

EXPERIMENTAL PASTEURELLA PNEUMONIA IN BIGHORN SHEEP

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ABSTRACT: Pasteurella hemolytica biotype T non hemolytic variant, isolated from sick bighorn sheep (Ovis canadensis canadensis) during a die-off from pneumonia in Southern Alberta was used for pathogenicity studies in bighorn sheep (BHS) as well as domestic sheep. 10^{11} viable organisms were inoculated intratracheally into BHS and 10^{12} organisms into domestic sheep. Ten days later Pasteurella could not be recovered from tonsils or lungs of domestic sheep while the BHS had developed a lobar fibrinous bronchopneumonia from which the same Pasteurella variant was reisolated. Sham inoculated sheep remained without lesions and negative for Pasteurella.

Pasteurella hemolytica biotype T isolated from tonsils of healthy slaughtered domestic sheep was inoculated I.T. at a level of 10^{12} viable organisms into two BHS and caused mortality from pneumonia in 16 and 42 hours respectively. Pasteurella hemolytica type A, modified as a cattle vaccine, caused mortality from pneumonia and septicemia in five BHS three days after intradermal inoculation. Pasteurellosis can be reproduced in BHS without concurrent predisposing viral infection. Domestic sheep are refractory to the BHS pathogen while bighorns are susceptible to the BHS isolates and highly susceptible to domestic animal strains.

QUESTIONS AND ANSWERS

DeForge: Have you had serological survey work that might indicate that viruses have been present?

Onderka: There's a money restraint, of course, of how much we can do, and also the availability of serum from sheep that are found dead. We thought an isolate would be more meaningful than demonstrating the possible experience with the virus, but now we're getting interested in a serologic survey.

Kim Keating, Montana: I would like to make a comment regarding the pattern of the disease in Glacier National Park. Looking at strictly demographic indicators in Many Glacier or the northern portion of the park, we were seeing pretty much what Canada saw. Almost no lambs coming on the rutting ground following the disease, very low lamb/ewe ratio. In the southern part of the Park there was absolutely no indication that the disease ever hit, which leaves a very large block of country in there between where we know the disease was and the Sun River area, but apparently that population as near as we can tell was not affected.

Onderka: Thank you. We also see a very low recovery as far as lamb recruitment in those areas now. It seems to be probably two years or more before we see recovery on these herds. I'm not sure why that is.