Abstract

Anthracnose fruit rot (causal agent, *Colletotrichum acutatum*) is an important disease in most blueberry growing regions of North America. Losses caused by the disease are usually seen as a postharvest rot with orange spore masses appearing on the surface of affected fruit. One hundred cultivars/selections of blueberry were screened for resistance to fruit rot between 1993 and 2003 by inoculating container-grown plants bearing green fruit. Visible rot symptoms on ripe fruits were evaluated after a 1-week incubation at room temperature. Our analyses revealed that infection levels were affected by mean May temperatures in New Jersey, generally increasing as temperatures increased; however, this effect was not consistent among all cultivars. A generalized linear mixed model was developed to predict resistance at the historic mean May temperature, conservatively explaining 59% of the variance in resistance. Percent infection ranged from 9 to 91% with a mean of 51% across all cultivars. Results for common cultivars corresponded well with field reports of their relative susceptibilities. An estimate of narrow-sense heritability of 0.32 suggested additive inheritance of resistance. Since very high inoculum loads were used in this study, cultivars exhibiting a low percentage of fruit rot are predicted to show superior field resistance to the disease and will be incorporated into an ongoing breeding program.