Tracking mouse activity across the Mid-North

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Key findings

- High mouse numbers were measured in autumn 2018, following an outbreak of numbers in the previous season.
- Mouse numbers decreased significantly by winter and remained low due to good baiting programs and very dry conditions in-season.
- The MouseAlert website is a useful tool to check mouse populations near your region.

Why do the paddock survey?

Mouse populations in cropping regions can increase rapidly leading to widespread crop damage and reduced yields. During the 2017 season many areas in the Mid-North observed high mouse populations. This resulted in growers using multiple applications of bait and in some cases having to re-sow paddocks. Reports of mouse damage were still occurring in spring during flowering and grain fill. These events made the monitoring of mouse numbers a priority in early 2018.

Mouse populations can be difficult to reduce once high as there is only one recognised toxin for control of mice for broad scale application. Baiting with zinc phosphide is the most effective method with research indicating that 90-95% of mouse populations were killed when baits were dispersed at the rate of 1 kg/ha (GRDC 2017). While this is an effective control method it can become costly, making it critical to understand when to time your baiting program. CSIRO are leading research, funded by GRDC, into monitoring mouse populations across Australia to better understand and prepare for potential plagues. They have created a free and interactive website and phone App called MouseAlert to map and monitor mouse numbers across all Australian grain growing regions.

How was it done?

Mouse populations were monitored on three occasions throughout 2018; on the 12th April, 27th June and the 6th September to capture autumn, winter and spring numbers (critical times to determine changes in mouse populations). The same six paddocks along a 100 km transect from Halbury to Crystal Brook were targeted at each monitoring event (Figure 1).

At each site mouse holes were identified and marked with cornflour along four 100 m long x 1 m wide transects (aligned parallel with furrows and set 20 m apart). These were assessed for activity the following day by the presence of mouse tracks. Chew cards soaked in canola and linseed oil were positioned every 10 m along one transect and collected the following day. The portion (as a percentage) of card chewed by mice was recorded.

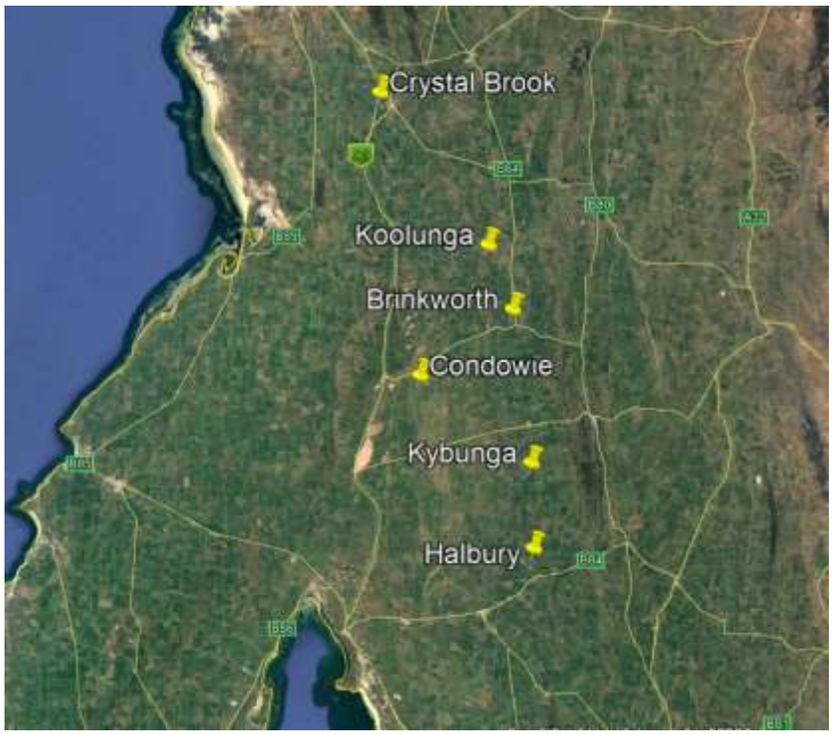

Figure 1. Map of the six paddocks visited at each monitoring event from Halbury to Crystal Brook.

Results and discussion

Autumn monitoring indicated mouse populations were high across all six sites in the Mid-North. The highest number of active mouse holes were observed at Kybunga with 2,125 active mouse holes/ha (Table 1). The ranking of the severity of outbreak based on active mouse holes/ha is included in Table 2. These rankings are a guide only, always be vigilant and if your mouse population increases to 100 holes/ha or above take action immediately to reduce further risk. Details on control strategies can be found on GRDC GrowNotes™:
https://grdc.com.au/__data/assets/pdf_file/0021/243804/GRDC-Tips-and-Tactics-Better-Mouse-Management-National-2017-high-res.PDF

The lowest recording was 75 active mouse holes/ha at Condowie while the other four sites ranged between 200 – 750 active mouse holes/ha (Table 1). High numbers were expected after a high yielding season in 2017 provided high stubble loads for shelter and dropped grain for feed.

Table 1. Average number of marked and active mouse holes per ha across the six farms in the Mid-North in 2018.

Location	Average Marked holes/ha			Average Active holes/ha		
	Autumn 12/4/2018	**Winter** 27/6/2018	**Spring** 6/9/2018	**Autumn** 12/4/2018	**Winter** 27/6/2018	**Spring** 6/9/2018
Halbury	1425	75	75	750	0	75
Kybunga	2550	0	0	2125	0	0
Condowie	425	100	125	75	25	0
Brinkworth	625	50	375	200	0	0
Koolunga	425	0	0	225	0	0
Crystal Brook	1475	125	150	450	75	25

Table 2. Ranking of the severity of the number of active mouse holes per ha.

Active mouse holes/ha	Ranking
0-75	Low
75-300	Moderate
300-1000	High
>1000	Very High

Winter sampling saw a significant drop in the mouse population across all sites. For many paddocks the numbers were low and for growers with higher populations baiting programs were sufficient to reduce the number of mice. Burrow counts ranged from 0 – 75 active mouse holes/ha with the highest counts in Crystal Brook (Table 1). These numbers remained low as the season moved into spring with burrow counts again ranging from 0 – 75 active mouse holes/ha. The overall reduction in burrow counts and associated reduction in mouse numbers is largely driven by a combination of significant baiting activity by farmers at sowing and exceptionally dry conditions experienced across many areas. Breeding begins in spring so although recorded numbers were low it will be important to keep track of populations post-harvest and to bait accordingly for the upcoming 2019 season.

Management recommendations to prevent increases in mouse numbers are outlined below (CSIRO Mouse Alert, 2018):

1. Keep on top of weed control along fence lines before weed seed set.
2. Store grain and stockfeed in mouse-proof areas.
3. Bait around buildings where necessary.
4. Keep monitoring any mouse activity and numbers in paddocks.

Summary / implications

Currently mouse numbers have declined and are low in most areas. It is expected the mouse population density will remain low coming into seeding in 2019.

Mouse numbers can change quickly across regions and throughout seasons. The Mouse Alert website is a quick and easy way to assess the risk of damaging numbers in your particular area. While baiting is the most effective method to control mouse populations there are other simple measures to make sure that risk is managed and kept low, as outlined on the GRDC GrowNotes™ and on the MouseAlert website. You can easily record your own mouse populations on the MouseAlert App to keep other farmers informed. To do so visit https://www.feralscan.org.au/mousealert/ or download the MouseAlert App from the App store.

References

CSIRO Mouse Alert 2018, *Monitoring mice in Australia – August 2018.* Available from: https://www.feralscan.org.au/docs/1/Mouse%20Monitoring%20Update%20Aug%202018.pdf

GRDC 2017, GRDC GrowNotes™ Tips & Tactics Better Mouse Management. Available from: https://grdc.com.au/__data/assets/pdf_file/0021/243804/GRDC-Tips-and-Tactics-Better-Mouse-Management-National-2017-high-res.PDF

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