

Nah Kyeongah

Position: Ph.D. student

Institution: University of Szeged, Bolyai Institute

E.mail: knah@math.u-szeged.hu

THE DILUTION EFFECT OF THE DOMESTIC ANIMAL POPULATION ON THE TRANSMISSION OF P. VIVAX MALARIA AND FMD

The diversion of mosquitoes from humans to animals may reduce transmission of malaria. A system of differential equations model is introduced to study the dilution effect of animals on the transmission of P.vivax malaria. With sensitivity analysis, we showed that increasing the relative animal population size works better in P. vivax malaria control than decreasing the mosquito population when the relative animal population size is larger than a threshold value.

In the meanwhile, mosquito biting rate on human is expected to increase when animal population is reduced. During Foot-and-Mouth Disease(FMD) epidemic in Korea, more than 350 millions of animal were culled. We simulate the change of malaria incidence before and after FMD spread in Kyunggi Province, which is one of the malaria endemic area.