Effects of Cache Valley virus during winter lambing season

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Sheep producers busy during this lambing season should be aware of the potential for Cache Valley virus, or CVV, to affect their lambing crop.

That's according to South Dakota Cooperative Extension Sheep Specialist Jeff Held, who said CVV reports are higher this year.

"The winter lambing season is well underway, and in addition to dealing with snow and cold temperatures, many flock owners have reported an unusual number of lambs born with skeletal and other developmental deformities," Held said. "Diagnostic laboratories including the South Dakota State University Animal and Disease Research and Diagnostic Laboratory (ADRDL) at Brookings have confirmed CVV-affected newborn lambs."

Held continues to work with Extension Veterinarian Russ Daly and Larry Holler, pathologist at the SDSU ADRDL to monitor the CVV situation this winter. Daly said that although CVV is found throughout the U.S., the reported cases affecting sheep in South Dakota and the upper Midwest region historically have been minimal.

"Mosquitoes cause CVV infection in sheep, and last fall during the early breeding season (August through September) there remained a high population of these pests following the warm, wet summer," Held said. "In addition, sheep-flock owners have reported a higher incidence of open ewes and lower lambing rate this winter, and we often associate lower ewe reproductive efficiency, low lambing rates, and higher

percentage of open ewes with ram fertility, nutritional status at breeding, and weather induced embryonic death losses. However, CVV also can contribute to reduced ewe reproductive efficiency."

Daly explained that Cache Valley virus is a potential cause of the birth of abnormal lambs, and that the most dramatic effects of the virus lead to birth defects in lambs, mostly affecting the brain and central nervous system. The virus also affects the skeletal tissue and muscles.

Daly said these defects show up as fused joints, curved or twisted spines, unusually thin and underdeveloped muscles, and enlarged skulls.

"Most lambs born with these severe defects are stillborn, yet CVV also can cause the birth of lambs that act abnormal," Held said. "They can be drowsy, weak, or unsteady and typically all lambs within a set of twins or triplets are affected."

Daly added that the virus infects pregnant ewes and that mosquitoes are the sole carrier of CVV.

"That's why we'll start to see effects now in the early lambing season," Daly said. "These undesirable outcomes are a result of mosquitoes that carried the virus biting ewes last summer. CVV has no apparent effects on non-pregnant ewes or other classes of sheep."

Ewe infections early in gestation, up to day 28 generally, result in fetal reabsorption, but Held said the most critical period is between days 28 and 45 of gestation.

"Infection at this stage of pregnancy has the highest risk of CVV-related neonatal developmental abnormalities," said Held. "After day 45 of gestation, a CVV infection is not expected to cause abnormalities in lambs."

Held said that ewes bred later in the fall after the mosquito activity had declined are expected to have lower risk to deliver lambs with clinical CVV induced abnormalities and return to normal flock lambing rates. Daly added that the virus is not contagious.

“We want to remind producers that the virus is not spread from ewe to ewe, even during the lambing season,” said Daly. “Unfortunately, there is no vaccine for CVV. Since the cause is a virus, there are no treatments available, either.”

Daly and Held both said that CVV is constantly present in sheep populations in the U.S. Clinical manifestations of the disease tend to occur in cycles, as the sheep population seems to gain some natural immunity after infection. As this immunity wanes over a period of years, the clinical effects become more prevalent. Past research with this virus has shown that a high percentage of the ewes in a flock will develop immunity including ewes that delivered clinical CVV and normal lambs.

“Sheep producers suspecting CVV should contact a veterinarian in order to rule out other causes of birth defects, miscarriages, or infertility,” Daly said. “Diagnosis of CVV is sometimes difficult, but can be made in the laboratory by detecting specific antibodies against CVV in the lambs.”

In most cases, a diagnosis is made on the basis of the history and nature of the birth defects within the flock.

Provided by South Dakota State University

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