Fighting the global threat of cereal rust disease

CSIRO research is preventing crop losses, improving grain quality and yields for Australian grain growers.

The challenge
Rusts are a common fungal disease of plants, including many of Australia’s cereal and horticultural crops. They are prevalent in most wheat growing areas around the world, threatening global wheat yields. As rust pathogens are adaptable and can evolve into new strains attacking previously resistant plants, it is imperative that new varieties are constantly developed to avoid major crop losses.

The response
CSIRO has been contributing to the global fight against rust for several decades. CSIRO’s research, as part of the Australian Cereal Rust Control Program funded by the Grains Research and Development Corporation (GRDC), has focused upon the interaction between the rust pathogen and the crops it attacks. The research has provided the wheat industry with genetic markers that simplify the conventional breeding of rust resistant wheat.

These markers allow breeders to identify wheat varieties containing resistance genes which prevent rust infecting the plant or help the plants successfully battle a rust attack. To date, CSIRO has provided wheat breeders with markers for more than 20 resistance genes.

It is estimated that globally 5.47 million tonnes of wheat are lost to the stripe rust pathogen each year, equivalent to a loss of US$979 million¹.

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