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Climate has a predominant role on growth and development of grapevines (Fraga et al., 2013). Consequently, climate change may become an important challenge to the winemaking sector. The present study aims to develop climate change projections for grapevine yields in Europe. For this purpose, gridded climatic variables over a recent-past (1950-2000) and RCP8.5 future scenario (2041-2060), are coupled with the STICS crop model (Brisson et al., 2008). For each grid-cell in the European sector, soil (e.g. type, texture, depth) and terrain parameters are used as model inputs. Grapevine and crop management parameters are also determined. Yield simulations under current and future climates are then compared to identify climate change impacts. For 1950-2000, the crop model is able to accurately simulate yields for the main current European wine regions, showing lower yields in Southern Europe and higher yields in more central/northern regions. For 2041-2060, the results depict an increase in yield in the later regions, and a decrease in the former, mostly over inner Iberia. The projections also show a northwards extension of the potential grapevine growth areas, emerging new potential winemaking regions up to 55ºN. The current study is a first attempt to apply the STICS crop model to the whole European sector, by using climatic, soil and terrain data as inputs. By using climate change projections as inputs to crop models, the present approach may represent a vital decision support system for the European winemaking sector.

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