1163-34-882   **Nsoki Mavinga*** (`nmaving1@swarthmore.edu`) and **Yusuf Qaddura** (`qaddura.1@osu.edu`). *Delay Differential Equations with Applications to the Analysis of the Spread of Vector-Borne Diseases.*

We are concerned with the stability of equilibrium solutions for a two-lag delay differential equation which models the spread of vector-borne diseases where the lags are incubation periods in humans and vectors. We show that there are some values of the transmission and recovery rates for which either the disease dies out or it spreads into an endemic state. The approach is based on the linearization method and the analysis of roots of transcendental equations. Through MATLAB simulations, we also observe that the solution could possess uncontrolled behavior. (Received September 13, 2020)