

# Experimental results and modelling of humidity control strategies for greenhouses in continental and coastal settings in the Mediterranean region. I: Experimental results and model development

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## Abstract

Experimental strategies for controlling humidity were compared in a greenhouse sited in Madrid, a continental site in the Mediterranean region. Small roof window apertures significantly reduced the relative humidity with only a limited increase in associated energy consumption. A simplified climate model with four energy exchange terms (heating, insolation, losses through structure, and losses through windows) and three mass exchange terms (evapotranspiration, losses through structure, and losses through windows) was validated, allowing relative humidity to be predicted with an error of < 9%.

Additional key words: energy consumption, heating, moisture content, ventilation.

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