

# Bait Placement Critical In Rodent Control

On the basis of an informal survey of rodent experts at the latest Vertebrate Pest Conference, more than 50 percent of the rat and mouse bait used annually in agricultural situations is wasted.

There are many reasons why much bait is wasted and why many rodent control programs fail. Among the chief reasons are lack of knowledge and misconceptions about rat and mouse baits, failure to follow application directions, and failure to follow an initial baiting attempt with a complete, sustained control program.

Rex E. Marsh, Specialist in Vertebrate Ecology, University of California-Davis, singles out one factor in particular: "Bait placement is probably the single most important thing. Most people try to use an 'eyeball census' and have no idea how many rodents they have to begin with, or how many they have left after a baiting attempt. They don't buy enough bait to begin with and they don't place it properly."

Proper bait placement is based on a knowledge of the rodent, and an understanding of the bait being used.

Published information about rodents and rodent control efforts commonly emphasizes the unique and almost amazing attributes of rats and mice, such as their well-chronicled ability to survive in harsh environments; their ability to gnaw through soft bricks and aluminum; chew through electrical wires; their ability to scale vertical walls, squeeze through small openings, jump great distances, swim many miles and withstand falls from great heights.

Also emphasized is the biology of

the rodent, how quickly they multiply and how much they eat, waste and destroy.

Without minimizing the importance or interesting aspects of all these things, Rex Marsh stresses. "Rather than biology, it is the behavior of rats and mice, and their behavioral differences, that are important. For example, mice have a much smaller 'home range' than rats, and their feeding characteristics are completely different. Rats will eat what they want in one feeding whereas mice nibble. Rats are suspicious about new objects in their environment but mice are curious and will readily investigate."

It sounds too obvious, but the first step in any rodent control program should be to identify the rodent pest present. A mouse is not a small rat. Young rats are not mice.

Behavioral characteristics influence, and dictate, the proper placement of rat and mouse bait. Especially important is the customary or 'habit' travel path...where rodents prefer to travel as they range for food, and how far they normally travel in order to feed.

If food conditions are plentiful, the house mouse on average will restrict activity to a range of a few feet, and will often cover their entire range daily to check out any change in their surroundings. Rats range much farther than mice in their search for food. Both rats and mice prefer to travel along walls, foundations, in burrows, etc., using long sensing whiskers or vibrissae. These behavior patterns are important with respect to the placement of both bait and traps.

Any rodenticide should be placed where it has a good chance of being what it is supposed to be - an attractive and alternate food source. Using any rodenticide, the cardinal rule is: They must eat the bait. If the bait is placed where it becomes moldy, musty, insect-affected, or excrement-contaminated (in poultry or swine confinement facilities), the acceptance of the bait will be affected.

In addition to the behavior of the rodent, the density of the population (number of rodents present), and proper positioning of the bait, an understanding of the bait used also is important.

Most of the baits commonly used over the past forty years, since the commercialization of warfarin in 1947, are anticoagulant baits. In the use of these baits, the user should distinguish between first generation and second generation products.

First generation anticoagulants are multiple feeding baits. The rodent must feed numerous times on the bait in order to consume a lethal dose. After a lethal dose has been consumed over numerous feedings, the rodent dies of uncontrolled internal hemorrhaging.

Important in the use of these first generation anticoagulant baits is the realization that an adequate supply of bait must be kept before the rodents for several days so that multiple can occur. If an initial baiting is quickly cleaned up and the bait not replaced, the result will likely be a failed control effort. Not many rodents will die but many will become sick.

Second generation anticoagulant baits usually are termed 'single

feeding' baits (although they sometimes work as multiple feeding baits). They are 'single feeding' only in a limited sense, however. Second generation anticoagulant baits, usually formulated with bromadiolone or brodifacoum, are toxic enough that the rodent will normally consume a lethal dose in a single feeding rather than warfarin-based products. However, even after having consumed a lethal dose in one feeding, rodents typically will feed multiple times on these baits during the days of delay until death, building up toxicity in the rodent carcass that can pose a secondary poisoning hazard.

In choosing a rat or mouse bait to fit a particular agricultural situation, where the hazard posed to pets or non-target animals may be a key concern, there are new rodenticides available that provide an distinct alternative to long-familiar anticoagulant baits.

One of these new baits is TrueGrit RAMPAGE (R), marketed by CEVA Laboratories, Inc. Instead of the familiar internal hemorrhaging mode of action (anticoagulant), RAM-

PAGE uses Vitamin D3 as the active ingredient, and the mode of action is calcification of the circulatory system, and resulting death through heart attack.

An economic plus with this new bait is that it is true single feeding. Unlike second generation anticoagulant baits where the rodent will feed multiple times even after consuming a lethal dose in a 'single feeding,' once a rodent consumes a lethal dose of RAMPAGE all intake of food and bait ceases. The rodent does not continue to feed and waste bait during the days of delay until death. Because of the Vitamin D3 ingredient, there is no secondary poisoning hazard with RAMPAGE to endanger pets or non-target animals which might feed on the rodent carcass.

In rodent control programs, users often try one new rodent bait after another and are disappointed with results. Sometimes the problem is that they are trying the same product over and over, dressed up in a new package and marketed under a new name. And sometimes the reason for control failure is simply not putting the bait in the right place.

## Comments Requested On Md. Water Quality

ANNAPOLIS, Md. - Public comment on the Maryland Agricultural Water Quality Management Program will be received at two public hearings scheduled for Nov. 24, 7:30-9:30 p.m. at the Florence Bain Senior Activities Center, 5470 Beaverhill Road in Columbia and Nov. 25, 7:30-9:30 p.m. at Easton High School, Mecklenburg Avenue in Easton.

The State Soil Conservation Committee has proposed this program in accordance with

Section 208 of the Federal Clean Water Act. It puts forth the state's agricultural program for protecting water quality.

Deadline for written comments is Nov. 30, 1986. Copies of the proposed program may be obtained from the State Soil Conservation Committee, Maryland Department of Agriculture, 50 Harry S. Truman Parkway, Annapolis, Md. 21401. For further information contact Anne Sieling (841-5863) or Louise Lawrence (841-5865).

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