

Title Relationship between the incidence of latent infections caused by *Monilinia* spp. and the incidence of brown rot of peach fruit: factors affecting latent infection

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Abstract

Five field experiments were performed in commercial orchards located in Lleida (Spain) over three growing seasons, 2000–2002, in order to estimate the relationship between the incidence of latent infection caused by *Monilinia* spp. in peaches and the incidence of post-harvest brown rot. No latent infection was recorded at popcorn and the maximum incidence occurred pre-harvest; in some orchards a second peak was detected during the pit hardening period. *Monilinia laxa* is the most prevalent species isolated from peaches with brown rot. There was a positive correlation between the incidence of latent infection and that of post-harvest brown rot. The average incidence of latent infection during the crop season explained 55% of the total variation in the incidence of post-harvest brown rot. The effect of temperature (T) and duration of wetness (W) on the incidence of latent infection in peach and nectarine orchards was analysed using multiple regression. The regression analysis indicated that T and W jointly explained 83% of the total variation in the incidence of latent infection. The model predicts no latent infections when $T < 8^{\circ}\text{C}$, and >22 h wetness are required when $T = 8^{\circ}\text{C}$ but only 5 h at 25°C are necessary for latent infection to occur. The incidence of brown rot and latent infection of peaches caused by *M. laxa* under controlled experimental conditions were also affected by T and W , as well as by fruit maturity and inoculum concentration. Latent infections were produced in fruit when T was not suitable for the development of brown rot symptoms. In these experiments more than 4–5 h of daily wetness were required after embryo growth in fruit sprayed to run-off with an inoculum concentration higher than 10^4 conidia ml^{-1} of *M. laxa* for brown rot and latent infections to develop. The fitted model obtained from the field data was able to predict the observed data obtained under controlled environmental conditions.

<http://www.springerlink.com/content/m85p3h2646888225/fulltext.pdf>