

Mathematical modeling of the spatial spread of Wolbachia to control Dengue

Nicolas Vauchelet¹

¹ Université Paris XIII

Bacteria Wolbachia has gain a lot of attention since scientists discover that infected mosquitoes with this bacteria cease to transmit some disease like dengue, chikungunya and Zika. Moreover, this bacteria is maternally transmitted from mother to offsprings. Then a strategy of control of dengue transmission consists in releasing infected mosquitoes. In this work, we are concerned with the spatial spread of Wolbachia infected mosquitoes into a host population. We focus on the two following questions: How the spatial repartition of the releases will influence the spread of the bacteria into the population? Once the spread is initiated, is it possible that environmental characteristics stop the spread?