AHDB Horticulture

Project title:	Biocontrol as a key component to manage brown rot disease on cherry
Project number:	CTP_FCR_2017_3
Project leader:	Xiangming Xu, NIAB EMR and Michael Shaw, University of Reading
Report:	Annual report, October 2019
Previous report:	NA
Key staff:	Sophia Bellamy
Location of project:	NIAB EMR
Industry Representative:	NA
Date project commenced:	October 2017

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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.

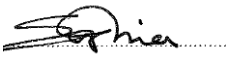
AUTHENTICATION

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

NIAB EMR

Signature ....  ..... Date ..... 14/02/2020.....

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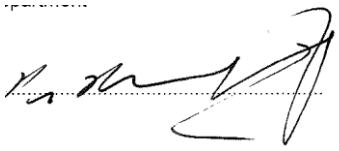
Signature .....  ..... Date .....14/02/2020.....

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GROWER SUMMARY

Headline

Two microbial biocontrol agents (BCAs) (*Aureobasidium pullulans* and *Bacillus subtilis*) have been identified and show 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 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, we specifically investigated the use of these two microbes for reducing latent infection of cherry fruit, hence reducing post-harvest rot development.

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 reduce the disease incidence post-harvest by nearly 30% when applied two weeks before harvest. However this was a small trial and not conducted under commercial conditions. A follow up exeriment in year three will be done in commercial conditions to beter quantify this.

Action Points

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