Title Primary inoculum sources of *Monilinia* spp. in Spanish peach orchards and their relative importance in brown rot

Authors M. Villarino, P. Melgarejo, J. Usall, J. Segarra and A. De Cal

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Abstract

Immediately following the identification of *Monilinia fructicola* in a Spanish peach orchard in the Ebro Valley in 2006, this orchard and two other orchards in the same valley were intensively sampled for potential tree and ground sources of primary *Monilinia* inoculum before and during three growing seasons between 2006 and 2008. Overwintered *Monilinia* spp. produced inoculum from only mycelium, and no apothecia were found in any of the three orchards over the three growing seasons. Mummies on trees were the main source of primary inoculum. More than 90% of *Monilinia* isolates on all fruit mummies were *M. laxa.* Positive relationships were found between (i) the number of mummified fruit and the incidence of postharvest brown rot ($P = 0.05$, $r = 0.75$, $n = 8$), and (ii) the number of mummified fruit and nonabscised aborted fruit in the trees and the number of conidia on the fruit surface ($P = 0.04$, $r = 0.71$; $P = 0.01$, $r = 0.94$, respectively, $n = 8$) and the incidence of latent infection ($P = 0.03$, $r = 0.75$; $P = 0.001$, $r = 0.99$; respectively, $n = 8$). In addition, the numbers of mummified fruit and pruned branches on the orchard floor were correlated with the number of airborne conidia in the orchard. Based on the results of these surveys, the control of brown rot in stone fruit orchards is discussed.