

MOUSE PLAGUE SURVIVAL GUIDE

FOR
RURAL LANDS
PROTECTION BOARD
STAFF

BY
RLPB STAFF

&
NSW Department of Primary Industries



NSW DEPARTMENT OF
PRIMARY INDUSTRIES





Contents

Introduction	3
Early warning	3
Getting started	4
Monitoring	4
Census cards	4
Consumption of grain	5
Snap-back traps	5
Damage - what to look for	5
Baiting	7
Previous rodenticides - why ZnP this time?	7
Aerial	7
Perimeter	8
Office	9
Attachments	
1. Perimeter baiting container	
2. Requirements by landholders for aerial mouse baiting	
3. Contacts	
4. Bait order form	
5. Zinc phosphide order list	
6. Zinc Phosphide/Bromadiolone users' invoice list	
7. References	

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The information contained in this publication is based on knowledge and understanding at the time of writing (April 2005). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up-to-date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.

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Introduction

In late July 1999, a landholder phoned his local RLPB saying that he had finally worked out what was knocking the pods off his very healthy canola crop. After various agronomists had looked and suggested it may be anything from bugs to some new disease some bright spark said it might be MICE!! And so it was. This started what was to become a very large and expensive program not only for landholders but also for Rural Lands Protection Boards.

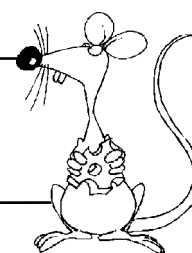
Now that the dust has settled and after various post-mortems it was suggested a “Best Practice Guide” be put together from all Boards’ experiences, good and bad, from the 1999 mouse plague. It would be compiled by RLPB staff as a guide on how to set up and handle the next plague. What follows is the result of that decision.

This guide is not law or the be-all and end-all of mouse control but a basic, easy to read outline of what seemed to work in the 1999 plague and a guide for new or used Rangers, Office staff and Boards to refer to if they feel the need. This guide only aims at helping you get through a “mouse event”, not make you an expert on mouse numbers, activity, monitoring, breeding etc... Good luck!!

Early Warning

- Keep an ear to the ground. General discussion around the traps may well be the first indication that there is a problem just around the corner.
- Getting landholders to monitor mouse activity is very difficult, so “Mouse Alert” packages* sent out at appropriate times will jog their memories. Packages can be in the form of a letter drop, Board newsletter or media release in a local paper. They could, for example, be distributed through Landcare or fox baiting groups, or faxed to landholders using the list of growers’ fax numbers kept by some district agronomists.

A package can be as basic or flash as you wish but it should emphasise that producers need to do their own monitoring



- Once you have the grapevine talking and monitoring (looking about), if there is a problem you will hear about it very quickly.
- Bring the subject up with neighbouring Board Rangers.
- Let neighbouring Rangers, your APO, State Council and Bait suppliers know of any early warning signs that you come across.



Getting Started

Monitoring

Census cards are an easy, but a fairly time consuming way to find out if you have mice present in an area

- Cards are only useful in the early stages of a plague
- Cards show the presence of mice, not how many mice
- A good thing about cards is they make the farmer have a close look at their crops
- The more lines of cards farmers put out in a paddock the better idea they will get of the distribution of mice
- Under the current ZnP permits monitoring should be done and records of this monitoring kept by the landholder. The APVMA and DEC can ask for evidence of monitoring. Census cards or bait stations are a good way of providing this information.
- There does not seem to be a “fool proof” monitoring system
- Visual crop inspection is really the best indicator as the farmer can decide how much damage he will accept.
- Never tell farmers they should bait; it is their crop and their money; let them decide.
- Monitoring results can vary dramatically from paddock to paddock and within paddocks
- Monitoring must be done right through the crop, not just along the edge where the pressure seems greater because of fence lines, timber and pasture providing more harbour.
- Keep a good diary record of your findings, crop type, farming type, soil type, paddock history etc. This will help in the next post-mortem

Census Cards (for assessing presence of mice in the field)

- Mice are present all the time in the field living in holes and under cover from predators. They are more active at night and so it is not always easy to determine how many mice are present at any one time
- There is no really accurate way to count mice, except for extensive trapping (which is very labour intensive) over a number of nights. The use of census cards can provide an indication of mice and whether they are increasing or declining. However, from field experience, census cards seem to work best from March to October.

How to prepare and use census cards

1. Cut sufficient cards to do each night's count. You need 10 cards per monitoring line (fewer cards are not a reliable indicator).



2. Each card is 10 cm x 10 cm cut from white bond (e.g. photocopy) paper; 6 can be cut from A4 size paper:
3. Soak cards in canola oil for at least one hour:
4. When ready for dispensing drain cards for 10 minutes
5. Cards are put out in the afternoon (the later the better).
6. Each monitoring line should be marked and noted (record type of vegetation).
7. Place 10 cards in a row in the paddock at 10 metre (12 paces) intervals
8. Fix cards to the ground using wire spikes or bamboo skewers (not clods of dirt) to prevent cards being carried off or blown away.
9. Retrieve cards the following morning and determine the average percentage chewed by counting the number of squares missing
10. Assessment using this technique can be done any time monitoring is required.

Consumption of Grain

As an additional guide to mouse activity, bait stations can be used. Bait stations rely on placing measured quantities of grain in a grid pattern throughout the paddock which are left over night, then weighed the following day to determine the amount eaten by mice. If a mouse eats about 4 grams each night (20% of its body weight), the number of mice can be estimated by dividing the weight of grain lost overnight by four.

Snap-back traps

The everyday wooden mouse trap is probably the best indicator of mouse presence. Although more labour intensive, with a piece of oil soaked leather on the tongue (or a small piece of bacon rind), results are usually good. These traps also allow you to determine whether mice are in breeding condition.

DAMAGE - WHAT TO LOOK FOR

Damage can be at times very hard to spot (impossible at 60 kph from a ute). You have to spend a good deal of time getting close and personal with crops.

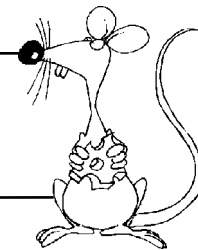
When mice are present during sowing damage can occur from loss of seed, especially seed of pulse crops, but losses of cereal seed can also occur. Mice will follow planted rows and dig up all the seed. This occurs particularly when alternative food is scarce. Sowing deeper can reduce mouse damage but it will slow germination. Nevertheless, it may help when farmers want to sow crops during periods when mice are active.

In cereal crops up to late tillering even though they look healthy, you need to get down and lay arms flat on the ground. Sooner or later, if there is mouse damage, you will see shredded



- Instruct pilots not to apply bait unless they have a map showing the paddocks to be baited and preferably have a signed indemnity form from the landholder.
- If feasible and the required storage area is available, bait should be delivered to the airstrip.
- Get the air company to keep a register of bait deliveries and cross-check with your own records every day or so.
- Make bait orders firm and make landholders aware that once bait is ordered it cannot be cancelled - unless your Board is willing to carry stocks! Payment up front is a suggestion.
- Make up an order form for faxing to landholders. This will help cull some orders that are "just in case" orders.
- Let aerial operators work it out with landholders if more than one property's bait is pooled into the aircraft.
- As landholders cannot store bait it may well be an option for an air company to pool loads. It is a good idea as the application cost is reduced. Landholders generally trust their air company with areas and rates.
- The only problem with doing this is you cannot charge for bait until after it is applied. Be VERY careful not to get caught with left over bait.

***Keep regular and accurate documentation
of all chemical/bait movements***



Perimeter

- A must! as this picks up a lot of mice living for example, in fence lines and timber belts, as they move into crops to feed.
- ZnP and bromadiolone baits are not rain fast. As little as 5 mm of rain might render them useless.
- It is very hard to get bait to run out at 1kg/km (see attachment 1 for sketch of bush applicator).
- Try and get groups together and mix at one central property.
- Fill all forms out on the spot.
- Use all the proper personal protective gear.
- If mixing in the field, do so as you would for 1080 preparation in the field.
- If mixing bromadiolone bait, use only clean grain, as chaff and dirt soak up the poison and mice don't seem to like chaff or mud!
- Bromadiolone is quite slow acting and mice will consume bait for up to 3 days before dying. Hence, it is more labour intensive and possibly costly as more bait is put out. If mouse damage



threat is high and you want much faster results, then consider perimeter baiting or baiting adjacent pasture land with zinc phosphide.

- Only use landholders' own grain, to keep any weeds and other contaminants on their own property.
- Only place prepared bait in sealed plastic poison bags or sealed drums labelled as per the permit.

Office

It is very important that everyone who has anything to do with the "mouse event" be fully aware of their Board's guide-lines (for obvious reasons). If your event snowballs into a very large problem then it may necessitate a full time person dedicated to the phone and computer instead of just whoever answers the call. A daily/weekly "sit rep" and a quick meeting with office staff and Rangers will keep everyone "in the picture" and avoid embarrassing situations.

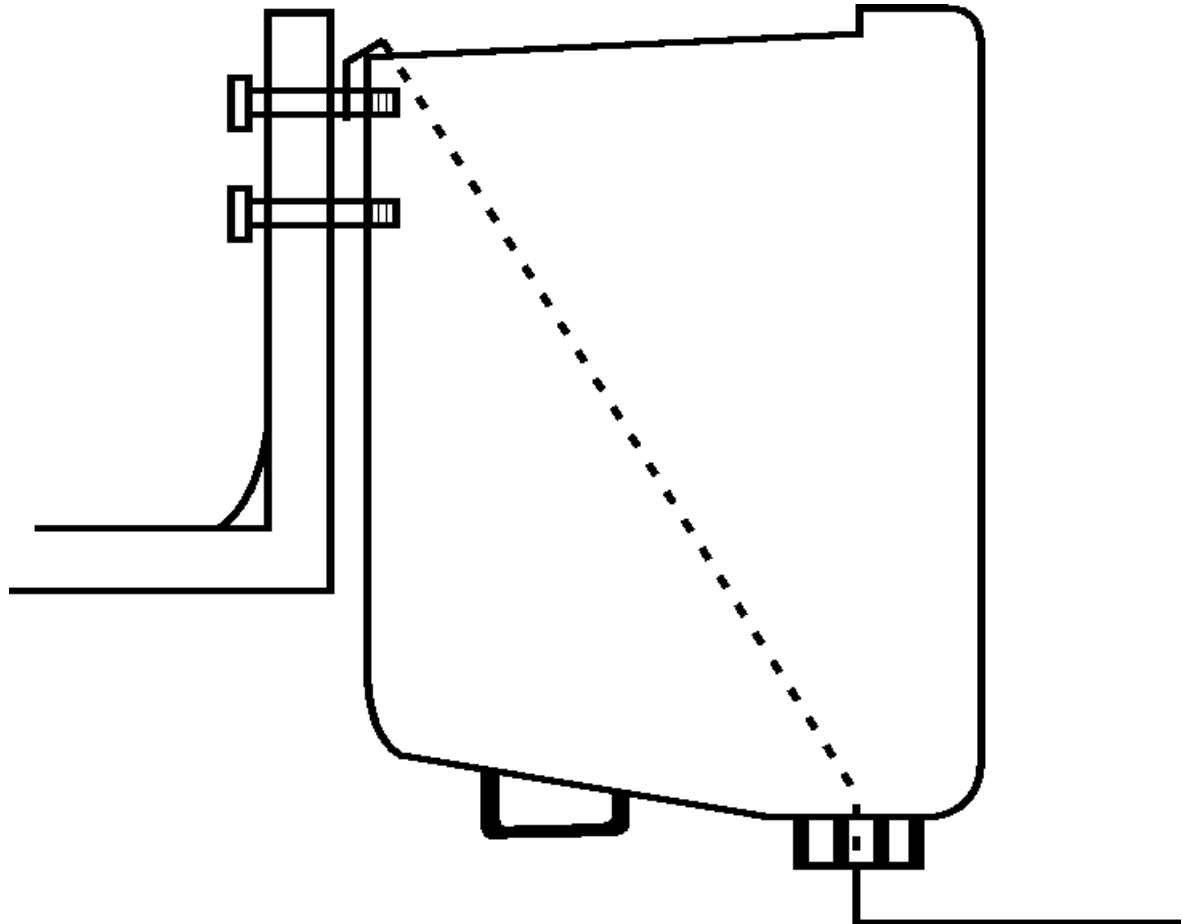
Following is one format to use:

1. At first landholder's call to the Board: Fill in a Mouse Situation report form, Explain to the landholder the need for monitoring (legal requirement - Attachment 2), cost of bait, bait availability and that once bait is ordered, the landholder will be billed. Get the name, address, ph/fax no, area at risk - put this info on whiteboard or spreadsheet.
2. Then fax out info package including the legal requirements (Permits), census card info and template and a list of local aerial/ground operators (Attachment 3).
3. When a landholder decides they want to bait, fax out the baiting package including Indemnity form, Bait order form (Attachment 4), Pesticide Permit, MSDS and warning sign (they can photocopy as many as they need). Ensure their details are entered in the ZnP Order List (Attachment 5). As the permit and MSDS's are quite lengthy, get people to pick them up from the office.
4. When bait has been applied, get the aerial operator to fax back to the office the signed Indemnity form and property map. This information can then be entered onto the ZnP Users List (Attachment 6). Also, prepare a list of jobs done and how much bait (kg) was used from the aerial operators' records. These can be cross-checked with the users list, so you can bill out the correct amount.
5. A Board could purchase a Zinc phosphide bait spreader for use on vehicles for lending or hiring to ratepayers as a service. Proper equipment looks better for application purposes and you know that the chemical is being applied correctly. Spreaders are probably too expensive for one farmer to purchase for one-off events.



ATTACHMENT 1

Perimeter Baiting Container



10/20L drum bolted to the sideboard of a ute or quad bike. Secure high tensile wire to the top bolt then feed wire down through a hole drilled in the lid then out away from the ute at right angles about 400-600mm. Start with about a 14mm hole with 3.2mm wire, this gives roughly 1kg/km at 15-20kph. As you drive along the wire shakes as grain dribbles out.



ATTACHMENT 2

REQUIREMENTS BY LANDHOLDERS FOR AERIAL MOUSE BAITING

- All landholders should monitor their paddocks for mice before aerial baiting. Monitoring can be done using a single method or by employing a combination of cards, bait stations, traps or visual methods.
- Thorough records and evidence of monitoring **MUST** be kept by the landholder.
- Landholders are **LEGALLY OBLIGED** to complete any baiting records and produce them if required to the DEC (*Pesticides Act 1999*).
- If there is sufficient evidence of mouse activity (e.g. if more than 5-10% of the census cards have been consumed, mice being caught in snap-back traps, increasing grain consumption from a bait station or obvious crop damage) then bait may be issued through the Rural Lands Protection Board.
- The Board will provide a copy of the relevant label which landholders **MUST** read thoroughly and follow carefully.

Information that needs to be recorded is as follows:

1. Where the mice are present e.g. crop type, area, refuge.
2. What monitoring method was used e.g. how many census cards, traps or bait stations were distributed and where they were placed. (Results i.e. % taken).
3. Date and time of monitoring and card distribution.

NOTE:

Only pilots that have undertaken ZnP training and are registered with NSW Department of Primary Industries can be engaged in aerial baiting.



ATTACHMENT 3

LOCAL CONTACTS AND AERIAL/GROUND OPERATORS

Local Agricultural Protection Officer

.....

District Agronomist

.....

Aerial operators:

1

2

3

4

Others

1

2

3

4



ATTACHMENT 4

ORDER FOR ZINC PHOSPHIDE MOUSE BAIT

Name	
Trading Name	
Address	
	Postcode _____
Phone	

I, the abovementioned and undersigned, wish the _____ Rural Lands Protection Board (the Board) to order and purchase Zinc Phosphide Mouse Bait (the Product) on my behalf. I recognize that this bait will not be ordered until full payment is made to the Board.

Quantity Required	Kilograms
Cost per Kilogram	\$ per Kg
Attached is my cheque in the amount of	\$

I agree that in signing this order, I am bound by the conditions of purchase as set out below:

- Payment in full must accompany this order.
- This order is a binding order for purchase from the Board of the quantity of Product as listed above. I am responsible for payment for this product whether or not my circumstances and requirements alter between ordering and supply.
- I am aware that I am not entitled to any refund or return of the Product, regardless of the circumstances.
- I will use the product and dispose of any unused bait in accordance with the current label and/or permit

Signed _____ **Date** _____ / _____ / _____



ATTACHMENT 7

REFERENCES

- Detailed information on recognition of damage and monitoring techniques is available from *Mice, Monitoring and Mouse Baiting* on NSW DPI web page www.agric.nsw.au/reader/mice.
FAQ's on zinc phosphide and bromadiolone is also available at the same site.
- *MouseOff* brochures and videos/DVD's are available from Animal Control Technologies
Tel: (03) 9308 9688 or
Website: www.animalcontrol.com.au
- Your local APO can supply contact details for suppliers, MSDS's permits etc.
- For RLPB Rangers, all up-to-date permits, MSDS etc. are also available on the RLPB Intranet site at <http://www.rlpb.org.au/intranet/>