

Multi-Species Baits for Improved Ecological Outcomes

Ray Henderson, Steve Hix, Duncan MacMorran, Charles Eason, Malcolm Thomas, Aroha Miller and Shaun Ogilvie
 Lincoln University, PO Box 84, Lincoln; Pest-Tech, PO Box Leeston; Connovation Ltd, PO Box 58613, Auckland.

Introduction

- Conservation goals can be thwarted by increases in mice after rat or possum control.
- To successfully control or eradicate these pest species, optimised baiting strategies must be coupled with baits that are highly palatable to all three species.
- Multi-species bait types with improved attractiveness and palatability to mice are needed.

Methods

- New palatable bait ingredients were identified and tested.
- Caged animals were provided with a mixed diet for at least two weeks.
- Two new pastes and three existing pastes were compared with respective industry standards (RS5 and EPA rodent diet) in a randomized block design presenting each bait (+ control) to >20 individually caged possums, rats and mice over a 7 day period.
- New solid baits, No. 7 cereal baits and Detex blox were compared with respective industry standards (RS5 and EPA rodent diet) in a randomized block design presenting test bait (+ control) to 18 individually caged possums and rats and 18 pairs of mice over a six day period.
- The weight of test and control bait eaten by each animal during an 18 hour period overnight was measured and the % palatability of bait types compared.

Table 1. Paste bait type and palatability in three species.

+ ACP Wanganui

Bait	Type	Respective palatability (%) to:		
		Possums	Rats	Mice
New multi-species paste 1	New multi-species paste 1	63.0	78.0	81.0
New multi-species paste 2	New multi-species paste 2	62.0	81.0	83.0
Apple paste +	ACP peanut butter based paste	44.0	28.0	48.0
Peanut paste +	ACP apple based paste	63.0	20.0	20.0
Wonder-lure paste +	ACP wonder-lure paste	46.0	15.0	30.8

Table 2. Solid bait type and palatability in three species.

+ ACP Wanganui; ++ Bell Laboratory

Bait	Type	Respective palatability (%) to:		
		Possums	Rats	Mice
NZ New multi-species	Cereal	85.4	93.5	79.5
NZ New multi-species	Extruded	79.1	79.0	79.3
RS5 +	Cereal	50.0	86.2	54.0
No. 7 +	Cereal	53.6	57.1	58.5
DB ++	Moulded Block	28.1	44.1	32.8



Results

- Conventional solid baits consist largely of cereal and sugars.
- We have improved on cereal and paste bait palatability by the addition of a mix of fats, proteins and attractants.
- We were able to produce paste baits that are highly palatable to all three species and improve solid bait palatability to mice (Table 1, 2).
- All the NZ made solid baits were palatable to all three species including mice when compared to the Detex bait.

Discussion and Future Focus

- Field trials are now focusing on "bait take" and target species behaviour.
- Currently registered and new toxins are being incorporated into these baits.
- During the research we produced pastes or solid baits that are a very significant improvement for mice and rats, scoring >90% vs. EPA standard rodent diet. These will be developed further.



Acknowledgements

FRST are acknowledged for support.