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Influence of climate change on the flowering of temperate fruit trees

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It is well known that winter chilling is necessary for the flowering of temperate trees. The chilling requirement is a criterion for choosing a species or variety at a given location. Also chemistry products can be used for reducing the chilling-hours needs but make our production more expensive.

This study first analysed the observed values of chilling hours for some representative agricultural locations in Spain for the last three decades and their projected changes under climate change scenarios.

Usually the chilling is measured and calculated as chilling-hours, and different methods have been used to calculate them (e.g. Richarson et al., 1974 among others) according to the species considered. For our objective North Carolina method (Shaltout and Unrath, 1983) was applied for apples, Utah method (Richardson et al. 1974) for peach and grapevine and the approach used by De Melo-Abreu et al. (2004) for olive trees.

The influence of climate change in temperate trees was studied by calculating projections of chilling-hours with climate data from Regional Climate Models (RCMs) at high resolution (25 km) from the European Project ENSEMBLES (http://www.ensembles-eu.org/). These projections will allow for analysing the modelled variations of chill-hours between 2nd half of 20C and 1st half of 21C at the study locations.

References

De Melo-Abreu JP. Barranco D. Cordeiro AM. Tous J. Rogado BM. Villalobos FJ. 2004. Modelling olive flowering date using chilling for dormancy release and thermal time. Agricultural and Forest Meteorology, 125: 117-127.
Richardson EA. Seeley SD. Walker DR. 1974. A model for estimating the completion of rest for ‘Redhaven’ and ‘Elberta’ peach trees. HortScience, 9: 331-332.
Shaltout AD. Unrath CR. 1983. Rest completion prediction model for ‘Starkrimson Delicious’ apples. J. Amer. Soc. Hort. Sci., 108: 957-961.