree and will decrease for strawberry tree. It is the essential to be aware of the suitability and resilience of new crops to meet the need to adapt to climate change.

**Keywords:** Fruit production; Land suitability; Climate change; AHP; GIS