Foot disease and lameness in sheep

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Happy Feet?

Figure 1: Parts of a sheep’s foot

FOOT ROT

Hard horn

Soft horn of inside wall of hoof and sole abnormal: lifting or cracked

Skin/horn junction broken

Image of sheep and lamb
What is a ‘normal’ foot?
What is a lame sheep?

- Not able to fully bear weight on one or more legs.
- Can vary from bit of a limp/nod to not putting foot down at all.
- It is usually a sheep in pain.
- Occasionally sheep may have a non-painful mechanical lameness – not common
- Vast majority of lameness cases are due to foot problems - (NB *pet sheep/pet problems)
Foot rot

Perspective: How would we like it?
Consequences for the sheep in pain?

- Move about less to graze – lose weight.
- Produce fewer lambs
- Higher incidence of twin lamb disease
- Produce less milk
- Rear lambs with lower weaning weights
- Rams sire fewer lambs

- Can be culled early but issues over fitness to travel
This means that a lame sheep is a very unproductive sheep!
Factors which affect the incidence of Foot disease:-

1) External Environment
2) Inside Environment – if housed
3) Sheep pens
4) Good prevention regime e.g. quarantines
5) Good treatment regime (includes diagnosis)
• Bacteria like warm, damp conditions

Scottish summers, damp straw bedding, muddy gates

Can BUY FOOT DISEASE IN

• Footrot bacteria inactive after 10 days on pasture – Quarantine, utilise fresh pasture after treatment

• Some other causes of lameness – persistence not known
Outside

- Weather – wet and mild
- Soil type – acid/low ph and wet (ie. muddy gateways). Lime, woodchip, sand/gravel?
- Soil drainage – flat or hill?
- Stocking rate
- Troughs/buckets
Inside

- Stocking density
- Bedding – quality and quantity
- Drainage – around trough areas, racks?
- Ventilation
- Flooring
Sheep Pens

- Surface construction material
- Site and drainage
- Covered over?
- Design – Separate route in and out.
- Footbath design
And always...

• THE NUMBER OF SHEEP WITH FOOT DISEASE
Sheep pens
More pens
Gates
Quarantine

- Isolate bought in sheep, or sheep returning from a show
- Ideally 28 days if possible
- If lame/foot lesions seen, treat.
- If recovered, foot bath and return to flock at end of quarantine
- If not, check diagnosis: retreat

- See later slides on treatment intervals and choices.
Footbathing Ideals

• Clean feet
• Correct time in bath
• Correct concentration
• Dry standing
• Turn onto clean field
• Not always possible….!
Footbathing Chemicals

- Formalin – 3%. Slow walk through. Scald and footrot. KEEP CLEAN.


- Copper sulphate – not ideal for sheep? 5% solution.

- Antibiotics - Use only for treating outbreaks of CODD. Prescription only. Stand in for 20 minutes.
Common causes of Lameness

- Scald
- Footrot
- CODD
- Shelley Hoof
- Toe fibroma
- Foot abscess (also get into jt?)
- Strawberry Footrot
Scald
Features of Scald

• Causes inflammation between the toes
• Bacteria involved
• Tends to affect lambs in wet summers
• If an annual problem then run sheep through footbath 2-3 weeks BEFORE expected outbreak
• Or – apply antibiotic spray to affected sheep
• NB this condition often progresses to Footrot
Footrot
Features of Footrot

- Caused by (?)one/two bacteria
- *Dichelobacter nodosus*  (role of *Fusobacterium*)
- Causes under-running and separation of the sole and hoof wall.
- Has a foul smell
- Persists via chronic carrier sheep
- Most sheep don’t produce a natural antibody response to *D. nodosus* so they never become immune.
More Features of Footrot

• Footrot varies in severity depending on the strain of bacteria
• Often introduced by purchased sheep
• Certain breeds are more susceptible
• Bacteria do not like high pH – use Lime
• Bacteria live on pasture for 7 - 10 days
• In warm, wet bedding for longer?
Treatment of Sheep with Footrot

• Don’t trim – new research

• Put rest of flock through footbath containing Formalin, Zinc sulphate, Copper sulphate, etc

• Vaccinate with Footvax™? 1ml dose given twice 4-6 weeks apart.

• Lame sheep - inject with antibiotic

• Re-assess in 7-10 days and repeat process.
Contagious Ovine Digital Dermatitis
Features of CODD

• Thought to be caused by bacteria AND a spirochaete

• Causes separation of the hoof wall at the coronary band. May get loss of claw

• Spirochaete survival on pasture - time not known

• Often confused with Footrot but careful assessment will distinguish.
Treatment of Individual Sheep with CODD

- Don’t trim

- Run sheep through antibiotic footbath* (needs vet prescription) or:

- Spray individual feet with hand spray of antibiotic* (again – need specially made up)

- For sheep with lameness inject with antibiotic (amoxycillin – if no response, spk to vet) – meat withdrawal

- Re-assess in 7-10 days and repeat process
Foot/Toe Abscess

- Sheep very lame
- Careful paring will release pus from toe, or pus will burst out from the coronary band
- Caused by bacteria tracking up
- Rare with good feet
Treatment of Toe/Foot Abscess

- Inject with antibiotic (NB. Meat withdrawal times)
- Antibiotic spray
- Can progress to Septic Arthritis
- May need to cull
Toe Fibroma

- Caused by over-paring
- Should not be a flock problem
- Can be treated but should only be by a vet?
- Can be costly – best option is prevention!!
• Occurs when an area of wall detaches from the underlying surface. This results in a pocket forming underneath the detached wall.

• Predisposition can be nutritional (calcium deficiency) but also has a genetic component.

• Not infectious

• CAREFUL trimming of dead horn only
Strawberry footrot

- This is orf!
- Mixed with a bacteria called Dermatophilus
- Reminder – wear gloves
- Orf can infect humans

- Long acting Oxytetracycline
- Might need more than one dose
- Slow resolution
- Watch out for flies
Lame sheep – how to proceed

• Separate from non lame sheep
• Treat with long acting antibiotic. Check foot and pare only if shelly hoof or obvious abscess– not if foot rot, scald or CODD
• Check one week later – if completely sound, foot bath and return to flock
• If not sound – re-treat (and re-evaluate diagnosis!)
• Recheck one week later. If sound, foot bath and return to flock

• If two treatments and no recovery – re-evaluate diagnosis. Consider culling.

• When separating original lame sheep – consider footbathing non-lame group for prevention (e.g. if the number of lame ones appears to be increasing). This can be repeated a couple of weeks later if necessary.
• Footvax?
Footvax

- AID to prevention and treatment.
- Reduces transmission and speeds up healing.
- 1ml under skin.
- Only effective for 4-6 months so you need to plan and target its use.
Vaccination for prevention

- Single dose given before main risk period.
- Can repeat in 4-6 weeks.
- Boosters will be required.
- Could use in high risk groups e.g. tups.
Vaccination for treatment

- Give one dose.
- Repeat in 4-6 weeks if lame sheep still present.
- Must use alongside other strategies e.g. antibiotic injections, footbathing etc.
Remember ...

- Cull sheep that are not improving

- FOOTVAX VACCINATED SHEEP MUST NEVER BE TREATED WITH MOXIDECTIN INJECTION (Cydectin 1%, Zermex)
Success = Healthy, Productive Sheep
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