

# Microclimate modification under the effect of stationary and portable wind machines

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Frosts are one of the most harmful weather events, causing recurrent and great damage in agriculture. Active control methods, such as wind machines, must be implemented to reduce the impact on crops. A new portable wind machine (PM) has been marketed for use in frost control; however, there are no reports on its effectiveness or its performance relative to a stationary wind machine (SM). Thus, the aim of this work was (i) to evaluate and compare the effectiveness on the temperature modification between the SM and PM in different operating configurations; (ii) to study the spatial and vertical temperature variation produced for both machines in several thermal inversion conditions, and (iii) to characterize the airflow pattern generated by the propellers. The evaluation was done on 12 nights with frost during winter and spring in two seasons in a pear orchard. Maximum airflow speed and spatial and vertical temperature profile measurements around the machines were eq