

Book of Abstracts and Scientific Program



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Title	Using ELISA adjusted optical density (OD) measures to predict <i>Mycobacterium avium paratuberculosis</i> shedding status of individual dairy cattle
Author(s)	Pillars R ^{1,2} , Kaneene JB ^{1,2} , Grooms DL ²
Institution	¹ The Population Medicine Center; ² Dept. of Large Animal Clinical Sciences, College of Veterinary Medicine, Michigan State University, East Lansing, Michigan, USA
Abstract Poster No. 70	<p>Fecal culture remains the standard for diagnosing <i>Mycobacterium avium paratuberculosis</i> (MAP) in individual cattle, however it generally requires 8-16 weeks to obtain results. The enzyme-linked immunosorbent assay (ELISA) has rapid turn-around time, although its sensitivity is poor, especially in subclinically infected cattle. It is generally accepted that as infection progresses mean ELISA response and sensitivity increases. Cattle infected with MAP have a long prepatent period in which no shedding of the organism occurs followed by intermittent then continuous shedding increasing in volume as disease progresses. While any cow infected with MAP is undesirable, only cattle shedding the organism pose an immediate threat to other cattle. These cattle generally have higher ELISA adjusted optical density (OD) values compared to cattle not shedding MAP. The objective of this study was to compare mean ELISA adjusted OD values of cattle with negative fecal cultures to cattle classified as either low (≤ 10 cfus) or high (> 10 cfus) shedders and determine the positive likelihood ratios for each. Fecal culture results and ELISA adjusted OD values were evaluated from 2,578 adult cattle from six Michigan dairy herds over two years. Prevalence of MAP in these herds based on fecal culture ranged from zero to 42% with an average of 9.8%. The mean ELISA adjusted OD value for fecal culture negative cattle (n=2,362) was 0.023 (95% CI: 0.02-0.03). That for cattle classified as low shedders (n=158) and high shedders (n=58) was 0.201 (95% CI: 0.12-0.28) and 0.784 (95% CI: 0.52-1.05), respectively. Using the mean as the ELISA cutoff for each group, likelihood ratios for a positive test for fecal culture negative, low, and high shedders were 3.2, 9.7, and 1600, respectively. Given the ELISA adjusted OD, the likelihood ratios can be used to predict the probability of a cow shedding MAP, provided herd prevalence information is available.</p>
Title	Sheep paratuberculosis study in Portugal, Serra da Estrela Region (preliminary results)
Author(s)	Seixas C ¹ , Esteves F ² , Albuquerque T ³ , Afonso A ³ , Botelho A ³ , Santos C ⁴ , Vala H ⁴ , Amado A ³
Institution	¹ Laboratório da União dos ADS do Distrito de Viseu; ² ANCOSE- Associação dos Criadores de Ovinos da Serra da Estrela; ³ LNIV - Laboratório Nacional de Investigação Veterinária; ⁴ Escola Superior Agrária de Viseu, Portugal
Abstract Poster No. 71	<p>The aim of the project, started in September 2004 and with the duration of three years, is the study of paratuberculosis incidence in sheep herds in one of the best Portuguese cheese production region. Every year producers suffer great economic losses due to the lack of control of the disease in their herds.</p> <p>Thirteen sheep herds were selected based in clinical signs of paratuberculosis disease. A serological survey by ELISA test, performed in 1220 animals, revealed that 5.6% were positive. Fourteen positive (9.7%) AGID tests, performed so far in 145 animals, were obtained. Post-mortem examination of these 14 animals revealed typical macroscopic lesions of paratuberculosis in all of them. Histopathological analysis showed suspected paratuberculosis microscopic lesions in seven animals.</p> <p>Bowel tissues with lesions, from the same 14 animals, were cultured in selective media for bacteriological analysis and also for direct detection with the ADIAVET kit. Seven tissue samples processed until now allowed the isolation of six strains, identified as <i>Mycobacterium avium</i> subsp. <i>paratuberculosis</i> by bacteriologic conventional methods. To start the molecular epidemiological study of paratuberculosis these six strains, and others isolated in the future, will be typed by molecular methods using IS900 restriction fragment length polymorphism (RFLP) analysis. This molecular approach will allow the detection of sources and routes of infection, essential for disease control. After these preliminary results, we intend to develop methods to rapidly detect <i>Mycobacterium avium</i> subsp. <i>paratuberculosis</i> in milk samples from infected and non infected sheep. With all the field and laboratory information and results gathered, it is our perspective, in three years from now, to have controlled paratuberculosis in sheep herds from Serra da Estrela region, and also to have a safe guaranty for the consumer of Serra da Estrela cheese.</p>