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## CONTENTS

New additions to the team

Snail and slug baiting

Snails at harvest: *grower experience and innovation survey*

Earth mite hatching predictions

Black field crickets

Other pest activity

- Earwigs and millipedes
- *Mandalotus* weevils
- Diamondback moth in *Brassica* weeds

Mouse plague

Resources

## New additions to the team

This season we welcome two new staff to our PestFacts team. **Bill Kimber** is stepping into the role of coordinating the PestFacts service and diagnostics. Bill has over 14 years research experience in SARDI entomology and brings a wealth of diagnostic and other relevant skills. **Kym Perry** recently commenced a full-time PhD with The University of Adelaide for the next three years but remains involved at SARDI. Kym's project will investigate diamondback moth dispersal and its colonisation of canola crops and he looks forward to working with our subscribers on this issue. **Dr. Michael Nash**, formerly University of Melbourne, joined SARDI Entomology in late 2013. Dr. Nash has extensive invertebrate research experience, most recently slug research, and is working on the GRDC-funded SARDI project 'Improving management of snails and slugs' (see below) and other new initiatives.

For invertebrate issues this season, please contact Bill or another SARDI entomologist (contact details below in footer) and send specimens to the free NIPI diagnostic service.

## Snail and slug baiting

### Snails

Baiting programs are well underway for many growers in districts where soil moisture has triggered snail activity. At this time of year, closely monitoring snail activity and correctly timing baiting before significant egg-laying occurs is critical to reap the full benefits of integrated snail management, which for many growers has included summer cabling, rolling and/or (if justified) burning paddocks.

Snail activity and mating has been observed at **Langhorne Creek** and **Minlaton**, and egg laying by small pointed snail *Prietocella barbara* in **western Victoria**. Recently, remote cameras have revealed snails becoming increasingly surface-active on overnight dew. Greg Baker (SARDI) says snail activity on overnight dew is already likely to be sufficient for effective baiting, even in areas that have not yet had significant rainfall.

## Implications of mouse plague on snail baiting

Dr. Michael Nash and Helen DeGraaf (SARDI) say the mouse plague this season presents issues relevant to snail and slug control and offer the following advice: Mice may consume snail bait which could result in early snail baiting programs being less effective. To counter this, re-application or increasing bait rates may be necessary. Do not mix snail/slug and mouse baits as timing for effective control of each do not necessarily coincide.

Yorke Peninsula Alkaline Soils Group bait spreading trials in 2013 demonstrated that on application, baits are often only spread over 70% of the expected spread width. These unbaited corridors lead to poor control efficacy. Remember to check your bait application to ensure desired coverage.

SARDI research is currently investigating the optimum bait density rates for different snail densities. See the NEW [Slug and snail bait comparison table - SARDI/GRDC](#) (pdf). More information: [GRDC Snail Management Fact Sheet](#) (pdf), [Bash 'em](#), [Burn 'em](#), [Bait 'em](#) (pdf).

## Slug baiting

Michael Nash (SARDI) says slugs are becoming active in regions of western Victoria and southern New South Wales following recent rain fronts (PestFacts South-Eastern), however little snail activity has been reported as yet in southern regions of South Australia where conditions are still relatively dry.

Michael emphasizes that understanding the identity of slugs on your property is important as differences in behaviour can affect management, such as timing of baiting. Black-keeled slug (*Milax gagates*) is a burrowing species and is often the most common species in drier districts and/or seasons and lighter soils in higher rainfall. This species can be distinguished by the presence of a distinct ridge (saddle) running along the back towards the head. Grey field or reticulated slug (*Deroceras reticulatum*) has more surface-active habits and is often more prevalent in wetter regions/years. This species secretes a whitish mucus when prodded. A third species, Brown field slug, (*Deroceras invadens*) can also occur in some areas; it is typically even in colour and secretes clear mucus when disturbed.

Michael Nash (SARDI) recommends that growers begin monitoring paddocks at higher risk of slugs (e.g. history of problems, heavier soils that retain moisture) when soil is moist. Monitor by placing refuge traps (such as tiles, carpet squares etc) on moist soil with bait pellets underneath and checking after a few days, or directly search at night.

Michael emphasizes that baiting should be carried out at sowing to protect seedlings. Always use full label rates and calibrate your bait spreader to ensure 30 baits per m<sup>2</sup>. Like snails, integrated management of slugs is required for effective control. Cultural strategies that could have been considered earlier in the season include cultivation or burning to remove slug refuges (stubble, weeds). Early crop establishment and rolling with a rubber tyre to consolidate the seedbed can reduce damage. More information: [Slug control fact sheet - GRDC](#) (pdf) and [Pest snail and slug control - DAFWA](#).

## Snails at harvest: *take the grower experience and innovation survey*

SARDI are seeking input from growers on their strategies for managing snail contamination at harvest: *what works, what could work better and what is ineffective*. Sharing our growers' collective knowledge will inform research on how harvesting and post-harvest processes might be modified and improved.

Access the online survey at <https://www.surveymonkey.com/s/sardisnailharvest>.

We encourage agronomists (the vast majority of our subscribers) to invite your grower clients to participate. The survey is comprehensive but growers can choose their level of input. This

survey is part of the GRDC-funded project 'Improved management of snails and slugs' led by SARDI Entomology in collaboration from University of South Australia, SAGIT, YPASG, MacKillop Group, Ag Excellence Alliance and other grower groups. For more information, contact Helen DeGraaf on (08) 8303 9543.

## Earth mite hatching predictions

Redlegged earth mites (RLEM) (*Halotydeus destructor*) and blue oat mites (BOM) (*Penthaleus* spp.) survive hot summers in the 'diapause' egg stage. With the onset of adequately wet and cooler conditions in autumn, these eggs will hatch and thereafter need about 3 weeks to reach their most damaging potential.

Dr Garry McDonald and colleagues at the University of Melbourne are currently testing a model developed to predict peak redlegged earth mite hatch dates across south-eastern Australia, which proved moderately accurate in 2013. The model has now been run for **Murray Bridge, Mallala, Edillilie** (SA) and **Birchip** (western Vic). The rainfall that occurred widely on 9-10<sup>th</sup> April was adequate (>10mm) to trigger egg development in those regions, but the temperatures that followed were too warm (threshold is <16-20°C) to allow the majority of eggs to complete development. Accordingly, the model is not predicting peak egg hatch until early May or later. Garry anticipates that the growth of crops germinating in late April/early May, while the soil is still relatively warm, will probably outgrow damage caused by the young mites. To further validate this model, we would appreciate hearing when mite damage first becomes evident in crops this season.

Blue oat mites and redlegged earth mites attack a wide variety of plant types including cereals, oilseeds, particularly canola, and pastures. Garry encourages growers to check seedling crops as they emerge, being aware that damage can be patchy. Autumn insecticide sprays for redlegged earth mites and blue oat mites should ideally target mites 2-3 weeks after their emergence. This provides time for the majority of diapause eggs to hatch, but should be before the second-generation eggs have been laid.

Ensure correct identification of mites before deciding on the most appropriate control measures, as species differ in their natural tolerance to insecticides. Blue oat mites can be distinguished from redlegged earth mites by the presence of a characteristic orange-red mark on their back. *Bryobia* and *Balaustium* mites tend to occur earlier in the season than other mites. *Bryobia* mites are less than 1 mm long with a fawn-orange coloured body and orange legs; they have characteristically long forelegs, which are about 1.5 times their body length. *Balaustium* mites are larger and can grow to 2 mm in length, and are covered in short dense hairs. For assistance with identification download the [GRDC Back Pocket Guide - Crop Mites](#).

For *Bryobia*, application rates need to be higher than for redlegged earth mites and blue oat mites; some organophosphates are more effective than synthetic pyrethroids for this species. *Balaustium* mite is highly tolerant to normal rates of organophosphate and synthetic pyrethroid insecticides and will often persist in paddocks following treatments targeting RLEM. More information: [Redlegged earth mite - DEPI](#), [Blue oat mites - DEPI](#), [Balaustium - SARDI](#), [Bryobia mite - DEPI Vic](#).

## Black Field Cricket

[Black field cricket](#) (*Teleogryllus commodus*) activity has been reported\* in paddocks on heavier cracking soils around **Cummins** and **Yeelanna** on Eyre Peninsula, and **Kangaroo Island**. Where warranted, baiting with maldison-treated cereal grain (whole or coarsely ground) is the preferred control option. Follow directions on the product label and ensure thorough mixing of chemical with grain. Crickets will soon decline as they overwinter in the egg stage, with some late stage nymphs persisting into winter in warmer regions. Higher

numbers in autumn can sometimes result from mild conditions during the previous winter, favouring survival of eggs and nymphs, followed by a warm dry summer which cracks the soil and provides shelter.

\*Source of reports: Lyn Dohle (PIRSA), Nigel Myers (Cummins Ag)

## Other pest activity

### ○ Earwigs and millipedes

Michael Nash reports European earwig (*Forficula auricularia*) actively feeding on spilled grain and beneath tiles in areas of western Victoria, and [Black Portuguese millipedes](#) (*Ommatoiulus moreleti*) observed at night feeding on wheat placed deliberately as an attractant. He says the current flush of green growth is enhancing conditions for these pests. Both pests are capable of seedling damage; they are usually more prevalent in paddocks with high stubble loads and heavier soil types, or high populations the previous spring. Growers are encouraged to monitor higher risk paddocks for activity before sowing canola. High numbers of millipedes do not always result in feeding damage; before deciding on control, confirm direct feeding on plants, ideally by checking at night with a torch. More information on earwigs: [European earwig - GRDC](#) (pdf). More information on millipedes: [Millipedes and slaters - GRDC](#), [Portuguese millipedes - DAFWA](#).

### ○ Mandalotus weevils

*Mandalotus* weevils (multiple spp.) will have started emerging onto the soil surface from summer 'hibernation' from around mid-April. Check canola paddocks in districts with lighter soils and a history of *Mandalotus*, as these weevils are 'resident' pests with an annual lifecycle. Monitoring is difficult; check under weeds in the top 1-2cm of soil at the base of stems during the day, or search at night with a torch. Monitor canola closely in the first few weeks after emergence and treat immediately if damage is detected. No insecticides are registered for *Mandalotus* weevils, however fipronil seed treatments or bifenthrin based insecticides applied for other pest can provide some control. More information: [Mandalotus weevils - SARDI](#) (pdf).

### ○ Diamondback moth in Brassica weeds

Kym Perry and Greg Baker (SARDI) during 7-10<sup>th</sup> April observed diamondback moth (DBM) widespread in low to moderate numbers on Lincoln weed (*Diplotaxis* spp.) between **Mt. Hope** and **Wirrulla** on Eyre Peninsula and on volunteer canola and turnip weed west of **Cummins**. February rainfall and weed growth have apparently favoured DBM development and there is potential for early colonisation of canola crops this season. While this is unlikely to provide cause for concern at this time of year, Kym would appreciate any early reports! Rutherglen bug, (*Nysius vinitor*) and native budworm larvae (*Helicoverpa punctigera*) were also found on Lincoln weed at some locations.

## Mouse plague

Senior Research Officer Greg Mutze (Biosecurity SA) says reports indicate significant mice activity on **Yorke Peninsula**, **Eyre Peninsula** the **Lower North** and some activity in the **Mid North**. High grain yields and spilled grain last spring provided a food source for mice. Greg says farmers need to assess their paddocks for mouse activity and whether baiting will be required at sowing. More information on mice management: [Biosecurity SA mouse website](#).

## Resources

- ❖ **Insect diagnostics:** SARDI Entomology offers an insect diagnostic service for PestFacts subscribers. Please send at least two intact specimens in a non-crushable container along with host food, collection details, description of crop damage and contact details, to: NIPi diagnostics SARDI Entomology Unit GPO Box 397, Adelaide SA 5001.
- ❖ **PestFacts map** is an interactive service available on the SARDI website at [www.sardi.sa.gov.au/pestfacts-map](http://www.sardi.sa.gov.au/pestfacts-map). The map allows users to search and view all historical pest reports across South Australia and Western Victoria. Search by crop, pest or beneficial invertebrate, and time period of interest. The map will be updated with each issue to include new reports.
- ❖ [Snail and slug 'snug' blog](#)
- [Previous issues of PestFacts](#) • • [PestFacts map](#) • [Images of insects and damage](#) • [I SPY manual](#) • [Crop mites: back pocket guide](#) • [Crop weevils: back pocket guide](#) •

*PestFacts* is a FREE service providing updates throughout the growing season on an “as-needed” basis of the latest information on invertebrate pests in broad acre crops in South Australia and western Victoria. It is supported by GRDC’s National Invertebrate Pest Initiative (NIPi). All information is sent by email to subscribers. Please email a coordinator to be placed on the circulation list. Your support and feedback are essential to the success of PestFacts.

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