

# RUSSIAN WHEAT APHID RISK ASSESSMENT AND REGIONAL THRESHOLDS

GRDC Investment 9176535

Since the arrival of Russian wheat aphid (RWA) in Australia in 2016, overseas thresholds have been used as a guide to inform control decisions. To develop Australian thresholds, the impact of this aphid on a range of cereals and under different regional conditions is being investigated using Australian field trials.

This investment will run until June 2020. The South Australian Research & Development Institute (SARDI) and **cesar** will assess the regional pressure of RWA and its impact on yield, with the aim of providing risk estimates and management options for growers. The research will answer the following questions:

- > What is the regional risk posed by RWA?
- > What are the economic thresholds that will guide growers in effective management of RWA?
- > What role do green bridges play in supporting RWA populations between cereal cropping periods?

This investment includes on-the-ground assessment of RWA impact at trial sites set up in all Australian cereal production areas where this pest has been detected to date.

## Investment Activities 2018-2020

SUMMER  
WINTER

Investigate the relationship between aphid numbers, plant symptoms and yield loss across regions.

Assess the effects of seed treatments and insecticide sprays on aphid numbers.

Develop regional economic thresholds.

Monitor for RWA populations on summer hosts, such as grasses and volunteer cereals.

Assess the role of local climate and land use in supporting RWA populations over summer.

Develop models to predict aphid growth over this period.

Throughout the investment researchers will also assess control of RWA by beneficial insects. Findings will enable project partners to develop additional guidelines for RWA management that have a basis in local research.

With guidance from project outputs growers will be better placed to understand regionally specific risk and manage RWA more effectively, both during production and between cereal cropping periods.



Leaf streaking and leafrolling is a symptom of RWA feeding  
Photo credit: Dr Maarten van Helden



RWA have spindle shaped bodies and can be up to 2 mm in length  
Photo credit: Dr Maarten van Helden



'Goosenecking' can be caused by RWA feeding  
Photo credit: Dr Maarten van Helden

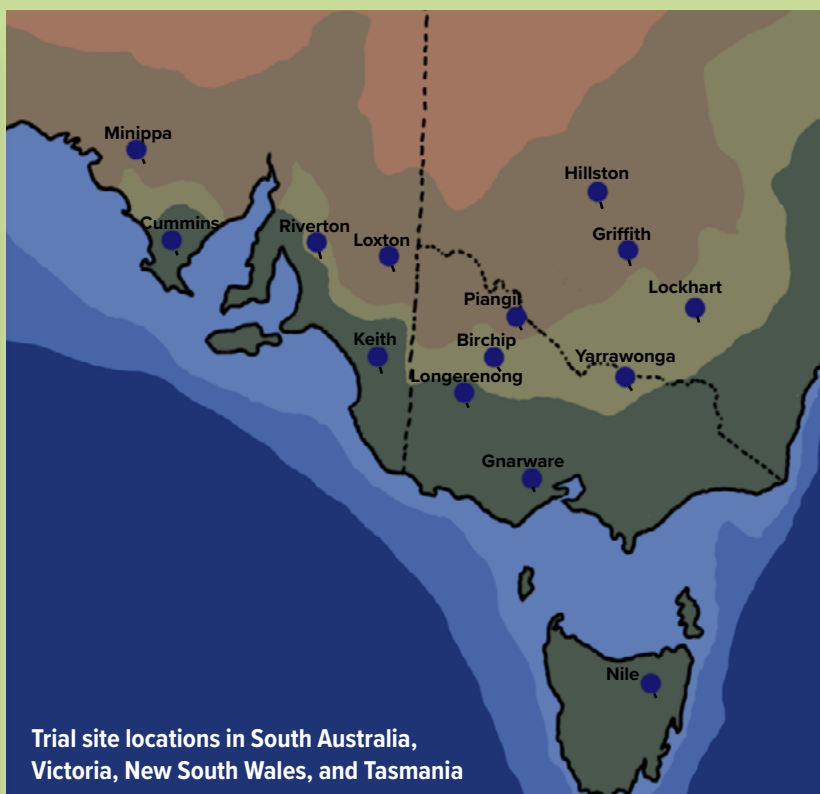
### Trial site locations

Cereals tested at each regional trial site include spring wheat and barley. Winter wheat, durum wheat and oats are also being tested at some sites.

### Green bridge surveillance

Surveillance for RWA over Spring and Summer will generate data about types of vegetation the aphid is surviving on between cropping, and what environmental conditions support its survival over this period.

Green bridge surveillance will also give us valuable information about beneficial species predation of RWA.



### Previous research

This project builds on previous Grains Research & Development Corporation (GRDC) investments undertaken by SARDI and **cesar**, which focussed on seasonal factors influencing RWA population growth, biotype confirmation, varietal susceptibility, damage and yield loss observations, and chemical efficacy.

Past GRDC investments with a focus on RWA have also resulted in surveillance plans, emergency permits, response plans, and sampling techniques.

### How can you stay informed?

Project results will be used to update the GRDC RWA Tips & Tactics guide, which can be found on the GRDC website at [grdc.com.au](http://grdc.com.au)

Growers and advisors can keep up to date with the research through the online project portal.

[cesaraustralia.com/sustainable-agriculture/rwa-portal](http://cesaraustralia.com/sustainable-agriculture/rwa-portal)

The portal will house trial site data, video logs, project articles, fact sheets, and an interactive RWA distribution map that will help guide management decisions.



This research initiative is a GRDC investment that seeks to deliver information on Russian Wheat Aphid management for grain growers. This project is being undertaken by the South Australian Research & Development Institute (SARDI) and **cesar**.