Frequently Asked Questions About Oxitec's Friendly™ *Aedes aegypti* Mosquitoes

What is a self-limiting mosquito?

Oxitec's Friendly™ male *Aedes aegypti* mosquitoes carry a self-limiting gene that prevents their female offspring from surviving, allowing for male-only production. The non-biting male mosquitoes emerge from just-add-water boxes to mate with invasive *Aedes aegypti* female mosquitoes. The female offspring of these encounters cannot survive. As the number of biting females in the population is reduced, the overall population of the invasive *Aedes aegypti* also declines.

Only female mosquitoes bite and are capable of transmitting diseases, which is why they are targeted. Oxitec's mosquitoes also have a fluorescent marker gene which enables them to be distinguished from wild mosquitoes for effective monitoring.

Why target the *Aedes aegypti* mosquito?

Since first being detected in 2013 in the Central Valley, *Aedes aegypti* mosquitoes have spread to more than 20 counties throughout California increasing the risk of transmission of viruses that cause dengue, chikungunya, Zika, yellow fever, and animal heartworm.

Why are innovative mosquito control techniques needed in California?

Traditional approaches have been providing a valuable defense against mosquito-borne diseases for decades and will continue to do so. However, the geographical range of this invasive species is increasing, and *Aedes aegypti* seeks harborage and lays eggs close to people's homes. This makes it very time intensive to target with applications of larvicides. In addition, this species has become resistant to some pyrethroids, the most commonly used class of mosquito adulticide. Due to the risk posed by this particular species of mosquito, public health and mosquito experts need new methods to control *Aedes aegypti* mosquitoes in order to protect public health.

What are the risks if a female Oxitec mosquito bites someone?

There will be no Oxitec female mosquitoes and thus no risk. Only male Oxitec mosquitoes emerge, and male mosquitoes DO NOT BITE. Oxitec's Friendly™ *Aedes aegypti* male mosquitoes are safe, non-toxic, and non-allergenic.

How long do the male Oxitec mosquitoes live for?

As adults, male Oxitec *Aedes aegypti* live for just few days in the wild and usually do not survive for more than a week. This is similar to wild male mosquitoes. Wild female *Aedes aegypti* tend to live a little longer, up to several weeks.

Why do only the female offspring die?

Oxitec's Friendly™ *Aedes aegypti* carry a self-limiting gene that is only active in females, which prevents females from surviving. Males are not affected by this gene, so they can survive as normal. Female mosquitoes bite and are capable of transmitting diseases, which is why they are targeted with the self-limiting gene.

Will Oxitec mosquitoes harm birds, bees, bats, fish, turtles, or other wildlife?

No. Self-limiting mosquitoes work by finding and mating with invasive *Aedes aegypti* females and the suppression effect is specifically targeted to this species of mosquito. This specificity leaves non-target species, such as bees, butterflies, and other wildlife, unharmed. Oxitec's mosquitoes are safe for humans and the environment, as confirmed by the U.S. Food and Drug Administration in 2016 and by the EPA in 2020 and 2022. (EPA's published announcement).

Will Oxitec's technology replace insecticides and other control measures?

No. Insecticides are a valuable option available to mosquito control agencies but in some situations, they have increasing limitations as some mosquito species have become resistant to commonly used insecticides. Mosquito and vector control agencies in California use an Integrated Vector Management approach that relies on a suite of management options to optimize protection against disease-carrying mosquitoes and maximize sustainability. Oxitec's Friendly™ *Aedes aegypti* mosquitoes are intended to be one part of this Integrated Vector Management approach.

What is the process and timeline for securing approval for the pilot projects in California?

On March 7, 2022, Oxitec received approval from the U.S. Environmental Protection Agency to initiate a pilot project in California and continue its project in Florida. The California project is being planned in partnership with the Delta Mosquito and Vector Control District in Tulare County. Part of the EPA's review included a 30-day comment period in which stakeholders and members of the public were invited to comment on the proposed project. On March 7, the EPA published a risk assessment and response to comments. Now, the California Department of Pesticide Regulation is conducting a scientific evaluation of Oxitec's *Aedes aegypti* technology which will include opportunities for the public to engage and review the results of the state's evaluations.

What does the EPA's review entail?

The U.S Environmental Protection Agency's scientific and environmental assessments for the original Experimental Use Permit included a review of over 4,500 pages of data and protocols, including 2,500+ pages of scientific peer-reviewed literature. The exhaustive scientific review and risk assessment of the extension to California spanned 12 months and included a comprehensive risk assessment of potential risks to humans and the environment.

Where do you plan to do the pilot projects in California?

Invasive *Aedes aegypti* mosquitoes are prevalent in the Central Valley and the Board of Trustees for the Delta Mosquito and Vector Control District (Delta MVCD) gave unanimous approval to partner with Oxitec to carry out focused projects in northern Tulare County. Pending state regulatory approval, the pilot project could begin this spring.

Where else have you released these mosquitoes?

Oxitec recently secured regulatory approvals from the EPA and the Florida Department of Agriculture and Consumer Services (FDACS) to release Friendly™ *Aedes aegypti* mosquitoes in the Florida Keys. The decisions included input from the CDC and seven other State of Florida agencies, including the Departments of Health and Environmental Protection. These releases began in April 2021.

This technology is also used successfully in Brazil, where it received full national biosafety approval for commercial release from the federal regulatory agency, CTNBio. In 2019, Oxitec released Friendly™ *Aedes aegypti* mosquitoes in São Paulo State in Brazil and after 13 weeks the technology suppressed up to 95% of *Aedes aegypti*. This showed the potential to reduce the risk of disease transmission by this pernicious vector of dengue, Zika, chikungunya and yellow fever. Together these viruses infect hundreds of thousands of Brazilians every year, with devastating consequences.

Prior to any pilot projects in California, the comprehensive federal scientific review and risk assessment by the U.S. EPA would be supplemented by a state authorization of Oxitec's technology in California. Oxitec is not testing on humans and this project is not introducing risk to humans, animals, or the environment, as stated by the EPA and FDA.

Do local residents support Oxitec's project in the Florida Keys?

Oxitec's technology received support in 31 of 33 Monroe County precincts in a 2016 referendum, highlighting a broad base of support. As the Florida Keys Mosquito Control District (FKMCD) and Oxitec jointly prepared and initiated the pilot, support in the communities has remained strong, with waitlists established for would-be mosquito box and trap hosts. Without the active participation of local residents who are keen to help find solutions, the project could not have started.