

MICE in the M.I.A.



A project by
CSIRO Wildlife and Ecology
& NSW Agriculture;

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Mice in Agriculture

Mice are a significant problem in grain growing regions of Australia. Mouse plagues occur one year in two somewhere in Australia on average. These periodic outbreaks of mouse populations can cause severe economic damage to agriculture. The mouse plague that affected Victoria and South Australia in 1993/94 caused more than \$64.5 million in damage to growers and the community.

Early tactical management through modification of farming practices can slow the rate of mouse population growth. If mouse population densities can be maintained below levels that cause economic hardship to growers, the need for crisis management is reduced.



A mouse trap set in a maize crop.



The MIA Study

A new research study is investigating the effects of managing house mouse populations in the Murrumbidgee Irrigation Area (MIA), southern NSW. An advisory panel made up of farmers and scientists has developed a series of recommended farm management practices for testing on farms. The farmers provide advice about the suitability and logistics (practicality and cost) of practices.

This project builds on the results of a previous project conducted in the Mallee and Wimmera regions of Victoria. A significant benefit will be the improved information and advice to growers presented in *MOUSER* (CD-ROM), an information transfer and decision support system for the management of mice, being developed by CSIRO.



Aims

The aims of the project are to:

- work with farmers and government agencies to develop best practice recommendations for mouse control for the irrigated crops of southern NSW;
- examine the relationship between mouse damage and mouse population density and how this translates into yield and monetary loss. This will aid in early management and decisions by growers;
- develop methods to control mice appropriate to season, crop, mouse abundance and ease of adaptability into the existing farm management system; and
- extend the results and facilitate the transfer of knowledge through industry workshops, advisory panel meetings, extension staff of NSW Agriculture, newsletter articles and field day presentations.



Recommended practices

The following recommendations were developed in conjunction with the advisory panel.

Winter cereal crops

- Control winter weeds around crop edges
 - Sow as early as practicable
 - Keep paddocks free of grain spillage at sowing
 - Minimise loss at harvest
- If high mouse numbers are forecast*
- Sow as deep as possible
 - Perimeter bait with bait stations
 - Remove stubble early by slashing or grazing

Irrigated summer crops

- Cultivate early to disturb mouse nesting habitat
- Sow early as possible to get plants established
- Minimise loss at harvest

Rice crops

- Control weed and grass growth on channel banks
- If high mouse numbers are forecast*
- Remove rice stubble by slashing
 - Use bait stations in September

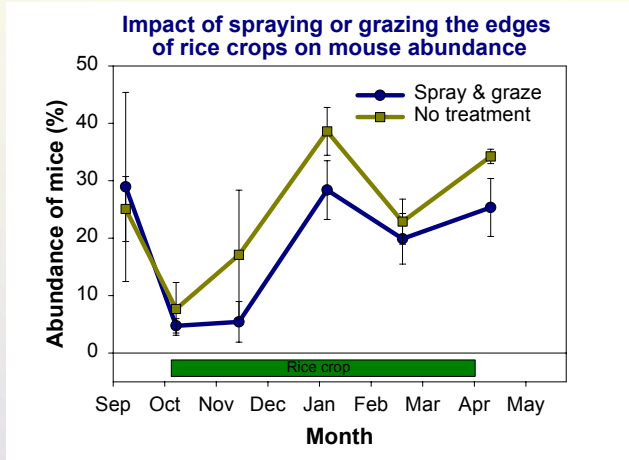


The culprit: the House Mouse



Preliminary Results

Some of the results obtained so far are encouraging. These include controlling weeds around the perimeter of crops. On sites where farmers sprayed using herbicides or grazed using sheep, there were fewer mice and less damage to crops compared to sites where no action was conducted.



Effectiveness of actions

- Biomass was reduced on sprayed sites by 45% and there were fewer mice present.

Crop damage

- The average damage by mice to rice crops on sprayed sites was 1% compared to 1.8% on untreated sites.



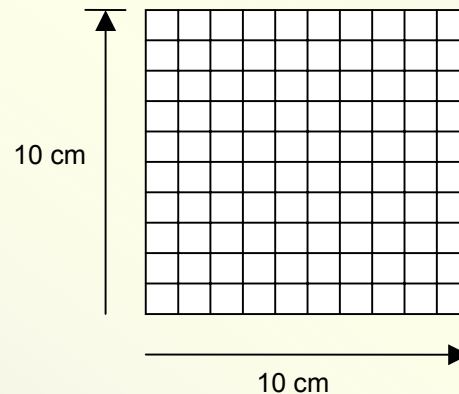
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Census Cards

A census card is a piece of paper with a 10 x 10 cm grid marked on it, which is soaked in canola oil and pegged into the ground. These are set 10 metres apart on the edge of the crop in lines of 10 or in a crop in a 5 x 5 grid.

The census cards are left overnight. The percentage eaten on each card is recorded, then averaged over all cards to give an average amount of card eaten. Research is continuing to determine how card damage relates to actual mouse numbers, and also the effect of the availability of alternative food.



Mice ate approximately 40% of this census card.

The aim of using these cards as a measure of mouse abundance in conjunction with the traps is to establish the relationship between percent of cards eaten and the population abundance of mice. This will then be useful to farmers who can use the cards as a simple measure of mouse population and use the information for their farm management decisions.

Census cards can be used to determine if baiting with zinc phosphide is warranted. Farmers need to have visible damage or have at least 15% damage to census cards. The Rural Lands Protection Board who controls the distribution of the bait must be contacted to apply for a permit.



Mouse burrow in soybean crop showing damage to pods.

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