Genetically Modified Mosquitoes Released in Florida

Kelly Loftin

In early May 2021, genetically modified mosquitos were released in the Florida Keys. This represents the first release of its kind in the U.S. However, they have been released and evaluated in Brazil, Panama, Malaysia and the Cayman Islands. This recent U.S. effort is aimed at evaluating control of the Yellow Fever Mosquito (*Aedes aegypti*) using this strategy. You probably remember Zika virus from a few years back – *Aedes aegypti* was the main vector of this virus as well as dengue, yellow fever and chikungunya.

Oxitec, based in Abingdon, UK, is the biotechnology firm that developed the genetically modified mosquitoes. The Florida Keys Mosquito Control District reportedly approached Oxitec in 2010 about this new technology. Since that time, regulatory assessments and local resistance have delayed U.S. field trials using genetically modified mosquitoes. In 2020, the U.S. Environmental Protection Agency and the Florida Keys Mosquito Control District approved the application to release genetically modified mosquitoes allowing for the Florida Keys field trial.

Genetically modified mosquito eggs were released in multiple locations in the Keys and over a 12 week period 12,000 male mosquitoes should emerge from the egg boxes. The genetically modified mosquitoes are all male and will mate with wild *Aedes aegypti* females. Lethal genes from this pairing are passed along to offspring. Female offspring carrying the lethal gene are unable to build an essential protein will die before reaching maturity. The survival of male offspring carrying the gene is not affected. Oxitec reported a 90% or more reduction *in Aedes aegypti* mosquitoes in field trials conducted in Brazil, Panama, Malaysia and the Cayman Islands. A second release in the Florida Keys is planned later on this year.