# Comparison of different sizes of physical barriers for controlling the impact of the rice field rat, *Rattus argentiventer*, in rice crops in Indonesia

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## Abstract

The effectiveness of different size trap-barrier systems (TBS)—50×50 m, 30×30 m and 20×20 m—was assessed for managing the impact of pre-harvest damage by the rice field rat, *Rattus argentiventer*, on dry season rice crops in West Java. Each TBS had a crop planted inside the barrier that was 3 weeks earlier than the surrounding crop. 2635 rats were captured in six TBS, with 58% of rats caught from maximum tillering to booting. More rats were caught in the larger TBS, yet the levels of rat damage and yield loss in nearby crops were similar for the different sizes of TBS. The mean yields from the crops surrounding the TBS sites compared to the control sites were 4.72 t/ha versus 4.00 t/ha. The benefit–cost ratios were: 14:1 for the 50×50 m TBS; 10:1 for the 30×30 m TBS; 24:1 for the 20×20 m TBS. We recommend that one TBS of minimum size 20 m×20 m is required every 10 ha and that the technology be adopted at the village level as part of an integrated ecologically based approach to rodent management.

**Author Keywords:** Rodent control; Indonesia; Economics; Physical control; *Rattus argentiventer*

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