

Agriculture and Agri-Food Canada / Agriculture et Agroalimentaire Canada

## Incidence and characterization of feedlot lambs and ewe flock lameness in Alberta

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 Lucia Holtshausen (PhD) - AAFC

**Funded by:**

## Sheep production

- 1 million head of sheep in Canada
  - 11,000 farms
  - 2,000 farms in Alberta
    - Ewe flock and feedlot lambs

## Lameness

\* Welfare and economic concern  
(Winter, 2008)

- Modification of an animal's gait associated with pain and discomfort
- Reduced feed intake, BW and animal productivity
- Increase labor and treatment costs


## Objectives

1. Determine the occurrence of lameness in feedlot lambs and ewe flocks
2. Characterize the types and severity of lameness
3. Identify risk factors, causative agents and their transmission rates associated with lameness


## Objectives - long term

1. Share the findings to sheep industry - reports, magazines, newsletters...
2. Decision tree for the accurate diagnosis of lame sheep
3. Inform best management practices and future vaccine development for footrot


## Study Design



Feedlot lambs




Ewe flocks



Slaughter plant


<http://www.farmweekly.com.au/news/agriculture/sheep/general-news/lamb-slaughter-rises-again/2743011.aspx>




Laboratory

<https://www.labcompare.com>


## Study Design




Feedlot lambs



Ewe flocks




## Study Design




Feedlot lambs

- \* Feedlot (50,000 heads annual capacity)
- \* 4 years – historical data (2014-2017)
- \* 2 years - Live animal (2018/2019)
- \* Lameness occurrence



## Characterization - Live animal study




- \* Twice monthly
- \* Pen by pen


➔ LAME ANIMALS


**Lameness Score**


- 1 – Mild  
(difficult to say which limb is affected)
- 2 – Moderate  
(Steps uneven and steps shortened)
- 3 – Severe  
(Mobility is severe compromised)

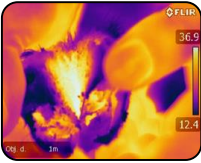



## Characterization - Live animal study











## Characterization - Live animal study

**MSD 1705 Sheep lameness data collection form**

**Incidence and characterization of feedlot lambs and ewe flock lameness in Alberta**

Farm name and location: \_\_\_\_\_ Date: \_\_\_\_\_

Pen: \_\_\_\_\_ CSMA and other ID: \_\_\_\_\_

Sex: \_\_\_\_\_ Sex:  Male  Female  M. Castrated  Rectal (RT): \_\_\_\_\_

Lameness score: \_\_\_\_\_

1 = Mild lameness      1 = Shave some mud below knee  
 2 = Moderate lameness      2 = Mud on the legs above the knee  
 3 = Severe lameness      3 = Dirty mud caked, little sheep  
 4 = Dirty & visible mud caked

LIMBS affected: Front right    Front left    Hind right    Hind left

Photo available? Yes No

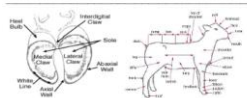

Diagnosis: Red rot (RR), digital dermatitis (DD), joint infection (swollen), arthritis, founder, injury, bad conformation, unknown

Strong smell: Yes No

Perfection/hoofing: # hairy: 1 = 0-5 cm, 2 = >5 cm


Hoofing: 1 = Bare, 2 = Dry/dry/corral, 3 = pasture

Treatment information (product used, perceived effectiveness, treatment history): \_\_\_\_\_


### Risk factors - Live animal study

| Animal and health   | Feedlot management   | Environment conditions   |
|---|--|--|
| <ul style="list-style-type: none"> <li>Sex</li> <li>Breed</li> <li>Rectal temp.</li> <li>Previous lameness treatment</li> </ul> | <ul style="list-style-type: none"> <li>Pen density</li> <li>Bunk space</li> <li>Diet</li> <li>Days on feed</li> <li>Pen condition (mud)</li> </ul> | <ul style="list-style-type: none"> <li>Weather               <ul style="list-style-type: none"> <li>Temperature</li> <li>Wind</li> <li>Rain</li> <li>Humidity</li> </ul> </li> <li>Season</li> </ul> |




### Feedlot - Live animal study

#### Injury




#### Broken

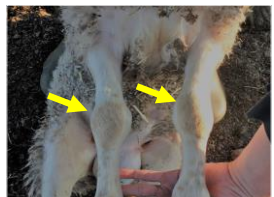


### Feedlot - Live animal study

#### Arthritis

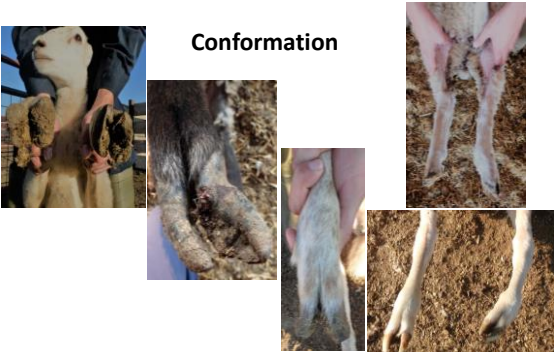


#### Swollen joints



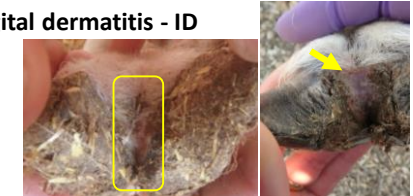
### Feedlot - Live animal study

#### Conformation




### Feedlot - Live animal study

#### Interdigital dermatitis - ID

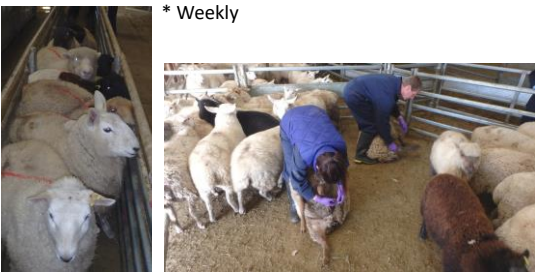


#### Footrot



### Transmission rates - Live animal study

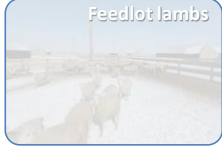
- \* 10% of affected animals (FR or ID) - BY PEN
- \* Evaluation in the barn/chute
- \* Weekly






## Causative agents – Identification Study


Feedlot lambs




Ewe flocks



Slaughter plant



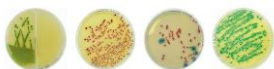
Laboratory



<http://www.farmweekly.com.au/news/agriculture/sheep/general-news/lamb-slaughter-rises-again/2743011.aspx>
<https://www.labcompare.com>

## Causative agents – Identification Study

**Swab - cell culture**




Bacteria growth?


**Biopsies - PCR**

Which bacteria?




## Slaughter study


Feedlot lambs




Ewe flocks



Slaughter plant



Laboratory





<http://www.farmweekly.com.au/news/agriculture/sheep/general-news/lamb-slaughter-rises-again/2743011.aspx>
<https://www.labcompare.com>

## Slaughter study

- \* Once monthly
- \* Evaluation of four legs (hooves)
- \* 350 sheep


➔ **HOOF LESIONS**





<http://www.farmweekly.com.au/news/agriculture/sheep/general-news/lamb-slaughter-rises-again/2743011.aspx>

## Slaughter study

**ALBERTA**  
**Counties**  
**ALP**





- \* Fat measure
- \* Carcass hot weight
- \* Farm location


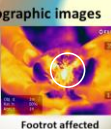
Wide population of lambs and ewe flocks in Alberta

<http://www.farmweekly.com.au/news/agriculture/sheep/general-news/lamb-slaughter-rises-again/2743011.aspx>

## Slaughter study

- \* Infrared thermography
- \* Collection of the feet – Hoof measurements



Infrared thermographic images

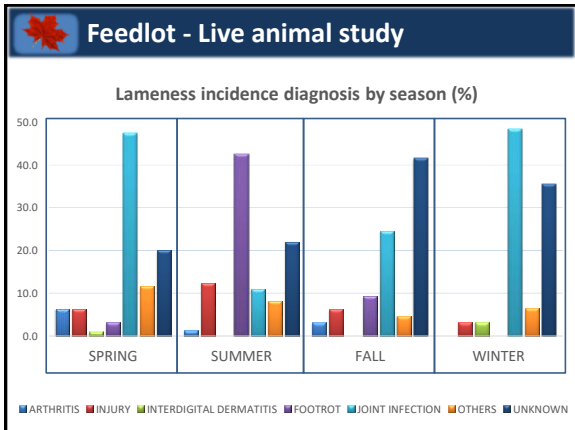
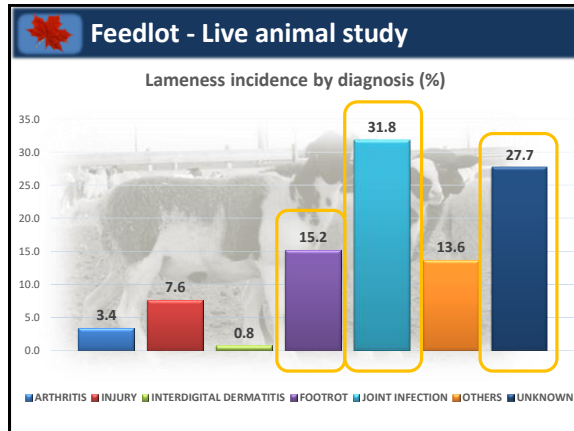
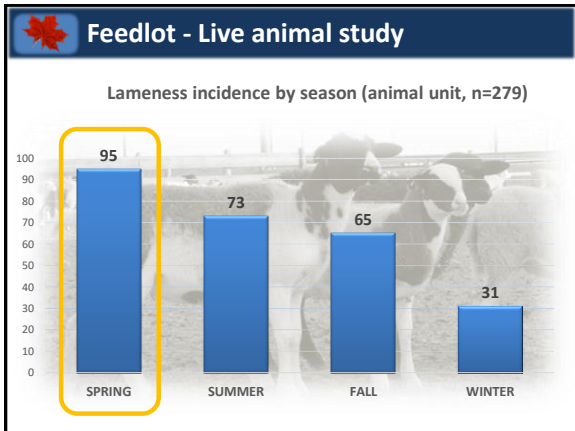
Normal, healthy foot      Footrot affected

Inflammation

Size

<http://www.farmweekly.com.au/news/agriculture/sheep/general-news/lamb-slaughter-rises-again/2743011.aspx>



### Home message

- Lameness is more common than originally thought
- Associated with economic loss
- Improved diagnosis will make treatments more effective
- Improved management practices can aid in reducing the incidence and severity of lameness

What we need.....

**YOU**

**SHEEP PRODUCERS!**

**Thanks**

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