

Wolbachia is safe ...

The *Wolbachia* dengue control method is a sustainable, environmentally sensitive approach to reducing the spread of dengue. Years of laboratory and field-based research and assessments have shown that *Wolbachia* mosquitoes are safe for people, animals and the environment.

Government approval

The release of *Wolbachia* mosquitoes has received government approval through the Australian Pesticides and Veterinary Medicines Authority (APVMA). The APVMA is responsible for the assessment, registration and regulation of pesticides and veterinary medicines, and it seeks to protect the health and safety of people, animals, crops, the environment and trade.

The APVMA thoroughly assesses applications using the expertise of its scientific staff and the technical knowledge of other relevant scientific organisations and government departments.

Scientific assessment

We have carried out extensive research on the safety of the *Wolbachia* dengue control method, and results have been published in leading scientific journals.

We also commissioned an independent risk assessment by the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Over eight months the CSIRO undertook a social and environmental risk analysis of the *Wolbachia* dengue control method, which considered all potential hazards from environmental harm to economic impacts. The CSIRO's final report found that our research method has negligible risk to people and the environment – the lowest possible rating.

Read the CSIRO assessment at:

www.eliminatedengue.com/publications

... for people, animals and the environment

Wolbachia are bacteria that live only within insect cells. The bacteria are passed from one generation of insects to the next. Years of laboratory and field-based research have concluded that *Wolbachia* mosquitoes are safe for people, animals and the environment.

- **Safe for people and animals**

Some mosquitoes, including those that bite people, naturally carry *Wolbachia*. *Wolbachia* cannot be passed from mosquitoes to people – or animals such as cats and dogs – as *Wolbachia* is too big to travel down the salivary gland ducts of a mosquito when it bites.

- **Safe for the environment**

We have done a number of experiments in the laboratory with animals – such as geckoes and spiders – that eat mosquitoes, to see if *Wolbachia* was transferred to these animals by ingestion. All experiments have shown that *Wolbachia* is not transferred to these animals.



Wolbachia cannot be passed to people from mosquitoes when they bite.

Can *Wolbachia* be transferred to other insects?



Wolbachia is naturally found in up to 60% of all insect species, including the Cairns birdwing butterfly (pictured above).

We can look to nature to better understand whether *Wolbachia* transfer between insects may - or may not - occur. For example, a close relative of *Aedes aegypti* in Australia - *Aedes notoscriptus* (pictured below) - naturally carries *Wolbachia* and the two mosquitoes often share breeding habitats. This means the natural transfer of *Wolbachia* to *Aedes aegypti* may have been possible for hundreds of years, yet extensive surveys show this has never happened.



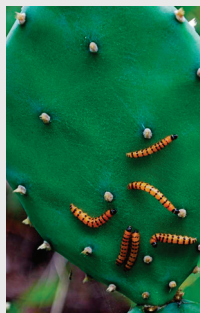
Phone: 1800 005 622

Email: townsville@eliminatedengue.com

Office: 6 / 7 Barlow St South Townsville

Biological control in Australia

- The *Wolbachia* dengue control method is a form of biological control, which involves using a living organism to control an animal or plant pest. There have been many successful and long-running biological control methods in Australia, including:
 - The release of *Cactoblastis* moths to control prickly pear.



In the 19th Century prickly pear cactus was introduced into Australia for use as a natural agricultural fence. The cactus spread uncontrollably, wiping out hectares of valuable agricultural land. In the early 1920s the *Cactoblastis* moth, whose larvae eats prickly pear (pictured left), was introduced from Argentina. Within two years the moth had almost obliterated the cactus, which is still controlled today.

- The introduction of dung beetles into Australia to manage cattle dung and the bush flies that breed in it.
- The control of floating *Salvinia* weed by the introduction of *Salvinia* weevil.
- The introduction of the now well-known myxoma virus, which causes myxomatosis, to control European rabbits.
- The Australian Government has rigorous processes in place for approving biological control agents before they can be introduced.
- The introduction of the cane toad in Queensland was a form of biological control undertaken without regulatory oversight or rigorous scientific evaluation.

Mosquitoes in the environment

Many types of mosquitoes live in north Queensland. Some mosquitoes, like *Aedes aegypti*, live close to people while others live in wetlands or mangrove areas. In these environments, mosquito larvae - or wrigglers - can be an important food source for animals such as fish, while some birds, geckoes, spiders and other animals eat adult mosquitoes.



See **Mosquitoes in Townsville factsheet** for more information.