

## Annual Project Report July 2016 to June 2017

<b>Project title</b>	<b>Integrating Control strategies Against soil-borne <i>Rhizoctonia solani</i> in OilSeed rape (ICAROS)</b>		
<b>Project number</b>	21140008		
<b>Start date</b>	July 2016	<b>End date</b>	June 2019

### Project aim and objectives

This project aim is the sustainable intensification of OSR production in relation to soil-borne rhizoctonia diseases. The objectives include:

1. Novel trait discovery for resistance to *R. solani* in OSR.
2. Increased knowledge of disease epidemiology and yield loss.
3. Improved exploitation of targeted crop protection through the use of a low-dose seed treatment against soil-borne pathogens.
4. Understanding of trait/treatment interactions in relation to root health and yield of OSR grown under different environments and disease pressures.

### Key messages emerging from the project

Initial results indicate there are genetic differences in resistance to *R. solani* in brassica species. In the absence of commercially available resistant OSR genotypes, however, establishment loss can be recovered by an effective seed treatment.

### Summary of results from the reporting year

1. Differential responses of brassica genotypes to *R. solani*, under controlled environment and in-field studies, were identified. Currently, further investigation, using GWAS (genome-wide association study), is in progress.
2. Plant establishment increased by 40% after use of a seed treatment containing the SDHI sedaxane, in the absence of an insecticide.
3. Initial results suggest compensation for reductions in plant establishment by *R. solani* is likely feasible by adjusting seed rates as part of integrated disease management strategy.

The results described in this summary report are interim and relate to one year. In all cases, the reports refer to projects that extend over a number of years.

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. Reference herein to trade names and proprietary products without stating that they are protected does not imply that they may be regarded as unprotected and thus free for general use. No endorsement of named products is intended, nor is any criticism implied of other alternative, but unnamed, products.

AHDB Cereals & Oilseeds is a part of the Agriculture and Horticulture Development Board (AHDB).

## Annual Project Report July 2016 to June 2017

<b>Key issues to be addressed in the next year</b>
A series of naturally infected field experiments, with diverse anastomosis groups (AGs) of <i>R. solani</i> in the UK, Germany and France, will provide further information on yield and establishment responses to seed treatments in conventional and hybrid OSR genotypes grown under different environments. Host-pathogen-seed treatment interactions will be examined within soils with different characteristics to investigate how the soil environment affects the activity of seed treatment.

<b>Lead partner</b>	University of Nottingham
<b>Scientific partners</b>	
<b>Industry partners</b>	Syngenta
<b>Government sponsor</b>	Innovate UK and BBSRC

<b>Has your project featured in any of the following in the last year?</b>	
<b>Events</b>	<b>Press articles</b>
ICAROS project. UK Brassica Meeting, University of Nottingham, May 2017	<b>The importance of soil-borne pathogens: From theory to field.</b> Crop Production Magazine June 2017
<b>Conference presentations, papers or posters</b>	<b>Scientific papers</b>
<b>Other</b>	

The results described in this summary report are interim and relate to one year. In all cases, the reports refer to projects that extend over a number of years.

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. Reference herein to trade names and proprietary products without stating that they are protected does not imply that they may be regarded as unprotected and thus free for general use. No endorsement of named products is intended, nor is any criticism implied of other alternative, but unnamed, products.

AHDB Cereals & Oilseeds is a part of the Agriculture and Horticulture Development Board (AHDB).