

## Development of a Rodent Bait with Slug-repellent Properties

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**ABSTRACT:** Commensal rodents (invasive rats, *Rattus* spp., and house mice, *Mus musculus*) are established on most of the world's land masses, damaging agriculture and infrastructure, spread disease, and are frequent predators of native species. Trapping is a common non-toxicant method to remove pest rodents, with bait longevity and attractiveness keys to successful rodent trapping. Bait spoilage and consumption by slugs may impede successful rodent control. Our goal was to determine whether food grade citric acid added to bait would repel slugs while remaining attractive to rodents. We conducted several trials using peanut butter bait and Goodnature™ Rat Lure bait, including: 1) two-choice feeding experiments where captive slugs were offered both a test (0.5-5% citric acid added) and unaltered bait, 2) field trials in Hawaii and Puerto Rico comparing rat and mouse visitation to devices containing either test or control bait matrices, and 3) lab trials evaluating whether wild-caught house mice and rats were deterred by adding citric acid to bait. We found slugs generally preferred the bait without citric acid in the two-choice feeding experiment over any of the five combinations of test bait, and citric acid added to Goodnature™ Rat Lure repelled slugs the most. In the field, snap-trap and tracking-tunnel success was unaffected by adding citric acid to the bait. Finally, wild rodents showed no aversion to citric acid during lab trials. Our results indicate that the addition of citric acid can improve the longevity and attractiveness of bait, thereby aiding rodent control programs.

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