

Hostile fungus found to protect against cereal diseases

A FUNGUS that devastates many crops can act as a powerful biocontrol agent against fungal diseases in cereal plants when modified by mycovirus infection. The world-first findings, published in The ISME Journal, show that – when infected by a ‘mycovirus’ (a virus that infects a fungus) – the fungus *Sclerotinia* was debilitated and therefore no longer a threat to crops.

The mycovirus-debilitated *Sclerotinia* readily grew as a beneficial ‘endophyte’ (harmless fungus) within plants of diverse cereal crops including wheat, rice, barley and maize.

The study, led by Huazhong Agricultural University Professor

Dahong Jiang, found that the beneficial endophyte effectively protected cereal plants against multiple fungal diseases and increased the growth and yield of crops in-field.

It reduced *Fusarium* Head Blight in wheat by up to 60 per cent in multiple field trials in China, and also provided effective protection against rice blast and wheat stripe rust diseases.

Study co-researcher, UWA School of Agriculture and Environment and Institute of Agriculture Professor Martin Barbetti, said the discovery was “the silver bullet we have all been looking for”.

“Amazingly, the risk from virulent *Sclerotinia* was also simultaneously greatly reduced on normally susceptible non-cereal crops like canola,” Martin said.

“This is because the mycovirus in the debilitated *Sclerotinia* endophyte meant it was no longer able to cause serious disease in non-cereal crops.”

Martin said there was now huge potential to exploit the same principle and discover new mycovirus-disabled fungal biocontrol agents to address other devastating crop-fungal disease combinations.

“Debilitated biocontrol agents like this can be applied as a beneficial seed treatment, while avoiding the risk of in-field release of virulent fungal pathogens,” he said.

More information: Professor Martin Barbetti, UWA School of Agriculture and Environment, 08 6488 3924



Professor Daohong Jiang with Ming Pei You and Professor Martin Barbetti from UWA inspecting field trials in China.
(PHOTO: UWA IOA)

THE BIGGEST COSTS ARE THE ONES YOU CAN'T SEE

SOIL COMPACTION IS AN INVISIBLE DRAIN ON CROP YIELDS. HOW MUCH IS IT COSTING YOU?

The Agrowplow #9 shank reaches up to 600mm deep, shattering deep compaction and building a healthy soil structure.

Find us online or visit your dealer to discover how an Agrowplow deep ripper can improve your yields.

AGROWPLOW®
Prosperity through Soil Care.

agrowplow.com.au