Department of Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

SNAIL MANAGEMENT – SLOWING THE SNAIL MENACE

Svetlana Micic, Sarah Belli and King Yin Lui

GRDC

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OVERVIEW

- Introduction to the issues
- Best time to bait before egg laying
- Mortality and baits
- Implications of liming
- Effects of sprays on snails

The chronicles of the small conical snail

- Introduced from Europe
- High rainfall areas of the south coast with cool moist summers
- Snails are hermaphrodites; each can produce 400 snails per season
- Eggs hatch 2-4 weeks after laying
- Juveniles are 1mm when first hatched then feed over winter
- Juveniles are sexually mature the following autumn

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What's the problem?

- Stubble retention
- Anecdotally, snails numbers increase after liming
- Damage seedlings
- Juvenile conicals are similar size to canola
- Climb under swaths and into grain heads at harvest
- Contamination at harvest leads to downgrading or undeliverable loads.
- Tightening receival standards
- Threat to our reputation in high value international grain markets.

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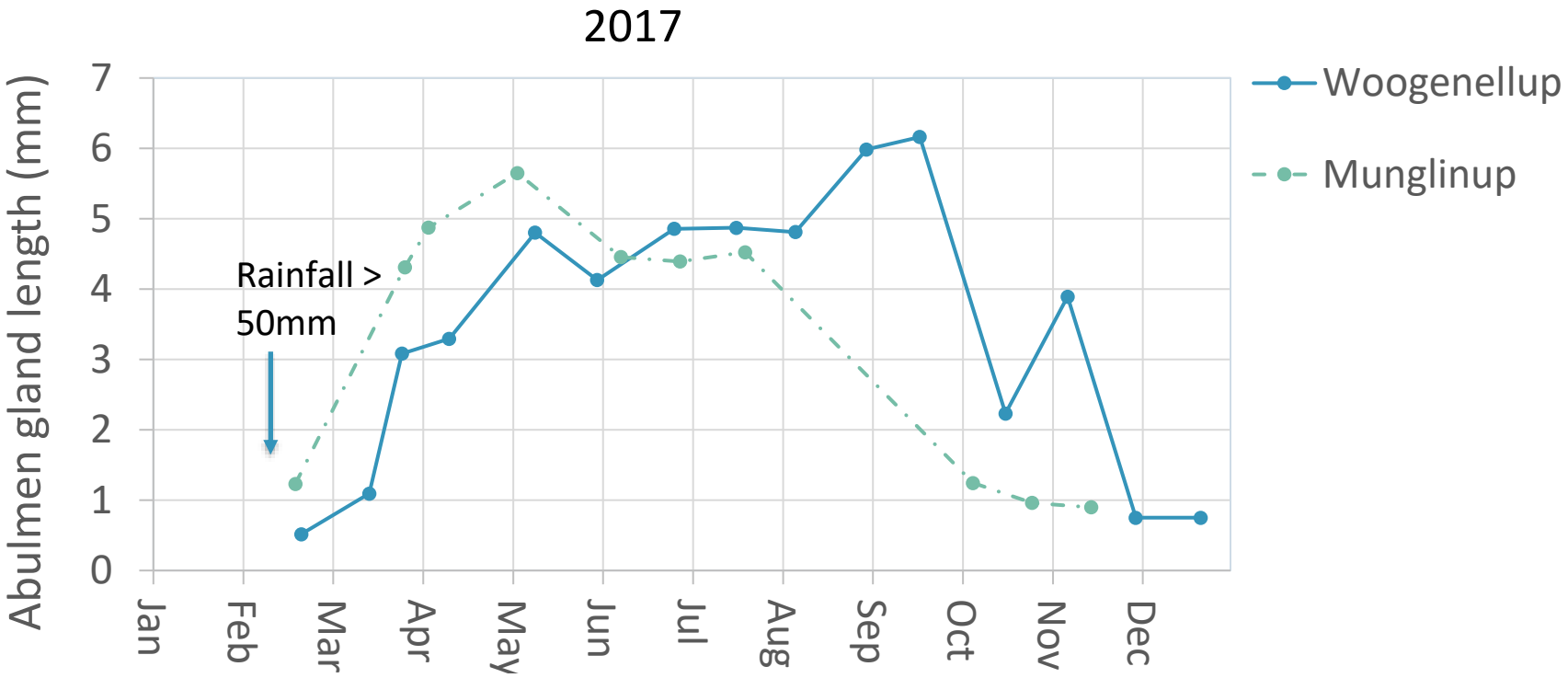
FORMATION OF ALBUMEN GLAND



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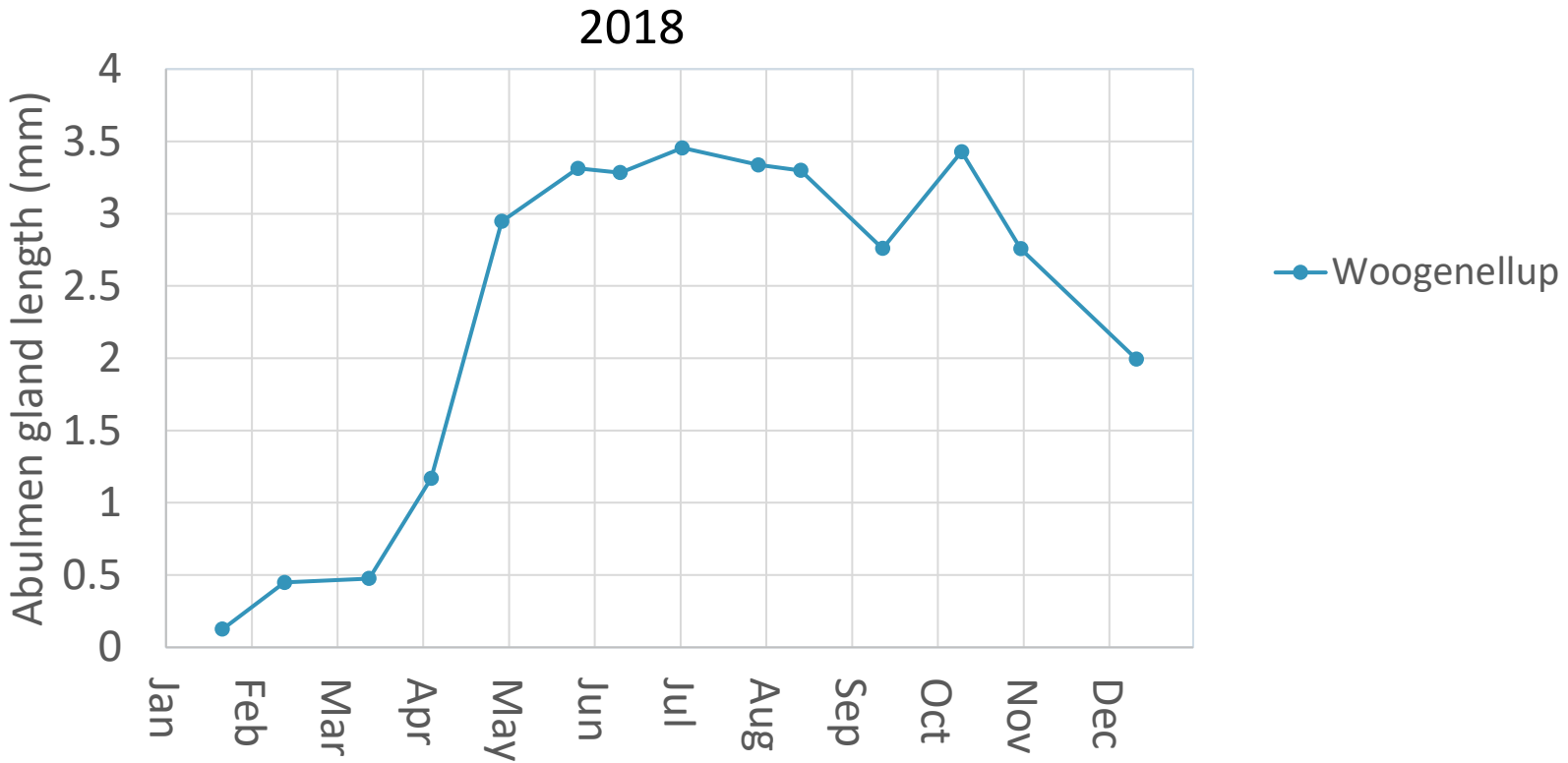

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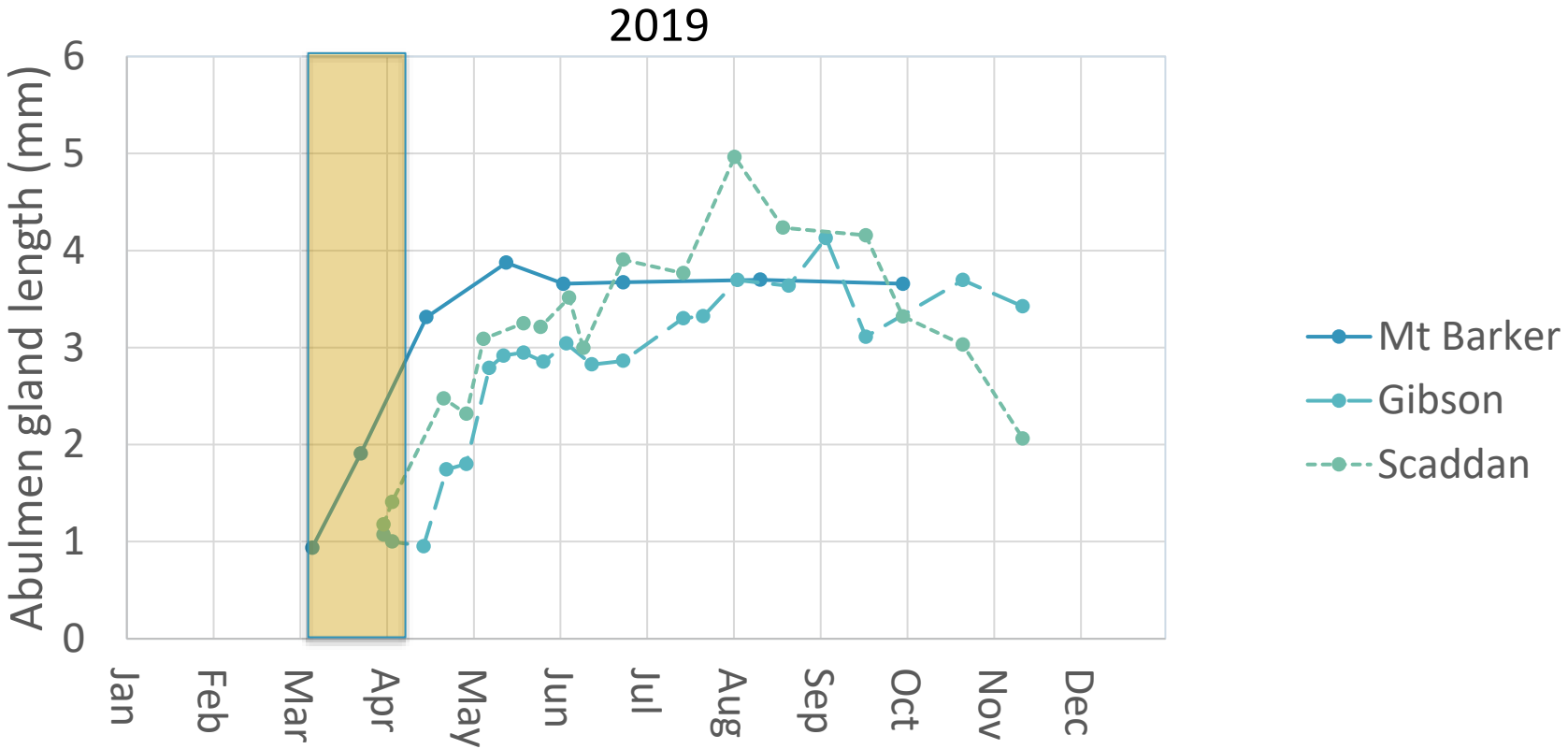

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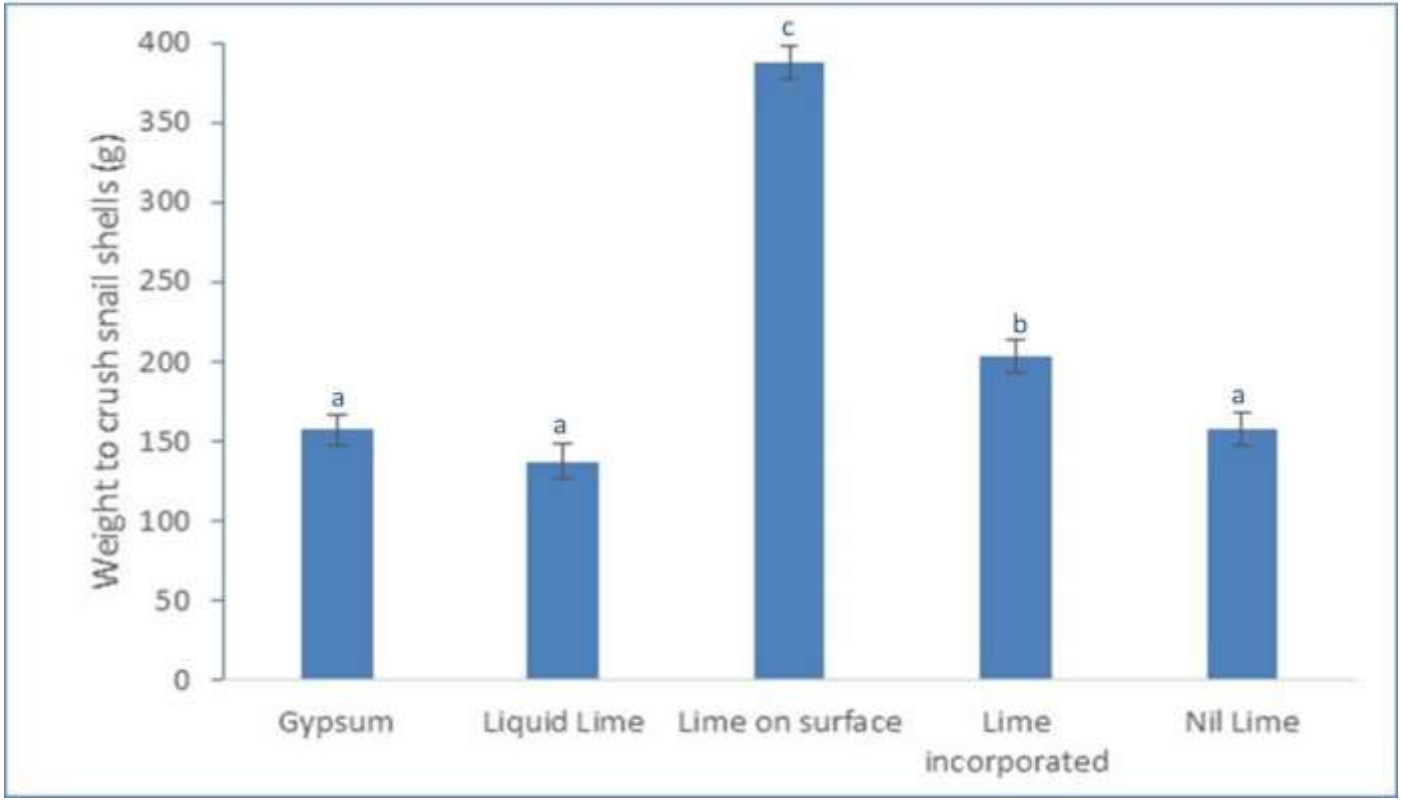
KEY FINDINGS FROM FEEDING TRIAL

- Consumption of pellets constant
- Variable mortality 20-90%
- Higher mortality June – September
- In the field- budget for more than one bait
- Early summer rainfall- patch bait before baiting entire paddock

LIMING AND SNAIL STRENGTH



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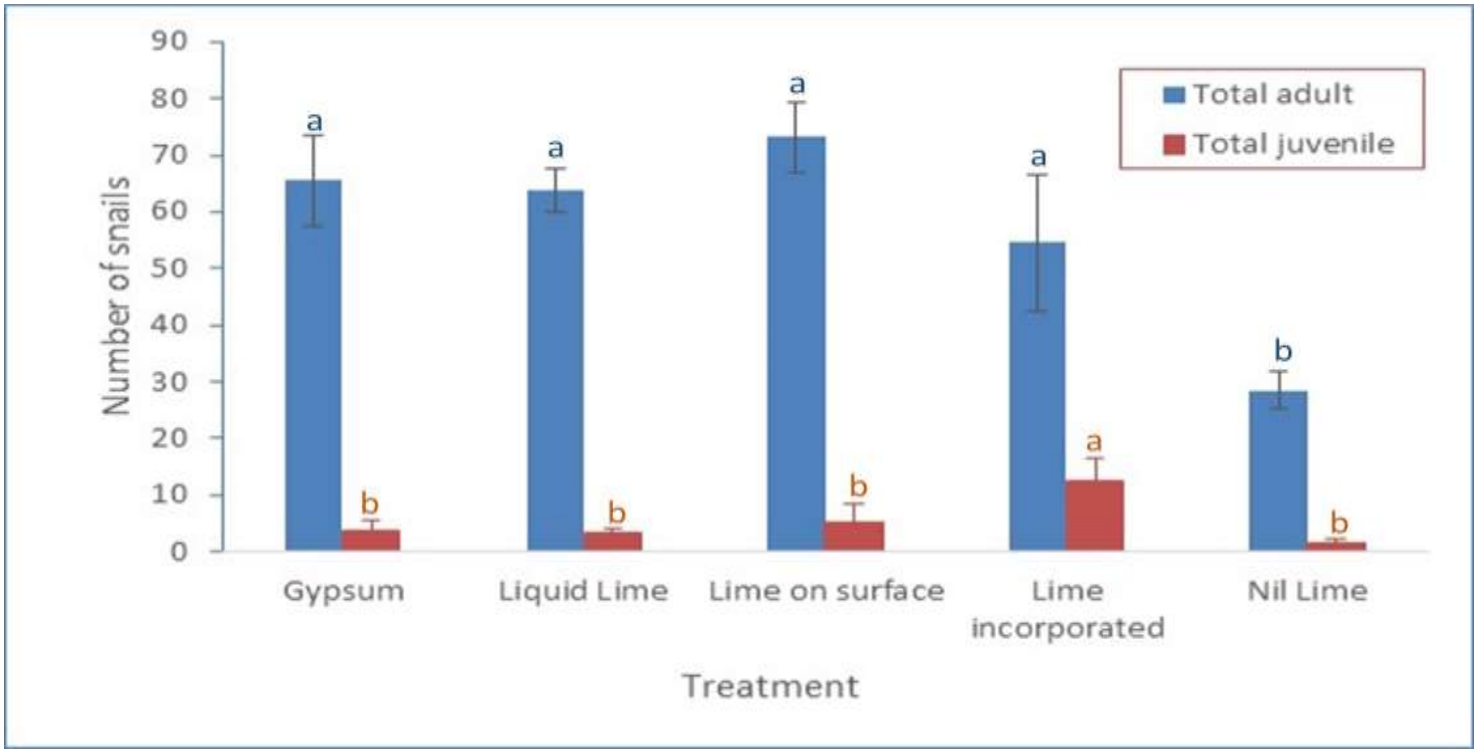
AFTER LIMING, BAIT



Repellence and mortality trials

Only registered products should be used to manage snails.
Any product used should be used at the registered rate, time and approved methods of application in crops they are registered for.

Trials testing products that had been ‘reported’ to repel or even cause mortality in snails. These products have no supporting data and are not registered for this use.

Treatments
Nil (water)
Pyroligneous Acid (Wood Vinegar)
Saponins
Urea (dissolved in water)
Carbendazim

Applied using a Ute boom at 333L/ha

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Assessments:

- Snail activity scored from time-lapse video.
- Maximum height of snails on plant

(morning and afternoon for first 3 days then at 13, 15 and 21 days)

- Total number of snails on plant

(morning and afternoon for first 3 days then at 13, 15 and 21 days)

- Snail mortality at 21 days

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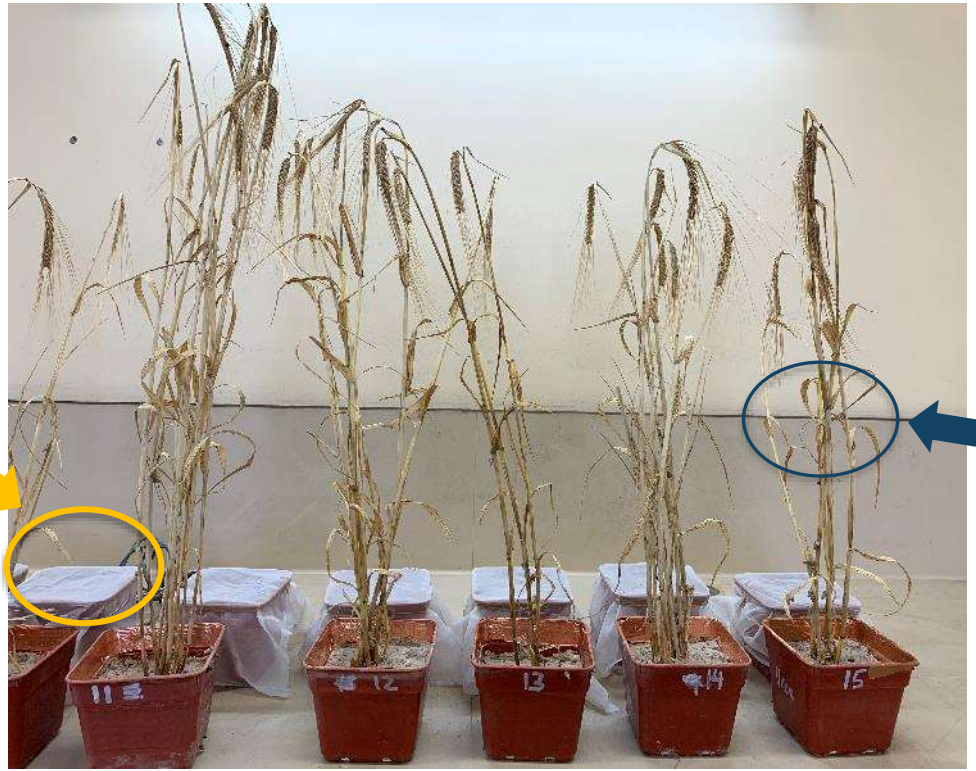
Trials Layout

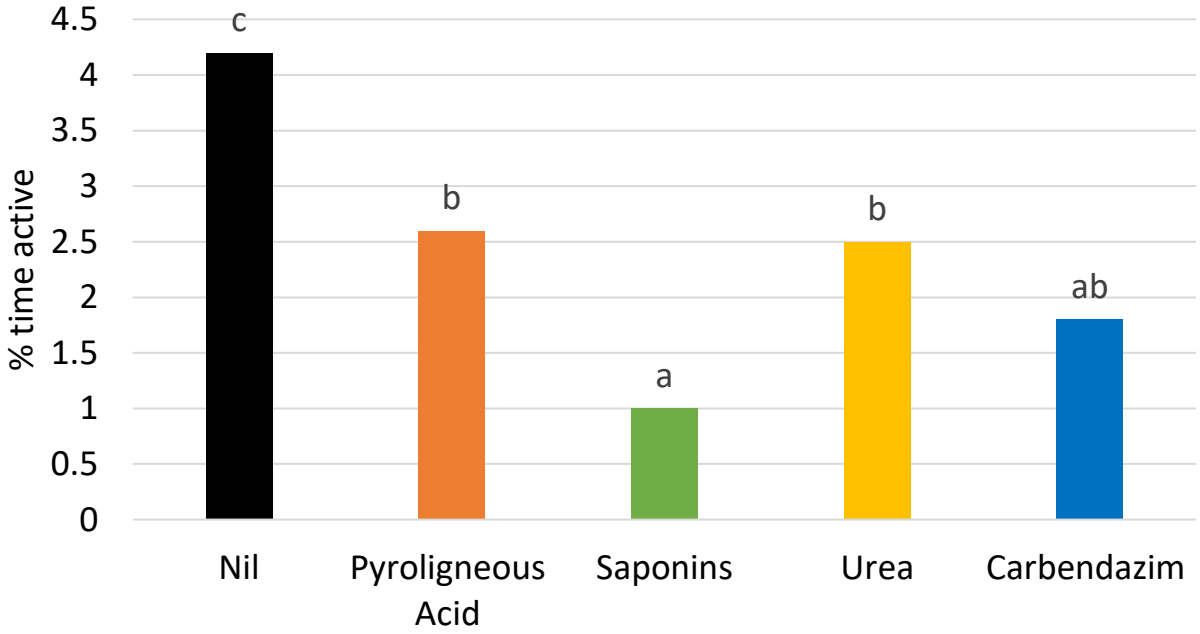
Reps = 4

Snail mortality trial



Snail repellence trial

Percentage of time snails active over 24hrs post application



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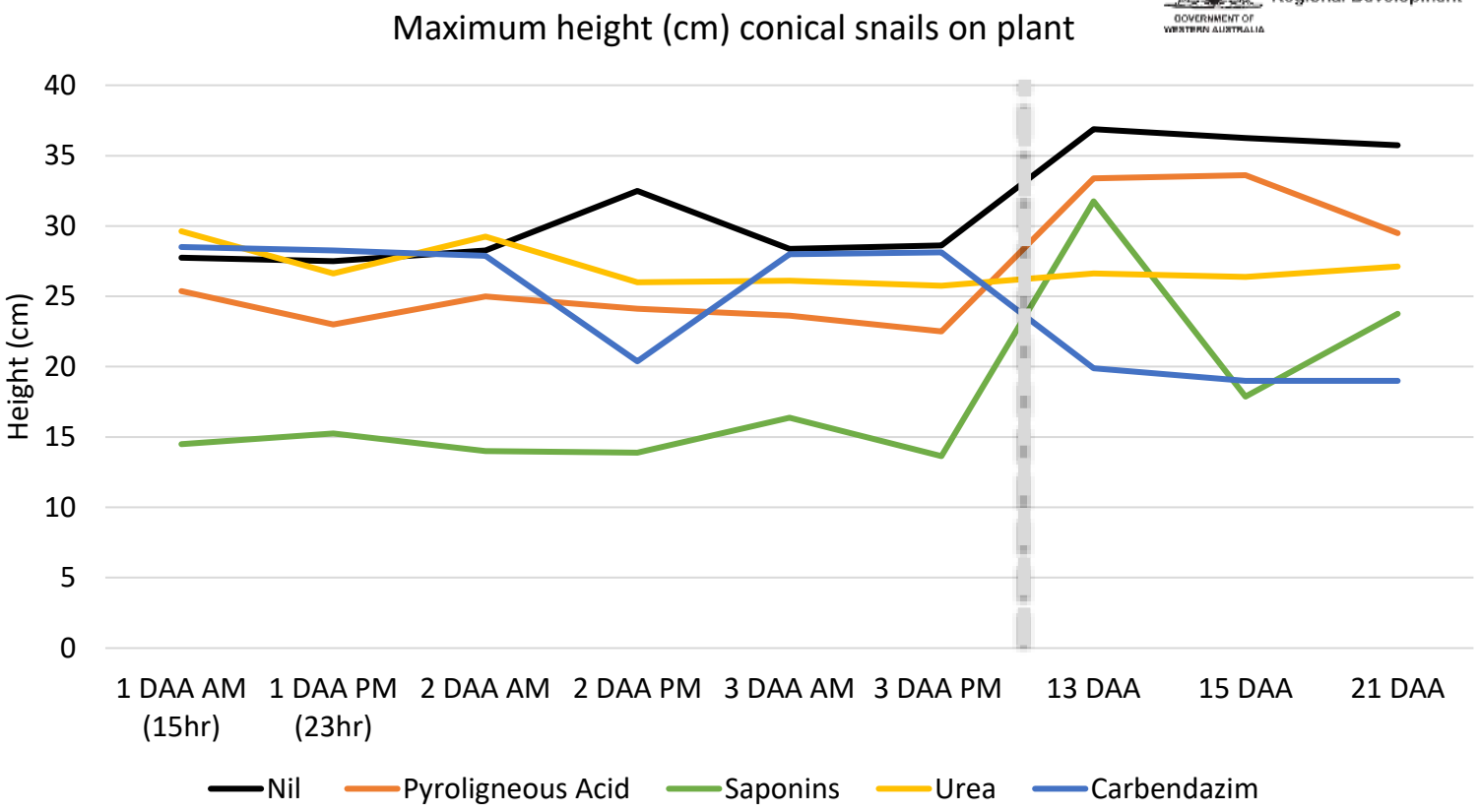

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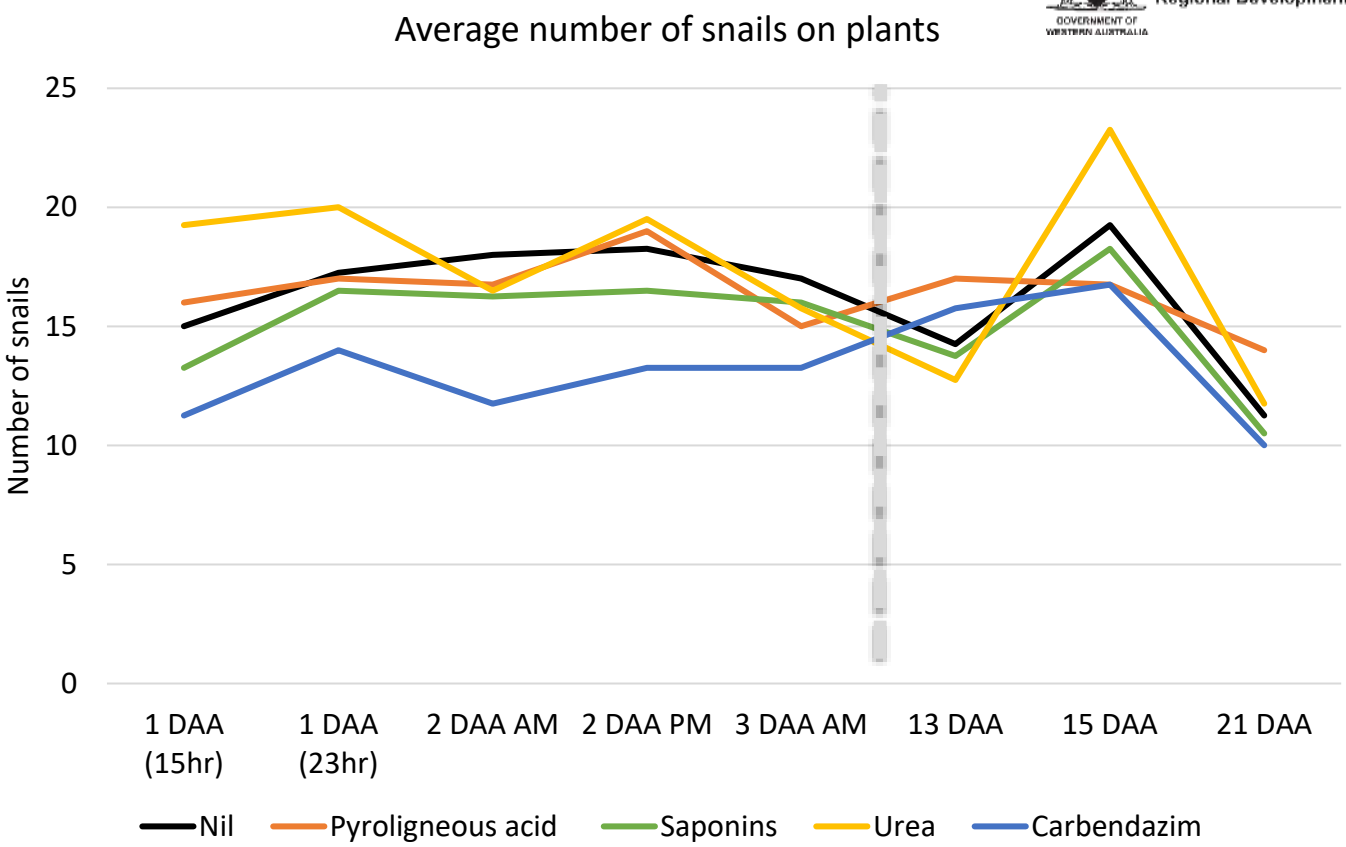

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Esperance Field Trial

By King Yin Lui (DPIRD) and Rachel Minett (Primaries)

Aim:

Testing the efficacy of Pyroligneous acid on conical snails when mixed with glyphosate and applied under cutter bar at swathing.

Treatments:

1. Glyphosate @ 2L
2. Glyphosate @ 2L + Pyroligneous Acid 500ml/ha

Results 7 DAA:

-No clear repellence of snails from adding the Pyroligneous acid to Glyphosate.

-No statistical difference in mortality rates between treatments

-Grower reported no decrease in snails found in harvested grain sample after using the product.

Trial Layout

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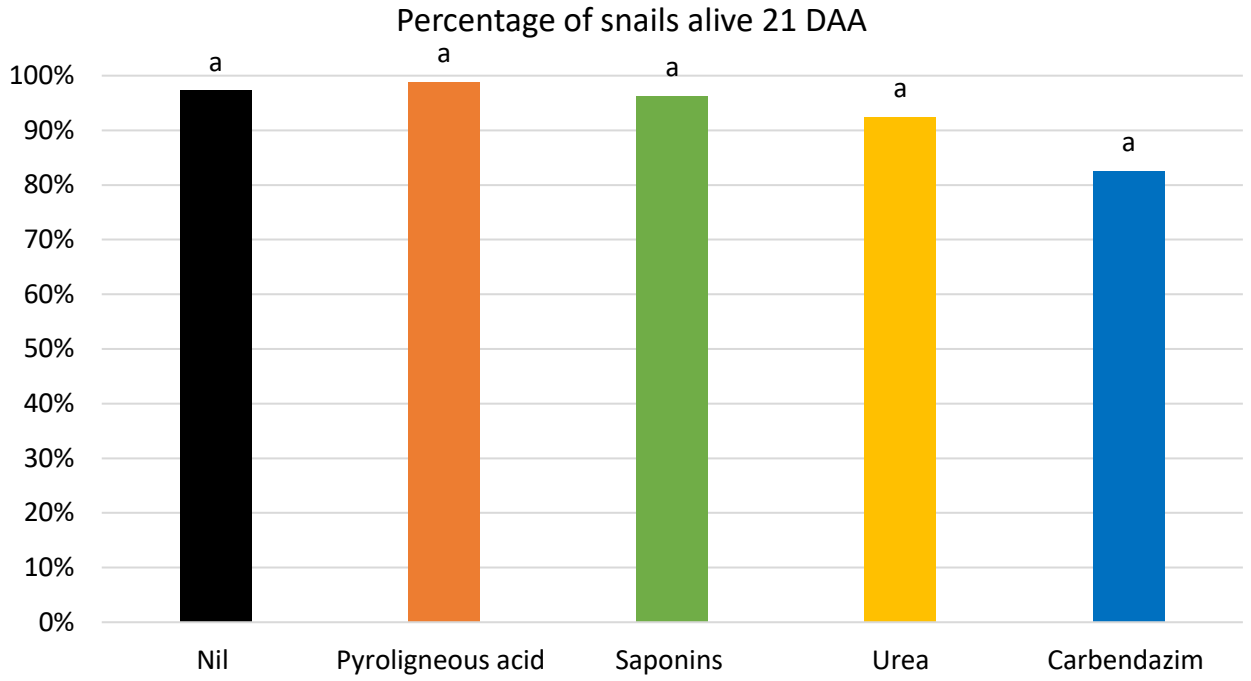
Reps = 4

Snail mortality trial

Snail repellence trial



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Take home messages

- Bait between March and May before egg laying
- Budget to bait in the season liming occurs
- A single time of baiting may not be enough to kill all snails
- None of the spray products tested repelled or killed snails
- An integrated snail management strategy is needed to control snails in the high rainfall agricultural areas.

Acknowledgements: King Yin Lui, John Moore, Carlos Babativa Rodriguez, Brent Ladyman and Jeremy Lemon

Building crop protection and production agronomy R&D capacity in regional Western Australia (Regional Research Agronomy) project DAW00256
Trade and Development, DPIRD
Snail and Slug Ecology, project DAS00160

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MORTALITY FROM BAITS