

Invasive Species

**Laboratory Survival of *Drosophila suzukii* Under Simulated Winter Conditions
of the Pacific Northwest**

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Abstract: *Drosophila suzukii* was first documented in Oregon in August 2009. Knowledge of the cold tolerance of this berry pest will help in development of computer models to forecast its seasonal population growth and decline. Of 1,500 adults or pupae, 22 (1.4%) individuals survived the 84-day experimental window. Most (86%) of the survivors were subjected to 10°C temperature treatments. Survival decreased significantly at other temperature treatments. Freezing temporarily increased the mortality rate but did not significantly affect overall mortality over the trial period. Flies that emerged from pupae are estimated to die after 103-105 days at 10°C. This work indicates that adults emerging from acclimated pupae have a survival advantage compared to insects subjected to 10°C as acclimated adults. Survival of pupae at all tested treatment temperatures appears low.