

COMPLETED PROJECT REPORT

Project Title: A field test of Jackrabbit bait station strategies

Research Agency: University of California, Davis

Principal Investigator: T. Salmon

Budget: \$33,194

Background:

Black-tailed jackrabbits (*Lepus californicus*) are common and occur throughout California. Jackrabbits damage a variety of crops including alfalfa, hay, cotton, vegetable crops, small orchard trees and young grapevines.

The VPCRAC funded a project from July 2002 - June 2005 to evaluate jackrabbit control techniques including bait stations, fencing, and traps. The bait station portions of the above study have been completed. The testing of bait stations was prompted by concerns of the U.S. EPA regarding the use of open tray bait stations and exposure of the anticoagulant bait to non-target avian species. The objective of the bait station portion of the study was to evaluate designs that would be used by jackrabbits but at the same time would minimize use by non-target birds.

To briefly summarize, jackrabbits and birds (primarily magpies, jays, and crows) readily entered open, A-frame bait stations (20 to 24" ht X 42 to 48" long) to feed on non-toxic oat groats offered in food bowls. With the addition of camouflage cloth curtains over the open ends of the A-frame stations, bird use dropped by 84%. With the subsequent introduction of non-toxic blue-dyed grain (which simulates blue-colored anticoagulant bait), bird use decreased by an additional 43%. Overall, bird feeding activity decreased 91% with the introduction of curtains and blue-dyed grain. Curtains on the bait stations and blue-dyed grain clearly inhibited non-target avian use. Rabbits, however, continued to feed readily from the bait stations and increased use by 10% after the addition of the curtains and the blue-dyed grain.

The sequential process starting with clean grain, then adding curtains, and then the blue-dyed grain to simulate a real anticoagulant bait, could be construed as prebaiting and adaptive training/learning for the rabbits. Prebaiting, putting out non-toxic grain similar to the toxic grain, allows one to determine if it will be accepted and lets the animal become used to it at locations where the toxic bait will be placed. Jackrabbits are considered reluctant to enter small enclosures. Thus, the sequence of starting with non-toxic grain provided a positive reward that overcame the initial reluctance to enter the partially enclosed bait station. The addition of the semi-transparent camouflage cloth did not deter the rabbits from entering the stations that they had safely entered before and where they could see that food was present. It is not known if the rabbits would have used the bait stations as readily or at all if they were deployed with curtains and blue anticoagulant bait from the start. This is an important management consideration,

should open stations be deployed first with non-toxic grain, or can the stations be deployed from the start with curtains and the toxic blue-dyed grain?

Objectives:

1. Determine if it is necessary to prebait and "train" jackrabbits to enter A-frame bait stations prior to offering anticoagulant bait.
2. Determine if effective control can be achieved by deploying the bait stations initially with curtains and toxic grain, bypassing any prebaiting period.

Summary

Black-tailed jackrabbits (*Lepus californicus*) damage a variety of crops in California. Salmon and Gorenzel (2005) evaluated jackrabbit control techniques including bait stations, fencing, and traps. The bait station portion of that study showed jackrabbits readily entered A-frame bait stations with curtains to feed on clean oat groats. However, questions remained concerning the proper baiting strategy. The objectives of this study were to: 1) determine if it is necessary to prebait and "train" jackrabbits to enter A-frame bait stations prior to offering anticoagulant bait, and 2) determine if effective control can be achieved by deploying the bait stations initially with curtains and toxic grain, bypassing any prebaiting period. Two study sites were on the University of California Davis campus, in Yolo County, California. Both sites were approximately 40 to 51 ha and consisted of small blocks of various orchard trees, grape vines, and grassy or tilled fields. We conducted 2 trials, using the same methods on each site during a wet season (Trial 1) and a dry season (Trial 2). We conducted rabbit counts and measured consumption from bait stations. On the Pomology site we did not prebait, but deployed the bait stations with curtains and diphacinone bait from the start. On the Plant Pathology site we prebaited prior to installing the curtains on the bait stations and deploying the diphacinone bait. On the Pomology site in both Trials 1 and 2, rabbit numbers increased significantly (25% and 27%, respectively) during the treatment period compared to the pretreatment period. There was no consistent or appreciable consumption of the diphacinone bait for at least 7 to 9 weeks in Trial 1. During the 51-day baiting period in Trial 2 there was no consistent consumption of the bait. No rabbit carcasses were found in either trial on Pomology. On the Plant Pathology site in Trial 1 rabbit numbers decreased by 29% in the 4-week treatment period compared to the pretreatment period. In Trial 1 consistent consumption of clean grain began after 3 to 5 weeks of prebaiting. After switching to diphacinone bait, there was no consumption for 2 to 3 wk. Thereafter, consumption of toxic bait averaged 157gm/station $\pm$ 280 SD from 7 stations during the 29-day treatment period. In Trial 2 there was no consistent take of the clean grain during a 51-day prebaiting period. Trial 2 was terminated without any deployment of the toxic bait. No rabbit carcasses were found on Plant Pathology during Trial 1 or 2.

Neither baiting strategy provided effective control. Prebaiting at Plant Pathology may have helped acceptance of the toxic grain, as consumption of the toxic grain began 2 to 3 weeks after the switch from clean to toxic grain. In comparison, at Pomology with no prebaiting, consistent

take of the toxic grain never occurred. Prebaiting was too lengthy a process to be practical and would not be acceptable where immediate control is needed.

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