Abstract

Peach fruit are most susceptible to infection by *Monilinia fructicola* during the preharvest ripening stage. Although various sources of inoculum for preharvest infection have been characterized, the role of latent infection of immature fruit in the carryover of *M. fructicola* from the spring (blossom blight phase) to the preharvest period (fruit rot phase) is unknown for the southeastern United States. From 1997 to 1999, immature peach fruit were collected at 14-day intervals from orchards in middle and northern Georgia. Fruit were surface disinfested and treated with paraquat (1997) or frozen overnight (1998 and 1999) to induce tissue senescence and activate latent infections. Across sites and years, the incidence of latent infection remained low until the final sampling date 7 to 12 days before harvest. The incidence of latent infection on the final sampling date ranged from 0 to 22.0% and correlated significantly with both the incidence of blossom blight earlier in the season (r = 0.9077, P = 0.0332) and the incidence of fruit rot at harvest (r = 0.9966, P = 0.0034). There also was a significant association between the incidence of latent infection at the onset of pit hardening (between 7 and 10 weeks before harvest) and subsequent fruit rot incidence (r = 0.9763, P = 0.0237). Weather variables (cumulative rainfall or rainfall frequency) alone did not correlate with fruit rot incidence ($P > 0.05$), whereas combined latent infection–rainfall variables did. The results suggest that latent infections can serve as a source of inoculum for subsequent fruit rot in peach orchards in Georgia. Despite its significant association with fruit rot incidence, the potential for using latent infection incidence as a biological indicator of disease risk at harvest may be limited; the assessment of latent infection during the fruit ripening stage (similar to the timing of the final sampling date in this study) would not provide sufficient lead time for preharvest disease management decisions, whereas an earlier assessment (e.g., at the onset of pit hardening) would require large sample sizes due to the low incidence of latent infection present during that period.