Ecological Applications Topic: Genetically Modified Insects as a Public Health Tool
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Using different kinds of species that can carry and transmit infectious pathogens can be beneficial for the public health. This topic focuses on that idea with mosquitos even though there are different animals and microorganisms that can do the same. In order to control the population that can transmit the pathogens, the vectors are genetically engineered for vector control. GMO is done on the eggs of insects in order to alter their abilities and this allows insects to be altered in to tools to help the public safety. The alteration of insects is defined as bio-objectification (1,2). An example of this being successful showed how GMO mosquitos were used on dealing with malaria (3). The article talks about how we can govern these species by using bio-objectification processes (4,5). The tetracycline-repressible expression system is used as a chemical switch to enable the insect to only survive to adulthood, and mass production of insects is needed in order to have a continuous release (6). If this is not successful, then the non-modified population will increase (7). Experiments were done to test the survival rate to adulthood for these mosquitos and the results showed that there was a 3-4% chance of survival but another study was done that fed cast food containing tetracycline and the rate was 15% among the heterozygous (8,9,10).

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