

COMPLETED PROJECT REPORT

Project Title: Studies of zinc phosphide ground squirrel bait formulations

Research Agency: University of California, Davis

Principal Investigator: R. Marsh

Budget: \$10,340

Background:

The loss of 1080 (sodium fluoroacetate) as a rodenticide created a serious problem for control of Belding's ground squirrel, with no economically viable squirrel baits for crops of low to moderate value, such as alfalfa and cereals or for irrigated pastures. While zinc phosphide grain baits are registered for the control of Belding's ground squirrel, such baits generally have been poorly accepted by the squirrel, especially where alfalfa is their primary food source.

Belding's ground squirrels, in most areas where they are of economic concern, feed nearly exclusively on green vegetation, which is the reason why grain baits are rarely effective. In the past, baits made of chopped green alfalfa, dandelions, or chopped cabbage were used and were far superior to grain baits.

There are some fundamental problems in attempting to formulate a zinc phosphide cabbage bait. It is thought that through the use of various formulation adjustments, these problems can be overcome

Objectives:

To develop a cabbage bait formulation using the rodenticide, zinc phosphide.

Summary:

A wide array of bait additives and formulations approaches were tested evaluated in this project which was designed to develop an effective cabbage zinc phosphide bait for the control of the Belding ground squirrel. The Belding ground squirrel is a very serious pest of alfalfa and grain production in the northeastern part of California. The loss of two economically important rodenticides, 1080 and strychnine, for the control of ground squirrels, prompted these studies.

The project, after months of research, resulted in the development of a moderately effective cabbage zinc phosphide bait formulation which would achieve 67% mortality in the laboratory on a fairly consistent basis. The best bait formulation, however, falls considerably short of being highly efficacious.

The various approaches used to arrive at the final formulation are presented in some detail. The best bait formulation and methods for preparation are given, along with suggested application rates. Suggestions on how this moderately effective cabbage zinc phosphide bait formulation could best be utilized in an integrated control program are outlined.

Last Updated: