

Healthy Hoof

lameness field guide



Dairy
Australia

Your Levy at Work

Why is lameness important?

- Lameness takes time, energy and skill to treat properly.
- Lameness represents a financial cost to your farm business and, therefore, impacts on profitability.
- Lameness causes cows to produce less milk, lose weight, and take longer to cycle.
- Lameness causes cows to suffer pain and, consequently, lameness is an animal welfare issue on Australian dairy farms.

Lameness is not an easy problem to fix. It is caused by many factors that differ between individual cows and farms. Reducing the number of lame cows in your herd requires a long-term, planned approach that is supported by the whole farm team.



Healthy Hoof

Cowshed Rules To Prevent Lamé Cows:

1. Don't pressure cows on track from people, vehicles or dogs.
2. Ensure enough cow space in the yard.
3. Use backing gate correctly:
 - Movement no longer than 5 seconds duration.
 - Delay first movement until at least 2 rows/platforms are milked.
4. No heads up!
5. Use a consistent routine for handling cows.
6.
.....
.....
7.
.....
.....

Minimising lameness

Cows bunched, heads up in yard



Heads up suggest that the whole herd is too tightly packed. This will result in foot damage from twisting and turning and standing on gravel.

Cows spread out, heads down



Cows need space in the yard. Space allows a cow room to manoeuvre gently forward and feel and look for a safe place to stand.

Cows pushing at an angle with their feet



Cows pushing at an angle with their feet are avoiding pressure from the backing gate or top-gate. Pushing at an angle like this will damage the white-line of the foot (see pp. 10 & 11 for description of 'white line').

Cows standing upright



When cows are relaxed in the yard feet are at normal angle to the yard surface and won't be damaged.

Cows bunched up on track



Cows bunch up on a laneway/ track only from herding pressure from behind. Often this happens at congestion points on the track. The result is poor foot placement and damage of the sole from track material.

Cows spread out on track



If cows are spread out and able to drift at their own pace, foot placement is good and wearing of the sole is minimal.

Rocks and stones on concrete



Rocks and gravel on concrete damage and penetrate the sole. They are painful to walk on. Poor cow flow into the shed results and makes the problem worse.

Clean concrete



Clean concrete is less damaging to a cow's foot. Use a nib wall or curb at the junction between gravel and the concrete, to prevent gravel being brought onto the yard surface.

Understand cow behaviour

1. Cows need to see where their feet are placed.
2. Subordinate cows will not pass dominant cows.
3. Dominant cows walk throughout the herd, not always at the front.
4. Milking order is different to walking order.
5. Cows need space in the yard.
6. Under pressure dominant cows push forward using back feet, and lower dominance cows reverse, using front feet to brace and push.
7. Cows are creatures of habit.



Treatment tool kit

Essential

- Hoof knives – 1 x Right handed, 1 x Left handed
- Hoof knife pouch (old teat-cup liner)
- Hoof tester
- Hoof trimmer
- Leg rope or strap
- Back bar or rope or support belt for cow
- Antiseptic spray
- Cow slip or wooden blocks
- Sharpening stone
- Diamond hoof knife sharpener
- Fine round chainsaw file
- Glove or wrist protector
- Antibiotic
- Methylated Spirits

Optional

- Paring hoof knife, rasp or angle grinder with sanding disc



Knife sharpening

Always sharpen the inside edge of the knife!!

Step 1

Only when a knife is first purchased use a rough stone, a file, or an angle grinder to change the inner angle (straight and curved cutting edge) of the blade to 20 degrees (see illustration). The knife edge should be gradually tapered.



Step 2

Use a fine chain-saw file, a fine grain stone or diamond hoof knife sharpener (illustrated). File the sharpened edge again. Ensure consistent angle.



Step 3

Protect the blade while not in use inside an old milking inflation or piece of polythene tubing.



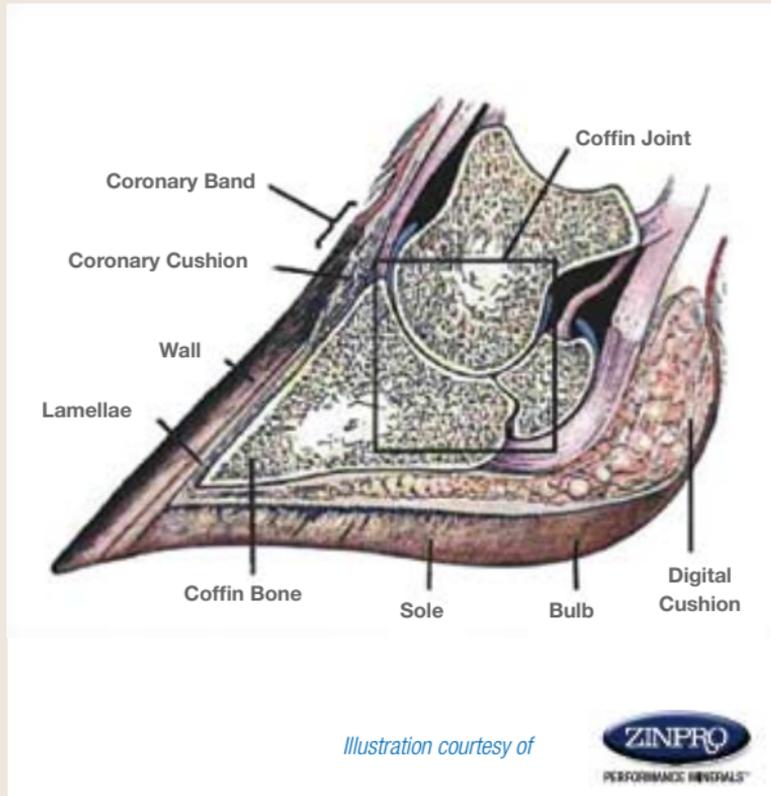
Step 4

Touch the blade up regularly with a diamond sharpener.



When sharpening a knife, have it securely held to ensure a consistent and sharp edge.

What does a normal foot look like?



- Lamellae is also called the corium.
- The lamina horn (between the wall and the lamellae) forms the 'white line' at the junction between the wall and the sole.

What does a normal foot look like?

Coronary band	<ul style="list-style-type: none">• Pale hairless band at junction of the hoof and the skin or coronet
Wall	<ul style="list-style-type: none">• The wall is made of tough horn• Horn for the wall is produced at the coronary band and grows downward at a rate of approximately 5mm per month
Sole	<ul style="list-style-type: none">• Horn for the sole is produced by the corium at the sole itself• Sole horn grows down directly from beneath the pedal bone• Sole horn is softer than the wall horn• The sole is joined to the wall by the white line
White line	<ul style="list-style-type: none">• Where the horn of the wall meets the horn of the sole there is a cemented junction known as the white line• The white line is softer than both the wall and sole• It runs from the bulb of the heel to the toe and then back along the first third of the inside wall (axial wall) until the wall is no longer a weight bearing surface
Bulb	<ul style="list-style-type: none">• A soft and rubbery part of the hoof• It is continuous with the coronary band and merges with the inside and outside wall and the sole
Corium	<ul style="list-style-type: none">• The corium within the hoof is like the “quick” (nail bed) of our own fingernails• It is the “support tissue” for the foot
Digital cushion	<ul style="list-style-type: none">• At the heel the corium is impregnated with fat, fibrous and elastic tough tissue to form the digital cushion• Made of elastic tissue it acts as a shock absorber, bearing the weight of the cow as she steps onto her foot
Pedal or coffin joint	<ul style="list-style-type: none">• This joint is prone to injury due to its location• Injury often involves the attachment of the deep flexor tendon to the pedal or coffin bone.• The tendon will separate and the toe of the claw will turn up
Pedal or coffin bone	<ul style="list-style-type: none">• The pedal or coffin bone is the major bone of the hoof

Identifying a lame cow



Back Posture Walking: Flat

Back Posture Standing: Flat

1

LOCOMOTION SCORE

Clinical Description:

NORMAL

Stands and walks normally with a level back. Makes long confident strides.



Back Posture Walking: Arched

Back Posture Standing: Flat

2

LOCOMOTION SCORE

Clinical Description:

MILDLY LAME

Stands with flat back, but arches when walks. Gait is slightly abnormal.



Back Posture Walking: Arched

Back Posture Standing: Arched

3

LOCOMOTION SCORE

Clinical Description:

MODERATELY LAME

Stands and walks with an arched back and short strides with one or more legs. Slight sinking of dew-claws in limb opposite to the affected limb may be evident.

4

LOCOMOTION SCORE

Clinical Description:

LAME

Description: Arched back standing and walking. Favouring one or more limbs but can still bear some weight on them. Sinking of the fore-claws is evident in the limbs opposite to the affected limb.



Back Posture Standing: Arched



Back Posture Walking: Arched

5

LOCOMOTION SCORE

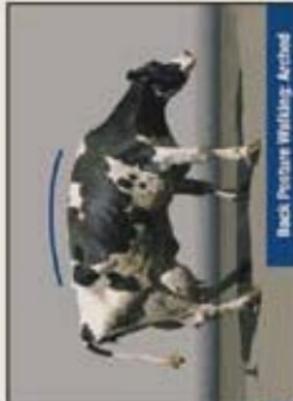
Clinical Description:

SEVERELY LAME

Description: Pronounced arching of back. Reluctant to move, with almost complete weight transfer off the affected limb.



Back Posture Standing: Arched



Back Posture Walking: Arched

* Adapted from Sauerbrey, B.J., Humez, D.L., Rossow, J.B. 1999. *Reproductive 471179*, 1187 and contributions from Clark, N.S. University of Minnesota.

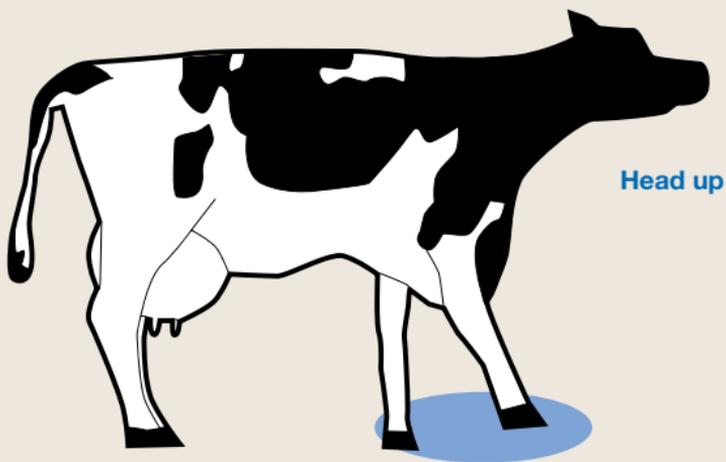
Illustration courtesy of



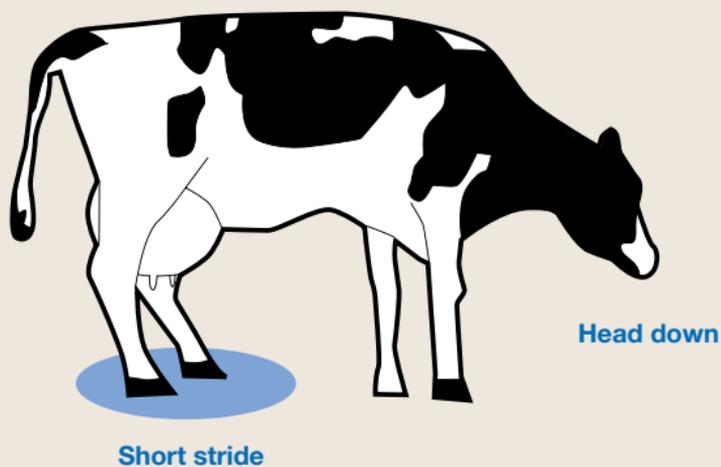
Which foot is lame?

To identify which foot is lame use the following rules.

Walk the cow around the yard. If her front foot is lame she will raise her head as the foot is placed on the ground.



If her back foot is lame she will lower her head when the foot is placed on the ground. She will also have a smaller stride for a lame back leg.



Treatment Facilities

Farms should have appropriate facilities for treating lame cows.

Good facilities can help to ensure prompt treatment and ultimately improve your lame cow management.

Important aspects of any treatment facility include health and safety for both cow and operator.



Front foot of a cow restrained for safe examination and treatment of a hoof condition.



Hind foot of a cow restrained for safe examination and treatment of a hoof condition.

How to restrain a cow

Step 1

Get an assistant to 'tail jack' the cow by gripping the tail near its base and lifting it up and forward over the cow's spine. When applied correctly this will prevent the cow kicking.

Step 2

Pick up the lame leg.

Step 3

Using a quick release knot secure the leg to the rail.

Be aware!

If a cow goes down on her knees and her head is in the 'head-bail' this may put pressure on the wind-pipe. Cows don't always let you know when they are suffocating!

To prevent this put a strap/belt under their chest just behind the front legs wherever possible.



Foot examination process

1. Clean

Clean the foot with running water and a brush.

2. Between

Check between the claws for any trapped stones, breaks in the skin, swelling or heat.

3. Sole

Check the sole for any obvious holes, splits or cracks.

4. Carefully squeeze

Test the claws with a hoof tester. It saves a lot of time if you know which claw is painful.

5. Scrape

Clean the sole with a scraper or grinder with a sanding disc and follow down and remove any dark lines with a hoof knife.

6. Search

Only if you find nothing in the foot start looking further up the leg for other possible causes. Call your vet if you are still concerned.



Types of lameness

There are five major types of lameness in Australian herds.

White Line Disease



Axial Wall Crack



Footrot



Bruising



Sole Penetration



White Line Disease

What you will see

- “Break out” or abscess at the coronet (top of the claw) may occur.
- Wall is split away from the sole and the space between them may be filled with sand and gravel.
- If both front feet are affected a cow may stand and walk cross-legged.
- When side wall is trimmed a dark line can be found running vertically up the hoof from the sole sometimes to the coronet.



How you treat it

Step 1

Open up the white line at the bottom and the top to allow drainage.



Step 2

In most cases you will need to remove the whole side wall.



Step 3

Take the weight off the injury by paring or apply a block (or "Cowslip") to the uninjured claw.



Sole Penetration

What you will see

- Dark hole or crack on sole leading to pocket of pus.
- Not always obvious.
- Hoof testers usually produce a response over the penetration – cow will flinch or try to pull away.
- Often penetration is at toe in heifers.



How you treat it

Step 1

Open up hole or crack in hoof and release any build up of pus.



Step 2

Pare away all under-run horn (separated sole) to ensure drainage and prevent build-up of pus.



Step 3

Apply a cow slip or block to the good claw to relieve pain by removing weight bearing role of the affected claw.



Bruising

What you will see

- The sole has reddish / dark brown areas.
Don't confuse with normal pigmentation.
- Patches can be localised or they can cover large portions of the sole.
- Often the cow is lame in more than one foot.
- Cow often stiff when getting up and walking.



How you treat it

One claw injured

If only one claw is injured apply a 'cowslip' or block, on the uninjured claw. This will keep the bruised claw off the ground and immediately relieve pain.



Both claws injured

If more than one claw is affected keep the animal close to the shed and milk only once a day.



Simple bruising should heal fairly quickly.

Severe bruising may subsequently become infected leading to an under-run sole and may require drainage.

Footrot

What you will see

- Skin between claws is broken.
- Swelling and heat below the dew claws.
- It often smells.



How you treat it

Step 1

The photograph shows a crack in the (interdigital) skin between the claws. Gently remove any dead skin on the edge of the crack. Check for the presence of small stones in the crack and remove them.



Step 2

Spray with antiseptic / iodine.



Step 3

Ask your veterinarian about appropriate drugs for the treatment of footrot. Follow veterinary advice about dosage, method of administration and meat/milk withholding period.



Axial Wall Cracks

What you will see

- A vertical crack on the inside wall of the claw.
- Crack starts at the coronet (interdigital skin / axial wall junction) and grows down towards the sole.
- A pain response may occur if the hoof testers are used to squeeze the inner (axial) wall against the outer (abaxial) wall.
- A small area of proud flesh might be visible under the dark gravel filled cavity.
- The wall is under-run upwards toward the interdigital skin and down to the sole.



How you treat it

Step 1

The skin between the claws is often extremely sensitive. Check for any stones.



Step 2

Carefully remove all the under-run horn on both sides of the crack.



Step 3

If the crack extends down the axial wall to the sole then pare away the wall and sole, next to the crack, to transfer its weight bearing function to the outer healthy wall of this claw.

Step 4

Check the block or cowslip for size. Will it fit? If necessary trim the claw or inside plastic of the cowslip so it is not rubbing against the skin.

How to put a cow slip or block on

A cow slip or block goes on the good claw **not** the injured claw.

Step 1

Clean the foot thoroughly.

Step 2

Using a paring knife scrape the sole and wall clean. An angle grinder with sanding disc may be used.



Step 3

Dry the foot with Methylated Spirits or a hair dryer.

Step 4

Check the block or "cowslip" for size. Will it fit? If necessary trim the claw.

Step 5

Refer to glue mixing instructions for your type of block or “cowslip”.



Step 6

Apply the block or “cowslip” onto the healthy claw and allow the glue to dry.



Remember to record your lame cow treatments.



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