Annual Project Report
October 2015 to September 2016

Project title	Identification of Fusarium resistance within UK oat breeding lines (PhD)		
Project number	21130012		
Start date	Oct 2016	**End date**	Sept 2021

Project aim and objectives
To develop an inoculation method for the infection of oats with *Fusarium langsethiae* and identify QTL for resistance/susceptibility to *Fusarium* through the analysis of mapping populations and near-isogenic lines.

Key messages emerging from the project
None at this stage

Summary of results from the reporting year
Fusarium langsethiae isolates have been isolated from grain samples from the 2015 harvest from across the UK multiplied and stored for use in further inoculation work to gain experience with new methodologies. The same grain was analysed using an ELISA assay for HT2 and T2 mycotoxins, DNA has been extracted and a PCR conducted using *F. langsethiae* primers to prove the pathogens isolated were *F. langsethiae.* The first year field inoculation trial has been harvested. The trial investigated overhead spraying of two concentrations of *F. langsethiae* spore (10^6 and 10^7 spores ml^{-1}) at four growth stages of the oats (GS43, GS47, GS59, and GS72), with and without simulated rain after inoculation sprays. Generation of a Near Isogenic Line (NIL) for the unique FHB resistance QTL identified by the previous project has started with the parents been crossed.

Key issues to be addressed in the next year
Mycotoxin analysis of the 2016 harvest inoculation experiment. Mycotoxin analysis of the 2016 harvest spatial grid experiment. Mycotoxin analysis of the NIL population supplied by Aberystwyth University from the 2016 harvest

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Preparation and maintenance of an Autumn and Spring sown experiment of the NIL population at Harper Adams

Continued generation of a NIL for the unique FHB resistance QTL identified by the previous project.

Lead partner	Prof Simon Edwards, Harper Adams University
Scientific partners	Dr Catherine Howarth, Aberystwyth University
Industry partners	Felix Cobbold Trust Perry Foundation
Government sponsor	

Has your project featured in any of the following in the last year?	
Events	***Press articles***
Conference presentations, papers or posters	***Scientific papers***
Other	