. **Modeling as a Tool for Preparing for Agro- and Bio-terrorism: Rift Valley Fever**

David M. Hartley, PhD, MPH
Assistant Professor of Epidemiology and
Preventive Medicine
University of Maryland School of Medicine

Abstract

Mathematical models have been applied to public health issues for more than a century, but recently the specters of agroterrorism, bioterrorism, and accidental introduction of exotic agents have opened a new chapter in their application. Models are important tools for assessing the impact of such diseases should they be introduced into the United States. Rift Valley fever (RVF, a viral disease of livestock (including cattle, sheep, and goats) and humans, is prevalent throughout Africa and the Arabian Peninsula. Should it be introduced into the US or the Americas, it is unclear how and where RVF might spread. No complete model of RVF exists in the literature. We describe the development and initial validation of a mathematical model of RVF. Application to Africa, where the disease is endemic, is shown. Ongoing work involves applying the model to identify areas of the US that are ecologically vulnerable to RVF. Next steps for this research include investigation of public health control and intervention strategies.