

UN to test impact of mosquito sterilisation on disease spread

November 14 2019, by Nina Larson



Asian tiger mosquitoes are a major vector for diseases including Zika, dengue and chikungunya

The UN said Thursday it was preparing to test a sterilisation technique targeting mosquitoes that could help rein in the spread of a range of

devastating diseases such as dengue and Zika.

A form of insect "[birth control](#)", called Sterile Insect Technique (SIT), has been used for decades to control crop-killing pests like fruit flies and moths.

Now it is being evaluated in a species of mosquito as a potential key tool in halting the spread of human diseases.

"It could be really, really significant," Florence Fouque, a scientist at the UN's Special Programme for Research and Training in Tropical Diseases (TDR), told reporters.

TDR has partnered with the World Health Organization, the International Atomic Energy Agency and the UN Food and Agriculture Organization to develop a pilot programme for countries interested in using SIT on mosquitoes to [test](#) its impact on [disease transmission](#).

Fouque said a number of countries were being evaluated and that the participants should be chosen in early 2020 for tests lasting several years.

The mosquitoes targeted are species that are particularly difficult to control in the Aedes family—including the Asian tiger mosquito—which are a major vector for diseases including Zika, dengue and chikungunya.

Researchers have found a way to sterilise male mosquitoes using radiation, and tests have shown the technique can significantly reduce populations.

Dengue cases explode

Dengue fever has exploded in recent years, with the disease now seen threatening about half of the world's population.

Raman Velayudhan of the UN health agency's Neglected Tropical Diseases division told reporters that three million cases of dengue are reported from some 110 countries each year.

"But this year we may go beyond 3.5 or even four million cases, because the number has increased dramatically," he said, stressing that only around 20 percent of cases are ever reported, so the actual disease burden is far higher.

While the researchers are expected to take several years to obtain enough data to reach a clear conclusion on the impact on the spread of human diseases, experts voiced optimism the technique would prove highly effective.

"From the WHO's point of view, one of our realistic goals is to reduce the number of (dengue) cases by at least 25 percent from 2025 to 2030," Velayudhan said.

SIT works by releasing radiation-sterilised male mosquitoes into an environment to mate with wild females. Over time, the mosquito population decreases as the females fail to reproduce.

Tests have already shown that the technique can reduce mosquito populations by more than 90 percent, but it remains unclear if this could translate into fewer human infections.

"We already have evidence that SIT is able to reduce the density of mosquitoes very significantly," said Jeremy Bouyer, a medical entomologist in a joint FAO/IAEA division for Nuclear Techniques in Food and Agriculture.

"Now we must prove that it will also impact the transmission of the [disease](#)," he told reporters.

There were initially concerns that SIT reduced the mating competitiveness of the test mosquitoes as well as their survival rates, undermining the technique's effectiveness.

But Bouyer insisted the technique has been refined, noting also that small drones had been developed to gently release sterile [mosquitoes](#) into wild populations.

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