1086-VG-2595 **Michael A Robert*** (marober5@ncsu.edu), North Carolina State University, Box 8203, Raleigh, NC 27695, and **Fred Gould** and **Alun L Lloyd**. *Optimizing a female-killing strategy to control the dengue vector, Aedes aegypti.*

Dengue fever is spread primarily by the mosquito, *Aedes aegypti*. Although traditional control measures have been implemented for many years, dengue remains endemic in many parts of the world. In recent decades, novel control strategies involving the release of genetically modified mosquitoes have been proposed. Among those for *Ae. aegypti* that have garnered the most attention are Female-Killing (FK) strategies. Recent cage experiments showed that repeated introductions of individuals from one FK strain of *Ae. aegypti* led to either reduction or extinction of caged wild-type populations, and open field releases of FK individuals are becoming more feasible. Releases should be conducted according to strategies that take into account possible temporal and financial constraints. We develop an optimal control model to assess the role that such constraints will play in conducting FK releases. Through numerical simulation, we obtain optimal release strategies for a variety of scenarios. We also assess the feasibility of combining FK releases with other forms of vector control and obtain optimal strategies for integrated approaches to controlling *Ae. aegypti*. With the results of our study, we assess the impacts that the optimal strategies could have on dengue fever. (Received September 25, 2012)