



# TREATMENT ADVICE FOR PEST MANAGEMENT TECHNICIANS

---

FOR THE CONTROL OF *Aedes Aegypti* MOSQUITO  
(VECTOR OF ZIKA / DENGUE)

This guide provides best practice advice when controlling the dengue/Zika mosquito in and around homes.



Queensland  
Government

**DON'T INVITE  
THE BITE**



**Treatment advice for Pest Management Technicians –  
For the control of *Aedes aegypti* mosquito (vector of Zika and dengue)**

Published by the State of Queensland (Queensland Health), May 2017

This document is licensed under a Creative Commons Attribution 3.0 Australia licence.  
To view a copy of this licence, visit [creativecommons.org/licenses/by/3.0/au](https://creativecommons.org/licenses/by/3.0/au)

© State of Queensland (Queensland Health) 2017

You are free to copy, communicate and adapt the work, as long as you attribute the State of Queensland (Queensland Health).

For more information contact:

Tropical Public Health Services (Cairns), phone (07) 4226 5555

Townsville Public Health Unit, phone (07) 4433 6900

Disclaimer:

The content presented in this publication is distributed by the Queensland Government as an information source only. The State of Queensland makes no statements, representations or warranties about the accuracy, completeness or reliability of any information contained in this publication. The State of Queensland disclaims all responsibility and all liability (including without limitation for liability in negligence) for all expenses, losses, damages and costs you might incur as a result of the information being inaccurate or incomplete in any way, and for any reason reliance was placed on such information.

## CONTENTS

Pest management technician responsibilities .....	2
The mosquito .....	2
The diseases .....	3
Room by room pest control guide .....	4
Bathrooms, Laundry and Toilets.....	5
Kitchens .....	6
Lounge rooms, Indoor dining areas, TV rooms / Entertainment Areas.....	7
Bedrooms and Offices.....	8
Outdoor entertainment areas and Verandas .....	9
Garages, Carports Sheds and Workshops .....	10
Outside pest control guide – Outdoor spraying .....	11
Yard Inspections.....	12
Answers to frequently asked questions .....	16

## PEST MANAGEMENT TECHNICIAN RESPONSIBILITIES

This guide has been developed to advise Pest Management Technicians of best practice control techniques in the event of a Zika or dengue outbreak.

Only pest management technicians who have conducted the requisite training and are licensed by Queensland Health are able to conduct commercial pest control activities in domestic premises.

Pest management technicians in Queensland must comply with The Pest Management Act 2001 and The Pest Management Regulation 2003. Information about the legal obligations of pest management technicians is contained in *A Guide to what pest management technicians in Queensland need to know*.

Remember, you must always follow the instructions on the pesticide product label.

### THE MOSQUITO

The type of mosquito that can carry dengue and Zika is the *Aedes aegypti* mosquito. The *Aedes aegypti* mosquito is a smallish, dark mosquito with conspicuous white markings and banded legs. The mosquitoes are not born with viruses. They need to bite someone who has either dengue or Zika. After a number of days the infected mosquito is then able to pass the virus to another person through a bite.

They live in and around houses, do not fly far and usually bite during the day. They DO NOT live in the bush, in creeks, blocked storm water culvert drains, or flooded grounds.

*Aedes aegypti* mosquitoes predominately breed in artificial containers around the house, such as buckets, tyres, pot plant bases etc, but can also be found in palm fronds, bromeliads, cocunut husks etc. The *Aedes aegypti* mosquito lays its eggs on the inside surface of a container holding fresh water just above the water line. They develop from egg to adult in approximately 10 days. *Aedes aegypti* eggs can remain dormant on the sides of dry containers for up to several months.

The *Aedes aegypti* mosquito prefers to harbour and rest on the underside of furniture, benches or objects dark in colour whilst waiting to bite humans (obtain a blood meal). This blood meal allows her to produce eggs.

## THE DISEASES

The dengue and Zika viruses both cause mosquito borne diseases and belong to the flavivirus family.

### **Dengue**

There are four types of the dengue virus, numbered 1 to 4. After infection, a person is immune only to the particular type with which they were infected.

Further infections with a different type have a higher chance of severe or complicated dengue. The illness lasts a week on average and ranges from mild to severe or even fatal. Signs and symptoms include fever, tiredness, headache, muscle and joint pain, loss of appetite, rash and minor bleeding. There is no vaccine or medicine to treat dengue.

### **Zika**

Zika is usually mild with symptoms lasting from several days to a week. The most common signs and symptoms include fever, itchy rash, muscle and joint pain, and conjunctivitis (red eyes).

In addition to transmission by the *Aedes aegypti* mosquito, Zika can be spread through sex. During pregnancy Zika can be passed from a pregnant woman to her unborn baby. Zika infection in pregnancy can cause severe birth defects. Currently there is no vaccine or medicine to treat Zika.

## ROOM BY ROOM PEST CONTROL GUIDE

### Indoor Residual Spraying

Indoor residual spraying is the application of residual insecticide (synthetic pyrethroids) to the underside of furniture, benches, specified surfaces or dark-coloured objects found inside buildings. The residual effectiveness of insecticides on painted surfaces is often much shorter than other surfaces such as laminex, metal, white goods, plastic or fabric. More emphasis should be placed on treating furniture etc., than walls.

Research has shown that you have a 90% lower chance of getting dengue during an outbreak if your house is sprayed using this technique.



**High risk:** areas must be sprayed.



**Medium Risk:** areas are treated at the technician's discretion.



**Low Risk:** optional, should only be treated if time permits or the premise is considered high risk due to numerous breeding sites being located on the site.



**No Risk:** no treatment necessary.

## BATHROOMS, LAUNDRY AND TOILETS

### High Risk:

Laundry area, spray back of washing machine, dryer and adjacent wall, do not spray under the washing machine as this will damage electrical components. Additionally all dark areas and objects are to be sprayed. Care should be taken to avoid damaging items sprayed.

### High Risk:

Spray the wall behind toilets from the cistern tank down to the floor.

### High Risk:

Spray under bench tops, sinks, all dark areas and objects and densely foliated pot plants in bathrooms.



## KITCHENS



### High Risk:

Spray the underside of all dining tables, chairs and the back of chairs.



### Low Risk:

Under bench tops down side of fridges and dishwashers providing chemical does not drift or drop onto cooking, eating, drinking, utensils, food and electrical equipment.



### No Risk:

The spraying of skirting boards is not necessary.





## LOUNGE ROOMS, INDOOR DINING AREAS, TV ROOMS / ENTERTAINMENT AREAS

### High Risk:

Spray the underside, sides and back of lounge including adjacent wall(s) of all lounge chairs and coffee tables.



### High Risk:

Spray the underside of all dining tables and chairs including the back of the chair.



### High Risk:

Spray all dark areas and objects. Care should be taken to avoid damaging items sprayed.



### High Risk:

Spray all densely foliated pot plants inside the premises.



### Medium Risk:

Spraying all dark-coloured curtains and blinds is at the PMT discretion. Spray the bottom 100cm until damp for material curtains and blinds. Take care not to overspray onto windows.



## BEDROOMS AND OFFICES



### High Risk:

Spray the underside of all beds, bed side tables, and wardrobes.



### High Risk:

Spray all dark areas and objects.



### High Risk:

Spraying all dark in colour curtains and blinds is at the PMT discretion. Spray the bottom 100cm until damp for material curtains and blinds.



### High Risk:

An effort should be made to spray exposed walls inside the wardrobe. If clothes prevent you from spraying inside then spray the inside of the wardrobe doors. A low-odour aerosol insecticide spray may be used in closets and wardrobes where wall surfaces are hard to reach.



### High Risk:

Spray the underside of all office desks, dark areas and objects. Care should be taken to avoid damaging electrical equipment.



### High Risk:

Spray all densely foliated pot plants inside the premise.



## OUTDOOR ENTERTAINMENT AREAS AND VERANDAS

### **High Risk:**

Spray the underside of all barbecues, dining tables, chairs and the back of chairs, etc.

### **High Risk:**

Spray all densely foliated pot plants on verandas only.

### **High Risk:**

Spray underside of dog beds if they are above ground level.

### **High Risk:**

Spray all dark areas and objects.



## GARAGES, CARPORTS SHEDS AND WORKSHOPS



### High Risk:

Spray under benches and all dark areas and objects in garages, carports or other structures. Care should be taken to avoid damaging items sprayed. Some items that are considered critical to be sprayed include (but not limited to): inside open boxes, gym equipment, golf bags, camping equipment etc.



### High Risk:

Sheds, workshops and other structures used by the occupant reasonably frequently; spray under benches and all dark areas and objects. Care should be taken to avoid damaging items sprayed.



### Medium Risk:

Sheds located in back yards or a reasonable distance from the house must be sprayed if frequently used.



## OUTSIDE PEST CONTROL GUIDE

### What chemicals\* to use

#### Breeding sites

Prolink pellets

Prosand

Aquatain

Prolink Briquettes

#### Outdoor spraying

Synthetic pyrethroids

*\* Variations or different brands may be used*

### Outdoor spraying

It is not necessary to treat vegetation in the garden with residual insecticide unless there are large numbers of breeding sites and shaded areas.

‘Barrier spraying’ of vegetation will help reduce the number of other species of pest or nuisance mosquitoes, but is not necessary if targeting the *Aedes aegypti* mosquito.

Fogging is not recommended. It may provide a short term ‘knockdown’ control of mosquitoes, but it has no residual effect. It is more important to target mosquitoes inside the home where the dengue mosquito prefers to hide, and eliminate breeding sites around the home.

## YARD INSPECTIONS

### What is considered to be a breeding site?

#### Potential Breeding Site:

Any container that is or can hold water at any time is considered to be potential breeding site.

#### Active Breeding Sites:

Any container that has mosquito larvae (wigglers) or pupae in it.

### Locating breeding sites

#### Look down:

Dengue/Zika mosquitoes breed in locations below ground level, including but not limited to: drain sumps, Telstra pits, bore casings in the ground, disused septic tanks, wells, rain water down pipes and pits.

#### Look around:

Dengue/Zika mosquitoes predominately breed in man-made containers. They can be found breeding in containers as large as swimming pools or as small as drink bottle lids. As a general rule check and treat anything that can hold water.

#### Look up:

Ok, *Aedes aegypti* mosquitoes do not breed in the sky, but they do breed in roof gutters especially where trees overhang them.

## **Which sites should I treat?**

All potential and active breeding sites must be treated. If the sites (i.e. containers) can be quickly removed and stored in a dry place after treatment please put them in a dry place i.e. garden shed or ask the occupant to do so.

## **What do I treat it with?**

### *Warning:*

*All treatment quantities and application methods must be as stated on the label of the product you are using.*

*Do not use residual surface sprays if it is raining or about to rain. Residual surface spray must dry before it will bond to the surface of an object.*

### **Bird Bath / Water Bowl:**

If the water bowl or bird bath is obviously poorly maintained it must be emptied. Bird baths can be treated with ProLink® Pellets mosquito growth regulator and left empty. If the owner insists on refilling the bird bath you should instruct them to change the water once a week. Pet water bowls (e.g. for dog, cat, bird) should be emptied, cleaned and refilled once a week. Water bowls should not be treated even though it is safe to do so.

### **Water Feature / Pond:**

These potential breeding containers may not require treatment as quite often they contain small fish. Treat with ProLink® Pellets mosquito growth regulator or ProLink™ XR Briquets Mosquito Growth Regulator, depending on its size and use the recommended treatment dose as stated on the product label. Do not treat with residual surface spray.

### **Esky / Kitchenware:**

If the item is unlikely to be used to store food again or used in food preparation, the container must be emptied, treated with a residual surface spray and stored in a manner that will prevent it from holding water again or throw it away. If it is likely to be used to store food or used in food preparation, it must be emptied and stored in a dry place; do not treat.

### **Roof gutters:**

All roof gutters on the ground level must be treated with ProLink® Pellets mosquito growth regulator. If tree(s) are over hanging guttering, every reasonable effort should be made to treat the affected area with ProLink® Pellets mosquito growth regulator.

### **Bromeliads:**

Treat with residual surface spray using a pneumatic sprayer (do not use aerosols to treat bromeliads) or ProLink® ProSand™ mosquito growth regulator if it is raining.

### **Tree Holes:**

Treat with ProLink® Pellets mosquito growth regulator

### **Palm frond / Lawn Mower Catcher / Wheelbarrow / Ice Cream Container / Garbage Bin / Bucket / Containers / Black plastic / Tarp / Tyres / Shells / Pots:**

All these containers must be emptied and treated with a residual surface spray and stored or stacked in a manner to prevent them from holding water. If the black plastic or tarp (dark in colour) cannot be easily removed, you are required to treat 100% of the surface using a residual surface spray. Areas holding water or that are likely to hold water must also be treated with ProLink® Pellets mosquito growth regulator.

### **Drain Sump / Drum / Disused toilet bowl / Post / Basketball Hoop Stand / Striking Buckets / Boat / Car Bodies:**

Generally you will be unable to empty water out of this group of receptacles therefore the recommended treatment is: spray all surface areas above the water line with a residual surface spray. Areas that are or may hold water at any time must be treated with ProLink® Pellets mosquito growth regulator.



### **Pot Plant Bases:**

Remove bases if it's practical to do so; treat with a residual surface spray and store in a manner to prevent them from holding water. If you are unable to, or it is too time consuming to remove all bases, then treat in the following manner: All surface areas above the water line must be treated with a residual surface spray. Areas that are holding or may hold water at any time must be treated with ProLink® Pellets mosquito growth regulator. It is recommended the occupant fill the entire base with sand to prevent free standing water.

### **Self-Watering Pots:**

If it is practical to do so, empty water out of the reservoir, coat the interior surfaces with a residual surface spray including entry and exit points. If you are unable to empty the water out, treat reservoir with ProLink® Pellets mosquito growth regulator and entry and exit points with a residual surface spray. Instruct the home owner to block holes with kitchen sponge or seal by gluing a piece of fly screen mesh over opening.

### **Pool / Spa / Rain Water Tank / Well / Disused Septic Tank:**

These receptacles are to be treated with ProLink™ XR Briquets mosquito growth regulator. Rain water tanks should only be treated if screens have been damaged or are missing. Septic tanks in use must not be treated.

### **Breeding Containers Commonly Found on the Street**

These receptacles include but are not limited to Telstra pits big and small, road side sumps, storm water down pipes where they meet the street. Depending on the size either ProLink® Pellets mosquito growth regulator or ProLink™ XR Briquets mosquito growth regulator can be used.

## ANSWERS TO FREQUENTLY ASKED QUESTIONS

Below are some questions with answers frequently asked by householders and occupants about indoor spraying.

### **Q: Why do we need our house sprayed?**

A: Adult *Aedes aegypti* mosquitoes like to live close to humans and may live inside your home. They like to rest in dark places, such as underneath tables, chairs, beds and around the lounge. Spraying inside your house will kill most of these mosquitoes and help stop the spread of dengue or Zika.

### **Q: How is the insect spray applied?**

A: We spray a very fine mist onto the underside of furniture such as tables and chairs. The mosquitoes that are inside your home will come into contact with the spray and die.

### **Q: What sort of spray is used to kill the mosquitoes?**

A: The products are synthetic pyrethroids. They are mixed with water so they won't smell or stain. They kill mosquitoes, cockroaches, ants and spiders and will continue to work for a couple of weeks.

### **Q: Is the spray harmful?**

A: The spray has a very low toxicity to humans and other mammals and is used at a very low concentration. It is the safest spray available for this purpose.

### **Q: Do we need to leave the house while you are spraying?**

A: Yes, all people – including children – should go outside so that no-one comes into contact with the spray as it is drying. All pets should be taken outside too. If you have any aquarium fish, cover the tanks and equipment and turn off aerators and filtration pumps to prevent your fish from being harmed.

**Q: Can my baby crawl on the floor after the house has been sprayed?**

A: If you stay outside for 15 minutes after your house is sprayed, it is perfectly safe for your baby to crawl on the floor.

**Q: What if I get some spray on my skin? Will soap wash it off?**

A: Soap is excellent for removing the spray. Just make sure you wash your skin straight away and rinse with plenty of water.

**Q: If I am allergic to dust or pollen, or if I have asthma, can I still have my house sprayed?**

A: If you have asthma, it is very important that you stay out of your house for 15 minutes. If you keep your windows open during this time, this is even better. The spray will not affect people who have allergies to dust or pollen. If you have any other allergies, you should mention this to the technician before they spray your house.

**Q: If we don't have any mosquitoes around our house, do we still need to have our house sprayed?**

A: Yes. Dengue / Zika mosquitoes can fly up to 200 metres. We need to protect you and your family from mosquitoes that are breeding nearby.

**Q: Will the spray affect plants?**

A: No.

**Q: What about mosquitoes outside my house?**

A: Dengue / Zika mosquitoes mainly rest and feed inside houses, but some may be found outside. If you are likely to be bitten anywhere, inside or outside, wear insect repellent.

[www.health.qld.gov.au/zika](http://www.health.qld.gov.au/zika) | [www.health.qld.gov.au/dengue](http://www.health.qld.gov.au/dengue)

Tropical Public Health Services (Cairns) **phone:** 4226 5555

Townsville Public Health Unit **phone:** 4433 6900



Queensland  
Government

