

COMPLETED PROJECT REPORT

Project Title: Malted Oats as carrier for Zinc Phosphide baits.

Research Agency: National Wildlife Research Center

Principal Investigator: Johnston and Nolte

Budget: \$57, 192.00

Summary:

The objective of this project was to determine if the use of malted oats rather than the traditional unmalted oats for the preparation of zinc phosphide rodenticide baits increases consumption and efficacy.

All experiments required for this study have been completed:

Phase 1 Objective: to determine if ground squirrels exhibited a preference for grains with elevated sugar content compared to the standard rolled oats and whole oats used as bases for rodenticide baits. The grains with elevated sugar content were 16% Ceresweet on rolled oats (prepared with 5% Alcolec-S) and whole malted oats. Preferences were assessed in a series of counterbalanced 2-choice tests.

Results: California ground squirrels consumed 5 to 20 times more bait than did Belding's ground squirrels. The California ground squirrels preferred the Ceresweet oats over the unmalted oats and showed a slight preference for the Ceresweet oats over the malted oats. Preferences among the Belding's ground squirrels were less evident; they exhibited a slight preference for malted oats compared to Ceresweet oats.

Phase 2 Objective: determine whether the phase 1 preferences for the Ceresweet oats were due to the base matrix and/or due to increased sugar content.

Results: Both species of ground squirrels preferred rolled oats to whole oats. Both species showed a slight preference for increased sugar content as the oats were preferred over the control Ceresweet oats.

Phase 3 Objective: to determine if the efficacy of zinc phosphide baits could be improved by using a grain with an increased sugar content as the base for the bait.

Results: Overall, the zinc phosphide baits were more efficacious for California than for Belding's ground squirrels. For both species and both baits, higher levels of mortality were observed for pre-tested as compared to naive animals. This suggests that pre-baiting will likely improve efficacy. For California ground squirrels 100% mortality was observed for pre-tested animals offered Ceresweet bait. These results suggest that the addition of hydrolyzed oat flour may increase the efficacy of zinc phosphide baits to California ground squirrels.

Last Updated:

02/18/09