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Residual Spraying against Mosquitoes

Space spraying of pesticide is often carried out when there is a need to quickly control the adult mosquitoes that have already left the water surface and dispersed in air. This treatment method is more commonly known by people. Residual spraying of pesticide is another application method to deliver pesticide against adult mosquitoes but it is rarely come across by people. This article gives a brief introduction of residual spraying against mosquitoes.

Residual spraying involves laying a thin film of insecticide with residual (long-lasting) effect (e.g. 0.03% w/v deltamethrin) on all internal walls of premises. It aims at killing female mosquitoes which take rests on the surfaces after feeding on blood indoor. This method is not used for killing mosquitoes flying in the air or resting outdoor (e.g. in dense vegetation). Though residual spraying is not carried out very often, it is a very important treatment to prevent the spread of some mosquito-borne diseases,



Anopheles minimus, the local malaria vector

in particular, malaria transmitted by the *Anopheles* mosquitoes. For the prevention of some kinds of diseases (e.g. malaria) transmitted through endophilic (love to visit indoor) mosquitoes, residual insecticide is needed to be sprayed on the internal walls of the premises concerned. This is to ensure the mosquito vectors that have fed

on an infected person's blood and thus infected with *Plasmodium* (parasite that causes malaria) are killed shortly (< 24 hours) after contact with the walls and unable to spread the disease to other people.

In residual spraying, it is important to use an insecticide with effect lasting for at least three months so that the application can be and should be repeated quarterly. Care must be taken to ensure a uniform deposit of the insecticide and no wall areas are uncovered. The treated surfaces should not be washed or wiped, or else the insecticide applied on walls would be removed during the cleaning process. A pneumatic sprayer (compression sprayer) would be the appropriate equipment for the application of residual insecticides.



A pneumatic sprayer

Ms FOK Ming-yan Pest Control Officer

Feeding habit of Rodents



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Overview

Rodents are omnivorous which eat both meats and plants for their food. There are three important commensal rodent species in Hong Kong, namely *Rattus norvegicus* (Sewer Rat), *Rattus rattus* (Roof Rat) and *Mus musculus* (House Mouse). They are nocturnal animals with the peak feeding period during the night. However, they all exhibit a different pattern in their feeding habits.

Sewer Rats

Sewer Rats are true omnivores. Food preferred by Sewer Rats are those high in the protein and carbohydrate content, like cereal grains and seeds, meats, fish, and fresh fruits. However, they will take almost any type of food that is easily available. In urban areas, they feed mainly on food items in household refuse. Adult Sewer Rats consume about 25 grams of food daily. They require 15 to 30 milliliters of water daily when taking dry food but require less when feeding on moist food. Unlike mice, rats cannot survive for a very long time without access to water. Outdoor Sewer Rats will either take their meal outside or enter buildings for food in the night time and return to their nests after feeding.

Roof Rats

Roof Rats can be considered as vegetarians amongst the commensal rats as their preferred food includes seeds, grains, nuts and fruits. Nevertheless, like Sewer Rats, they are also opportunistic and will eat almost anything that is nutritional and available. Adult Roof Rats eat about 20 grams of food every day and require 15 to 30 milliliters of water daily. Compared with Sewer Rats, Roof Rats tend to exhibit more neophobic behavior (a fear of new food, new objects or changes in their environment) which makes them seldom get a full meal at one feeding site during their foraging activity. They often take small amounts of food from several food sources and prefer to feed under cover or carry exposed food to secure place to feed.

House Mice

House Mice are considered omnivores but also prefer cereal grains and various seeds to meats like Roof Rats. They eat only about 3 grams of food and drink 3 to 9 milliliters of water daily. Studies have shown that, instead of drinking water, mice can subsist on extracting water from their food to fulfil their water need. Unlike rats, mice have been described as intermittent and light feeders. If food is abundant, they may make many short visits to different places each night where they erratically nibble on minute quantity of food.

Rodents will consume any food including those for human consumption. Hence, removal of food sources for rodents with good and proper sanitation practices will definitely reduce rodent population.

Ms Leung Mei-Yee Pest Control Officer