Farm-Specific *Lawsonia intracellularis* Seroprevalence Detected by a Bacteria-Specific Enzyme-Linked Immunosorbent Assay

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Previous history of equine proliferative enteropathy was associated with higher average seroprevalence, indicating increased exposure on farms with prior cases of equine proliferative enteropathy. A bimodal seasonal distribution of exposure, with increased rates of seroconversion during both October and January, was also documented. Authors' addresses: University of Kentucky Maxwell Gluck Equine Research Center, Lexington, KY 40546 (Page, Horohov); Department of Laboratory Animal Resources, Lexington, KY, 40536 (Stills); Department of Veterinary Biomedical Sciences, University of Minnesota, College of Veterinary Medicine, St. Paul, MN 55108 (Chander, Gebhart). e-mail: allen.e.page@gmail.com. *Corresponding author. © 2011 AAEP.

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1. Introduction

Although *Lawsonia intracellularis* is recognized as the causative agent of equine proliferative enteropathy, overall levels of equine exposure to the bacterium are unknown. Cases of equine proliferative enteropathy (EPE) are typically seen in weanlings during the fall and early winter months in central Kentucky. In this study, the seroprevalence for *L. intracellularis*–specific antibodies in a large population of central Kentucky Thoroughbreds was determined.

2. Materials and Methods

A total of 337 young Thoroughbreds (foals and weanlings) from 25 central Kentucky farms were enrolled in the study, with monthly serum samples collected from August 2010 to January/February 2011. Samples were screened for *L. intracellularis*–specific antibodies, using a modified ELISA. Information from the 3 years preceding the study was used to classify farms as having no prior recent history of EPE, a suspected history of EPE, or a confirmed history of EPE.

3. Results

An overall seroprevalence of 68% was obtained, with farm-specific seroprevalences ranging from 14% to 100%. A significantly lower average seroprevalence for *L. intracellularis* was detected on farms with no previous recent history of EPE when compared with values from farms with a history of EPE.
Additionally, there were trends for horses on farms with no prior recent history of EPE to have lower antibody levels. A bimodal distribution of exposure to the bacteria was detected in the fall (October) and winter (January) months.

4. Discussion
Using an ELISA to detect serum antibodies to *L. intracellularis* from young horses on numerous farms, seroprevalences corresponded well with past history of EPE cases. The data presented here suggest that lower environmental burdens of *L. intracellularis* result in fewer horses being exposed to the bacterium and less antigenic stimulation per exposure. Although exposure to *L. intracellularis* is thought to occur primarily in the fall, the increased number of seroconversions noted during the winter indicates that there is a greater risk for the development of EPE in yearlings than previously thought. Indeed, this coincided with an increase in the number of yearling EPE cases reported by local veterinarians during the same period.

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