

## WHAT AFFECTS BAIT UPTAKE BY HOUSE MICE IN AUSTRALIAN GRAIN FIELDS?

J. JACOB,<sup>1</sup> CSIRO Sustainable Ecosystems, GPO Box 284, Canberra, ACT, 2601, Australia  
H. YLÖNEN, Department of Biological and Environmental Science, University of Jyväskylä, P.O. Box 35, Jyväskylä, 40351, Finland  
M. J. RUNCIE, CSIRO Sustainable Ecosystems, GPO Box 284, Canberra, ACT, 2601, Australia  
D. A. JONES, CSIRO Sustainable Ecosystems, GPO Box 284, Canberra, ACT, 2601, Australia  
G. R. SINGLETON, CSIRO Sustainable Ecosystems, GPO Box 284, Canberra, ACT, 2601, Australia

**Abstract:** A main method of pest-rodent control is the distribution of rodenticide baits. Emerging management techniques such as fertility control also may rely on the distribution of bait, but we do not know what affects bait uptake by rodents in crop fields. From October 2000 to February 2001, we measured the importance of individual characteristics (sex, weight, length, reproductive status), mouse abundance, and environmental conditions (vegetation height and cover and food quantity and quality) for free-fed pellet bait uptake by house mice (*Mus domesticus*). Our study was conducted in a grain-growing region of southeastern Australia using pellet bait that contained Rhodamine B (RB) as a bait marker. High bait uptake was noted when fence-line vegetation was high and pellets were spread at high densities. Lower uptake was noted when the grain crop had high protein content. Vegetation cover, mouse abundance, the amount of spilled grain after harvest, and crop height had no impact on bait uptake. The proportion of RB-positive mice decreased during removal trappings, indicating effective removal of residents. Lactating females were more likely to be RB positive than nonlactating females, possibly because of higher food intake during lactation. Because many females (79.9%) ate bait pellets, bait formulations may be used to effectively deliver fertility-control agents targeted at female house mice.

**JOURNAL OF WILDLIFE MANAGEMENT 67(2):341–351**

**Key words:** agro-ecosystems, Australia, bait, fertility control, *Musdomesticus*, pest-rodent management, Rhodamine B, rodenticide.