GILLIAN HARTZ & JOSEPH HORZEMPA, Department of Biological Sciences, West Liberty University, West Liberty, WV, 26047. An investigation of in vitro tick feeding methods to evaluate the role of erythrocyte invasion by *Francisella tularensis*

Francisella tularensis is a pathogenic bacterium that is transmitted by ticks and other blood-sucking arthropods. During infection of mammals, this bacterium invades erythrocytes and this phenomenon potentially enhances colonization of ticks following a blood meal. To further evaluate this possibility, we acquired and assembled a feeding system that was previously used to feed *Dermacentor andersoni* ticks. We sought to determine if this system could be used to feed *D. variabilis* ticks (a sister species to *D. andersoni* and a frequent vector of *F. tularensis*). In our hands, *D. variabilis* would not acquire a blood meal from this system. Another common vector of *F. tularensis* is *Amblyomma americanum* – The Lone Star tick. These ticks can be fed in vitro from glass capillary tubes. To evaluate the feeding of these ticks in vitro, rabbit erythrocytes were incubated with recombinant fluorescent *F. tularensis* LVS or mutant strains defective for erythrocyte invasion. Extracellular bacteria were removed by centrifugation, and the infected erythrocytes were used to feed Lone Star ticks using capillary tubes. Ticks were analyzed via fluorescence microscopy to determine the relative bacterial colonization. These studies are ongoing.