Abstract

It has been shown previously that covering sweet cherry trees (*Prunus avium* L.) with rain shields made of polyethylene or other waterproof, light-transmitting material prior to harvest to prevent fruit cracking will reduce fruit decay by various fungi. In the present work, the effects of extending the covering period on fruit decay, fruit quality, and the potential reduction in number of fungicide applications were investigated. In six of eight trials, there were significant reductions in fruit decay in covered fruit compared with fruit that were not covered. The most prevalent fruit-decaying fungi were *Monilinia laxa* and *Botrytis cinerea*. *Mucor piriformis* and *Colletotrichum gloeosporioides* occurred in high amounts in one trial each. The treatments included covering during rain periods until harvest was over from (i) bloom (bloom-cover), (ii) 6 to 7 weeks prior to harvest (early-fruit-cover), (iii) 3 to 4 weeks prior to harvest (late-fruit-cover), and (iv) not covered. In two trials, the number of fungicide applications was similar between different covering times (bloom-cover not included), and in one trial no fungicides were applied at all (all treatments included). There was a significant effect of covering on fruit decay in all three trials, but there was no difference between covering 6 to 7 and 3 to 4 weeks prior to harvest. In the sprayed fields, the incidence of decay was 48% in fruit that were not covered compared with from 6 to 11% in covered fruit. In the unsprayed field, covering from bloom resulted in 14% fruit decay compared with 23 to 26% in the other two cover treatments. In five trials, all covering regimes were included, and the number of fungicide applications varied with time of covering. The number of fungicide applications for the different treatments were: bloom-cover, 0; early-fruit-cover, 1 to 4; late-fruit-cover, 2 to 5; uncovered, 3 to 6. The mean incidence of fruit decay at harvest for the five trials (range in parentheses) was 3.4 (2.0 to 4.3), 1.8 (0.4 to 4.0), 3.8 (1.8 to 7.7), and 16.5% (2.5 to 39.7), respectively, for the covering times listed. There were no significant differences in decay after storage (3 to 7 days at 4°C followed by 2 to 4 days at 20°C) among the different covering times in the six experiments where fruit were stored. The results indicate that fungicide applications were not needed if fruit were covered during rainy periods from bloom until the end of harvest, and it was possible to omit 1 fungicide application if the covering period was increased from 3 to 4 weeks to 6 to 7 weeks. The fruit quality was not reduced by increasing the covering period from the normal 3 to 4 weeks in any of the experiments.