



Agriculture & Horticulture
DEVELOPMENT BOARD



Grower Summary

FV 423

Determining the effectiveness of seed treatments on the occurrence of neck rot disease in onions caused by *Botrytis* spp.

Final 2013

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Before using all pesticides check the approval status and conditions of use.

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Further information

If you would like a copy of the full report, please email the HDC office (hdc@hdc.ahdb.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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HDC is a division of the Agriculture and Horticulture Development Board.

Project Number: FV 423

Project Title: Determining the effectiveness of seed treatments on the occurrence of neck rot disease in onions caused by Botrytis spp.

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Report: Final 2013

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Previous report/(s): N/A

Start Date: 01 May 2013

End Date: 31 December 2013

Project Cost: £17,214

Headline

Nine seed treatments were found to be effective at controlling Botrytis neck rot.

Background

Neck rot of onion is a serious and damaging pathogen which may cause significant losses in stored onions. In 2011, it was estimated that 12% of the UK crop was either dumped or downgraded due to the neck rot with a total loss of £9 million at farmgate.

There are up to 8 different species of Botrytis associated with onions causing a variety of diseases including neck rot, bulb rot, scape (inflorescence stalk) and umbel (inflorescence) blight. *Botrytis aclada*, *B. allii* and *B. byssoidea* are commonly found to be the cause of the rot but other species such as *B. squamosa*, *B. tulipae*, *B. elliptica*, *B. porri* and *B. cinerea* have also been recorded but are not considered typically to be the primary cause of neck rot.

Seed treatments are an essential part of the management strategy for the control of this disease. Therefore, there is a need to evaluate a range of treatments in order to ensure effective control of these pathogens for the future using a range of potential treatments.

Summary

A single lot of known infected seed (variety Solution) was treated with 11 different products including eight chemical treatments, one biological control agent and a combined physical and chemical seed treatment. The range of products included a number of experimental products as well as current seed treatments commonly used in both the UK (Hy-TI) and the Netherlands (Topsin M). Infection levels were assessed by using a growing-on test (blotter test) with infection assessed by visual examination after three weeks. Although not quantified, there was no visual difference in germination rates between the various treatments. The infection levels within the untreated control were quite variable (3.5-8.5%) necessitating assessment of five replicates each comprised of 400 seeds. Due to the significant increase in assessments, it was not possible to determine the species diversity of Botrytis for each treatment. However, 13 isolates from the untreated control revealed the presence of predominantly *Botrytis aclada* (12/13) but also *B. allii* (1/13). No other species of Botrytis was observed in the untreated control.

Financial Benefits

The work has evaluated the effectiveness of different seed treatments for the control of onion neck rot, demonstrating that the majority, but not all, products can reduce infection levels to a level (less than 1%). It is anticipated that this should reduce post-harvest storage levels to a commercially acceptable level.

Action Points

- Use this report to review the effectiveness of seed treatments against Botrytis neck rot.
- It is important for scientists to monitor the effectiveness of current and future products to ensure effective control of Botrytis on onion seed.