

Why should we worry about the bovine hoof?

Learn why overall hoof health is important and see how KRUUSE hoof products support the most common hoof conditions.

Hoof problems with or without lameness are very common and one of the costliest problems in dairy herds. An overall estimation based on numerous studies shows that approximately 30% of dairy cows per year will experience a hoof related condition.

Keep score!

Keeping score of the overall hoof health in the herd and having a treatment plan is worth the effort and will quickly provide a good return on investment.



Lameness

The first visual sign of a painful hoof condition is often lameness. Lameness should always be addressed, not only because of ethical considerations but also because it can lead to a negative spiral of problems for the cow impacting both animal welfare and production.

Consequences

- Increased cortisol levels
- Lower conception rates
- Metabolic problems
- Udder problems

Negative Side Effects

- Fearful animals
- Unwanted behaviour
- Increased staff risk



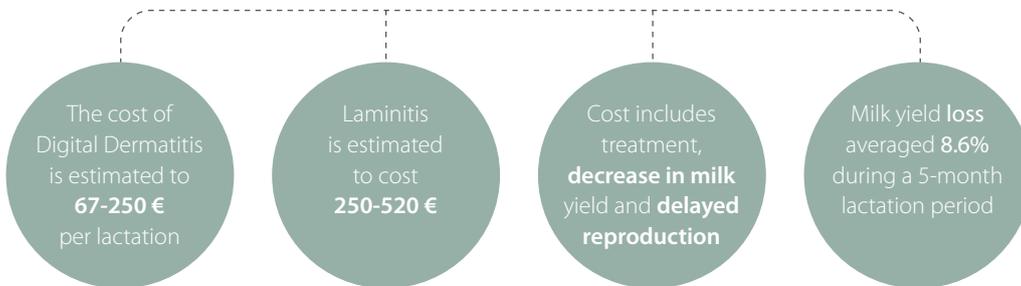
Painful conditions

A painful condition will over time lead to **increased cortisol levels** as a stress response. High cortisol levels lead to **lower conception rates** - according to studies up to a 22% decrease in pregnancy rates. This means a longer calving interval and fewer lactation periods.

Pain will also affect the cow's **behaviour** since prey animals tend to become **more fearful** when in pain. Kicking or bolting will make handling more **dangerous for the staff**.

If the pain is severe, it will make the cow reluctant to get up and stay up long enough to eat sufficiently, leading to metabolic problems like ketosis and increasing the risk of left displacement of the abomasum (LDA). Even **udder problems** like mastitis or trauma can originate from lameness. An infected hoof wound can transfer pathogens to the teat and trouble getting up can lead to traumatic teat injury.

The cost of lameness!



Taking good care of the hoof

Hoof trimming

Thorough hoof trimming is important for overall hoof health. It should be done twice yearly, for example at drying-off and around day 100 of lactation.

Keep the horn healthy

Structurally healthy horn is much more resistant to pathogens in the environment. A levelled sole and correct hoof angle will ensure correct weightbearing minimising stress on tendons and ligaments and reducing the risk of sole bruising and ulcers.

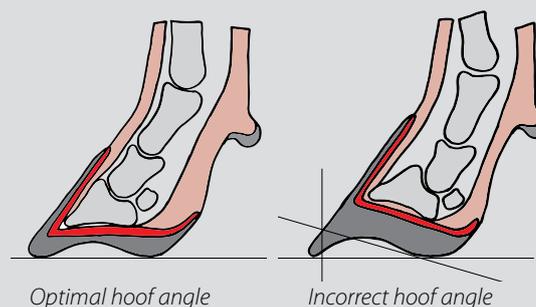


Optimal hoof angle

Make sure that the hoof is trimmed to an optimal angle which should be 45-50 degrees. If the toe is too long, the weightbearing point is moved to the back of the hoof which, apart from causing increased strain on tendons and ligaments, results in the bulb of the heel being in closer contact with the slurry when the cow moves around.

Prevent heel erosion

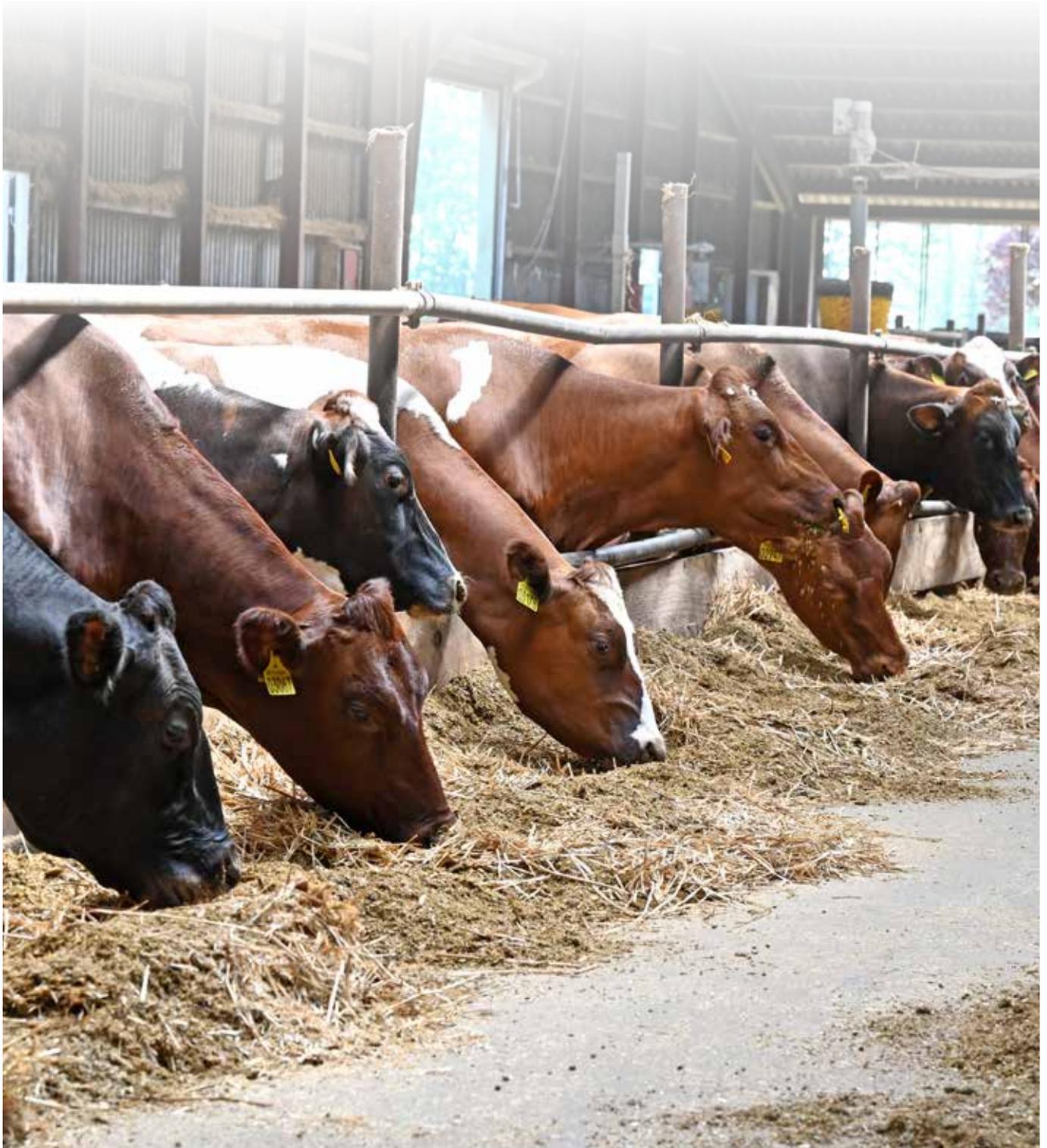
Heel erosion is one of the consequences if the bulb of the heel is constantly in the slurry. Heel erosion does not always lead to lameness right away, but the weakening of the soft horn provides an entry port for potential pathogens which may weaken the structures of the hoof and horn and eventually turn into lameness.



Maintain a good level of hygiene

Besides regular hoof trimming the general hygiene in the walking areas is an important factor.

Apart from weakening the horn, many hoof diseases are transmitted through the slurry on the floor and in addition, sharp corners and cracks in the floor increase the risk of traumatic injury.



Keeping score of the overall hoof health

When keeping score of the hoof health in a herd, it is important that a sufficient sample size is checked to give a representative result. There are many ways of picking the right sample size, but one easy tool is the sample size table from Washington State University:

Herd size	Sample size	Herd size	Sample size	Herd size	Sample size	Herd size	Sample size
20	17	140	57	270	71	900-950	87
30	23	150	59	280-290	72	1000-1100	88
40	28	160	60	300	73	1150-1300	89
50	33	170	62	350	76	1350-1550	90
60	37	180	63	400	78	1600-1900	91
70	41	190	64	450	79	1950-2450	92
80	44	200	65	500	81	2500-3000	93
90	47	210	66	550	82	3500-5500	94
100	49	220	67	600	83	6000-16500	95
110	52	230	68	650	84	17000 <	96
120	54	240	69	700-750	85		
130	55	250-260	70	800-850	86		

How many cows should be scored?

The sample size table helps you determine how many cows to score and in which order. See example below for calculating a sample size in a herd of 400 cows (B) with 100 cows (A) in lactation.

The number of cows to be checked can be calculated as follows:

$$(A)100/(B)400=0,25$$

$$0,25*(\text{sample size})78=(C)20$$

$$(A)100/(C)20=(n)5$$

In this example 20 cows should be scored. But you cannot just choose 20 cows in the front of the pen or 20 in the back, as this could skew the result. Perhaps the 20 in the back of the pen are those with lameness problems which made them withdraw from the group.

Instead, you divide the number of lactating cows with the sample size. In this example it means that you check every 5th cow in the pen. This procedure gives you a good overall picture of the hoof health in the herd.

If the herd is continuously monitored using a system like the one from Washington State University, it will provide valuable information about any hoof health problem and the most common problems in the herd. You will then be able to make a prevention and treatment plan.



How to prevent and treat hoof conditions

Prevention



▶ Digital dermatitis

- Infectious disease of the skin around the hoof
- Bacterial agent: Treponema
- Highest risk around calving and 1st month of lactation

- Good hygiene on floors and in resting areas
- Adequately sized eating area
- Bi-annual hoof trimming and hoof baths
- Disposable boot covers for all visitors
- Cleaning boots when moving from one stable to another



▶ Interdigital dermatitis

- Superficial interdigital infection of the skin
- Opportunistic bacteria in the environment
- Most often on hind limbs

- Hygiene
- Hoof baths
- Dry resting areas



▶ Heel erosion

- Degeneration and erosion of the bulb caused by chemicals from the manure
- Opportunistic bacteria from the cows environment i.e. Bacterioides Nodosus
- Most often hind limbs
- More prevalent in older cows

- Hygiene - clean and dry walking areas
- Hoof baths
- Dry resting areas



▶ Foot rot

- Acute infectious disease
- Fusobacterium Necrophorum and several other bacteria involved
- Acute swelling and lameness
- Possibly fever and anorexia

- Hygiene
- Clean and dry walking areas
- Dry pastures, especially at entrance areas
- Remove sharp objects that can injure the hoof



▶ Sole ulcer

- Ulceration of the sole
- Risk of subsequent infection of coffin bone, joints and tendons
- Stepping on foreign object
- Increased risk in overgrown/untrimmed hooves
- Very painful

- Bi-annual hoof trimming
- Good nutrition to avoid ruminal acidosis and which weakens the hoof
- Keep walking areas free of stones and other
- Good pasture maintenance



▶ White line disease

- Separation of white line in the hoof
- Often associated with laminitis and a weakened connection between the hoof capsule and coffin bone
- Dirt in damaged white line can lead to abscess
- Results in chronic changes to the hoof

- Bi-annual hoof trimming
- Good nutrition to avoid ruminal acidosis and which weakens the hoof

	Treatment	KRUUSE products
ble section	<ul style="list-style-type: none"> - Wash and clean hoof and infected skin area - Use Salicylic acid gel and hoof bandage 	<ul style="list-style-type: none"> - KRUUSE Hoof-Gel with Salicylic acid, Cat. No 220402 - KRUUSE BOVIVET Hoof Bandage, Cat. No 220420 - KRUUSE Vet-Flex, Cat. No 160731 - Disposable boot covers, Cat. No 260642 - KRUTEX nitrile examination gloves, Cat. No 261134 - KRUUSE BOVIVET Hoof Dressing, Cat. No 220425
	<ul style="list-style-type: none"> - Clean and disinfect hoof and skin - Salicylic acid gel and bandage 	<ul style="list-style-type: none"> - KRUUSE Hoof-Gel with Salicylic acid, Cat. No 220402 - KRUUSE BOVIVET Hoof Bandage, Cat. No 220420 - KRUUSE Vet-Flex, Cat. No 160731 - Disposable boot covers, Cat. No 260642 - KRUTEX nitrile examination gloves, Cat. No 261134 - KRUUSE BOVIVET Hoof Dressing, Cat. No 220425
	<ul style="list-style-type: none"> - Clean hoof - Trim all damaged horn - Salicylic acid - Move cow to dry bedding until new horn has hardened 	<ul style="list-style-type: none"> - Hoof knives, Cat. No 220052-54 - KRUUSE Hoof-Gel with Salicylic acid, Cat. No 220402 - KRUUSE BOVIVET Hoof Dressing, Cat. No 220425 - KRUUSE Vet-Flex, Cat. No 160731
oves	<ul style="list-style-type: none"> - Systemic antibiotics - NSAIDS - Clean and disinfect hoof and skin - Antibacterial bandage 	<ul style="list-style-type: none"> - KRUUSE Hoof-Gel with Salicylic acid, Cat. No 220402 - Cotton polster, Cat. No 160133 - KRUUSE Vet-Flex, Cat. No 160731 - Disposable boot covers, Cat. No 260642 - KRUTEX nitrile examination gloves, Cat. No 261134
d laminitis foreign objects	<ul style="list-style-type: none"> - Remove damaged horn - Clean and disinfect ulcer - Use hoof block on opposite digit to free ulcerated digit from weight bearing - Move to dry area with few cows to minimise stress - NSAIDS in acute phase 	<ul style="list-style-type: none"> - Hoof knives, Cat. No 220052-54 - Trimming discs, Cat. No 220064 - KRUUSE Hoof Glue, Cat. No 220600-02 - Hoof blocks/shoes, Cat. No 220490-91
d laminitis	<ul style="list-style-type: none"> - Correct metabolic imbalance - Trim hooves - Remove foreign material lodged in the white line - Move the cow to an area with soft bedding 	<ul style="list-style-type: none"> - ReCovin Rumen Acidosis Paste, Cat. No 310763 - Hoof knives, Cat. No 220052-54 - Hoof trimming discs, Cat. No 220064

KRUUSE BOVIVET Hoof Bandage

The hoof bandage is a complete bandage ready to apply. When treating digital dermatitis, you will get the best result when combining the hoof bandage with KRUUSE Hoof-Gel with Salicylic acid. It is made of water-repellent material that keeps the wound protected from slurry. Its shape and elastic materials are designed to fit the bovine hoof and keep the stocking in place. 10/pk.

Cat. No 220420



KRUUSE BOVIVET Hoof Dressing

Wound dressing for treatment of digital dermatitis and other hoof ailments. The dressing is shaped to fit between the two claws and cover the bulb of the heel. To be used with KRUUSE Hoof-Gel with Salicylic acid and fixated on the hoof with a KRUUSE Vet-Flex bandage. 50/pk.

Cat. No 220425



KRUUSE Hoof-Gel with Salicylic acid

Before applying the hoof-gel prepare the hoof by washing it thoroughly with a soapy solution or use hydrogen peroxide. Dry the hoof thoroughly. The hoof-gel contains Salicylic acid 38% which is antibacterial and Aloe Vera, which has a soothing effect. 500 ml.

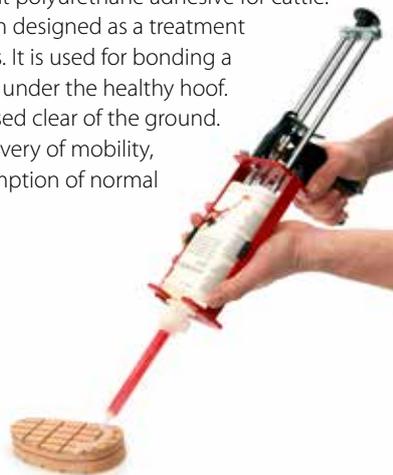
Cat. No 220402



KRUUSE Hoof Glue

Fast setting two-component polyurethane adhesive for cattle. KRUUSE Hoof Glue has been designed as a treatment for bovine hoof pathologies. It is used for bonding a wooden orthopaedic block under the healthy hoof. Thus, the injured hoof is raised clear of the ground. That allows immediate recovery of mobility, fast healing and rapid resumption of normal milk yield. 200 ml.

Cat. No 220600



Accessories for KRUUSE Hoof Glue

It is highly recommended to use KRUTEX nitrile examination gloves for protection.

- | Cat. No | Description |
|---------|---|
| 220601 | KRUUSE Hoof Glue mixing tips, 10/pk |
| 220602 | KRUUSE Hoof Glue application gun for 200 ml |
| 220490 | Demotec wooden blocks, 110 mm |
| 220491 | Demotec wooden blocks, XL, 130 mm |

