

Biocontrol as a key component to manage brown rot diseases on cherry

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Brown Rot, caused by *Monilinia* spp. is one of the most important diseases in stone fruits worldwide. The primary source of inoculum is from overwintering fungal colonies on mummified fruits left on the trees and the orchard floor. Current control methods include spraying of fungicide. However, the continuing pressure to reduce the uses of these chemicals has seen an increase in research into new control methods, such as biological control methods. NIAB EMR recently identified two microbes that significantly reduced sporulation of *M. laxa* under laboratory conditions. These two isolates were a bacterial species *Bacillus subtilis* (B91) and yeast-like fungus *Aureobasidium pullulans* (Y126), and currently being formulated into commercial products. We are investigating how to optimise the use of biocontrol products in practice, in terms of suppressing sporulation on overwintered mummies, and preventing infection of blossoms and fruit. In addition to quantifying the control efficacy, we are also studying the ecology of biocontrol organisms, particularly their survival in commercial orchards. The combination of propidium monoazide (PMA) with qPCR techniques will be used to assess the viable population of the biocontrol organisms after field application to suppress sporulation on mummified fruits over winter. Preliminary analysis shows that they may not survive below 0°C (Y126) and 10°C (B91) and therefore we hypothesise a rapid decline in the viable population size, potentially affecting biocontrol efficacy. This research will assist in the development of management strategies for brown rot on stone fruit, integrating BCAs with other management practices based on our understanding of ecological characteristics of available BCAs.

Key words: Brown rot, *Monilinia laxa*, cherry, biocontrol, *Bacillus subtilis*, *Aureobasidium pullulans*