

RISK FACTORS ASSOCIATED WITH HAIR SHEEP BRUCELLOSIS IN AN INTENSIVE SYSTEM

Victor Marin¹, Miguel Mellado², Efrén Díaz-Aparicio³, Beatriz Arellano-Reynoso⁴, Evaristo Carrillo¹

¹Department of Engineering, Torreon Institute of Technology, Torreon, Mexico

²Department of Animal Nutrition, Autonomous Agrarian University Antonio Narro, Saltillo, Mexico

³National Institute of Forestry, Agriculture, and Livestock Research,
National Center of Microbiology Research, Cuajimalpa, Mexico City 05110, Mexico

⁴Department of Microbiology and Immunology, College of Veterinary Medicine,
National Autonomous University of Mexico, Coyoacan 04510, Mexico

Correspondence to: Miguel Mellado

Autonomous Agrarian University Antonio Narro, Department of Animal Nutrition

Saltillo, Coah. 25315, Mexico

Tel: (844) 4-11-03-24; Fax: (844) 4-17-37-84; E-mail: mmellbosq@yahoo.com

Abstract. Data from 303 hair sheep kept in confinement in a hot desert environment were used to determine the incidence and some risk factors for *Brucella* seropositivity in hair sheep in northern Mexico. Serums were tested for antibodies to *B. melitensis* by the standard agglutination card test (3% cell concentration); *B. ovis* was tested by the double agar gel immuno diffusion test (AGID). Incidence was 7.26 % (95 % confidence interval, 4.6 to 10.8) for *B. melitensis* and 1.98 % for *B. ovis* (95 % confidence interval, 0.7 to 4.3). All ewes seropositive for *B. ovis* were also seropositive to *B. melitensis*. Logistic regressions were used for the evaluation of some risk factors for *Brucella* seropositivity. Body condition score, thoracic circumference, height to withers and height/thoracic circumference were not associated with seropositivity to *Brucella*. On the other hand, crossbred ewes (Dorper x Pelibuey) were 2.31 times more likely (10.4% vs. 4.8%; P=0.06) to be seropositive to *Brucella* compared with Dorper and Pelibuey ewes. The incidence of seropositive animals decreased markedly in Dorper ewes than in Pelibuey and crossbred combined (1.1 % vs 6 %; P = 0.02). The finding that Dorper ewes present a lower incidence of seropositive animals to *Brucella* compared with Pelibuey and crossbred ewes is novel. These results also highlight the fact that *Brucella melitensis* represents an important hazard for intensive sheep operations, which contradicts the earlier perception that brucellosis was only prevalent in traditional pastoral sheep flocks.

Keywords: *Brucella melitensis*, *Brucella ovis*, risk factors, Dorper sheep, Pelibuey sheep