CASE STUDY REPORT

RODENT INFESTATION IN A RETAIL FOOD STORE

Introduction

Rodents can be responsible for the contamination of food and food contact surfaces through their urine and droppings. Both commensal rats and mice can void over 50 fecal pellets per day in addition to thousands of urine droplets. This visible rodent evidence can lead to regulatory action and consumer complaints when droppings are observed on retail floor shelves and displays. In fact, rodents are one of the top reasons retail food stores are cited by health officials for pest related citations. Through their droppings and urine, they can spread food borne illness pathogens including Salmonella and the public health risks are well understood. Rodents can also cause product damage and spoilage resulting in costly dumping and discarding of products.

Challenge

Rodents may move into retail food stores on incoming goods or from the exterior of the building. Certain species like the roof rat, as their name implies, will more commonly enter from upper levels of the structure through openings on the roof via trees or scaling the exterior pipes or walls. This does not mean that the house mouse or the number one most common rat in the U.S., the Norway rat will not enter via upper levels and in fact they will. We must look up and down for the routes of entry and harborage. In the following case study, a Norway rat was entering a ground level through doors and harboring in upper void spaces indoors. It is an example of where three dimensional efforts were needed for uncovering the source and controlling the rodent pest. The elusive rat can be one of the most difficult pests to control. We see this phenomenon most commonly with Norway rats where there is one rat or one rat left after others have been trapped. Supermarkets will sometimes battle these rats for weeks or months. There may be a situation where the rat is absent for months and then reappears. The elusive rat may not go to traps or into bait stations exhibiting neophobic behavior above and beyond the normal rat's survival instincts. Cost for the elusive rat can be high in terms of hours spent in inspection, altering trapping strategies and baiting. It typically involves daily follow up

A Norway rat was entering a grocery store through ground level doors and harboring in upper void spaces indoors

by the pest management professional in order to eliminate the pest when food safety is at risk.

Investigation

In the case of one supermarket, the rat had been observed on the sales floor on several occasions. It had also been found damaging some crackers and other snack foods which were stored above the coolers in the back storage areas. Rat droppings were found among some ceiling insulation bordering the cooler tops. The coolers and cooler tops were providing food, warmth and an undisturbed area for harborage. Inspection efforts were complicated by low ceilings and rolled insulation which provided cover for the rat. The exterior doors of the supermarket were in poor repair. Several of the doors were not rodent proofed and one of the doors used by incoming customers would stick open and remain open for hours at a time. There was an interior dock for truck unloading at the back of the store and the outer door was left open frequently when deliveries were made. There was extensive evidence of rat burrowing down an alley and around neighboring properties which were not under the control of the supermarket.

Solution

Daily visits were made to the site and a large number of traps were placed on top of the coolers as well as other areas. Pre-baiting the traps in attempt to get the rat was used without success. In addition to the snack foods that the rat was feeding on, other more enticing foods were tried including high protein foods like sardines, chicken nuggets and bacon. However, the rat would not feed on the bait lures regardless of whether the trap was set or unset. Security cameras had been installed in multiple locations in addition to non-toxic tracking patches of cornstarch to find the travel paths of the rat. The cameras were connected to the supermarkets internet and would notify the service technician if motion was detected. The video of the offender could be viewed on the service specia ist's cell phone. Unfortunately, neither of these techniques produced results. We would later find out that the rat was moving primarily underneath the boards which had been laid upon the cooler top to allow workers to walk on top of the cooler. The rats travel paths had been well concealed by the void created between these boards and the cooler ceiling and escaped the camera's sensors. Eventually, traps were set inside low walled cardboard boxes with pet bedding inside to disguise traps. They were left unset and a moist lure was used hoping to capitalize on the lack of water in the cooler top environment. Bits of cucumber were placed on the trap and along a trail leading to the trap. The rat accepted the bait and the trap was set. The rat was captured using this strategy. The city in which the supermarket was located had been contacted regarding the exterior burrows. An effort to utilize baits in burrows and stations was implemented with their cooperation. Additional stations were added to the exterior of the supermarket property with sufficient bait quantities to deal with the large populations on the exterior. Doors were repaired and store staff was instructed to keep doors closed while not in use. This was particularly important for the rear dock doors and the front client entry door. Displays housed on the exterior which comprised of seasonal items and movie vending machines provided cover and comfort to potential rodent invaders. Staff would sometimes prop open doors to service the displays during early morning hours. They did not have keys to get back into the store and so addressing employee access issues were also part of the solution. We suspect that this particular rat had come into the structure via ground level and found comfort, food and warmth in the upper voids of the coolers. A three dimension view and control implementation efforts were required for success.

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