

INTRODUCTION

Rats and mice have accompanied man to most of the areas of the world that have been settled. Historically, they have been responsible for more human illnesses and death than any other group of mammals. Man's indifference and carelessness in handling food and refuse have fostered populations of rats and mice in such close proximity to his home and work that they are commonly called "domestic" rodents (CDC). Major environmental conditions have also contributed to the persistent proliferation of rodents, these include illegal dumping of refuse, derelict buildings and vehicles.

Rodents are responsible for the transmission of several diseases either directly, as by contamination of human food with their urine and feces, or indirectly, by way of rodent fleas and mites.

The more common of these diseases are *rat-bite fever*, *leptospirosis*, *salmonellosis*, *trichinosis*, other notable diseases transmitted by rats and mice include, plague, murine typhus fever, and rickettsial pox. However, leptospirosis is the most commonly reported of these.

The table below shows the number of cases of leptospirosis for the period 2005-2018.

Table 1: Reported Leptospirosis Cases for the Period 2005-2018

Year	Cases	Death
2005	21	0
2006	15	1
2007	28	3
2008	24	3
2009	14	2
2010	12	0
2011	45	3
2012	54	1
2013	35	0
2014	22	1
2015	3	0
2016	15	1
2017	18	1
2018	16	0

*Please note that data for 2018 is currently up to 2018/10/22.

Economic Loss & Importance

In the human environment rodents cause significant economic loss. They consume or contaminate vast quantities of both human and animal foods. They destroy property by burrowing and gnawing through wall and wood and cause severe damage to crops. According to the Centers for Disease Control, it is estimated that rats cause five to twenty percent of fires of unknown origin on farms.

It must also be noted that the timing of this program aims to ensure the national development and prosperity. To this end the program coincides with the beginning of the tourist season bearing in mind that any outbreak of a communicable diseases could hamper the economic viability of the island.

Rodent Complaints

The number of rodent complaints have steadily increased between 2016 and 2017. In 2016 there was a recorded three hundred and seventeen (317) complaints and three hundred and forty eight (348) in 2017. As of October 22, 2018 there has been two hundred and seventy one (271) complaints recorded. The highest number of complaints in the year 2016 was ninety four (94) and that was in the Winston Scott catchment. Branford Taitt recorded in the highest number in 2017 with one hundred and seven (107) complaints. As of October 22, 2018 the highest number was sixty eight (68) in the Winston Scott catchment, and this catchment is responsible for a significant portion of Bridgetown.

Table 2: Rodent Complaints by Catchment from 2016 to October 22, 2018

	Year		
	2016	2017	2018 (as of 2018/10/20)
Randal Phillips	25	31	61
St. Philip	41	57	10
Branford Taitt	80	107	58
Winston Scott	94	88	68
Eunice Gibson	65	51	56
Maurice Byer	12	14	18
	317	348	271

Geographic Distribution of Rodents

An assessment of the rodent situation based on complaints reported to the Environmental Health Department revealed that the major rodent infested areas

include:-

- Bridgetown
- Miami Beach
- Batts Rock
- Rockley
- Bridgetown Port
- Browns beach
- Pebbles beach
- Residential Localities
- Institutions.

PURPOSE OF PROGRAM

Overall Goal

- This Two-week rodent baiting activity is subset of a larger national programme that aims to reduce mortality and morbidity of diseases caused by rodents in Barbados

Specific Objectives

- To reduce the rodent index by 75% : (number of rodent sightings in a specific location per a 5 minute period) by the end of the program.
- To reduce the number of rodent related complaints from an average of three hundred and thirty three (333) by fifty percent (75%) by the end of the program.

The program was conceptualized as a result of the prevalence of rodent-borne diseases such as leptospirosis, as well as the increasingly high number of rodent related complaints. It is also based upon the following assumptions relative to the degree of success:-

1. That there is meaningful participation and commitment by all key stakeholders.
2. That key stakeholders provide the necessary resources and support.
3. That community members support the activities associated with the implementation of the program and take responsibility for rodent control in their respective localities.

TARGET POPULATION

The proposed Two Week Intensive Rodent Baiting Programme is targeted at the following groups of people who will be encouraged and assisted with conducting baiting activities on their premises through direct face to face methods and an intensive media campaign:

- Hoteliers (Hospitality industry)
- Householders
- Manager of food establishments
- Landscapers
- Maintenance workers
- Commercial business managers
- Coconut Vendors
- Food Vendors
- Building contractors

STAKEHOLDERS

The control of rodents in the country is not the remit of any one agency but requires the collaboration of many organizations including public, private, non-governmental agencies as well as community involvement.

The successful planning, developing and implementation of this proposed program involve the meaningful participation and commitment of the following agencies.

- Ministry of Health and Wellness
- Ministry of the Environment and Beautification
- National Conservation Commission
- Sanitation Service Authority
- Barbados Chamber of Commerce
- Barbados Port Authority
- Community Members
- GIS and Media Houses
- BTA and BTPA

These agencies would be expected to assist with the baiting of various areas and dissemination of information to their particular constituencies.

PROGRAMME COMPONENTS

Chemical Control

Chemical control has been an integral part of the Ministry's rodent control program. In the rodent control program, extermination is an important adjunct to improvements in sanitation and other environmental factors. However, timing is of great importance and the control through killing alone does not endure.

Extermination methods are best timed after the implementation of a clean-up program to decrease the availability of food in the environment thereby putting the rodent population under stress.

Rodent killing without environmental improvements particularly good sanitation, is inefficient since:

- Rodents rapidly restore their original population level through their high birth rate.
- Prolonged use of chemical may lead to resistance and bait shyness.

The anticoagulants are the rodenticides that are being used by Ministry of Health and Wellness due to its low toxicity. The use of Zinc Phosphide will be necessary as this produces almost immediate kills and is already being utilized by Ministry. The use of Zinc Phosphide also offers the Ministry a low cost but highly effective method of killing rodents.

Baiting

The program proposes a two (2) week intensive baiting project in collaboration with

all major stakeholders.

1. Strategic Baiting Areas

- Recreational
- Residential
- Urban
- Commercial
- Private and public establishments

2. Major Control Activities to be initiated during the two weeks and continuing following the end of the campaign:

- Inspection of premises
- Investigation of complaints
- Distribution of rodenticides
- Baiting of high-risk areas.
- Monitoring of bait stations for rodent activities.
- Surveillance

3. Preliminary Activities Prior To Intensive Baiting

- Conduct mobilization effort within the Ministry of Health to solicit necessary commitment and support of personnel.
- Conduct a public awareness campaign to sensitize the general public about program details.
- Develop public education campaign for dissemination to various target audiences, including radio and television public service announcements, posters, flyers and promotional items

- Conduct meetings with private sector agencies and community based organizations regarding detailed implementation of the program.
- Develop a geographic system to highlight various level of rodent activity to maximize resources.
- Conduct a comprehensive review of data relating to existing rodent areas and population densities.
- Conduct a resources audit/analysis.
- Conduct program orientation for staff members.
- Training private sector personnel in bait handling and monitoring
- Coordinating baiting activities with the SSA

PROGRAM OUTLINES

Day One, Two and Three

The program is expected to commence with the baiting of Bridgetown and its immediate environs as well as recreations areas under the management of the National Conservation Commission. This will be coordinated with the SSA. These recreational areas include Enterprise (Miami) Beach, Rockley Beach, The Richard Haynes Boardwalk, Hastings, Pebbles beach, Browns beach, Batts Rocks, and other affected areas. In addition to bating, public education in the form of continuous dissemination of educational information on the electronic and print media will be conducted. Abatement notices will be served on all persons who commit nuisances related to rodent harborage on their properties. Daily activities will be evaluated and reviewed in an effort to ensure effectiveness and efficiency of the program.

Day Four and Five

In addition to the above baiting activities, the baiting of all government premises, hotels, guesthouses, restaurant, food businesses would commence on the fourth day of the program. Clean-up will be continued by the SSA. Review of activities and serving of abatement notices will continue.

Day Six and Seven

The following activities are scheduled for the sixth and seventh day of the program: Inspection and baiting of residential localities, inspection and baiting of government buildings, processing plants and ports of entry. In addition, serving of abatement notices, public education and reviewing of day's activities will continue.

Day Eight

The following activities are scheduled for the eighth day of the program: Surveillance of all previously baited area with feed-back from personnel at the respected premises. This will be done to determine areas to revisit and rebait. Public education will continue.

Day Nine and Ten

The following activities are scheduled for the final two days of the program: baiting of all areas previously identified for rebaiting on day eight, review of day's activities, public education and serving of abatement notices will continue.

The Week Following the End of the Program

The following activities are scheduled for the week after the program: administering questionnaires, convening a stakeholders' meeting to evaluate the program.

