

# In2Care<sup>®</sup> Mosquito Trap

## Easy to use

Robust design. Works without much care and hassle. Durable and sturdy hardware.

## Novel

Using the mosquito itself to kill other mosquitoes in its neighbourhood. Pesticide-free!

## Effective

Lab and field data show that it can be used to control dengue mosquitoes.

## A revolutionary tool to combat dengue & chikungunya mosquitoes

Dengue and chikungunya are rapidly spreading mosquito-borne viral diseases. They are difficult to diagnose and treat, and mosquito control is the only option to stop transmission.

The In2Care<sup>®</sup> Mosquito Trap is a unique mosquito control product that integrates an innovative trap with a customer-focused service component. The trap attracts mosquitoes which are ready to lay eggs and uses novel and green alternatives to insecticides. The trap effectively kills all mosquito larvae inside the trap and is the first to exploit the concept of 'auto-dissemination' (see inset). This method is based on the unique egg-laying behaviour of the *Aedes* mosquito, which can transmit dengue and chikungunya virus.

The In2Care<sup>®</sup> Mosquito Trap is the first trap that uses a biological control agent to kill mosquitoes. The biological control agent kills the mosquito 8-10 days after infection inside the trap and also inhibits dengue virus development in the mosquito. After being contaminated, the insect carries a larvicide to other sites, which results in an effective kill of mosquito larvae in breeding sites surrounding the trap. The attractiveness of the trap is enhanced through its size, colour, water and addition of specific odours.

The service component consists of easy and quick to use refills (biocontrol agents and odours) that allow effective trap maintenance at 6-8 week intervals. Traps can be placed both in- and outdoors at a recommended density of 1/400 m<sup>2</sup>. Our concept lends itself perfectly for use by pest control companies that offer mosquito control services to resorts, hotels, restaurants, etc. We can provide you with this product and additional services to make mosquito control easy and green. Contact us for a turnkey solution for your dengue and chikungunya problems.



## Exploiting mosquito behaviour

The *Aedes aegypti* mosquito, originating from Africa, has spread worldwide and can transmit dengue and chikungunya virus to humans. It is attracted to container-like breeding sites and specific odours that we deploy in our trap.

*Aedes* has a unique egg-laying behaviour called 'skip oviposition'. This means that it distributes its eggs over several breeding sites to minimise the risks for its offspring. The In2Care<sup>®</sup> Mosquito Trap exploits this behaviour by contaminating the female mosquito and using her to distribute larvicide to her breeding sites. With this "auto-dissemination" technique the trap can kill virtually all mosquito larvae in its surroundings before these become biting adults.

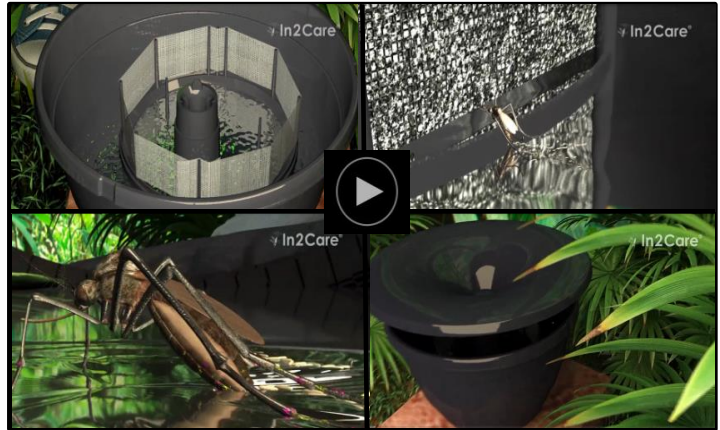
# Green, effective and low cost. Key ingredients for success in dengue and chikungunya-affected countries

Insecticide resistance has become a major problem in countries infested by *Aedes* mosquitoes. Extensive use of insecticides (organophosphates and pyrethroids) has led to widespread problems and has rendered these chemicals virtually useless. This necessitates the switch to biological control, which is more sustainable, environmentally friendly, and poses no health risk to consumers.

The unique mix of novel biological agents on the small floater surface in the protective In2Care<sup>®</sup> Mosquito Trap environment allows for a cost-effective deployment of high application doses, which enhances effective contamination and infection durability. Depending on local climate conditions, powders need to be replaced and water added to the trap at 6-8 week intervals.

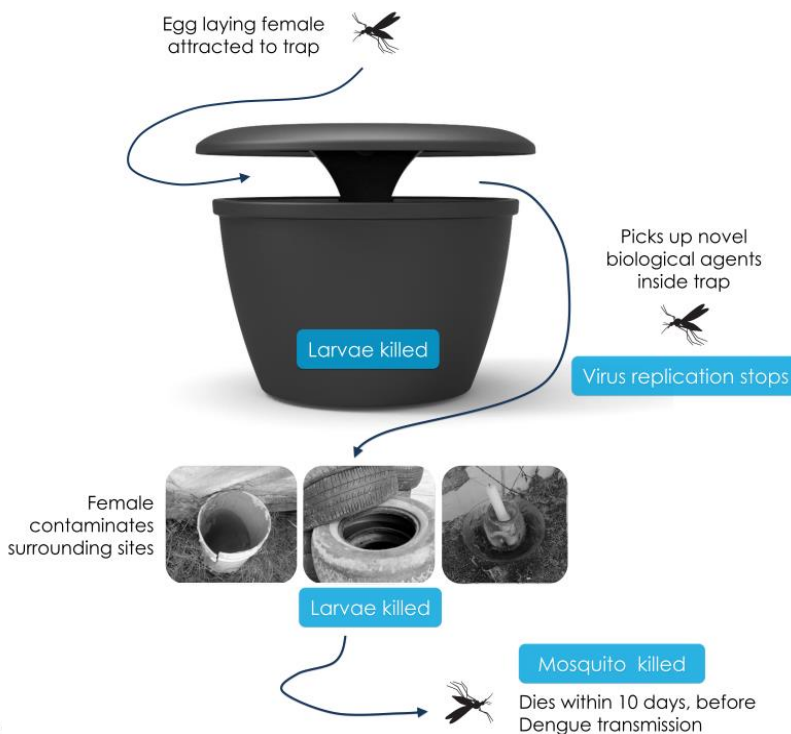
We believe that ingenuity and exploitation of the mosquito's natural behaviour holds the key to successful interventions that can replace drastic measures like area-wide insecticide application through fogging which has proven limited efficacy and major impact on non-target organisms.

Trap workings are illustrated in our online 3D animation: [in2care.org/product/videos](http://in2care.org/product/videos)



## How does it work?

The patented In2Care<sup>®</sup> Mosquito Trap is made of durable polyethylene, and consists of a lid, central tube, click-on interface and reservoir. A floater moves along the central tube with the water level and serves as the landing/resting site for mosquitoes. Female mosquitoes are attracted to the trap by adding a tablet with attractive odours to the water. When a female enters the trap she lands on the floater covered with a gauze cylinder (patented) that binds the mix of biological agents with specific modes of action. All biological agents are in use for pest control and are US-EPA approved.



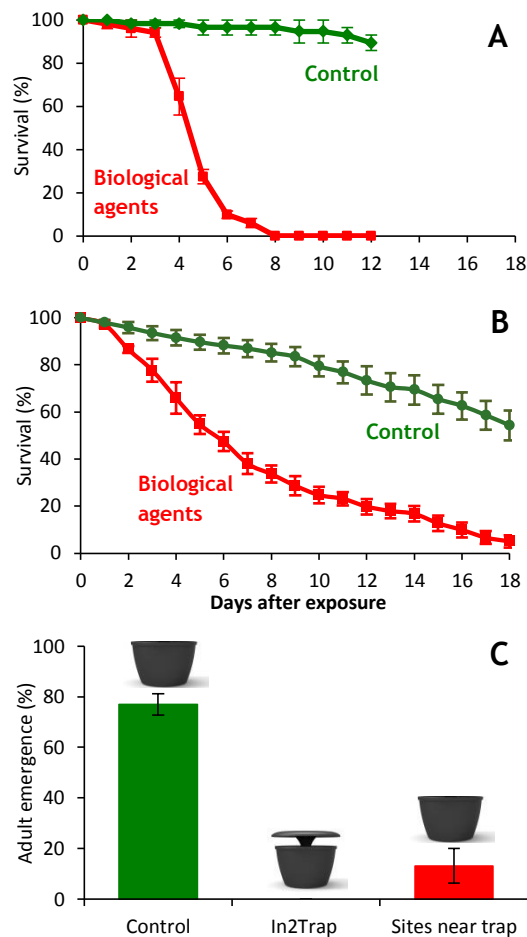
Combined, these biological agents:

- ✓ Kill all the larvae inside the trap
- ✓ Are carried by females to other breeding sites & kill all larvae there
- ✓ Kill exposed mosquitoes after 8-10 days
- ✓ Stop dengue virus development in the mosquito



## Results matter, evidence counts

The In2Care<sup>®</sup> Mosquito Trap was developed with dengue mosquitoes collected from field locations in the Caribbean. Numerous experiments were conducted to test trap attractiveness, impact of the biological agents, the transfer of powder particles to other breeding sites, and the potency of these to kill mosquito offspring. Results show that half the mosquitoes survive for 4 days after 3 minute gauze exposure (graph A). Under realistic conditions whereby a trap is placed in a large cage and mosquitoes are free to enter it when they like, the killing impact takes longer (graph B). This does, however, allow the contaminated mosquitoes to disseminate powder to other breeding sites before they die. The larvicide spread by the females induces a massive reduction in adult mosquitoes produced in breeding sites near the trap (only 1 in 10 larvae survives to adulthood) compared to controls (where ca. 80% of the larvae become adult; see graph C). In the trap itself (middle), 100% of the larvae die.



More results can be found in our scientific publication in the peer-reviewed journal *Parasites & Vectors*: <http://www.parasitesandvectors.com/content/7/1/200>

### Using the trap concept as part of your business

The In2Care<sup>®</sup> Mosquito Trap provides an ideal opportunity for pest control companies that work on a contract basis with home owners, hotels, resorts, etc. to expand their existing pest control portfolio with mosquito control traps to target dengue and chikungunya vectors. When you visit your clients as part of your regular inspections you can service the traps and replenish these with powders, water and attractants. Models have shown that trap density should be at least 1 trap per 400 m<sup>2</sup>. Based on the size of the premises you service you can estimate the number of traps needed. Given the fact that we use biologicals rather than chemical insecticides, you can also use this method as part of your company's aim to conduct pest control in a greener and safer manner. Today, very few pest control companies offer solutions for mosquito control that venture beyond the use of fogging when mosquito densities become unbearable or epidemic situations occur. The In2Care<sup>®</sup> Mosquito Trap concept, in contrast, offers a continuous solution that provides both business opportunities and an effective way to combat dengue.



Finally a biological alternative for controlling *Aedes* mosquitoes  
A unique mix of powders in a trap that does more than just killing mosquitoes

In2Care offers the following products and services as part of the In2Care® Mosquito Trap concept:

- ❖ Trap (reservoir, interface with central tube, lid and floater)
- ❖ Refills (gauze with actives and tablet with attractants packaged in sachets) for 6-8 week replacements
- ❖ Local field evaluation support and consultancy for first rollout
- ❖ Trap servicing and monitoring support tools
- ❖ (Optional) R&D services for product or service adaptation to local settings



Traps are being sold at several locations in the Americas by our authorized distributor Univar Environmental Sciences.



For sales information, phone: +1-305-882-1375 or go to our online list of dealers: [univares.com/procenters/central-america](http://univares.com/procenters/central-america) and [univares.com/procenters/caribbean](http://univares.com/procenters/caribbean)

### About In2Care

In2Care BV is a private limited company registered and based in the Netherlands. Combined, we have more than 30 years of research experience in the field of medical entomology. Our core expertise lies in the translation of scientific knowledge into novel insect control products like the In2Care® Mosquito Trap. In2Care has in-house R&D capacity, maintains a rearing of several mosquito species and field sites around the world where we evaluate the efficacy of our innovations. We have test protocols available for entomological field validations and can be consulted for customized vector control approaches.

We go beyond product development to deliver novel, green, affordable and user-friendly solutions to combat mosquitoes that transmit some of the worst infectious diseases in the world.

*Because we are into care*



Our values -

Novel,  
Green,  
Affordable,  
User-friendly

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