



Sclerotinia infection in lupin. Image: DPIRD.

Protecting WA crops

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Surveillance projects provide insights into WA's pests and diseases

At a glance:

- Two pest and disease surveillance projects have recently been completed and findings from those projects have been used to develop a new integrated pest and disease surveillance project.
- PestFacts WA received over 2,000 insect and 1,000 disease reports over 3 seasons.
- Fungicide resistance to wheat powdery mildew has not been found in WA as yet.
- Sclerotinia stem rot is established and occurs most seasons in medium and high rainfall zones across the WA grainbelt.
- Net form net blotch of barley has increased in prevalence and impact, particularly in southern and western medium-high rainfall zones

Disease and pest monitoring and surveillance aids growers by providing early warning systems to minimise yield losses and supplying data to demonstrate the absence of exotic pests and

diseases in the WA grainbelt.

Two surveillance projects, 'Disease surveillance and related diagnostics for the Australian Grains industry (Western region)' and 'Integrated Pest Management (IPM) for Grains', delivered by the National Pest Information Network, have just been completed:

Disease surveillance and related diagnostics for the Australian Grains industry (Western region)

The disease surveillance project, led by the Department of Primary Industries and Regional Development (DPIRD) and co-funded by the Grains Research and Development Corporation (GRDC) ran from 2021-2024, supporting growers during 2 high rainfall seasons with corresponding high disease pressure.

The project aimed to help growers to minimise losses by foliar diseases by identifying and quantifying the distribution of crop diseases in Western Australia (WA), providing diagnostic advice and support to the WA grain industry and by providing proof of absence data for important exotic crop diseases.

During the project, surveillance across the WA grainbelt found that various stubble-borne diseases, including *Stagonospora nodorum* blotch and yellow spot in wheat, spot-form and net-form net blotches (SFNB and NFNB) in barley, septoria blotch in oats, and blackleg in canola, were common across all regions and seasons.

Growers were cautioned during the project that just because a disease is common doesn't mean it's very damaging and that the impact can be determined by seasonal conditions and disease resistance rating of varieties commonly grown. For example, yellow spot in wheat is widespread but currently less impactful than NFNB, which increased in prevalence during the project and was particularly hard to manage in susceptible barley varieties around Albany and Esperance in the disease favourable season of 2022.

The project also confirmed that Sclerotinia stem rot (SSR) is now established and occurs most seasons in medium and high rainfall areas of the grainbelt. It is affecting canola and has become a major issue for grain legumes like lupins in favourable seasons. As yet there are no sclerotinia resistant varieties available.

Wheat powdery mildew occurred in all years of the project with the Esperance port zone showing the greatest prevalence, due to widespread cultivation of susceptible varieties and a favourable environment in that region.

Emerging fungicide resistance in wheat powdery mildew in the Eastern States is a concerning warning for WA growers, however no fungicide resistance was found in WA samples submitted through the course of this project.

New or altered strains of a disease can affect its virulence. Sampling and testing from the WA node of this project helped to identify a change in virulence of barley scald and barley powdery mildew, while no new virulence or exotic pathotypes were detected from over 80 samples of cereal rusts submitted for testing.

A new pathogen, *Neospermospora avenae*, the cause of Red Leather Leaf (RLL) in oats, was detected in 2021 and confirmed in 2022. RLL is the primary disease of oats in

southern production zones of eastern Australia, and the recent detection of this disease in WA is of concern for local oat producers.

Integrated Pest Management (IPM) for Grains, delivered by the National Pest Information Network

The IPM for Grains project, led by Cesar Australia, was a collaborative project involving DPIRD, the South Australia Research and Development Institute, NSW Department of Primary Industries and Regional Development and Queensland Department of Agriculture and Fisheries.

The project aimed to provide growers with timely and accurate information on invertebrate occurrences and management tools to minimise their impact. DPIRD also covered broadacre plant diseases in this project. This initiative was a GRDC investment and included in-kind contributions from all project partner organisations.

DPIRD's PestFacts WA newsletter was one of the main methods of providing timely information to growers for the WA component of this project. With ongoing support from GRDC, the widely circulated newsletter continues to be published today.

The PestFacts WA newsletter provides growers with risk alerts, current information and advice on pests and diseases threatening crops and pastures. This e-newsletter is published during the growing season on Fridays when required. During the course of the project, 42 newsletters were produced with 159 articles. To subscribe online to receive this newsletter, visit the DPIRD PestFacts WA webpage.

The PestFacts WA service also has a free reporting App that allows users to make quick reports and request identification of unknown insects and diseases in crops and pastures.

The PestFacts WA Reporter app, recently updated in 2022, allows the user to attach up to 3 photos of the disorder, add extra information in the comments section or request a call back or identification email from a DPIRD expert. For more information on this App refer to the DPIRD PestFacts WA Reporter app webpage.

Over the course of this project, 6 field investigations on unusual insect pests of grain crops were conducted by staff. These included following up on reports on Dongara weevil activity and unusual cockchafer damage in wheat and barley.

Surveillance of insect pests provides WA growers with an early warning for crop monitoring.

Over 2,000 insect reports were received by PestFacts WA over the course of the project, 110 of which were identification requests. Over 1,000 plant disease reports were also collected during this project. Insect and plant surveillance data was also collected in collaboration with other DPIRD and GRDC insect surveillance projects. The PestFacts WA team also collaborated with, and sourced surveillance data from, software management companies [Agworld](#) and [Back Paddock](#).

All insect and disease reports received by this service since it started in 1996 can be viewed on the PestFacts WA map. Users can select what parameters they wish to display on the map.



A native budworm trap in a lupin crop. Photo: Amber Balfour-Cunningham/DPIRD

A native budworm surveillance program was conducted each season with volunteer growers and consultants hosting up to 39 pheromone traps spread across the WA grainbelt. Trapping results were communicated via the PestFacts WA newsletter and native budworm trapping webpage to alert the WA grains' industry of moth movements and provide growers with advice for monitoring for this pest. For more information refer to DPIRD's Native budworm moth trapping in WA webpage.

As part of this project, DPIRD produced a free autumn/winter and winter/spring spray guide every year.

The autumn/winter spray guide listed the registered chemicals for managing insect pests in seedlings, while the winter/spring spray guide is tailored for mature crops and pasture.

The spray guides summarised the registered insecticide active ingredient and recommended application rates for different crops in Western Australia. At the end of the guide, the pesticide active ingredient, pesticide group and equivalent trade names were listed. These [insecticide spray guides](#) are available on the DPIRD website.

The project also delivered a 1-day insect identification training workshop each year to increase the identification skills of consultants. This was held in collaboration with a 2-day disease training component presented by DPIRD's pathology team.

This project also produced an IPM checklist, which offers grain growers a structured approach to making informed decisions and promoting sustainable pest management within their crops. The IPM is a simple checklist that growers can follow all the way from pre-season to post-harvest every year. The IPM checklist is available on the AgPest website.

Where to from here?

With the completion of these 2 projects, a new surveillance project has begun. The DPIRD 'Seasonal status of pests and diseases delivered to growers' project was established with co-investment from GRDC.

The new project will build upon the data and surveillance methods developed in the previous IPM for Grains, disease and insect surveillance projects to provide more comprehensive coverage of potential threats.

An extensive communication component of the project will keep growers and consultants informed, allowing for a rapid management response. This means that the PestFacts WA newsletter, webinars, insecticide spray guides and other communication outputs will continue alerting growers to insect and disease activity and providing integrated pest and disease management advice.

The PestFacts WA insect and disease identification and reporting service will also continue, so growers and consultants can continue submitting reports via the DPIRD PestFacts WA app.

For more information on these projects and their findings refer to the following DPIRD webpages:

- PestFacts WA
- PestFacts WA Reporter app
- PestFacts WA map
- Insecticide spray guides for crops in Western Australia

The IPM checklist is available on the AgPest website.

Meet Crop Protection team member Debra Donovan



Debra, also known as Deb, has been a Technical Officer in DPIRD's Plant Pathology team since she moved to Australia in 2007.

Originally from the UK, Deb and her family moved to a small fishing town called Sooke in British Columbia when she was young. In Sooke, the salmon industry was the primary industry.

Later on, with a keen interest in science, Deb chose to study agriculture at The University of British Columbia because it offered a mix of mix of all the sciences from chemistry to geology, to soil science, which was her main interest.

Moving to Australia in 2007 seeking sun and adventure, and planning a road trip to Broome, Deb quickly found employment with the department and moved to Northam, where she has been based ever since. The road trip to Broome has yet to happen!

Deb's role at Northam has changed over the years from her initial position, where she operated a gas chromatogram in a mini-laboratory set up in a farmer's paddock, measuring greenhouse gasses emitted from agricultural lands under varying conditions. At the time, this work was done in only one other location in Australia, and for good reason - the logistics of it were near impossible. The dust was a nightmare, as lab equipment does not fare well in dirt, or in 40-degree weather. Deb fought mice, storms, power outages, and equipment break downs. She has also worked in oat breeding, annually sowing 7,000 plots in up to 8 locations across the grainbelt.

In Deb's current role in DPIRD's Crop Protection Portfolio her knowledge on crop diseases has expanded.

"With oat breeding, it was more the rusts and septoria we were seeking. Now, I understand some more about barley, lupins, canola and my favorite, chickpeas. It has been an eye opener for me, and I find that interest comes with knowledge', Deb said.

Deb enjoys handy work and has owner-built 2 houses, though she admits her skills are a work in progress. She also enjoyed beekeeping but had to give it up due to an unfortunate sting.

Altogether, Deb has been in Northam for 17 years, but she hopes to see more of Australia in the future and maybe Broome one day soon.

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