Little cherry disease (LCD) is caused by one or more of three pathogens, all of which are known to occur in Washington State: little cherry virus 1 (LChV1), little cherry virus 2 (LChV2), and western X phytoplasma (WX). In Washington State, LChV2 and WX are currently the most widespread of the above three pathogens, however this study focuses on LChV2 only. Because there is not known treatment to control or prevent LCD the remedial measure is to remove trees which is causing a major economic effect on the sweet cherry industry in the Pacific Northwest. We analyze two management strategies for LCD. First, the do-nothing strategy, in which the grower is unaware of the presence of LChV2, does nothing to control mealybugs (the insect vector), and assumes the losses of the fruit sent to the packinghouse. The with-management strategy considers that the grower invests in monitoring, sends symptomatic tree samples to be analyzed, implements a pest management program to control mealybugs, and removes the affected trees to prevent further disseminating the disease. Because there is no a priori study of LChV2 spread rates, we assumed spread rates of 1%, 3%, and 5% under the do-nothing scenario and 0.5%, 1%, and 2% under the with-management scenario. Our results indicate that the additional costs incurred in monitoring, testing, spraying to control for mealybugs, and removing infected trees are lower than the reduced profit losses compared to the do-nothing scenario. Even when comparing different LChV2 spread rates, management can prevent or lessen the negative economic impacts of higher spread rates. The results from this study illustrate the importance of prevention—particularly monitoring, correct identification and controlling for insect vectors—in preventing the dissemination of a disease, such as LCD, for which tree removal is the only remedial measure.

1 Suzette Galinato, Assistant Director IMPACT Center, and School of Economic Sciences, Washington State University.
R. Karina Gallardo, Associate Professor, School of Economic Sciences, Puyallup Research and Extension Center. Washington State University.
Elizabeth Beers, Professor, Department of Entomology, Tree Fruit Research and Extension Center. Washington State University.
Andrea Bixby-Brosi, Former Post-Doctoral Research Associate, Tree Fruit Research and Extension Center. Washington State University.

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