

# Target Malaria: Burkina Faso

## Who we are?

Target Malaria is a not-for-profit research consortium that aims to develop and share new technologies for malaria control. The Research Institute of Health Sciences (*Institut de Recherche en Sciences de la Santé/IRSS*) is our partner in Burkina Faso.

## Our work

Target Malaria's vision is to contribute to a world free of malaria.

Our approach is malaria control by mosquito control. By reducing the population of malaria mosquitoes, we aim to reduce the transmission of the disease.

We aim to develop a technology that can be complementary to other mosquito control methods and which offers a solution that is long term, cost-effective and sustainable.

**Target Malaria includes institutions in Europe, North America and Africa. The project is currently working in four African countries:**

- Burkina Faso: Institut de Recherche en Sciences de la Santé (IRSS)
- Uganda: Uganda Virus Research Institute (UVRI)
- Ghana: University of Ghana
- Mali: Malaria Research and Training Center (MRTC)
- Researchers in the UK, US and Italy are also involved

## Context

Malaria is a burden on both the economy and the public health system in Burkina Faso.

**100%** of the population of Burkina Faso is exposed to the risk of malaria.



Over **7 million** infection cases and over **19,000** deaths linked to malaria in 2019.\*

In Africa, **a child dies** of malaria **every two minutes**.

Malaria mainly affects poor populations.

The economic loss to Burkina Faso as a result of malaria amounts to several billion CFA Francs.



Various activities and research projects have been established to combat malaria, and over the last decade they have helped to reduce the incidence of malaria, but the number of cases and the death rate remain high.

New tools are needed, and **Target Malaria** is part of this ongoing effort.

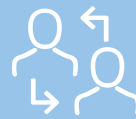
\*WHO estimates, World malaria report 2020

## Our activities in Burkina Faso



### Insectarium

- The insectarium was renovated in 2014 and upgraded to “arthropod containment level” ACL-2, in line with biosafety standards, to create a suitable environment for this research.
- The insectarium team was trained in biosafety and methods for rearing mosquitoes.
- The insectarium was inspected by the National Biosafety Agency (*Agence National de Biosécurité/ANB*)
- Authorisation was received to import genetically modified sterile male mosquito eggs.
- The non gene drive sterile male mosquitoes were imported.
- Various trials were carried out (sterility, sexual competitiveness, longevity, resistance to insecticides, etc.).
- The strain was reared and maintained, and the colony of non gene drive sterile male mosquitoes was developed in preparation for the release on 1 July 2019.
- The non gene drive sterile male colony was eliminated.
- A field report on use in a contained environment was submitted.



### Stakeholder engagement

- Engaging in dialogue with the Burkina Faso government.
- Providing information to various stakeholders about the project activities.
- Taking their views into account, responding to their concerns and assuring them that no project activities will be carried out in their village without their consent.
- Informing various stakeholders about the project activities.
- Obtaining stakeholders’ agreement and approval, in addition to the regulatory authorisations and permits.



### Entomology

- Regular entomological collections in three villages to find out the species of mosquitoes present and understand their behaviour.
- Mark, release and recapture activities.
- Small-scale release of non gene drive sterile male mosquitoes on 1 July 2019.

## Our priorities

### First phase: non gene drive sterile male mosquitoes

In a contained environment, our teams studied the characteristics and behaviour of *Anopheles* mosquitoes where the males are functionally sterile and self-limiting as a result. Their sterility is caused by a genetic modification, which cannot be passed on to the next generation because the modified insects are sterile.

This stage was important for transferring knowledge, developing local skills and implementing subsequent stages of the project. Following regulatory authorisation and community agreement, the small-scale release of non gene drive sterile male mosquitoes took place on 1 July 2019 in the village of Bana. The research, stakeholder engagement and regulatory goals for this release were achieved: establishing release protocols with the authorities, gaining the agreement of the communities and demonstrating safely how the insects behave in the field.

## **Second phase: non gene drive male bias mosquitoes**

Target Malaria's second research stage in Burkina Faso involves non gene drive male bias mosquitoes. These are genetically modified, fertile male mosquitoes, which produce predominantly male offspring when they mate with wild females. The modification is passed on to half of the offspring, and will gradually disappear over time.

The research is still in its early stages, and although initial results look promising, there is still a long way to go. Once finalised, this technology will be provided to governments of malaria-affected countries without any licence fees. Our aim is to build a forum for dialogue, trust and sharing between communities, civil society and all stakeholders in scientific progress.

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