

1145-34-260

Rocio Marilyn Caja Rivera (rcajariv@nd.edu), Department of Biological Sciences, 100 Galvin Life Science Center, Notre Dame, IN 46556, and **Alfredo Villanueva*** (avillanueva@sf.edu), 2701 Spring Street, Department of Chemistry, Computer Science, and, University of Saint Francis, Fort Wayne, IN 46808. *Global Stability: Vector Feeding Preference in Vector Borne Diseases.*

This paper presents a general system of ordinary differential Equations (ODE) for vector borne diseases that includes vector feeding preferences for carrier hosts and intrinsic incubation. Where we analyze Global stability of endemic equilibrium, and this is the first time here, we use a geometric approach presented by Li and Muldowney. Moreover, we have expanded their work from three ODE system to four ODE system, and demonstrate that the endemic equilibrium is globally asymptotically stable in the interior of a region accordingly to certain conditions. As illustrations of our findings on global stability, numerical simulations are included for vector borne diseases. (Received August 26, 2018)