

## Book of Abstracts



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## Impressum

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## Evaluation of different adaption strategies to climate change in viticulture by using a multi-criteria assessment tool

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**Abstract:** Climatologists tell us that Earth's climate is changing. It seems clear that a warmer climate is developing in the northern hemisphere, and that the weather will become more variable. Climatic projections suggest that these trends will continue in the coming decades, affecting crop quality, soil moisture, farmer's life style, and generally the overall current management system. In the latest report of the Intergovernmental Panel on Climate Change (IPCC), mean global temperature is estimated to increase between 1.8 and 4.0 °C and changes in rainfall distributions are expected in most of the world, which means a substantial impact on agriculture and food production. As part of this global change, seasonal patterns are being altered to make spring conditions occurring earlier in the year especially in the north hemisphere. Nowadays concerns on possible impact of climate change are increasing worldwide, especially in agriculture. This study is carried out in a study area: Trentino region, located in the north-east of Italy. This paper presents the evaluation of adaptation strategies to face climate change in viticulture in terms of environmental, social, and economic impacts. The evaluated adaptation strategies were: (1) change of variety; (2) switch toward an alternative crop; (3) introduction of anti-hail nets; (4) changes of the irrigation system. The evaluation was carried out with an ex-ante multi-criteria assessment tool: the DEXiPM model. DEXiPM allows the comparison of different systems tanking into consideration several the criteria and indicators, and the simultaneous analysis of the environmental, economic, and social dimensions of sustainability. Environmental and economic data were provided by FEM commercial farm, while the data related to the social dimension were collected by means of a questionnaire. Results are in favor of the alternatives suggesting structural change strategies (introduction of anti-hail nets and changes to the irrigation system) rather than changes of variety and crop strategies. Irrigation system and anti-hail strategies show the highest sustainability values especially with respect to economic and social dimensions (very high and medium levels). Environmental dimension show a medium score for all the strategies except for the change of variety, which gives a low score.

**Key words:** DSS, vineyard, MASC