

**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 2021

**Previous report:** October 2020

**Key staff:** Sophia Bellamy

**Location of project:** NIAB EMR

**Industry Representative:** Harriet Duncalfe

**Date project commenced:** October 2017

**Project title:**

## DISCLAIMER

*While the Agriculture and Horticulture Development Board seeks to ensure that the information contained within this document is accurate at the time of printing, no warranty is given in respect thereof and, to the maximum extent permitted by law the Agriculture and Horticulture Development Board accepts no liability for loss, damage or injury howsoever caused (including that caused by negligence) or suffered directly or indirectly in relation to information and opinions contained in or omitted from this document.*

*© Agriculture and Horticulture Development Board 2021. No part of this publication may be reproduced in any material form (including by photocopy or storage in any medium by electronic mean) or any copy or adaptation stored, published or distributed (by physical, electronic or other means) without prior permission in writing of the Agriculture and Horticulture Development Board, other than by reproduction in an unmodified form for the sole purpose of use as an information resource when the Agriculture and Horticulture Development Board or AHDB Horticulture is clearly acknowledged as the source, or in accordance with the provisions of the Copyright, Designs and Patents Act 1988. All rights reserved.*

*All other trademarks, logos and brand names contained in this publication are the trademarks of their respective holders. No rights are granted without the prior written permission of the relevant owners.*

## CONTENTS

<b>Grower Summary</b> .....	<b>1</b>
Headline.....	1
Background.....	1
Summary .....	1
Financial Benefits .....	1
Action Points.....	1

## **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. This project looks at the potential of these two novel biocontrol microbes to reduce *M. laxa* on cherry in the field.

### **Summary**

Microbes 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. Y126 was able to colonise and survive well on blossom through to ripe fruit. B91 was better suited to fruit over blossom so later application would be advised. Both BCAs when applied two weeks before harvest significantly reduced the incidence of post-harvest rots on cherry.

### **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.

### **Action Points**

The two microbes used in this trial are currently not available as commercial products. However, these species are seen in two commercial products; serenade and Blossom protect and this research could be useful in informing the use of these products.