

# Testing the Sterile Insect Technique (SIT) as a Vector Control Tool Against *Aedes*-Borne Diseases

## Frequently Asked Questions and Answers

### 1. What is the Sterile Insect Technique (SIT)?

The SIT is an environmentally-friendly pest management method by which a population of insects is controlled by releasing mass-reared sterile males in a target area. When these sterile males mate with females in the wild, there are no offspring. The systematic and repeated release of sterile males reduces the target wild insect population over time.

### 2. Where in the world is this being used?

The SIT was developed in the late 1950's and has been successfully used in many countries in the management of agricultural pests, such as the Mediterranean fruit fly, the false codling moth, the New World screwworm and tsetse flies, among others.

### 3. Is this the first time SIT will be tested to target human diseases?

The IAEA, in partnership with the Food and Agriculture Organization of the United Nations (FAO), has been refining the SIT for use against disease-transmitting mosquitoes and has tested it at small-scale in several countries, including Brazil, Cuba, Italy, Mauritius, Mexico and Germany. Larger-scale pilot releases are planned for next year as part of IAEA research and technical cooperation activities, as well as test releases in combination with epidemiological research as part of the collaboration between the IAEA, TDR and WHO.

### 4. Is it dangerous? What impact does it have on humans and animals?

The irradiated insects don't become radioactive – the radiation dose applied is only enough to induce sterility in the mosquito. Releasing sterile male mosquitoes pose no risk to human health or the environment.

### 5. Why do you only release males?

Female mosquitos bite and therefore transmit diseases, whereas male mosquitoes don't bite and therefore can't pose a risk of disease transmission. The sterile mosquitoes are also unable to produce offspring, so will not contribute to mosquito population growth.

### 6. How are the mosquitoes released?

Sterile mosquitoes are generally released by ground in ongoing trials, but promising results were recently obtained in Brazil with a [drone release system](#) developed by the IAEA, in partnership with the FAO and others.

**7. Will reducing the mosquito population harm bats and birds (e.g., food deprivation), or have any impact on the environment?**

There are over 3 500 species of mosquitoes that serve as food for animals and larger insects and reducing the number of one mosquito species will not affect the environment, nor other animals. Moreover, the release of mass reared sterilized mosquitoes is carried out in target areas with human settlements for disease control. SIT has been used for nearly 70 years and is considered an environment-friendly technology, since it is targeted to only one insect species and reduces the need for single pest control methods such as insecticides.

**8. Is SIT the same as genetic modification, and will any mutation on the insect be transmitted to other generations?**

The SIT method used by the IAEA, in partnership with the FAO, uses controlled irradiation to produce sterile insects and does not involve genetic engineering. No genetic modification has been observed in insects since the technique began to be used decades ago.

**9. Why isn't SIT being used to target malaria?**

The IAEA, in partnership with FAO and in future collaboration with TDR and WHO, is refining the SIT for use against *Anopheles* mosquitoes that transmit malaria.