

CSIRO breakthrough to boost disease resistance in crops

27 February 2024 | News

Scientists at CSIRO, Australia's national science agency, have achieved a breakthrough in molecular plant pathology, marking a technological leap forward for breeding durable disease-resistant crops.



Scientists at CSIRO, Australia's national science agency, have achieved a breakthrough in molecular plant pathology, marking a technological leap forward for breeding durable disease-resistant crops.

Plant pathogens are organisms which cause plant diseases greatly reduce agricultural productivity and are a persistent threat to global food security.

Annually, rust pathogens lead to crop losses of US\$1 billion worldwide.

The scientists developed a novel rapid gene-screening platform which can identify new avirulence (*Avr*) effector genes in plant pathogens, building on decades of CSIRO research in synthetic biology, genetics and molecular plant pathology.

CSIRO's Dr Peter Dodds, co-lead of the project, said the new method will have a huge impact on future pathogen-resistant crop development.

"Our advanced screening technology represents a technological leap forward in our ability to study the processes that give plants enduring resistance to disease, enabling new genetic strategies to safeguard crop production and disease management in Australia and abroad," Dr Dodds said.

This method enables high-throughput screening of complex genetic libraries in a plant's cellular environment at an unprecedented speed. This enhances the ability to select more disease-resistant crops and aids efforts in pathogen

surveillance.Â This technology positions CSIRO to tackle important biosecurity challenges as climate change increases risks for disease outbreaks.