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PREVENTIVE CONTROL OF PEST RODENTS

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ABSTRACT

With "preventive control" of pest rodents, by using rodent bait boxes (stations) on a permanent basis, there is no longer any biological, ecological, or economic reason for rodent pests or health problems to occur in villages, cities, and intensively cultivated agricultural areas, but not pastures or forests. Such pest rodents can usually be eliminated without endangering nontarget species, quite inexpensively, simply, and in a more environmentally desirable manner than most current practices, where the pest rodents are not controlled until populations have built up, which requires large amounts of rodenticides. With preventive control, once the pest rodents have been controlled they are never again permitted to flourish, but to be effective the monitoring scheme using nontoxic bait must be supervised by a health, agricultural or other official, since the public loses interest once rodents are no longer a problem. Bait boxes should be placed at the most favorable rodent harborage sites, because rodents usually find these places long before any large infestation can develop.

KEY WORDS: rodent control, preventive control, bait boxes, pest control, rodenticides.

Much time and effort is expended in measuring the extent of damage to crops being inflicted by pest rodents, and in establishing thresholds at which control should be undertaken. The hypothesis presented herein is that this is often unnecessary, and at least theoretically it is more cost effective and much more environmentally safe to practice permanent preventive control. Pest rodents should be treated like a serious disease, eliminate them locally and then monitor with nontoxic bait so as to quickly detect any reinvasion. For example, it is probably cheaper to permanently maintain peripheral bait boxes around a field of rice or other crop than to carry out damage assessments and then, when needed, attempt to control the pest rodents. When rodents are feeding on a crop, it is too late to obtain really effective control, the best that can be achieved is only a reduction in rodents to keep losses from being even greater.

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The principal way to achieve preventive control is to place permanent rodent bait boxes at, or as near as possible, where the pest rodent species are most likely to live and build their nests (Howard 1984a, in press a). If there are rats on the 25th floor of a hotel, put the bait box in the basement or at ground level. Population pressure at more preferred sites is what forces rats to disperse to a 25th floor. These individuals will descend, once those living at ground level are removed. All types of rodent baits, including liquid baits, tracking powders, insecticides to control ectoparasites, nontoxic monitoring baits, glue boards, and even traps and snares can be used safely in bait stations.

Bait boxes are the key to the success of preventative rodent control programs. They can be made from a variety of materials: bamboo, plastic, wood, metal with plastic lining, or concrete! They need to be durable and large enough so that the largest target rodents are comfortable while feeding in the box. The initial expense is high, but the cost is low if amortized over a number of years, and the costs may soon be offset by the savings in rodenticides. The expense of damage

surveys will also be eliminated, and the monitoring of rodents at key sites is less expensive.

When bait boxes are first put out, they should always be baited with nontoxic bait. Toxic bait should not be added until rodents have first taken the nontoxic bait. Then, if a newly installed bait box is improperly placed so as to be disturbed by children, pets or livestock, no harm is done. If nontoxic bait is used initially and the bait box is placed where rodents do not find it, the lack of bait acceptance cannot be blamed on the bait formulation. When toxic bait is added only after rodents have eaten the clean bait, good acceptance of toxic bait is assured, probably the next night, which the public will view with much enthusiasm (Howard in press b).

Two objectives of preventive control of pest rodents are to provide a more efficacious way of controlling these pests and to make rodent control in villages, cities and farms safer by using bait boxes and greatly reducing the amount of rodenticides used. It will work (Becker 1983). In South Korea, on a U.N. Food and Agriculture Organization project we were able to eliminate all five species of their agricultural and urban rodent pests by using just one plastic bait box per household in the villages (Howard et al. 1979). There are, of course, many other factors other than using bait boxes that will help safeguard nontarget species (Dubock 1982, Marsh 1985a, b).

Since people lose interest in rodent control once pests are no longer present, it is imperative that the monitoring with nontoxic bait of reinvading rodents be supervised by a public health, agriculture, or other official. One person can monitor a very large area, because the bait stations may not need examination more often than once a month, or even less frequently. New rodent populations do not build up rapidly when starting from a small nucleus.

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