

Project title: Biocontrol as a key component to manage brown rot disease on cherry

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Location of project: NIAB EMR

Industry Representative: NA

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The results and conclusions in this report are based on an investigation conducted over a one-year period. The conditions under which the experiments were carried out and the results have been reported in detail and with accuracy. However, because of the biological nature of the work it must be borne in mind that different circumstances and conditions could produce different results. Therefore, care must be taken with interpretation of the results, especially if they are used as the basis for commercial product recommendations.

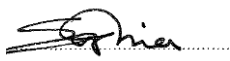
AUTHENTICATION

We declare that this work was done under our supervision according to the procedures described herein and that the report represents a true and accurate record of the results obtained.

Sophia Bellamy

PhD Student

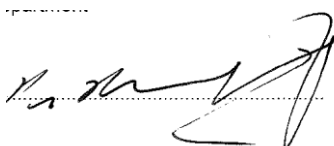
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GROWER SUMMARY

Headline

Two microbial biocontrol agents (BCAs) (*Aureobasidium pullulans* and *Bacillus subtilis*) have shown biocontrol promise against brown rot disease of stone fruits.

Background

Brown rot, caused by *Monilinia* spp., is one of the most important diseases in stone fruits worldwide. Brown rot pathogen can cause blossom wilts and fruit rots in the orchard as well as latent fruit infections leading to post-harvest rot. Current control methods rely on scheduled spraying of fungicides. However, new pathogen strains resistant to fungicides and the continuing pressure to reduce fungicide use have led to an increase in research into alternative management methods, such as biological control. 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 aim to investigate the potential to use these two novel biocontrol microbes to reduce the latent infection of cherry fruit by *M. laxa*.

Summary

Y126 and B91 are being studied for their efficacy against *M. laxa* in terms of reducing sporulation on mummified fruits, blossom wilt and latent fruit infections in cherry. In year 2 (Y2), we did a preliminary investigation into the use of these two microbes for reducing latent infection of cherry fruit, hence reducing post-harvest rot development. The results of this were promising showing a 30% reduction in post-harvest rot. In year 3 (Y3), this experiment was repeated on a larger scale including a fungicide treatment and different inoculation times. Both biological controls were able to significantly reduce the post-harvest disease incidences and in the case of B91 as effective as the fungicide control.

Financial Benefits

Further research is needed to fully assess the direct effects of these two biocontrol microbes on commercial fruit production. However promising results in a latent infection trial showed the two biocontrol agents significantly reduce the disease incidence post-harvest when applied two weeks before harvest. This is supported by Y3 results that the two organisms reduced incidences of post-harvest rotting by 30 % - 75 %.

Action Points

There are no grower action points at this stage of the project.