

**Synchronization of acquisition feeding by *Boophilus microplus* nymphs with *Babesia equi* parasitemia for maximizing zygote isolation.**

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**Abstract:** The long-term goal of our laboratory is the development of a *B. equi* vaccine, which will block the transmission of *B. equi* from the persistently infected horse to a susceptible tick vector. Achievement of this goal will require the identification and characterization of antigens expressed during the tick midgut stage (zygote) of infection. The synchronization of ascending *B. equi* parasitemia with *B. microplus* nymphs acquisition feeding was determined in order to maximize *B. equi* zygote isolation. Histology of thin sections from *B. microplus* nymphs, fed on an infected pony during ascending parasitemia, revealed the presence of 6-7  $\mu\text{m}$  structures in the midgut lumen which resembled *B. equi* zygotes. The majority of nymphs which had structures resembling *B. equi* zygotes in the midgut lumen, fed when the percent-parasitized erythrocytes was between 2-5%. These data show that the timing of harvest of partially fed nymphs from ascending parasitemia to maximize *B. equi* zygote isolation is 6-7 days post-attachment during parasitemia of between 2-5%.