

Controlling lameness in your flock

A guideline for prevention and treatment



“Controlling lameness in your flock”

Version 2

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Introduction

This booklet is a step by step guide on how to prevent and treat lameness. If you follow the advice in it, you will reduce average levels of lameness in your flock to below 2%. Most of the advice comes from 16 years of research into lameness in sheep at the University of Warwick, with many thousands of British sheep farmers contributing to the success of this research.

In each section, we highlight where we have good evidence for a recommended management. There are still aspects of lameness where we understand very little e.g. management of shelly hoof. Where this is the case we present the current guidelines. This booklet will be updated as the evidence grows.

Accurate record-keeping of treatments is crucial to reducing lameness levels. We are developing a software app for mobiles, tablets and computers to record and monitor lameness, which will be available from the summer of 2017. If you would like to know more about the app, please contact us using the details below.

If you have any questions about the information in this booklet, please do not hesitate to contact us.

We hope you find this booklet helpful.

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The benefits of low levels of lameness

Decreasing levels of lameness from 8% to 2% gives a net economic benefit of £6 - £15 per ewe tupped. Extra income comes from an increased number of lambs born and surviving and an increase in lamb growth rate. The profit varies each year depending on the value of finished/store lambs.

The Farm Animal Welfare Committee (FAWC) stated that by using the management approaches, as recommended in this booklet, the average percent of lame sheep in a flock can be reduced to less than 2%. FAWC recommended to government that this should be a national target, to be achieved by 2021. Many farmers are using some or all of these managements and the national average level of lameness fell from 10% to 5% between 2004 and 2013; if more farmers start to use the recommendations and this trend continues, the level of lameness in sheep will be less than 2% by 2021. This would be an excellent situation for the health and welfare of sheep and the sheep industry.

In this booklet we provide details of the current recommended managements and why they are effective. These are based on two key principles (see below). We hope they help you reduce lameness levels in your flock to less than 2%.

To reduce and maintain lameness levels at less than 2%,

1. Treat individual lame sheep correctly, within three days of onset of lameness
2. Use effective flock managements to prevent sheep from becoming lame

Getting lameness under control

If you have levels of lameness above 5% you might have a number of sheep with mis-shapen feet or foot granulomas (strawberries, see picture below). These sheep keep levels of lameness in the flock high because they are repeatedly lame and often get footrot.

It is best to separate, treat and then cull them. Once these ewes have been removed from the flock managing new cases of lameness is much simpler and culling is rarely necessary.

Sometimes culling sound ewes that have been lame is a difficult decision, but it is worth culling these repeatedly lame sheep even if:

1. Cull ewe price is low
2. Replacement costs are high
3. The flock is expanding
4. Ewes are being culled for other reasons

This is the fastest way to reduce levels of lameness. It is particularly important not to keep replacements from ewes that repeatedly get footrot because this keeps susceptibility to footrot in the flock.



A toe granuloma

How to treat individual lame sheep

EVIDENCE: Farmers with lameness levels of less than 2% treat lame sheep within three days of onset of lameness, even if there is only one lame sheep in a group

There are **Six Steps** to sound sheep

- 1) **CATCH** a sheep within three days of becoming lame
- 2) **INSPECT** the feet, clean away dirt, **DO NOT** trim hoof horn
- 3) **DIAGNOSE** the cause of lameness
- 4) **TREAT** using recommended treatment; **DO NOT** trim hoof horn; **SEPARATE** where possible
- 5) **MARK** and **RECORD** the treated sheep
- 6) **CULL** sheep that are repeatedly lame with footrot or CODD



Each of these steps is detailed on the following pages

STEP 1: CATCH and inspect lame sheep within **3 days** of becoming lame

EVIDENCE: Farmers who treat the first mildly lame sheep in a group have consistently low levels of lameness of less than 2%

Prompt treatment of all sheep within 3 days of becoming lame is the most effective way to minimise levels of lameness and minimise the impact of lameness on production

EVIDENCE: Rapid correct treatment leads to rapid recovery. It reduces spread of infectious causes of lameness, including footrot and scald and CODD. Rapid correct treatment prevents production losses.

If you are not currently treating sheep within 3 days of becoming lame, think how you might do this:

- Can you inspect a third of the flock each day with the intention of treating all lame sheep you see?
- Could you treat all lame sheep within 3 days if levels of lameness were lower?
- If so, can you start by treating within one week? This will reduce levels to about 5%, then start to treat within 3 days



STEP 2: INSPECT the feet, clean away dirt, BUT do NOT trim the feet

When inspecting feet, have clean hands - ideally wear disposable gloves

When you make your initial inspection

- Use your hands to feel whether the feet are hot
- Use your nose to smell for infection
- Use your eyes to look for pus, blood, thorns or stones
- Do NOT trim



STEP 3: DIAGNOSE the cause of lameness Do NOT trim hoof horn

There are six common causes of foot lameness in sheep. Making the correct diagnosis ensures sheep have the correct treatment

EVIDENCE: Some farmers name all forms of lameness that damage hoof horn “footrot”, this could lead to inappropriate or ineffective treatment, especially if you are consulting your vet by phone

EVIDENCE: Most lameness in sheep in the UK is caused by footrot or scald, these are both caused by the same bacteria

EVIDENCE: CODD is increasingly common, it is now present in about 50% of flocks



Scald



Footrot



CODD

If you are unsure of the cause of lameness, consult your vet. You could take a photograph. For more detail see the section **Identifying and treating lesions**

You can also check our website and look at the photographs there

<http://www.footrotinsheep.org>

STEP 4: TREAT appropriately; do NOT trim hoof horn

It is important to use the correct treatment for each cause of lameness (see section [Identifying and treating lesions](#)).

In adult sheep, scald, footrot and CODD can be treated with one dose of long acting antibiotic injection and topical foot spray to all four feet.

EVIDENCE: In our research we use oxytetracycline, other broad spectrum antibiotics that comply with recommendations for use for footrot / lameness in sheep are effective

It is important to use the **correct dose** of antibiotic for the weight of the sheep. Under dosing will result in lame sheep not recovering.

EVIDENCE: It is important to spray all four feet. There are bacteria on all four feet, not just diseased feet, and the spray kills these bacteria that the injection does not reach.



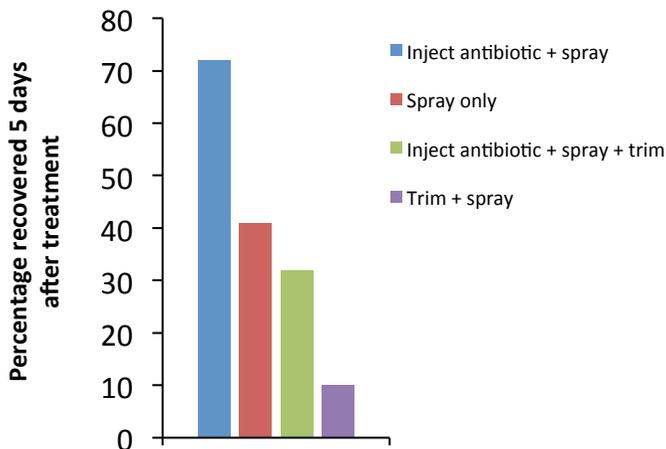
DO NOT TRIM THE FEET OF LAME SHEEP

EVIDENCE: trimming hoof horn of lame sheep slows down recovery and leads to misshapen feet and repeated occurrences of lameness.

A clinical trial was carried out to compare antibiotic injection and foot trimming. The results are shown in the graph below:

- Over 70% of sheep with footrot that were given an antibiotic injection and foot spray recovered within 5 days, and over 95% in 10 days
- Even those who only received the spray recovered faster than any sheep whose feet were trimmed
- If an antibiotic injection, foot trim, and spray were given, only 30% sheep recovered in 5 days
- When feet were trimmed and sprayed, only 10% of ewes recovered within 5 days, and 25% in 10 days

This highlights that foot trimming should not be used in the treatment of footrot or scald. Similar results have been found with CODD.



SEPARATION of sheep at treatment to prevent disease spreading

EVIDENCE: In a recent study, levels of lameness were lower in flocks where lame sheep were separated at treatment and only returned to the flock once sound. This can be more difficult at certain times e.g. when lambs are young, but wherever possible we recommend lame ewes are separated from the flock for treatment until they have recovered.

Recommendations

Identify a field where lame sheep can be kept until recovery. Spray feet as you return them to the flock.

For housed sheep, ensure there is a separate pen for lame sheep – moving lame sheep out from a pen of ewes will prevent onward spread of scald and footrot.

STEP 5: MARK and RECORD all sheep treated for lameness

EVIDENCE: Our research shows that farmers who record the identity of sheep treated for lameness have lower levels of lameness than farmers who rely on their memory to identify sheep to cull for lameness.

Keep a record of each sheep as you treat them throughout the year. Use a recording system that works for your flock so that you can identify ewes that have been lame repeatedly.

You can use one or more of the following:

- Long lasting spray mark at the top of the affected leg
- Electronic data recording from EID tags
- The University of Warwick's sheep lameness recording app
- Make a mark on, or add a notch to, ear tags



(FarmIT3000)

STEP 6: CULL sheep that are lame with footrot twice or more in a season (for more detail see [Culling and breeding selection](#))

EVIDENCE: Certain ewes are prone to footrot. Culling ewes repeatedly lame with footrot reduces the number of treatments you give to the same sheep and also reduces the spread of footrot to other sheep.

At the start of a lameness programme there are thin, persistently lame ewes. Culling these ewes gives a good start to getting control of lameness.

Ideally, cull ewes that have been lame with footrot twice in a season, which is best done at weaning. If this seems too harsh, cull those lame on three or more occasions, but getting footrot under control will take more years the more times a ewe / ram has footrot before you cull them.

The number of sheep that need to be culled reduces to under 1% within a year if you have good control of lameness, use prompt, correct treatment and avoid foot trimming.

Use records to identify the ewes that you have treated several times in a season (STEP 5). It is surprising the number of treatments that some ewes get. These ewes are costly in terms of treatment and they harbour and spread footrot.

If you do not currently record which sheep are treated for lameness, start now!



Identifying and treating lesions



Scald

Signs:

Red / pink skin with a white / grey scum between the toes, a strong smell

Cause:

Scald is the early stage of footrot, which is caused by the bacterium *Dichelobacter nodosus*. Infection occurs through damaged skin.



Damage can occur through:

- Physical damage, e.g. long sward height, rough bedding, thorns
- Moisture, dew, rain, or wet bedding

Treatment:

- DO NOT TRIM HOOF HORN
- Treat ADULTS with a long-acting antibiotic injection and antibiotic spray on all four feet; ensure you dose correctly for the weight of the sheep
- SEPARATE lame sheep until recovered, where possible
- Treat LAMBS with antibiotic spray on all four feet. Where levels of scald are high, typically in spring, footbath the whole group (for more details see **Footbathing**)

Prevention:

- SEPARATE sheep with footrot to stop onward spread of disease
- DO NOT turn lame ewes out with sound ewes at lambing
- TREAT lame ewes and lambs within 3 days of onset of lameness
- Keep stocking density low / move the flock between pastures every two weeks
- For more details see **Biosecurity and lameness**

Footrot

Signs:

Separation of hoof horn from sensitive tissue underneath, a grey, oozing pus with a distinctive foul smell



Cause:

Footrot is caused by the bacterium *Dichelobacter nodosus*. The bacteria spread from sheep to sheep through pasture and bedding and can survive for up to 2 weeks on pasture, possibly longer on bedding. The disease spreads especially fast in warm damp conditions, including:

- Spring and autumn, wet summers and mild winters
- Housing, especially when bedding is damp

Treatment:

- DO NOT TRIM HORN – this delays healing and spreads disease
- Treat ALL cases with long-acting antibiotic injection and antibiotic spray to all four feet; ensure you are using the correct dose for your chosen antibiotic
- SEPARATE lame sheep wherever possible
- Record ALL sheep that you treat AND mark the lame limb with durable spray; cull ewes that require 2 or more treatments in a season (for more details see [Culling and breeding selection](#))

Prevention:

- SEPARATE affected sheep to stop onward spread of disease
- DO NOT turn lame ewes out with sound ewes at lambing
- TREAT lame ewes and lambs within 3 days of onset of lameness
- WHERE POSSIBLE, keep stocking densities low or move the flock between pastures every two weeks
- Avoid keeping the offspring of sheep that have been lame with footrot (for more details see [Culling and breeding selection](#))

Contagious ovine digital dermatitis (CODD)



Signs:

Small, ulcerated areas at the top of the hoof horn that lead to separation of horn down the hoof towards the toe. In severe instances the hoof horn falls off. The lesion is much bloodier than footrot, but often has a similar odour

In the first year of a CODD outbreak up to 50% of a flock can be affected – both adults and lambs

Cause:

CODD is infectious and it is thought that bacteria are responsible

Treatment:

- DO NOT TRIM EVEN LOOSE HORN – trimming will delay healing
- Treat ALL cases with long-acting antibiotic injection and antibiotic spray to all four feet. Consult your vet for advice. No single treatment is currently recommended
- SEPARATE lame sheep
- Record all sheep that you treat AND mark the lame limb with durable spray; cull ewes that require 2 or more treatments in a season (for more details see [Culling and breeding selection](#))

Prevention:

- SEPARATE affected sheep to stop onward spread of disease
- DO NOT turn lame ewes out with sound ewes at lambing
- TREAT lame ewes and lambs within 3 days of onset of lameness
- TAKE CARE when purchasing replacement stock (For more details, see [Biosecurity and disease management](#))

Granuloma

Signs:

A red, fleshy growth of tissue from the sole. Very painful and bleeds easily. The wall horn is often overgrown because the ewe is not weight bearing



Cause:

Damage to the living tissue in the foot, often through over paring during foot trimming. Granulomas can also follow severe cases of footrot that have not been treated promptly or correctly

Treatment:

For the best treatment options, seek veterinary advice. This may include:

- Anti-inflammatories
- Removal – tie off with dental floss
- Applying a pressure bandage with copper sulphate

Treatment is not always effective and regrowth can occur, cull if there is no response to treatment

Prevention:

TREAT lame sheep within 3 days of onset of lameness

- DO NOT trim feet when treating lame sheep
- STOP routine foot trimming
- IF TRIMMING IS ESSENTIAL, DO NOT trim into living tissue, i.e. do not draw blood

Shelly hoof

Signs:

The wall horn is separate from the toe horn. Sheep are often not lame. Impaction with dirt and debris can lead to infection, pus and lameness



Cause:

The cause of shelly hoof is not known. Ideas for its cause include rough or wet ground, stony standings or nutritional imbalances

Treatment:

- If sheep are not lame then leave alone
- If sheep are lame then carefully remove loose horn to remove impaction and find infection
- If infection is present, treat with long-acting antibiotic injection and antibiotic spray

Prevention:

There is no known prevention, although there may be some heritable resistance (for more details see [Culling and breeding selection](#)).

Avoid walking sheep on stony or irregular ground, and over long distances in wet weather.

White line abscess

Signs:

Severely lame sheep with hot painful foot or with pus oozing between horn and skin. Can have a strong smell



Cause:

Puncture of the hoof with a stone, nail, thorn etc. or infection after development of shelly hoof

Treatment:

- If the abscess has not burst:
 - Wear disposable gloves to reduce spread of infection between sheep
 - Clean feet
 - With the sheep properly restrained, pare just enough of the sole horn to allow drainage
 - Avoid over-trimming and DO NOT draw blood, this makes sheep lame
 - Collect and dispose of all hoof trimmings, clean and disinfect the treatment area after use
- Treat all cases, even if the abscess does not burst, with a long-acting antibiotic injection and antibiotic spray

Prevention:

Often sporadic but where there are several sheep affected try to find the cause, including:

- Fields with thorny hedges or small twigs
- Tracks
- Yards with small stones

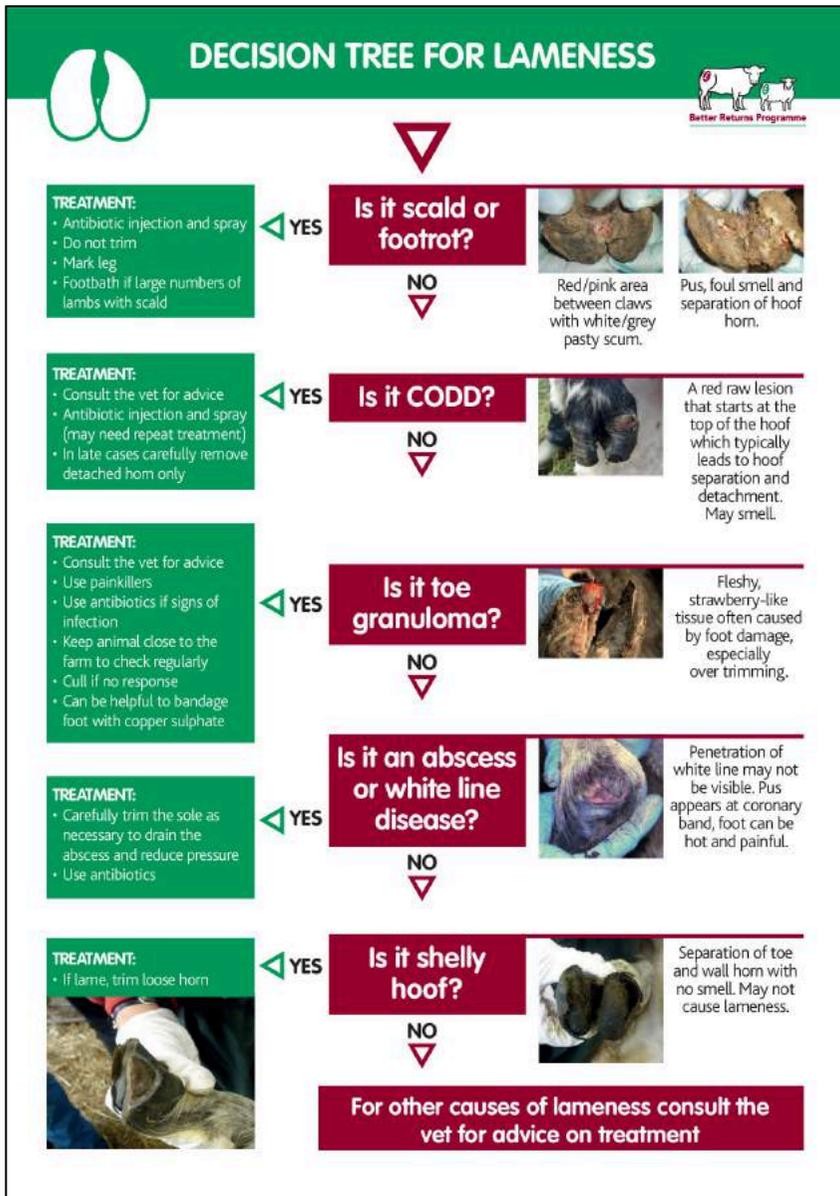
Other causes of lameness

There are other conditions that cause lameness. Some of these include:

- Soil balling - simply remove soil / straw between the toes
- Thorns, stones, twigs - remove from feet, spray if local irritation present
- Misshapen or severely overgrown hooves
- Joint-ill in lambs
- Post-dipping lameness
- Erysipelas arthritis
- Strains/sprains
- Fractures

Always seek veterinary advice if you are unsure of the cause of lameness.

You may find this decision tree, prepared by Rachel Clifton, a PhD student in our group, useful to help identify the correct cause and treatment of lameness.



Source: AHDB's Sheep Lameness Better Returns Manual number 7

Getting on top of high levels of lameness

If you are starting out on getting control of lameness in your flock the following will help you reduce levels of lameness faster than following the six steps alone.

The speed of reduction in lameness levels will be slowest with Approach 1, faster with Approach 2 and fastest with Approach 3.

Approach 1 - Follow Six Steps and in addition, as ewes become lame (1) move them to a separate group from the main flock and (2) treat appropriately (see [Identifying and treating lesions](#)) (3) cull those that do not respond to two treatments

Approach 2 - Follow the Six Steps and, in addition, (1) choose a suitable time to go through the whole flock e.g. after weaning, (2) put all lame ewes into a separate group and (3) treat them appropriately (see [Identifying and treating lesions](#)) (4) cull those that do not respond to two treatments

Approach 3 - Follow the Six Steps and, in addition, (1) choose a suitable time to go through the whole flock e.g. after weaning (2) inspect the feet of all the ewes (do not trim), (3) put all ewes with foot lesions, whether lame or not, into a separate group, (4) treat them appropriately (see [Identifying and treating lesions](#)), (5) cull those that do not respond to two treatments

For all three approaches:

- Continue to treat and separate ewes that become lame in the healthy group, even if heavily pregnant
- Only return sheep that have no visible signs of disease to the main flock
- Before returning recovered sheep to the main flock, spray all four feet with antibiotic spray

After as little as one season, farmers find that prompt treatment is the only activity needed to keep levels of lameness at less than 2%. Even outbreaks of scald stop occurring most years.



Biosecurity and lameness



Biosecurity protects your flock from diseases in other flocks.

Good biosecurity prevents new and returning sheep from bringing new diseases (e.g. CODD) or a new strain of disease (e.g. footrot) into your flock.

Factors linked to biosecurity include:

Secure farm boundaries

Disease can spread by contact with neighbouring flocks, so it is important to maintain boundary fences. Regularly check and repair all perimeter fencing, and double fence where possible - ESPECIALLY if there are sheep on any of the neighbouring properties.

Quarantine new and returning sheep for 4 weeks

Both newly purchased sheep and sheep returning to the farm should be put into quarantine for at least 4 weeks, as many infectious causes of lameness may take a few weeks before any signs appear.

EVIDENCE: Farmers who quarantine new and returning sheep for at least 4 weeks have lower levels of footrot and scald

Recommendations

Purchased sheep

New sheep brought onto the farm could be carrying footrot, scald, or CODD.

If you purchase replacements, here are some recommendations to help minimize the risks:

- Visit the flock from which you intend to buy sheep
- Talk to the farmer and ask which diseases are present in their flock (especially check for CODD), what their lameness levels and lameness control plans are

- Inspect the sheep for lameness and causes of lameness before you buy them
- Do not purchase any sheep that are visibly lame
- Quarantine ALL sheep on arrival for at least 4 weeks and treat as needed

Purchased and returning sheep

- 1) FOOTBATH** (for more details see section on **Footbathing**)
 - ALL sheep should be walked through a footbath as they come onto the farm to kill bacteria on their feet.
- 2) ISOLATE** (for more details see **Housing and pasture management**)
 - ALL sheep should be placed into a separate field / barn as they come onto the farm for at least 4 weeks, INCLUDING sheep returning from shows, markets, or winter grazing off-farm. They should be kept in pens or paddocks where they will have no contact with the main flock.
- 3) INSPECT AND TREAT** lame sheep (for more details see **Identifying and treating lesions**)
- 4) ALL** sheep should have their feet checked on arrival. Lame sheep and those with visible lesions should be given appropriate treatment, and only place them with the main flock once their lesions are fully resolved.

Separating sheep with footrot, scald and CODD

Farmers who separate sheep at treatment have significantly lower levels of lameness than those who do not. Scald, footrot and CODD are infectious diseases that spread quickly among animals, so separating lame sheep from the main flock reduces transmission of these diseases.

- 1) INSPECT AND TREAT (for more details see [Identifying and treating lesions](#))
 - Inspect ALL sheep exhibiting signs of lameness within 3 days to identify the cause and administer appropriate treatment.
- 2) SEPARATION (for more details see [Housing and pasture management](#))
 - ALL sheep treated for CODD or footrot should be moved into a separate management group and kept separate from the rest of the flock.
 - Sheep should remain in this management group until they no longer have visible signs of disease.
 - Recent studies have confirmed and underlined the importance of separation as a necessary management tool to fight the spread of disease.
- 3) FOOTBATH (for more details see [Footbathing](#))
 - Sheep in lameness management groups should be put through a footbath before returning to the rest of the flock

Culling and breeding selection



Culling ewes and rams repeatedly lame with footrot / CODD

EVIDENCE: Waiting until ewes are persistently or repeatedly lame causes high levels of lameness in the flock – both from the persistently lame ewes and the infection that they spread.

At the start of a lameness control programme most flocks have some ewes and rams that are repeatedly lame with footrot. These sheep are a source of infection to the rest of the flock and also take considerable time and money with repeat treatments. We recommend these sheep are culled.

Once your lameness control programme is underway, we recommend:

- Cull ewes that are lame with footrot twice in a year
- Do not wait until a sheep is persistently lame before you cull
- Do not keep offspring for breeding from lame ewes or rams
- Plan to remove rams that produce lame offspring as soon as this is apparent

The first year you might cull up to 4% of your flock, but the level of culling is much lower in subsequent years, averaging under 1% as the health of your flock improves.

The initial level of culling might seem high and many farmers decide not to cull sheep initially. However, this delays lameness levels falling, and the same farmers often later regret their decision.

Selecting breeding replacements

EVIDENCE: There is some genetic resistance to footrot. Closed flocks benefit from breeding replacements from sheep free from footrot.

- Wherever possible, select offspring for breeding from ewes and rams that have NEVER been lame
- Do not select offspring for breeding from ewes or rams that are repeatedly lame



Vaccination



Image courtesy of MSD

EVIDENCE: In a recent University of Warwick survey, 16% of farmers vaccinated ewes at least once a year against footrot. On average this reduced the level of lameness in their ewes by approximately 1% (that is, an average level of lameness of 2.9% instead of 3.7%).

There is one vaccine (Footvax™) which, when used appropriately and with all other treatment and control managements, can help reduce the levels of footrot in some flocks. Whilst many farmers reduce footrot without vaccination, others consider it very useful.

Careful planning is required to decide when to use the vaccine. The vaccine has a very irritant base and there are some side-effects that need to be considered seriously before using this vaccine.

- Do not vaccinate sheep if they have been treated with injectable wormers containing 1% moxidectin (this can be fatal). If you have used this kind of wormer in the past, please discuss with your vet before vaccinating your flock with Footvax
- Do not vaccinate with Footvax 3 weeks either side of another vaccine
- The vaccination can cause lumps and abscesses where injected, so avoid vaccinating close to shearing time to avoid injury
- If you inject yourself or a helper go to hospital for immediate treatment, take the vaccine information with you

Vaccine efficacy

The vaccine lasts for about 4 months and is about 60% protective. There will still be sheep that become lame and will need treatment.

When to use the vaccine

If you have footrot throughout the year, you can give the vaccine every 6 months.

If footrot flares up at certain times of year, you can plan the timing of vaccination to avoid the conflicts listed above and to get maximum protection over the highest risk period for your flock, e.g. if footrot is highest during housing, vaccinate ewes 4 weeks before housing.

You may also consider using the vaccine if there is an extended period of time when you will not be able to handle or catch lame sheep e.g. if you are busy over harvest.

Instructions

- 1) All adults receive an initial dose of 1ml under the skin just behind the ear
- 2) A second booster injection should be given 4-6 weeks after the first dose
- 3) Boosters should be given every 6 months from this point on, or once each year 4 weeks before your known high risk period

Financial considerations of vaccination

- An initial course of vaccination costs approximately £2.00 per ewe and treatment of lame sheep is still necessary
- The average cost of treatment for lameness is £1.20 per ewe
- Production costs of lameness vary from £6 - £15 per ewe when lameness is at 6 – 8%
- Production costs are very low when lameness is below 2% and sheep are treated promptly
- It is therefore complex but important to decide when vaccine is financially worthwhile

Footbathing



Image courtesy of AgriSearch

EVIDENCE: Farmers who footbath to treat outbreaks of scald have lower levels of lameness than those who do not.

EVIDENCE: Footbathing is NOT an effective treatment for sheep with footrot.

EVIDENCE: Farmers who use footbaths instead of treating lame sheep have high levels of lameness.

EVIDENCE: Farmers who do not use footbaths at all have lower levels of lameness

When to use a footbath

It seems sensible to footbath after handling sheep and at other key times e.g. before housing, at turnout, at weaning, moving sheep to clean pasture, there is currently no evidence that this reduces average levels of lameness but it might reduce bacteria on the feet of sheep.

Equipment

Ensure all equipment is clean and fit for purpose.

Clean and disinfect footbaths, pens and races between batches of sheep.

Instructions

- 1)** Separate lame sheep from healthy sheep; healthy sheep should be footbathed first, then footbath sheep lame with scald, treat all other lame sheep individually
- 2)** Ensure sheep have clean feet before entering the footbath (placing an extra footbath of plain water before the footbath of chemical solution is quite effective)
- 3)** Sheep should stand in solution that completely covers all 4 feet for the prescribed amount of time
- 4)** Afterwards stand sheep on a hard, dry surface for at least an hour

- 5) Turn sheep out onto a clean pasture or into a clean, dry pen that **has not had sheep on it for at least 2 weeks.**

***NOTE** – Footbathing is only effective at treating scald. It will **NOT** treat footrot.

Footbath solutions

There are several products available on the market, and no evidence that one is better than another, follow the manufacturer's instructions.

Having all the appropriate equipment and facilities to footbath properly is **MORE IMPORTANT** than the solution you use.

Housing and pasture management



Separating any sheep lame at housing reduces spread of lameness and subsequently reduces time spent treating lameness

Bacteria thrive in warm, damp environments such as wet bedding, so can spread rapidly in housed sheep. Taking appropriate measures to reduce bacteria levels and maintain a clean, dry environment will reduce the spread of infectious causes of lameness, including footrot, scald, and CODD.

One month before housing

- If you have a particular problem with footrot during housing, consider vaccinating 4 weeks beforehand (for more details see **Vaccination**)
- Identify one large pen solely for lame sheep

At housing

- 1) Separate lame sheep out from the main flock
- 2) Footbath healthy sheep
- 3) Treat lame sheep, spray all four feet, and put them into a separate pen
- 4) Top up pens with fresh bedding every day or on alternate days; the target is to have sheep on dry bedding at all times
- 5) Inspect and treat all lame sheep immediately; treat even heavily pregnant ewes as lameness is far more stressful for a pregnant ewe than inspection and treatment
- 6) Move all sheep that develop footrot, scald, or CODD to the separate pen as you treat them - they should stay in this area until turnout to reduce disease spread
- 7) Footbath at turnout; first the healthy sheep and then those that have had footrot, scald, or CODD
- 8) Separate any lame ewes / ewes with foot lesions at turnout, and where possible put them in a separate field

At pasture

- 1) At turnout and after whole flock treatments, move the flock onto a field that has been sheep-free for at least two weeks
- 2) Lambs should be placed into a separate field or fenced section for treatment and remain there until their lesions are fully healed
- 3) Minimize the build-up of bacteria by regularly rotating through fields or keeping a low stocking density (approx. 4 ewes/acre)
- 4) Place water troughs in well-drained areas and avoid spillage
- 5) Move feed troughs, creep feeders and forage racks regularly to avoid poaching and faecal contamination
- 6) Avoid excessive use of gateways. Consider using hydrated builders' lime in heavily used areas

Quarantine facilities

Separating sheep that are, or may be, carrying an infectious disease is absolutely essential to preventing the introduction of new disease and controlling an outbreak. They should be kept in a separate field, a housed pen, or a fenced-off portion of a field during treatment and until their lesions have fully healed. The area should be rotated or cleaned regularly to avoid build-up of bacteria, and no sheep should go back onto previously used areas for at least 2 weeks.

Frequently Asked Questions

How is this new approach different from previous management?

The new approach is to treat ALL lame ewes (not some) within three days (no longer) of first becoming lame, without foot trimming. This leads to the fastest recovery from lameness and reduces spread of disease. Delaying treatment increases the prevalence of lameness by allowing the bacteria to spread to other sheep.

Step 1: CATCH

Why should I treat within 3 days?

CODD, footrot, and scald spread from sheep to sheep, so treating lame sheep quickly stops infection spreading and reduces the extent of negative effects, such as condition loss and poor milk production.

Isn't catching individual sheep going to take me a lot of time?

Each sheep farmer has their own way of catching sheep, you are the experts. Farmers we have spoken to say they find it quicker to catch and treat individual lame sheep than to gather sheep for a whole group treatment. Once you have footrot and scald under control (usually within 6 – 8 weeks) you will have very few / no lame sheep to catch at each check.

What if I don't want to catch ewes with young lambs?

You will get very few lame ewes with lambs in the main group if you only turn sound ewes with lambs into this group. Keep lame ewes with lambs in a separate group, even after they have been treated.

Is it safe to catch and treat heavily pregnant ewes?

Clearly you need to be careful catching these ewes but the benefits are less pain for the ewe, better body condition, larger lamb birth weight and better fed lambs. Most antibiotics are safe for pregnant ewes and unborn lambs. Check with your vet if you need more information.

Step 2: INSPECT

Why do I need to inspect sheep feet for lesions when I can see if they are lame?

There are a variety of causes of lameness in sheep and it is important to make a correct diagnosis; incorrect treatment will have no effect. Also, some

sheep with footrot or scald may be sound. If you can identify these cases, treat them and separate them, you will prevent them spreading the infection to other sheep.

Step 3: DIAGNOSE

How do I know it is footrot unless I trim the foot?

You can recognise footrot by its smell, so you do not need to trim the hoof horn. If the sheep has an abscess or shelly hoof you might need to trim the horn. See details of our treatment recommendations in [Identifying and treating lesions](#). If unsure of the cause of lameness consult your vet.

Step 4: TREAT

Why should I NOT trim feet when sheep have CODD or footrot?

New research shows trimming hoof horn delays healing and increases the chance that sheep will become infected again.

Don't I need to trim the hoof to let the air in to help it heal?

The bacteria responsible for these conditions are capable of surviving in oxygen, so exposure to air will not kill them. Also, once they have developed lesions the bacteria have invaded deep into the foot. Antibiotic injection works from inside the foot, so it is the best method for treating these invading bacteria. Once the sheep is sound she will bear weight on the foot and wear away loose and overgrown horn.

Why should I ALWAYS use antibiotic injection?

Because injected antibiotics reach bacteria deep in the foot that a spray or footbath cannot reach and so lead to rapid and better recovery.

Won't the bacteria become resistant to antibiotics?

Antibiotics are the correct treatment because CODD, footrot and scald are caused by bacteria. Over a matter of weeks, prompt antibiotic treatment will decrease your number of cases, so you will use less antibiotic in the long run.

What about antibiotic withdrawal periods in my lambs?

Injecting lambs with footrot will ensure a swift recovery so they can keep growing. Each antibiotic has a different withdrawal period, so discuss with your vet which antibiotic treatment is most suitable for your farm.

Why do I need to use the spray as well?

Using a spray along with the injection speeds up healing and helps prevent the spread of bacteria to other sheep.

How will the spray work if I don't trim the foot?

Sprays clear the bacteria on the outside of the foot and on the skin between the claws; the injection will treat bacteria deep in the foot.

Should I treat lame ewes during tupping?

You need to be careful handling ewes in the first month of pregnancy, but the benefits of treating lameness are less pain for the ewe, better body condition and higher productivity.

Should I give lame sheep pain relief?

It is best practice to give painkillers when sheep are in pain, and lameness is painful. Ask your vet for details.

What about other flock treatments, such as footbathing and vaccination?

Footbathing can help prevent the spread of footrot and scald, e.g. footbath sound sheep at housing. It can also be used to treat outbreaks of scald, but not footrot. Farmers often find that they do not get scald outbreaks and no longer need to use footbaths once they are following these new recommendations.

Vaccination is a useful tool, but will not be enough on its own to bring footrot under control. Even when you vaccinate you will have some sheep with footrot and scald, and these cases should be treated within 3 days using antibiotic injection and spray on all four feet.

Is vaccination safe for pregnant ewes?

Yes, vaccination using Footvax™ is safe for pregnant ewes. However, do not vaccinate ewes within a period of 4 weeks before lambing or 4 weeks after lambing.

How will treating footrot in my ewes help to control scald in the lambs?

Scald in lambs is caused by the same bacteria that cause scald and footrot in ewes; by treating ewes promptly and reducing levels of scald and footrot in ewes you will have fewer outbreaks of scald in lambs.

Why separate lame ewes from the main flock when they have foot lesions?

Separating sheep with CODD, footrot and scald from the rest of the flock rapidly reduces spread of disease to sound ewes in the main group, especially at housing and turn out. This will result in fewer new cases of CODD, footrot and scald in ewes and their lambs.

Why should I use antibiotic spray on the feet of recovered sheep before returning them to the flock?

This helps to minimise the spread of footrot, CODD and scald to sound sheep.

Step 5: MARK AND RECORD

What is the benefit of marking and recording sheep with footrot and scald?

Our research has shown that marking and recording treated sheep helps to ensure that repeat cases of CODD, footrot, and scald are easily identified for culling.

Step 6: CULL

Why cull sheep after two bouts of CODD or footrot in a year?

These ewes are more susceptible to footrot and are likely to become diseased again. The majority of the footrot treatments you give can be traced back to them. Removing them reduces the number of treatments you need to give. If this is too many ewes initially, start by culling those lame three times with footrot.

Should I cull sheep that have only had scald?

Many sheep get scald but it does not seem to produce any long term damage to the foot, so it is ewes and rams that have had footrot or CODD twice that should be particularly targeted for culling.

How many ewes/rams will I cull?

If you have never culled specifically for lameness, you might cull up to 5% in the first year, in subsequent years it will be about 1%. If you buy in replacements you might have to cull more ewes than if you breed your own ewes and only select replacements from never-lame mothers.

Why should I cull ewes and rams with deformed feet?

Sheep with badly misshapen feet are more susceptible to repeated footrot infections and other diseases. These sheep should not be used for breeding replacements.

If I cannot transport lame sheep, how can I cull them?

Separate lame sheep from the flock and treat them to get them sound for transport. Don't be tempted to keep them once sound! If sheep remain chronically lame they should be euthanised on farm.

Flock-level disease management

How can I minimise spread of CODD, footrot and scald in housed sheep?

Bacteria that cause footrot and scald spread quickly in damp, warm conditions such as wet bedding. Add fresh bedding daily to keep the conditions underfoot dry.

How can I minimise spread of CODD, footrot, and scald around feeders?

Regularly moving feeders or spreading hydrated lime around feeders can help to minimise spread of infection.

Should I trim overgrown feet when I inspect ewes after lambing?

It is likely that there is no benefit from routine foot trimming on many farms. We know that trimming sheep with footrot or scald slows down recovery and over trimming causes granulomas. We therefore recommend inspection of all the feet and separation of ewes with CODD, footrot or scald, but no foot trimming. Once lameness has been treated, overgrown horn will wear down naturally as the ewe begins putting weight on it again.

Should I foot trim the whole flock to prepare them for tupping?

It is likely that there is no benefit from routine foot trimming on many farms. We know that trimming sheep with footrot or scald slows down recovery and leads to misshapen feet in the long term. We therefore recommend inspection of all the feet and separation of ewes with CODD, footrot or scald, but no routine foot trimming.

Should I trim the feet of rams?

If rams have overgrown feet before tupping and they are not walking enough

each day to wear the horn down, then trim away excess horn. Avoid over trimming because this will cause pain and can lead to formation of granulomas.