

Assessment of an empirical spatio-temporal model of the grapevine phenology at the within-field scale

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Abstract:

The aim of this work is to calibrate and validate an empirical approach to predict the date of occurrence of the grapevine phenology (budburst, flowering and veraison) temporally and spatially at the within-field scale. It is based on the collaboration between a classical model of phenology based on climate data and a spatial model calibrated with ancillary data of phenology observations. This approach was tested and validated on a field of cv Cabernet Sauvignon. Results showed that the spatial component improved the fit of the climatic model, allowing the generation of maps of the grapevine phenology with errors lower than 5 days of prediction. Spatio-temporal model errors were mainly associated with the temporal component of the model.

Keywords: Within field variability | *Vitis vinifera* | Homogeneous management zones | Modelling

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