

Maedi Visna

What does it mean to your flock?



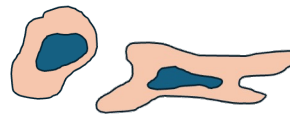
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What is Maedi Visna?

- AKA ovine progressive pneumonia (OPP)
- Chronic viral disease of sheep
- Causes pneumonia, hard udder, and weight loss in mature sheep
- Infection is for life
- Common in Canadian sheep flocks

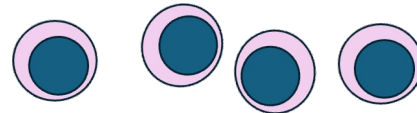


Monocyte & Macrophage

What Causes Maedi Visna?

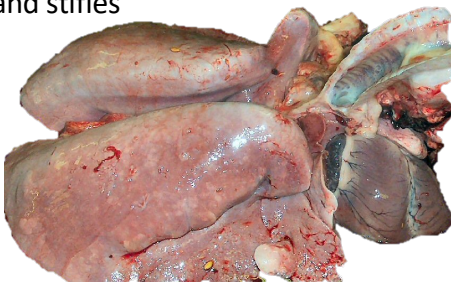
- Maedi visna virus (MVV) is in the same family as caprine arthritis encephalitis virus (CAEV)
- Replicates using the DNA of the host cells, virus is released to infect other cells
- MVV prefers to infect specific white blood cells (macrophages and its precursor cell monocytes) and specific organs, i.e., udder and lungs, less so the brain and joints
- Infected monocytes from the bone marrow carry the virus to these organs to continue the infection

Lymphocytes



Disease Due to MVV

- White blood cells (lymphocytes) attack the cells that are infected with MVV, but they are not able to kill the virus
- Inflammation leads to chronic damage of the target organs; damage accumulates through the animal's life
- Signs of disease start to emerge when animals are 3 to 5 years of age
- *Subclinical disease*: lowered milk production which affects lamb growth, exercise intolerance (lags behind the flock); most infected sheep fall into this category
- *Clinical disease*: chronic pneumonia, increased respiratory rate, no response to antibiotics, hard udder, reduced appetite and weight loss; this can affect 10% to 30% or more of the flock depending on prevalence of infection and age of the ewes
- *Uncommon disease*: neurological signs with weak hind quarters and down; enlarged knees and stifles



Lungs of an affected ewe at postmortem. Note the enlarged, heavy, tan-coloured lung lobes and mucus in the trachea.



At lambing, the udder feels uniformly firm; milk is scant but normal appearing.

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How is MVV Transmitted from Sheep to Sheep?

- Most virus is transmitted from infected cells that contact mucous membranes (eyes, nose, mouth, vaginally) or are swallowed
- *Respiratory secretions*
 - Ewe cleaning a new-born lamb
 - Sheep housed in close confinement
 - From feeders and waters
- *Colostrum and milk containing infected cells*
 - Lambs nursing
 - Milking equipment
- *Less commonly*: in the womb, from semen, from blood-contaminated needles or equipment



How Does Maedi Visna Affect Productivity?

- Overall, *test positive ewes raise 4.95 fewer kilograms of lambs to weaning*
- They are less likely to get pregnant, their lambs are less likely to survive and those that do, weigh less at weaning
- Dairy ewes produce 7 to 12% less milk if seropositive

Detecting Maedi Visna Infection

- Antibodies are detected in the blood stream 2 weeks to 6 months or longer after the sheep becomes infected
- There are many types of antibodies produced to different parts of the virus at different times after infection; blood tests vary by the antibodies they detect
- Blood samples drawn after 4 months of age, if positive determines that animal is infected and will remain so
 - Antibody levels in the blood vary depending on many factors
- Blood tests to detect virus (e.g. PCR) are less accurate because of low amount of virus in the bloodstream
 - Most virus-infected cells are in the tissues



What to Do if You Suspect Your Flock is Infected with Maedi Visna

- *Contact your flock veterinarian* to arrange testing of some suspect animals, at least ten depending on flock size and ideally animals that are relatively healthy and greater than 3 years of age
 - Severely debilitated animals may falsely test negative
- If you have one or more animals test positive, the risk of infection in the flock can be lowered by joining the **Ontario Maedi Visna Flock Status Program** administered by Ontario Sheep Farmers <https://www.ontariosheep.org/maedi-visna>