

## Abstract

Brown rot, caused by *Monilinia fructicola*, is a destructive disease of stone fruit in California. Disease management requires information on inoculum dynamics and development of latent and visible fruit infections during the season to help make decisions on timing of fungicide treatments and choice of cultural practices. In this study, the daily spore concentration (ascospores and conidia) of *M. fructicola* in the air was monitored with spore traps in two prune orchards during the growing seasons in 2001 and 2002. The spore concentrations were low to moderate at early bloom, increased at full bloom, and decreased to the lowest level at the end of bloom. Improper timing of fruit thinning and irrigation in midseason increased spore concentration in the air and fruit infections late in the season. Artificial fruit inoculations were conducted periodically in 10 prune orchards in 2002 and 2004, and incidence of fruit rot at different inoculation dates was assessed. Fruit rot development rate increased linearly with inoculation date during the growing season. Natural blossom and fruit infections were monitored periodically in 10 prune orchards, and incidence of latent fruit infection was determined by using the overnight freezing-incubation technique. Incidence of fruit rot also was assessed 2 weeks before harvest in these orchards. The incidence of latent fruit infection at the pit hardening stage significantly correlated with that at the late stages and with the incidence of fruit rot at harvest.