

# Biogents mosquito traps as control tool

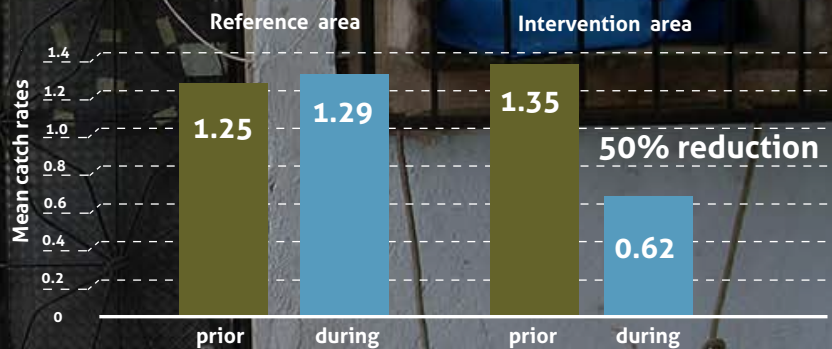
Scientific studies in Brazil and Italy have shown that Biogents traps can significantly reduce mosquito biting pressure.

## 1400 households, 450 Biogents traps, uncounted tiger mosquitoes – a long-term study in Brazil

Dengue fever, a viral disease that affects up to 100 million people each year, is transmitted by tiger mosquitoes. It is widespread in Brazil and other tropical and subtropical regions. Because there is no effective vaccine available, the only way to control the disease is by controlling the dengue mosquitoes. While the use of conventional insecticides is widespread, they have become increasingly ineffective due to insecticide resistance.

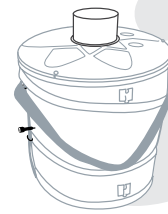
A new approach to control the mosquitoes could be the mosquito trap developed by Biogents. A large-scale study published in the Entomological Society of America's Journal of Medical Entomology<sup>1</sup> has demonstrated for the first time that these traps can reduce the number of *Aedes aegypti*, the tiger mosquito responsible for most of the transmission of dengue in tropical countries, in a broad urban area. The study was co-financed by the world-bank and was conducted over 18 months with more than 1400 households and 450 Biogents traps in Manaus, Brazil.

Comparison of mean catch rates in reference and intervention area prior to mass trapping and during mass trapping in the rainy season:



**The result:** „The study shows that the Biogents traps can significantly reduce the amount of adult female *Aedes aegypti*, especially in the rainy season” says Prof. Álvaro Eiras from the University Federal de Minas Gerais (Brazil). The number of dengue infections in the test areas also decreased. An additional advantage for household trap users was that the Biogents traps also reduced numbers of the annoying and often numerous southern house mosquito (*Culex quinquefasciatus*). Households that used the traps reported a noticeable reduction in mosquito nuisance.

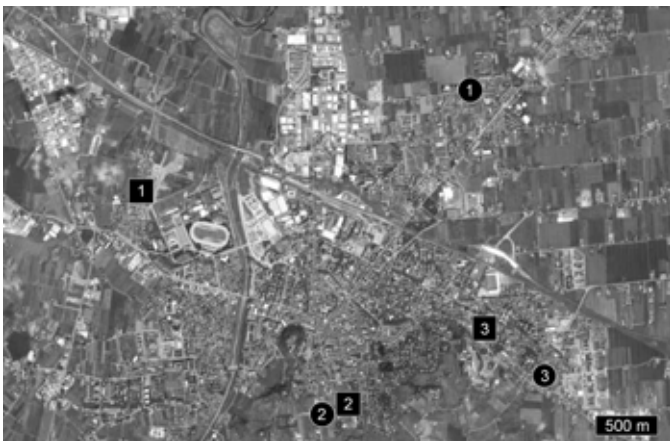
<sup>1</sup> Degener, C.M., Eiras, A.E., Azara, T.M.F., Roque, R.A., Rösner, S., Codeço, C.T., Nobre, A.A., Rocha, E.S.O., Kroon, E.G., Ohly, J.J., Geier M. (2014). Evaluation of the effectiveness of mass trapping with BG-sentinel traps for dengue vector control: a cluster randomized controlled trial in Manaus, Brazil. J. Med. Entomol. 51, 408–420.



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## 64 - 87 % reduction of tiger mosquito nuisance: Evaluation of Biogents traps as management tool for *Aedes albopictus* in an urban environment in Italy

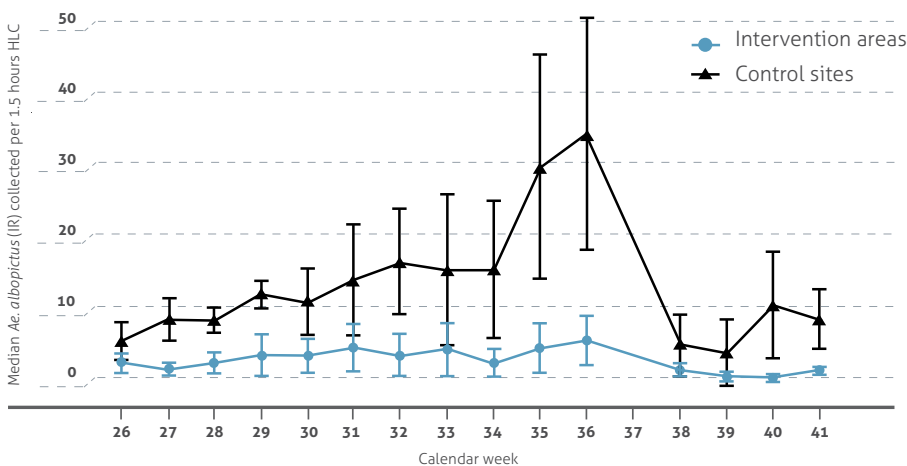
Since its introduction and establishment in Italy during the early 1990s, the Asian tiger mosquito, *Aedes albopictus*, has spread over large parts of Italy and other Mediterranean countries. *Aedes albopictus* is both a nuisance and a competent vector for various arthropod-borne pathogens.



Map showing the location of the study site in Cesena, Emilia-Romagna, Italy. Squares represent intervention sites and circles, control sites.

A recently published study<sup>2</sup> evaluated Biogents BG-Sentinel mosquito traps, used with the BG-Lure, as control tools in northern Italy. The trial was performed as a controlled experiment in which 3 intervention sites, equipped with 7 or 8 BG-Sentinel traps each, were matched with 3 comparable control sites. Trap density ranged from 1 trap per 150 m<sub>2</sub> to 1 per 350 m<sub>2</sub>. Mosquito populations were monitored at both the intervention and control sites by collecting mosquitoes from human volunteers (Human Landing Catch, HLC) and by counting the number of eggs laid into specifically designed oviposition sites.

Between 64% and 87% fewer *Aedes albopictus* individuals were collected by Human Landing Catch at the intervention sites with the Biogents mosquito traps, as compared to the untreated control sites. These results indicate that the sustained use and proper placement of efficient mosquito traps can significantly reduce *Aedes albopictus* biting pressure.



Median number of *Aedes albopictus* females collected each week per 1.5 hr human landing collection at intervention (blue line) and control (black line) sites.

<sup>2</sup> Englbrecht C., Gordon S., Venturelli C., Rose A., and Geier M. (2015). Evaluation of BG-Sentinel Trap as a Management Tool to Reduce *Aedes albopictus* Nuisance in an Urban Environment in Italy, Journal of the American Mosquito Control Association, 31(1):16-25.