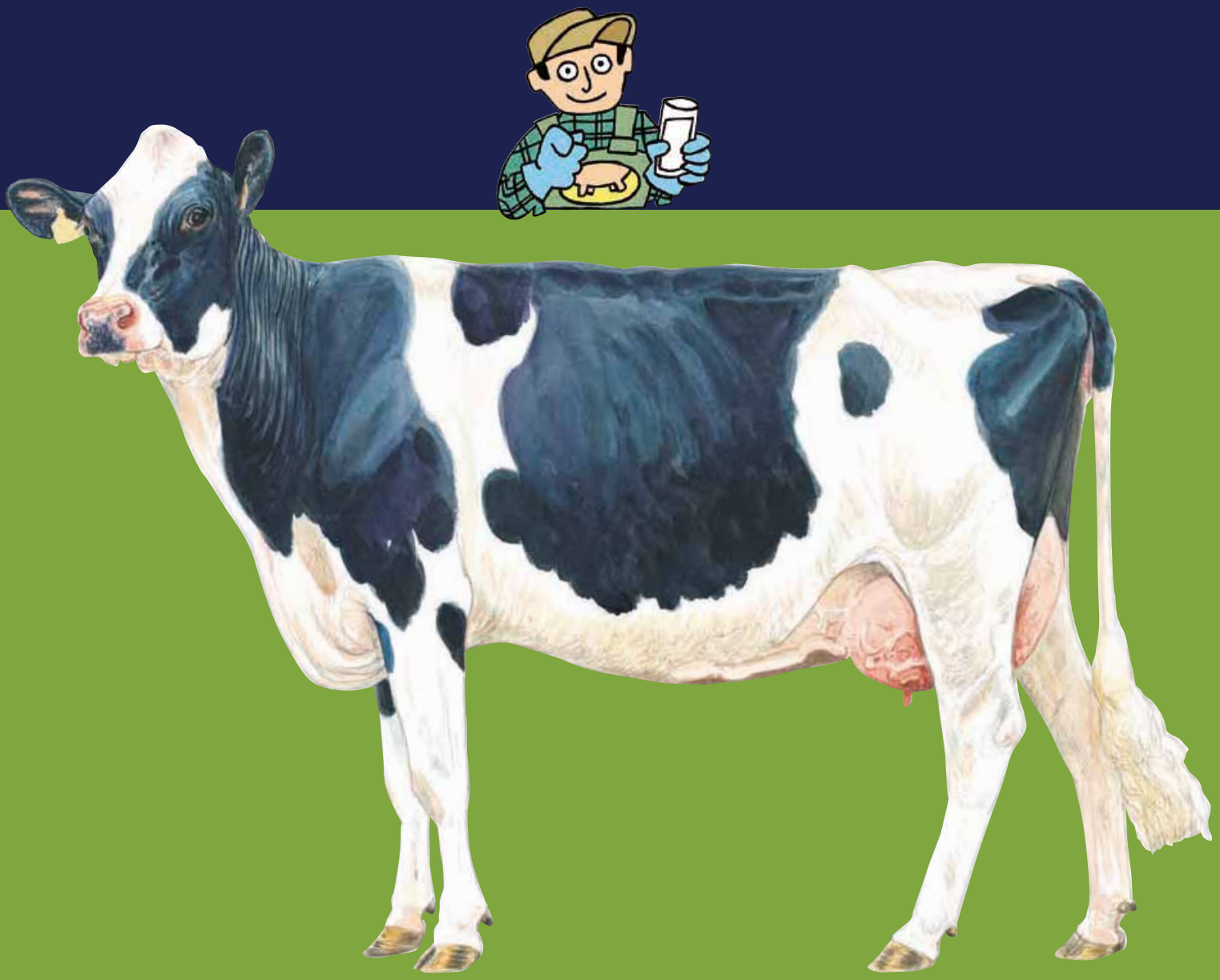
CowSIGNALS®



Cow Signals **Checkbook**

Working on health, production and welfare

Jan Hulsen

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Cow Signals Checkbook

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Introduction

The Cow Signals Checkbook contains a series of checklists and instruction cards designed to help you manage the most important aspects of your dairy farm as efficiently and effectively as possible.

The selections have been made on the basis of practical value and suitability in practice and attempt to explore all cow-related aspects of dairy farming.

The Checkbook is not complete, because that would be asking the impossible, and you may disagree with some of the selections we have made. But we have tried to ensure that the cards contained in it are all sufficiently meaningful.

Some cards are self-explanatory and can be used straight away; others require a little more attention or time. So start off with the cards that you can use immediately. Then browse through the book at your leisure and spend some time thinking about the other cards so that you can start using them too. Taking the time to think about each one is a good way of using them.

We wish you and your cows a happy future!

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The Cow Signals concept

Cows constantly tell us about their health, production and welfare. Do you pick up these signals and do you use them?

Look purposefully,

1 What do I see?

Describe what you see objectively and precisely.

Look

2 Why is this happening?

Think again, consider, look again, compare, read, and so on.

Think

3 What should I do now?

If everything is OK, you can rest assured and go and do something else. If there is room for improvement, go and make a good plan. And implement it. If anything needs immediate attention, take action straight away.

Act

by continuously asking yourself questions

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Cow Signals Diamond

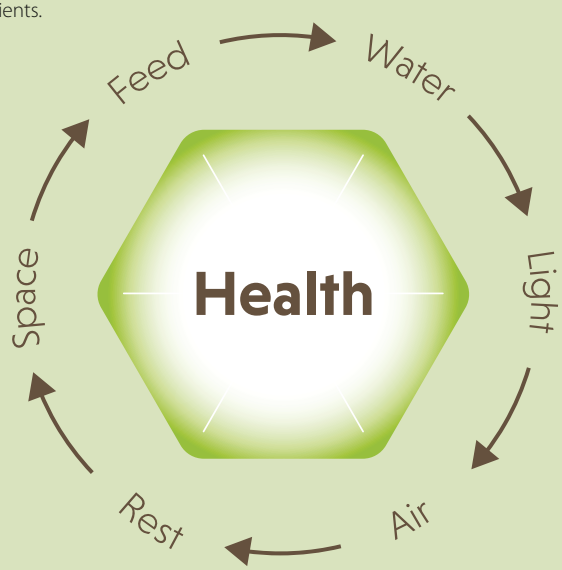
For production, health and welfare, a cow needs feed, water, light, air, quiet and space. She must also be free of infections and wounds.

Feed

Every cow has access for at least 21 hours per day to palatable feed, of the right consistency, providing a proper balance of nutrients.

Water

Every cow has access for at least 21 hours per day to fresh, palatable water free of contaminants.



Space

The cow can walk to the water trough, the manger and the resting place without fear. She should be able to socialize and exhibit signs of heat without problems.

Light

The cow experiences a light regime with at least 6 hours of darkness. When walking in the barn, she encounters no transitions from deep shadow to bright light. There are no hot spots because of solar radiation.

Rest

The cow has a comfortable place to lie down. The cows should not be disturbed unnecessarily or chased by other cows, by people or dogs. Fetching and handling are done in a calm and gentle manner.

Health

The cow has no infections, diseases or injuries. If there is something wrong with her, she is almost always treated and cared for in an expert way.

Air

The cow always breathes fresh, clean air. The air in the barn smells the same as outside. In hot weather, air speed and air temperature both contribute to the cow's ability to keep her body cool.

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Young stock

Growth and Development Checklist
Calf Body Condition Score Card
Calf Lying Comfort Score Card
Diagnosis List for Diarrhoea in Young Calves
New Heifers Checklist

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Growth and Development Checklist

A calf's body condition score shows whether it is being properly fed. Yearling heifers that are too fat are not particularly fertile. Heifers that are too fat find calving difficult.

The desired body condition score increases with age. Always use your hand to feel the thickness of fat in a fold of skin in the tail hollow, next to the tail. At body condition score 3, you can feel a small amount of fat here. Young stock should not put on too much fat. Too much fat deposition before nine months means their diet doesn't contain enough protein. After nine months, a too high energy content is to blame.

2.25

2 months (80 kg)

2.3

6 months (180 kg)

2.8

12 months (340 kg)

3.0

14 months (375 kg)

3.25

18 months (460 kg)

3.5

24 months (580 kg)
(with calf 660 kg)

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Calf Body Condition Score Card

A weekly critical assessment of all milk-drinking calves tells you what is happening in terms of their growth, comfort and health. Every livestock manager can do this themselves. An advisor will provide a more objective assessment, which helps combat farm blindness. They will also spot opportunities for improvement and provide practical solutions.

Good condition

A healthy calf has a shiny, smooth, close coat. The rumen (left flank) is visibly full and has a clear layered structure – it does not 'slosh' if you push on it. Condition is most clearly visible in the flesh cover over the lumbar vertebrae, directly behind the ribs. Here, muscles must be clearly visible. Always feel the flesh and fat cover with your hand.

Poor condition

A calf that's unhealthy or growing poorly has a dull coat that often looks ruffled. You can see and feel the poor condition (skinniness) mostly on the ribs, lumbar vertebrae and rump muscles.

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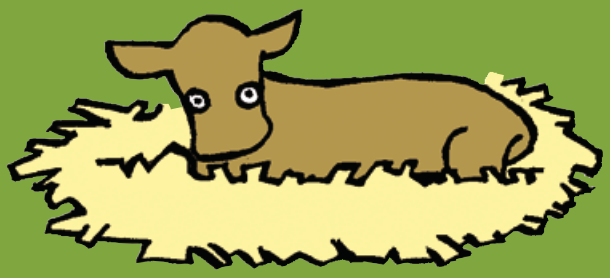
Calf Lying Comfort Score Card

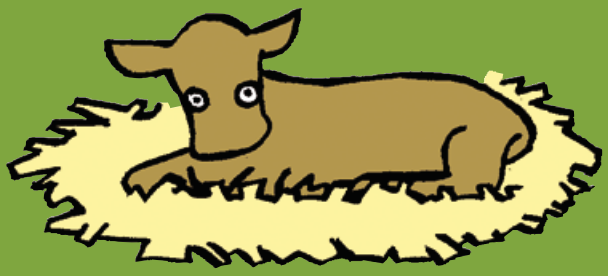
Young calves need a dry, sheltered nest for optimum health and growth. At temperatures below 10°C they burn extra energy to keep warm.

Nest score 0: Legs not visible



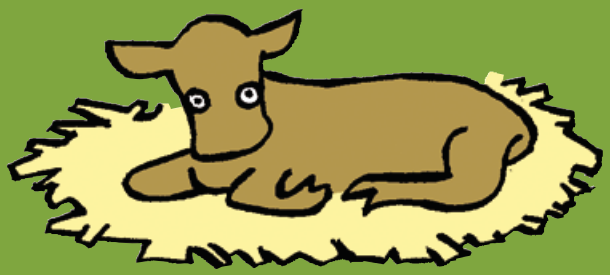
Good nest

Nest score -1: Legs half visible



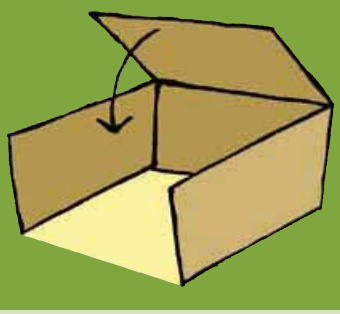
Reasonable nest

Nest score -2: Legs fully visible



No nest

Shelter



When the temperature in the nest is below 15°C, it must be cold but no draught. So closed side walls. And in wide pens a folding cover.

Kneeling test

Kneel in the calf's bed for 30 seconds. Afterwards your knees should be dry.

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Diagnosis List for Diarrhoea in Young Calves

The symptoms of calf scours may differ from one farm to the next and from one calf to the next, but they do provide an impression of the pathogen. Always consult the vet promptly for accurate diagnosis, treatment and prevention.

Picture	When	First thought	Treatment	Prevention
(Very) sick calf. Thin, flaky manure. Fever or low temperature possible. Calf's condition may deteriorate rapidly.	1st week	E.coli	Vet, intravenous fluid therapy often necessary.	Hygiene around calving and excellent colostrum provision. Vaccinate dry cows.
Yellow, custard-like. Calf slightly dopey but is drinking well. No fever.	Week 1-3	Feed diarrhoea	Halve amount of milk given for two feeds. Then increase cautiously.	Work more cleanly and more carefully when feeding (temperature of milk, concentration of milk replacer, teat bucket). Extra feeding session.
Yellow, pasty to liquid. Calf weak and listless. Temperature between 38°C and 39.5°C.	7 to 14 days	Rotavirus/ coronavirus	Give electrolytes in extra feeding session; keep feeding milk. Medication in consultation with the vet.	Improve hygiene and colostrum provision. Add 100 ml colostrum to the milk daily. Vaccinate dry cows.
Whitish-yellowish-green, watery. Often contains blood.	Weeks 2-3	Cryptosporidiosis	Medication. Feed electrolytes if necessary.	Hygiene (individual pens), snatch calving and possibly prophylactic medication.
Brownish-green, thin, often contains blood. Calf wizened Losing weight. Straining.	Week 4 and beyond	Coccidiosis	Medication. Monitor ration.	Prevent manure from getting into feed or water. Monitor ration. Improve hygiene. Use more straw.
Acute: greyish manure. Chronic: brown-grey, clay-like manure, thin calf with large stomach.	Acute: > day 3-4. Chronic: > week 2-3.	Rumen drinker/ abnormal manure	Acute: siphon rumen, artificial teat. Chronic: wean calf.	Improve milk feeding method: 38-42°C via teat, max. 5% body weight. Especially for sick calves.

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New Heifers Checklist

Every heifer must be checked 8 to 6 weeks before calving. Is she absolutely ready to calve and become a long-lasting dairy cow?

	Name and number of heifer:		
1	**Body condition score and weight**	Condition: … Weight: … Pregnant: yes/no	The body condition score should be between 3.0 and 3.5 and the heifer should weigh about 580 kg (chest circumference 193 cm, for a Holstein).
2	**Hooves: condition and health**	Trimmed: Yes/No Symptoms: Leg position:	At the time of calving, the hooves should be as healthy and in as good shape as possible, with no active digital dermatitis.
3	**Resistance and vaccinations**	Intestinal worms: Lungworm: Leptospirosis: BVD: IBR: Calf scours: ……:	Cattle going to pasture need to be resistant to intestinal worms and lung worms.
4	**Udder quality**	Shaved /flamed: Yes/No Quarters or teats with abnormalities: Yes/No Treatment: …..	Treat according to treatment plan. Discuss abnormalities with the vet.
5	**Skin**	Hygiene score: Scab: Lice: Shearing: tail/udder+stomach/back/full	Treat immediately if you find scab or lice and draw up a prevention plan.
6	**General health**	Gen. impression: Magnet in rumen: yes/no Lungworms: Liver fluke: Neospora: ……:	Draw up a control and prevention plan with the vet.
7	**Mineral status**	Blood test: Yes/No Bolus given:... Injection of ..... given	Make a plan with the vet to monitor and ascertain the mineral status.
8	**Familiarity with the cow accommodation**	Feed: Feed barrier/ trough: Stalls: Floor: Cows:	A heifer needs 2 to 3 weeks to get used to the parlour. Acclimatisation to concrete floors and stalls before calving gives less lameness during lactation.
9	**Identification and sensors**	Ear tags present: Collar: Activity meter: Other identification:	

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Feed & Water

Feed Intake Score Card
Rumen Fill Score Card
Body Condition Score Card
Manure Score Card: Digestion
Manure Score Card: Consistency
Drinking Troughs Checklist

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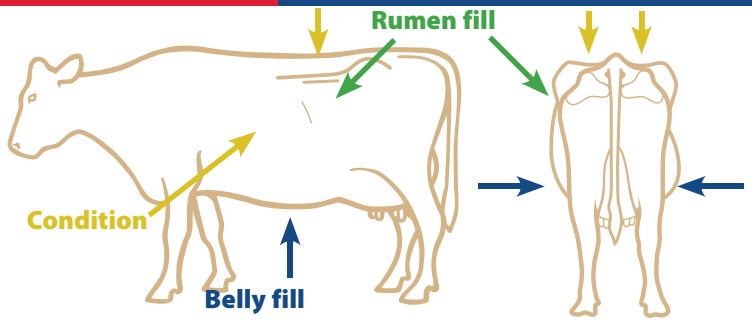
Feed Intake Score Card

You can see how much a cow has eaten today, this week and this month. Make sure that the cows are not deprived of anything.

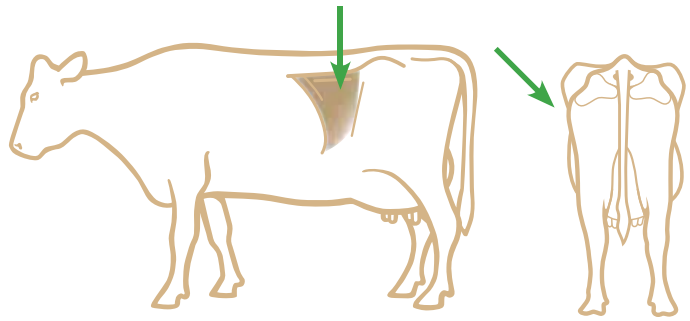
Eaten well

This cow has eaten well. Rumen fill, belly fill and condition are OK.



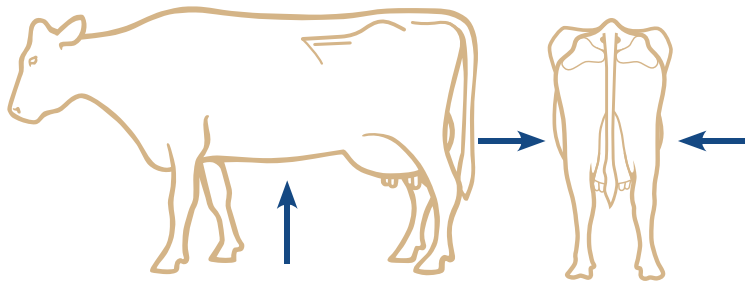
Rumen fill

This cow has not eaten enough *TODAY*.



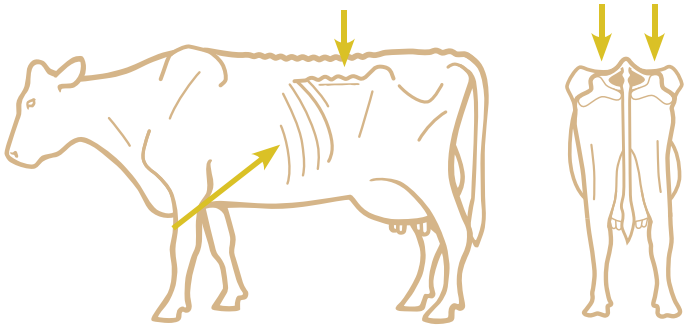
Belly fill

This cow has not eaten enough *THIS WEEK*.



Body condition score

This cow has not eaten enough *THIS MONTH*.



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Rumen Fill Score Card

Rumen fill tells you how much the cow has been eating the last 2 to 6 hours. A score 1 is a very empty rumen. A score 5 is the fullest rumen you find on a dairy farm. The rest of the scores are in between.

Score 1

The rumen fossa behind the last rib is more than one hand width deep. A deep dip in the left flank. The skin under the lumbar vertebrae curves inwards. The skin fold from the hook bone goes vertically downwards. This cow has eaten little to nothing, which can be due to illness, pain, or insufficient food of water.

Score 2

The rumen fossa behind the last rib is one hand width deep. The skin under the short rubs curves inwards. Often there is a skin fold from the hook bone running diagonally forward towards the last rib, forming a triangle: the danger triangle. The cow needs immediate attention. This is a signal of insufficient feed intake, sometimes combined with a rate of passage that is too high.

Score 3

The rumen fossa behind the last rib is still just visible. The skin under the short ribs curves vertically down for one hand width and then curves outwards. The skin fold from the hook bone is not visible. This is the desired score (3-3.5) for milking cows who have sufficient intake and the feed spends the correct amount of time in the rumen.

Score 4

Behind the last rib, there is no rumen fossa visible. The skin under the short ribs curves outwards. This is the correct score for cows nearing the end of lactation and dry cows.

Score 5

The short ribs are not visible as the rumen is filled. There is no visible transition between the flank and the ribs. The skin over the whole belly is quite tight. This is the correct score for dry cows.

Scoring Guide

Score all animals during your daily inspections and whenever you need to.
A rumen score is just a snapshot. So always do the scoring at different times of the day to get a good impression of the situation.
Over the day the rumen score should be 0.5 points below or above the optimum rumen score. The optimum rumen score for rations with a low rate of passage (slow ration) is higher than with a high rate of passage (fast ration).
There is therefore a difference between the ideal rumen score for dry cows and lactating cows:

- Lactating cows 3.5
- Dry cows 4.0

The heavily pregnant uterus alone should lead to a higher score for dry cows.
Interpreting the results:

- Some animals' scores are too low: attend to them
- A lot of variation within a group: eliminate the causes
- The score is too low or too high: monitor the feed intake and the ration

© Vetvice / Roodbont 2010 1103-UK-S-PS-01 Source: D. Zaaijer, W.D.J. Kremer, J.P.T.M. Noordhuizen (2001)

Body Condition Score Card

Every cow should be dried off in top condition (3 - 3.5) and should not become fatter or thinner when dry. During lactation the body condition score (BCS) must not drop by more than 1 point.

Score 1 — Very poor condition (very thin)

Lumbar vertebrae

Spine: like teeth on a saw

Transverse processes: prominent; more than half the length visible

Rump

Pin bones are very prominent, with a deep 'v' shape cavity below the tail head

Score 2 — Skeleton clearly visible

Lumbar vertebrae

Spine: individual vertebrae can be identified

Transverse processes: 1/2 to 1/3 visible

Rump

Pin bones are prominent, with a 'u' shape cavity below the tail head

Score 3 — Skeleton and covering are well balanced

Lumbar vertebrae

Spine: forms a sharp ridge

Transverse processes: 1/4 visible

Rump

Pin bones are rounded and smooth, with a shallow cavity below the tail head

Score 4 — Covering has the upper hand

Lumbar vertebrae

Spine: individual vertebrae cannot be identified

Transverse processes: a smooth rounded edge

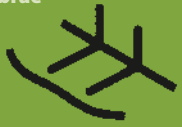
Rump

Pin bones are covered in fat with a shallow cavity below the tail head

Score 5 — Obese

Lumbar vertebrae

Spine: covered with fat



Transverse processes: ridge is barely visible, covered in fat

Rump

Pin bones are completely covered in fat, cavity filled with fatty rolls.

Source: Gebruikersgroep Gezondheidsplanner (1999), Elanco Animal Health
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Manure Score Card: Digestion

You can tell how the feed has been chewed and digested by looking at the manure. Examine and feel some fresh manure you have seen falling.

Score 1

The manure glistens, feels like a creamy emulsion and is homogeneous. No undigested feed particles can be felt or seen. This is the ideal score for milking and dry cows.

Score 2

The manure glistens and feels smooth and homogeneous. There are a few undigested particles that can be felt or seen. This is acceptable for milking and dry cows.

Score 3

The manure appears slightly dull and does not feel homogeneous. After closing and opening your hand, bits of undigested fibre remain stuck to your fingers. This manure is acceptable for pregnant heifers and dry cows, but not milking cows.

Score 4

The manure is dull in appearance and contains some coarse undigested feed particles, which are clearly visible. After closing and opening your hand, a ball of undigested feed remains in your hand. Adjust the ration.

Score 5

Coarse feed particles can be felt in the manure. Undigested ration components are clearly recognisable. The manure has a dull appearance. Adjust the ration.

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Source: D. Zaaijer, W.D.J. Kremer, J.P.T.M. Noordhuizen (2001)

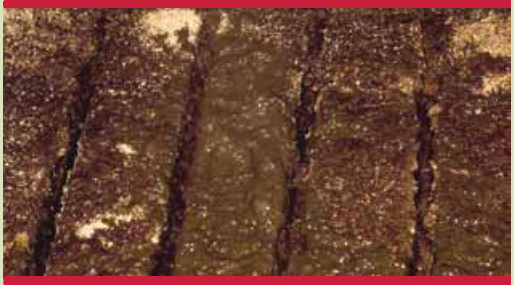
Manure Score Card: Consistency

The consistency of fresh cow manure is scored in two ways: by eye and by pressing a boot into the manure.

Score 1

Watery manure that is barely recognisable as manure. This manure comes from cows that are very sick.

Score 2



A thin porridge that is recognisable as manure. When manure lands on a hard surface, the splatter goes a long way. This occurs when pasturing young rich grass and when there is some imbalance in the ration.

Score 3

A thick porridge forming a pile of 2-3 cm depth. A soft plopping sound can be heard when the manure lands. Boot test: when the boot is lifted there is no footprint left in the pile, and the manure doesn't stick when lifting the boot. This is the ideal consistency for manure and the ration is visibly digested.

Score 4

The manure is thick and makes a heavy plopping sound when landing. It is well formed and stacks in rings. The height is a fingers length or more. Boot test: when the boot is lifted the manure sticks to the sole and a footprint is left behind. This indicates that there is an imbalance in the ration. For dry cows and heifers this manure is acceptable, but always check the composition of the ration anyway.

Score 5

Stiff balls of manure (similar to horse manure). Boot test: an impression of the sole is left on the top of the manure. Dry cows and heifers often pass this type of manure. In milking cows, check that the ration is balanced and adjust accordingly. Check individual cows for disease (ketosis).

Source: D. Zaaijer, W.D.J. Kremer, J.P.T.M. Noordhuizen (2001)

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Drinking Troughs Checklist

A cow should be able to drink 15 litres in 45 seconds. 10% of the cows should be able to drink at the same time from several well distributed drinking points. A cow's intake is influenced by the accessibility of the water, the flow rate of the water supply and the water quality.

Correct

This water trough fits perfectly on its platform, has no sharp edge and is easy to clean. The water is more than 7.5 cm deep. Clean the trough thoroughly 2x per week. Hang a brush beside it.

This high pressure water drinker is self cleaning. This is a good solution in passages and other places where there is not enough room for a trough.
Have water from your own source analysed annually by an accredited lab.

The water trough on the outside of the passage at the end of the barn ensures that the drinking cows cause minimal disruption of cow traffic. Dominant cows use water troughs to demonstrate their status. At a trough in a narrow passage this can block traffic flow.

It is the best for cows to drink from large open surfaces, low to the ground. After an adaptation period they will drink as much from higher troughs and high-pressure water drinkers. So don't change the style of water trough during risk periods, such as at calving. Let weak cows drink out of large open troughs.

Wrong

Obstructions near water troughs reduce water intake. A step like the one shown here creates a risk of hoof damage and sole bruising.

The anus of the cow is higher than her mouth. More space around the trough is the only way to ensure that cows don't manure in the trough. Water troughs primarily get dirty from feed stuck on the nose and mouth of the cow.

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Rest & Space

Checklist Calm cows in the barn
Space Checklist
Stress-free Driving Instruction Card
Instruction card: Driving cattle in a stress-free way
Standing Up and Lying Down Checklist
Stall Checklist
Lying Comfort Scorecard

Cow Signals **Checkbook**

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Cow SIGNALS®

Checklist Calm cows in the barn

Cows will be calm if the people around them are calm and consistent, their routines are regular and the layout of the stalls makes the cows feel secure. This results in higher production, fewer losses and cows that are easier to handle.

Cows are relaxed when the people around them are also relaxed, predictable and friendly. You should ideally remain silent, but if you have to speak, never raise your voice. Make sure young calves get a lot of contact with people, especially during the first months of their lives. Always drive cows at their own pace. Cows must be able to see what is ahead of them (walls either completely open or completely shut).

The floor surface must be such that every cow can walk securely and safely on it. Floors should be flat and provide grip, with no protrusions, holes or ridges. Cows may look calm on floors that are too smooth, but this is because they are afraid to walk around on them. So they go to feed less often. A smooth floor also makes them feel anxious so they are more likely to run away and slip.

Every group of cows has a pecking order which they constantly assert among themselves. If there is enough space, they will do this with body signals or by fighting for supremacy. Cows standing very close together will fight more. Mutual contact becomes more acrimonious if there is not enough food for every cow all the time or if the top-ranking cows eat up the best feed.

On farms with a milking robot, cows are often very relaxed because they are no longer driven to the parlour and because tasks like cleaning stalls are done in front of the cows. This makes it easy to remove one or a few cows from the herd or approach cows on site.

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Space Checklist

Every cow needs to walk spontaneously from the stall to the feed and drink water 12x per day. On farms with milking robots, they have to visit the robot up to four times. This requires space, grip and safety.

1 Space

The space in the shed determines the ease with which the cows are able to move about. Watch how the cows use every bit of space, calculate how many cows use the space, and determine how much space they need. Express this in cow lengths (cl) and cow widths (cw). Take account of peak times, like when the cows are driven to the collection area.

A clear view, plenty of room for the robot and as little fencing as possible get the cows moving to a milking robot most effectively.

Evaluate the shed as a whole to determine the sizes of cross-overs and passageways. Here there are no walls at the end of the stalls: both the cows and the farmer have a much better view of things.

2 Grip

A good grip encourages the cows to walk around enough. Cows have great difficulty walking on floors that are too smooth. They prefer a soft rubber or deep litter bed (sand, straw, compost etc.).

Cows tramp superfluous litter out of the stalls onto the passageways. This increases the grip provided and keeps the stalls cleaner (particularly with sand).

A good grip makes the cows feel more secure (in this case there is a soft rubber floor). It also puts less stress on the hooves: there are fewer sole haemorrhages and fewer painful hooves.

3 Safety

The risk of bumps and injuries from parts of the shed ('pain points', e.g. protrusions) and encounters with other cows can make them reluctant to walk about. Don't construct dead ends. Cows have no way to escape there.

This 'passageway' is very narrow and the cows have very little space at the entrance and exit. The cable, blocks and tackle and slurry scraper turn it into an obstacle course with the risk of pain and injury.

Cows find fences, passageways, bends and other structures stressful. They can bump into them easily, so they are not keen to walk through or past them. Make sure there are no protrusions anywhere in the milking parlour and collection yards.

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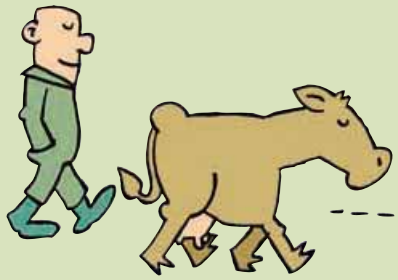
Stress-free Driving Instruction Card

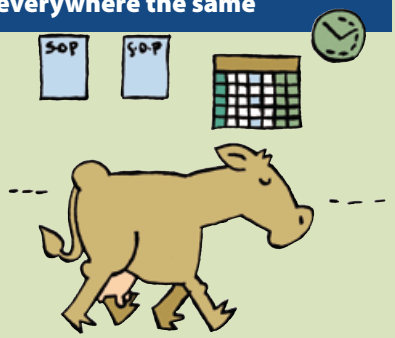
Calm people have calm cows. Calm cows give more milk and have fewer problems such as hoof conditions. This saves time and money and delivers job satisfaction.

1 Let cows walk at their own pace: heads down



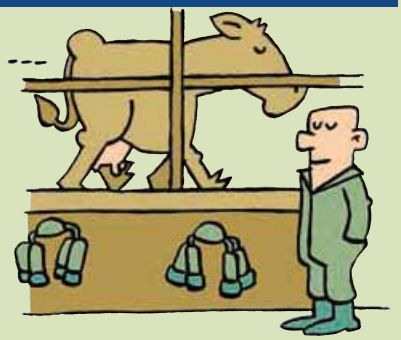
Always drive the cows at their own pace. Hurrying only makes the last two or three cows nervous and achieves nothing else. Cows always walk in order of rank and do not overtake each other. When they are calm they keep their heads down so they can see where they are placing their feet. They lift their heads when they are nervous.

2 Routine: always the same, everywhere the same



Cows are creatures of habit, and after two or three weeks they know exactly what is happening, what they have to do and when. Like going into the milking parlour. Have the patience to allow routines to develop and then stick to the routines rigidly.

3 Stay in the milking pit



Wait until the cows come in by themselves; only bring in the last row if necessary. If you go into the collection yard from the milking parlour to fetch the cows, the cows will first move backwards and then forwards. This causes nervousness and large forces on the feet. They will also get used to you coming to fetch them. Walk around the cows, from behind.

4 Think "cow flow": no turbulence

A group of cows moves like a flowing stream. Prevent this stream from being interrupted; avoid obstacles, passageways with dead ends, or things that cows are afraid of.
Use a backing gate to reduce the size of the collection yard, with a bell and not electrified. Make sure that a cow can always walk from the back to the front through the waiting cows.

5 Risks: know them and manage them

Make sure you know the risk times and risk locations, and do not allow them to cause problems. The best approach usually consists of cleanliness, rest, space and rubber. Cleanliness makes for clean, dry hooves and no stones on the track. Rest reduces hoof wear and the likelihood of sole bruising. Space allows cows to get out of each other's way.
Rubber provides a soft surface with grip.

6 Docile cows: a lot of gentle contact with people

To achieve docile cows, start with the youngest calves. Make sure they see people often enough and walk among them. Always be calm and predictable.
Never raise your voice and do not use force. Breed and select cows with a gentle nature.

Based on: Neil Chesterton (www.lamecow.co.nz), 2009.
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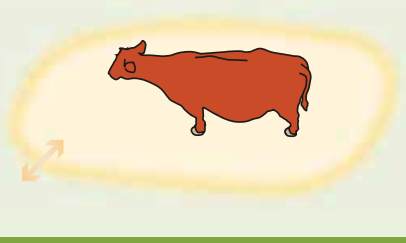
Instruction card: Driving cattle in a stress-free way

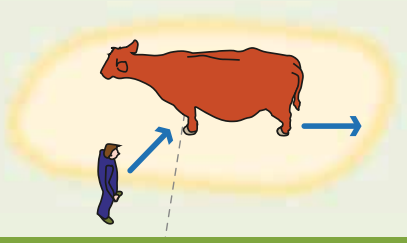
A cow is a four-legged, rigid, rectangular object around 2.5 m long, 1.5 m tall and weighing about 600-700 kg. She has difficulty with smooth floors and is wary of protrusions, transitions, walking backwards and other cows. Cows walk at about 4 km/h and people at 6 km/h.

Escape zone and exerting pressure

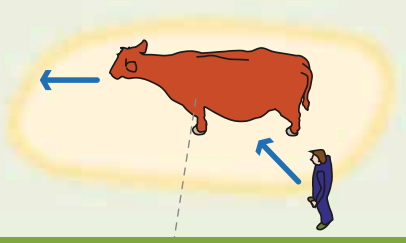
You get a cow moving by putting her under pressure. You put her under pressure by moving towards her, making yourself bigger, talking to her or touching her. Eliminate the pressure once she is moving in the right direction.



The cow will react to anybody coming close from the edge of the escape zone. Look at the eyes, the ears and the position of the head.

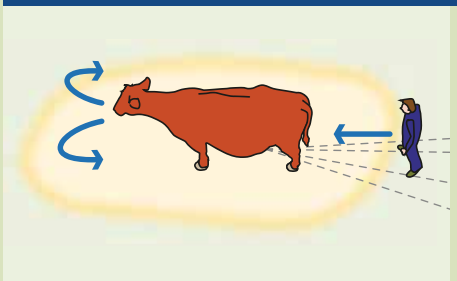


Exert pressure forwards of the shoulder: the cow will walk backwards.

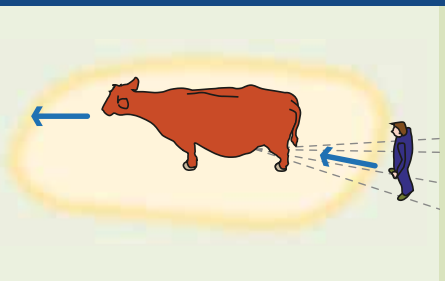


Exert pressure behind the shoulder: the cow will walk forwards.

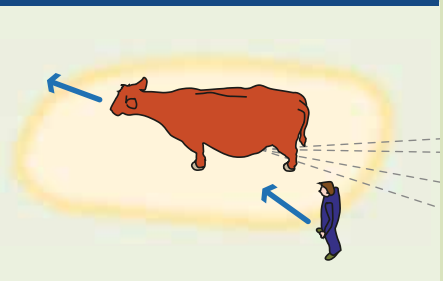
Where are you?



Exert pressure right behind the cow where she can't see you: she will turn round.

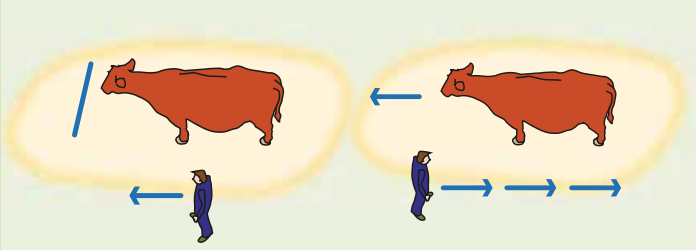


Exert pressure diagonally behind the cow so that she can just see you: she will walk straight ahead.



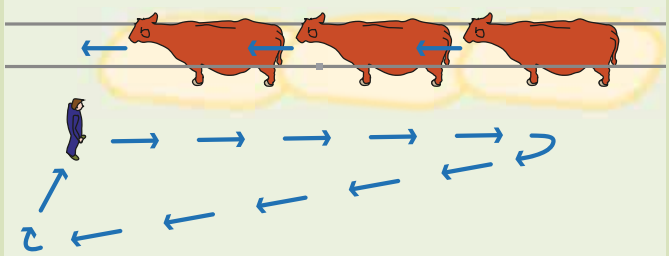
Exert pressure diagonally behind the cow, slightly to the side: the cow will turn away from you.

How are you moving?



Walk parallel to the cow in the same direction and she will stop.

Walk parallel in the opposite direction and she will walk forwards to pass you.



Use walking in the other direction to get cows standing behind one another in a driving alley to move forwards.

Do not:

- hit
- kick
- hurt them
- shout
- make loud noises

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1103-UK-I-SO-01

Standing Up and Lying Down Checklist

Stalls can get in the way of cows standing up and lying down. If you understand how cows do this, you will be able to configure your stalls better so that your cows get maximum rest and do not injure themselves.

1

The orange dot serves as an orientation point for estimating how much room the cow needs to move.

2

The cow's chin almost touches the grass when she swings her head forwards. She braces her hocks and uses her shoulder muscles to help lift her hindquarters.

3

Cows also use their rump and thigh muscles to lift their hindquarters, bracing their hind legs against the ground.

4

The forequarters of the cow account for about 55% of her total body weight, i.e. 350 kg in a cow weighing 635 kg.

5

The cow will want to put a front leg over the brisket locator to use her back, rump and shoulder muscles effectively. The floor in front of the brisket locator must be the same height as behind it and must be flat.

6

A withers bar or neck rail is therefore essentially always in the way, which is why it needs to be flexible.

Based on: Neil Chesterton (www.lamecow.co.nz), 2009.
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Stall Checklist

Cows that lie down enough will be properly rested and healthy. 13 to 14 hours per day is ideal; every additional hour (up to this amount) delivers one extra litre of milk per day. To enable your cows to lie down as much and as often as they want, they need comfortable and dry stalls.

1 A dry, soft surface that provides grip

In 1: sand. This provides coolness, and clean sand is a poor breeding ground for bacteria. 2: deep litter (compost is suitable). 3: mattresses. These should provide grip (they indent with pressure) and should not tear. Check once a year whether they need to be replaced.

2 Space for swinging the head

A cow swings her head forwards by between 50 and 85 cm. The chin almost touches the ground when doing so. There needs to be about 100 cm clearance above the head. Too little room in front for the head to swing will cause the cow to lie at an angle in the stall.

3 Correct position of withers bar (neck rail) and brisket locator

The cow should stand squarely with all four legs in the stall. A flexible or soft withers bar allows them to stand more securely. The brisket locator prevents them from lying down too far forward. When standing up, the cow must be able to place one leg over the bar (< 5 to 10 cm high). If a cow is sitting too far back, she will have too little room in which to stand or lie and she will lie down at an angle.

4 Correct width of the stall

When lying the cow needs a width of twice her hip width as lying space. High producing cows need wider stalls (they eat a lot of roughage and therefore have bigger bellies).

5 Correct shape of stall partition

Partitions help the cows lie down straight and stop them turning round in the stall. At the front, the partition should keep the head straight. At the back, the lowest bar should continue past the hook bone at a height of about 45 cm.

Starting points HF cow 675 kg, 9,500 kg milk/year

Length single row:	
- open front side	2.75 m
- closed front side (i.e. wall):	≤3.00 m
Length double row:	5.20 m
Position brisket locator:	1.80-1.95 m
Position neck rail:	Height: ≥ 1.25 m
	Location: adapt to cows
Width (centre-to-centre):	1.22 m lactating cows
	1.35 m dry cows

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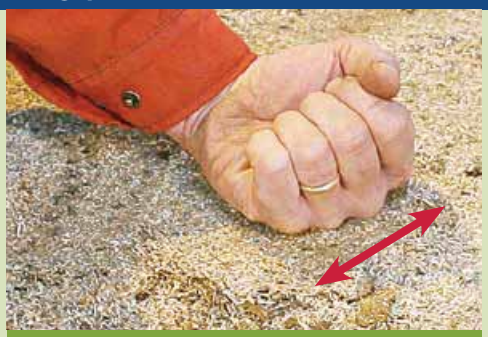
Lying Comfort Scorecard

Stalls that are too hard are painful for the cows to lie down, lie or stand in. A cow that is reluctant to lie down will spend less time lying down per day. Sole damage is also a sign that the cow is putting too much weight on the hooves from standing for too long. Weaker cows are the first to suffer from poor stalls, while they are the ones that really need their rest and comfort.

Assessing cow behaviour and stall surface

Check whether the cows have enough room to stand, lie down and stand up in. Monitor large cows in particular. The floor surface must be soft and dry and provide grip.

≤ 10% of the standing cows are standing with their legs outside the stall.
≥ 85% of the cows in the stalls are lying down.



Brush the back of your hand across the surface of the stall to make sure it does not graze or cut.

Kneel down on the stall floor about five times. This 'knee test' should not hurt.

Hock and carpal (knee) joint score card

Damage to the hocks and carpal (knee) joints tell us that the stall surface is too hard.

Swelling

0 **No swelling.**

1 **Swelling of the skin, thickening of subcutaneous connective tissue.**

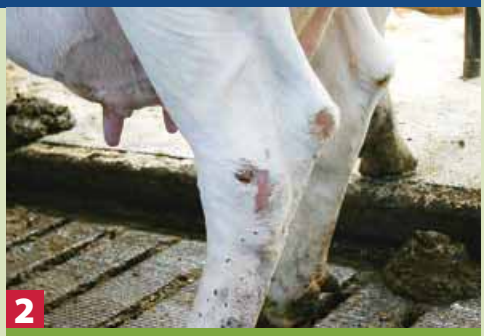
2 **Acquired bursa (irritation swelling) between bone and skin.**

Swelling is caused by landing and lying on a too hard surface. (Target: < 20% score 1, none score 2)

Hair loss and skin damage

0 **No hair or skin damage.**

1 **Hair loss and slight thickening of the skin.**



2 **Hair loss and wounds or severe thickening of the skin.**

Hair loss is caused by rubbing on a rough surface. (Standard: < 30% score 1, < 10% score 2)

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Light and Air

Light Checklist
Air, Ventilation and Climate Checklist
Heat Stress Checklist:
(21 Degrees Action Plan)

Cow Signals **Checkbook**

Working on health, production and welfare

Cow SIGNALS®

Light Checklist

A light building is good for both the cows and the livestock manager, because light stimulates activity, production and well-being. This occurs through brain stimulation. You can also see everything better in good light. But make sure you also provide darker periods.

1 Light is a stimulant for milk production, feed intake and growth

Sufficient light for optimum brain stimulation for lactating cows and calves means at least 150 lux for 16 hours per day and no more than 50 lux for 8 hours per day.

Sunlight is free, so let plenty in. Install transparent panels on the northern side of the roof to reduce heat radiation. Choose a white ceiling and connect the lights to a time switch.

2a Light to see with: cows

Cows have reflective material at the back of their eyes which enables them to see in low light and in the dark much better than humans. They need very little light to find their way around. In their natural environment, cows reverse their day/night rhythm during hot periods and are most active at night (daytime temp. > 25°C).

2b Light to see with: people

Red light does not have a stimulating effect on the brain, but it allows cows and people to see better.

3 Light, dry cows and calving

When dry cows are used to short day lengths (16 hours of darkness, ≤ 50 lux) and experience lengthening days when calving (16 hours of light, ≥ 150 lux) they are more energetic and have fewer health problems.

Without a night (which is at least 4 hours of darkness) cows develop problems with their fertility cycle. Relatively few cows calve in the dead of night. Their brains signal 'night' in less than 50 lux, or preferably 30 lux or less.

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Air, Ventilation and Climate Checklist

A cow needs ventilation to replace her exhaled air, discharge her rumen gases and cool herself down. Fresh air from outside the milking parlour is needed to refresh the air inside. Cooling is mainly achieved by the flow rate of the air and evaporation.

Ventilation options

1a Natural cross ventilation via open side walls

Air flows laterally through the building, ideally with the wind at right angles to the shed and with 2.5-4 m of open space in the side wall (0.7 m per row of stalls). The roof keeps the stalls dry and the building cool (shade and heat insulation). Open side walls provide maximum ventilation. The building is protected against extreme weather (wind, frost) with roll-up curtains and automatic controls.

1b Ridge ventilation with air inlet along side wall

Passing winds suck air out of the building (Venturi ridge) or hot air rises (chimney effect). Every cow shed should have an opening along the ridge for expelling hot air (width: 2% of the shed width). There are similar openings in the side walls. If these openings are bigger, cross ventilation will also occur. Cross ventilation is the most important kind of ventilation. If the side walls are closed when the weather is cold or very windy, ventilation has to take place via the ridge.

2 Mechanical cross ventilation

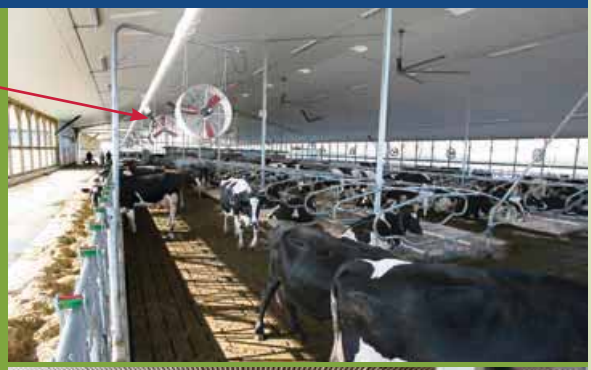
Large fans in the side walls suck air through the building. Inside the shed there are baffle sheets suspended from the ceiling which guide the air flow past the cows. Mechanical cross ventilation is mainly used in regions with hot summers, often in combination with systems that cool the air as it enters.

Cooling

In almost all cow houses, fans are needed to keep the cows cool on hot days and sometimes for ventilation as well. The first place where you should install fans is the collection yard. The second place is the cow shed itself.
Humidity and wind speed both play a part in determining when you should start ventilating and cooling:

- full milking parlour, moderate natural ventilation: ventilate from 17°C
- humidity >95%: cool cows with fans from 21°C. In low humidity: from 25°C.
- day >28°C, nights >21°C and/or more than consecutive 3 days at >28°C: cool cows with sprinklers and fans.

Sprinklers should soak the cows in a short time (large drops) until the water is running off their abdomen but their udders remain dry. Then the cows will need to be kept cool with fans. Sprinkler water must not get into the feed or the beds.



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Heat Stress Checklist: (21 Degrees Action Plan)

Heat stress causes cows to eat less and stand for longer. There is less rumen buffering due to lower saliva production and loss of bicarbonate through breathing (panting). The risk of rumen acidosis, ketosis and sole haemorrhages increases between 1 May and 1 September. Risk groups: transition cows and fresh cows. Number 1 risk location: the holding area.

Cow signals with heat stress

Action points for the summer

Summer: 1 May to 30 September

Cool places and cooling capacity
- Insolate the barn roof and/or install a light colored roof
- install, regulate and clean fans systematically
- provide plenty of shaded areas in the pasture

Summer ration proportions
- more easily digestible crude fibre (e.g. beet pulp, soya hulls)
- less crude protein per kg (lb) of dry matter (higher proportion of rumen undegradable protein)
- higher percentage of fat (max. 6%) per kg (lb) dry matter

Summer ration supplements
- sodium bicarbonate (150-200 g/cow/day or 5-7 oz)
- more potassium and sodium (1.5% and 0.55% of the ration dry matter respectively)
- more antioxidants (vit. A, vit. E, Se, Cu, Zn)
- yeasts
- cation/anion balance: +250 mEq/kg dry matter (113 mEq/lb)

Availability of drinking water
- preferably large, open drinking troughs
- clean, palatable and easily accessible water:
  - barn: one rapid-flow drinker (> 20 l/min or > 5 US gal./min) to every 15 cows or one reservoir-type trough (> 50 l or 13 US gal. and > 30 l/min or 8 US gal./min) to every 20 cows
  - pasture: 10% of cows can drink simultaneously, total water capacity: ≥ 15 l/cow/hr (4 US gal./cow/hr)

Action points from 21°C (70°F) outdoor temperature

Keep the barn cool and ultra-clean
- block windows/skylights
- optimise natural and mechanical ventilation, clean fans
- remove obstacles in and around the barn that obstruct ventilation
- step up barn hygiene
- step up fly control
- cool the roof with water

Adapt cow management
- don't drive cows tightly together
- graze animals at night
- don't schedule activities for the hottest times of day
- avoid overcrowding

Optimise feed and water management
- clean the feed manger daily
- accept more leftovers
- feed often (to avoid heating), before the cool times of day (evenings, very early mornings)
- check purity and flow of drinking water twice a day

Cool cows
- blow air onto the cows: holding area, dry cows, lactating cows in cubicles and at feed fence
- keep fans running until temperature reaches 19°C (66°F)
- above 26°C (79°F) and if the temperature does not drop below 20°C (68°F) during the night: soak cows to the skin for 1 minute and cool using fans for 5 minutes (keep udders dry)

Developed in cooperation with UGCN www.ugcn.nl
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Hoof care

Hoof Health Checklist Success factors
Hoof Health Checklist 10 action points
Checklist Footbaths
Hoof Trimming Instruction Card
Mobility Score Card
Locomotion Score Card (Movement)
Hoof Score Chart
Hoof Conditions Score Card
Hoof Bandage Instruction card

Cow Signals **Checkbook**

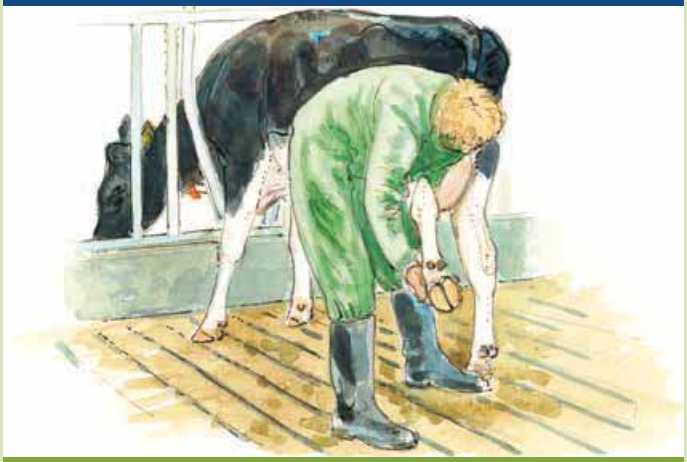
Working on health, production and welfare

Cow SIGNALS®

Hoof Health Checklist Success factors:

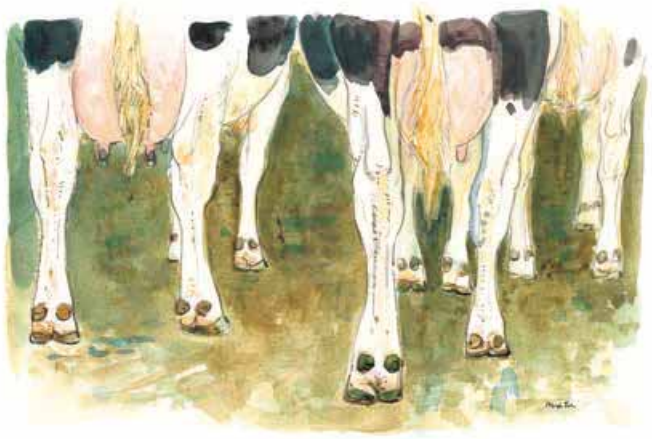
With these four success factors in place, you will have healthy hooves on your farm. If you encounter problems, improve the most important success factor first.

1 Excellent hoof quality: shape and quality of the horn



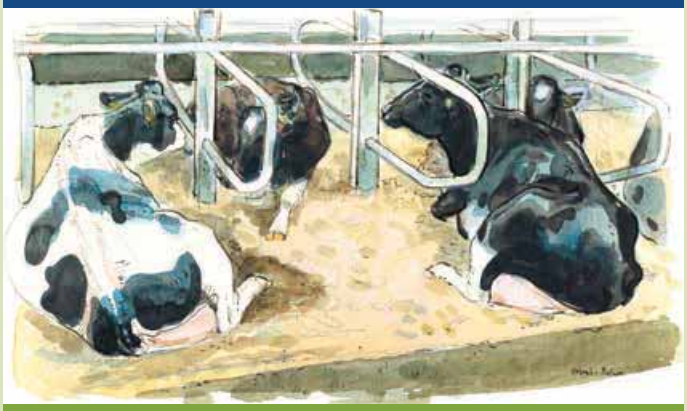
- Ensure excellent quality feed and good feed intake. Risk period: the transition (before, during and after calving).
- Lift the hooves three times a year and trim if necessary so that every hoof is the right shape.
- Use footbaths as much and as often as necessary.
- Breed for hoof health. Keep hooves dry

2 No harmful environmental effects: wet, infections, irritants



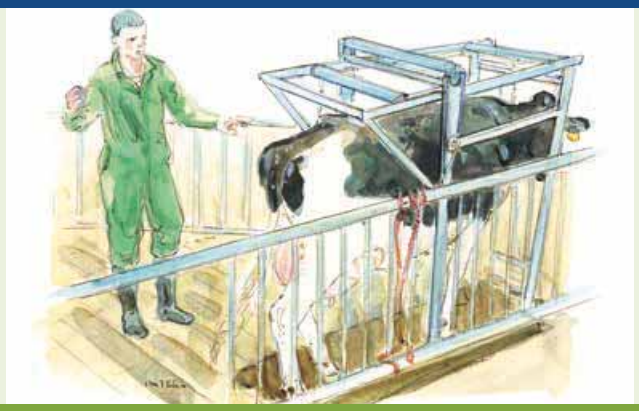
- Dry, clean environment, especially with regard to substances that affect the hoof horn (e.g. water, NH3 (ammonia) and H2S (hydrogen sulphide)).
- Minimal infection pressure, i.e. hoof infection is kept to a minimum and minimal indirect contact with infected feet, e.g. via manure.

3 Minimal forces on the hooves while standing and walking, maximum lying time



- All cows can lie down as often and for as long as they like: 12 to 15 hours. Spacious, dry and soft lying places ensure maximum lying time.
- No cows should be made to stand for more than one hour at a time and 2 1/4 hours per day.
- The shed is as peaceful as possible all the time and the cows have plenty of space, so each cow makes as few unexpected or forced movements as possible; good cow flow
- The surface is completely even, it provides a good grip and it should preferably be soft.
- The surface causes limited wear and minimal trauma or micro trauma to the claws.
- High-risk locations (e.g. turning points, tracks) and high-risk times (e.g. herding, calving, too much wet/ rain, changes in feed, low-fibre rations) are known and managed properly.

4 Intervene effectively as soon as you see the first signal



- Make sure you can detect every hoof problem on every cow at an early stage:
  - every farm worker should be able to identify hoof problems and success factors and report them easily, and get rewarded for doing so;
  - the routine should include structured checks (lifting feet, running through checklists);
- Make sure you treat every hoof problem quickly and effectively:
  - the weekly routine must allow sufficient time for treatments;
  - every cow with a hoof problem needs to be able to be restrained in a foot crush quickly, easily and comfortably;
  - all tools and materials must be on hand ready for use;
  - the person treating the cow must have the appropriate knowledge and skills. Their results must be checked and they will be given feedback and rewarded.

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Hoof Health Checklist 10 action points

Start by implementing these 10 action points effectively by including them in Standard Operating Procedures and working to a fixed schedule.

1 Breed for healthy hooves

2 Provide unlimited feed with the right composition

- make sure all cows have permanent access to the right, best-tasting diet
- prevent rumen acidosis: provide adequate roughage, discourage selective feeding
- ensure a balanced diet
- assess manure condition

3 Keep well-informed by

- recording hoof conditions
- being aware of the causes of hoof problems
- bringing in expert advisors
- taking a hands-on hoof-trimming course

4 Keep the shed floor clean and dry

- prevent foci of infection
- ensure a continuous, ample flow of fresh air

5 Trim hooves properly, do it

- preventively
- 2 to 3 times a year
- competently!

6 Provide good foot baths

- measure out the chemicals exactly
- minimum of 2 steps in the bath
- clean hooves on the way in
- deep enough: more than covers coronet
- use often enough: e.g. 1 day every week
- organise foot bathing in between milkings (refresh after each milking)

7 Take early and effective action. Trim now in event of

- lopsided stance, swollen coronet and tendons
- lame heifers
- pain in response to a water spray
- hair loss and swollen hocks

Make sure tools are sharp and you can work easily

- light and space
- one person can do the work
- check after 3 days

8 Create peace and space

- wide passageways, room to turn round
- peaceful handling: avoids startle reactions and sudden stopping
- cows wait < 1 hour per milking

9 Minimise stress on the hooves

- make sure cows lie down for more than 12 hours a day
- floors should be level, with no ridges, edges, lumps or bumps
- give vulnerable animals super comfortable lying areas
- have soft flooring for vulnerable animals and high-risk areas

10 Around calving, ensure

- maximum feed and water intake
- good hygiene
- adequate space
- no stress
- maximum lying area comfort

Hoof conditions

Sole haemorrhages
1, 2, 8, 9, 10

Digital dermatitis
2, 4, 7

White line disease
2, 8, 9, 10

Sole ulcers
2, 7, 9, 10

Heel horn erosion
4, 5, 6

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Checklist Footbaths

On most farms, footbaths are essential to keep heel horn erosion and digital dermatitis under control.

1 How big?

3 steps in the bath.

3.0 m long and as wide as the passage (60-80 cm), 15 cm deep at the start, flat, non-slippery bottom (rubber mat?).

How much liquid should there be in this bath, if it is 80 cm wide? (360 l)

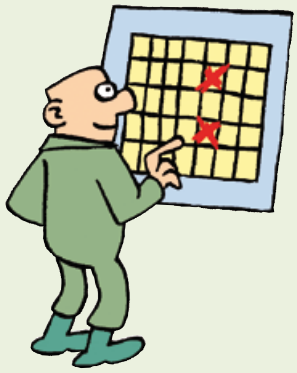
2 How much?

Follow the instructions for use.

Calculate the exact amount of water and active ingredient, and measure precisely using a bucket or a measuring jug.

How much active ingredient do you need to put in this bath to make a 5% solution? (18 l)

3 How often?



Every week. If hooves are clean and dry and there is very little heel horn erosion or digital dermatitis, halve the frequency. If hooves are wet or there is a lot of heel horn erosion and digital dermatitis, double the frequency.

Have you entered this on your calendar? Are your cows' hooves dry? How do you check hoof health in terms of digital dermatitis and heel horn erosion? Have you entered this on your calendar too?

4 How long?

Every cow through the bath twice. Change bath according to the instructions. In a parlour: 2 milkings. A fresh bath every milking. In a shed: allow the cows to walk through the bath twice. With a milking robot: after 24 hours.

How do you give dry cows, yearlings and heifers a good footbath? Have you entered this on your calendar too?

5 How clean should the hooves going into the bath be?

As clean as possible.

Hose hooves clean in the milking parlour or at the feed barrier, or make a twin bath.

How clean are the hooves of each cow that steps into the footbath?

6 How long can the footbath do its job?

As long as possible.

Make sure that the floor on the other side of the footbath is clean.

How clean are your floors on the other side of the footbath?

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Hoof Trimming Instruction Card

Trimming requires knowledge, insight, skill and good equipment. The five-step plan on this page provides guidelines, but you can only really learn to trim properly by taking a hands-on course given by a certified trainer. And take regular refresher courses.

Steps 1-3 are preventative

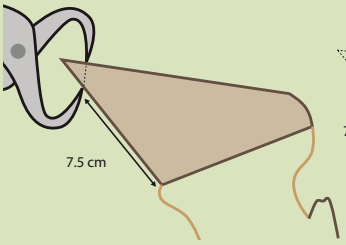
Step 1 Inner claw

Trim the inner claw to length by cutting the tip off 7.5 cm from the coronary band, at right angles to the sole. See diagram A. This 7.5 cm applies to a cow of average size.

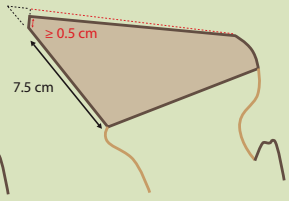
Step 2 Outer claw

Lower the sole until the clipped tip is still at least 0.5 cm thick. Keep the sole flat and do not remove any horn from the bulb area. See diagram B.
Make the outer claw the same length and height (if possible).
For your own safety, never cut towards your free hand.

A



B



Step 3 Model repair

Make a small hollow in the sole of both claws at the interdigital space. Remove any frayed horn in the interdigital space.
Cut away as little as possible of the horn from the horn wall at the tip.

Steps 4 and 5 are curative (treatment steps)

Step 4 Take the pressure off affected horn (lowering)

Coloured horn (yellow, orange or red), loose horn or tears form weak spots in the sole can develop into ulcers. Take the pressure off these areas by lowering them. Only do this in the back two-thirds of the outer claw. Make sure the inner claw and the front part of the outer claw retain a sufficiently large functional bearing surface, or attach a block.

Step 5 Check, remove loose horn, treat

Remove the ridged horn on both claws. In the outer claw only, also remove any loose horn in the back two-thirds of the sole. Cut out sole ulcers and defects, and keep the edges thin around these areas. Remove all of the loose horn to prevent dirt from accumulating.
Check the coronary band and interdigital space after trimming. Treat any areas of eczema or digital dermatitis. Clean and dry the affected areas and apply effective medication. Use a clean piece of cloth for every cow.

Pedicuring, or hoof trimming

The aim of a functional pedicure is firstly to monitor the health, structure and shape of the hooves. Then the idea is to remove as much horn as necessary to improve the shape and therefore the load. You will also treat any hoof conditions.
Cut off as little as possible and in particular avoid cutting away horn in the bulb area. A power disc trimmer requires much more skill than knives. Abrasive-type grinders are not suitable, and in any case are less effective than sharp knives.
If in doubt and under a lot of work pressure, leave the pedicuring to the professionals: the cattle pedicurist or hoof carer.

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Mobility Score Card

The following 4-point score system is widely used in the UK. If the cows are walking properly, their hooves are healthy. Every hoof problem affects the cow's gait. Intervene as soon as you see the first signals. Scores 2 and 3 are the lame cows in the herd; the proportion should be monitored.

	Score	Description	Suggested action
Good mobility	0	Walks with even weight bearing and rhythm on all four feet, with a flat back. Long, fluid strides possible.	• no action needed • routine (preventative) hoof trimming when/if required.
Imperfect mobility	1	Steps uneven (rhythm or weight bearing) or strides shortened; affected limbs or limbs not immediately identifiable.	• would benefit from routine (preventative) hoof trimming when/if required. • further observation recommended.
Impaired mobility	2	Uneven weight bearing on a limb that is immediately identifiable and/or obviously shortened strides (usually with an arch to the centre of the back).	• lame and likely to benefit from treatment. • foot should be lifted to establish the cause of lameness before treatment. • should be attended to as soon as practically possible.
Severely impaired mobility	3	Unable to walk as fast as a brisk human pace (cannot keep up with the healthy herd) and signs of score 2.	• very lame. • cow will benefit from treatment. • cow requires urgent attention, nursing and further professional advice. • cow should not be made to walk far and kept on a straw yard or at grass. • in the most severe cases, culling may be the only possible solution.

Source: DairyCo
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Locomotion Score Card (Movement)

The following scoring method is a 5-point system which pays particular attention to back posture. When scoring cows make sure they are walking on a flat, firm surface, with sufficient grip. Take action if the percentages in scores 2 and 3 begin to increase.

Score 1 Normal cow

Back posture standing: flat

Back posture walking: flat

The animal stands and walks normally. She takes each stride deliberately, placing her rear foot in the print of the front foot.
Decline in feed intake: 0%
Decline in milk production: 0%
Conclusion: this is good.

Score 2 Mildly lame

Back posture standing: flat

Back posture walking: arched

Stands with flat back, but arches her back when she walks. Her head hangs lower and further from her body. Gait is slightly abnormal.
Decline in feed intake: 1%
Decline in milk production: 0%
Conclusion: this cow needs attention.

Score 3 Moderately lame

Back posture standing: arched

Back posture walking: arched

Both stands and walks with an arched back. She takes short strides with one or more legs.
Decline in feed intake: 3%
Decline in milk production: 5%
Conclusion: the cow must be treated effectively today.

Score 4 The lame cow

Back posture standing: arched

Back posture walking: arched

The animal favours one or more limbs. Has an arched back both standing and walking.
Decline in feed intake: 7%
Decline in milk production: 17%
Conclusion: this is a sick cow that must be adequately treated and cared for as quickly as possible.

Score 5 The severely lame cow

Back posture standing: arched

Back posture walking: arched/cannot be evaluated

The animal has pronounced arching of her back. She limps or refuses to stand on the affected limb. She remains lying and has great difficulty standing.
Decline in feed intake: 16%
Decline in milk production: 36%
Conclusion: this very sick cow needs intensive care and veterinary help.

© Vetvice / Roodbont 2010 1103-UK-S-KL-01 Locomotion score: Steven Berry and Zinpro. Relationship of feed intake and milk production: P.H. Robinson, 2001.

Hoof Signals Score Chart

How often do you check whether your cows' hooves need treatment, and how often do you treat them?
How often do you check that the hooves are clean and dry?

	Correct	Needs attention	Take action	Take action
Hoof shape side view	Hoof angle 45-55° Unblemished heel area	Heel area too low	Hoof tip too long	
Hoof shape front view	Cleft slightly open. Hoof wall straight and bearing weight	Length/conformation hoof could be better, incl. closed interdigital space	Hoof tip curls upwards	
Manure soiling	Little or no manure	>40% and <75% of hoof covered with manure	>75% of hoof covered with manure	Outside of lower limb splashed with manure up to the fetlock
Dry or wet	Dry or practically dry	Lower half of hoof wet	Wet interdigital space	Entire hoof wet
Reaction coronary band	No swelling, no redness	Redness	Swelling	Crusts, visible skin damage, interdigital growths
Digital dermatitis score	No signs of digital dermatitis	Digital dermatitis lesion, long hair	Cow lifts up the hoof	
Pain and relief	Both hind legs straight, weight fully on hooves	Legs splayed. Walks on 'toes'	Does not fully extend fetlock	Relieves one limb

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Hoof Conditions Score Card

When the trimmer records their findings, you will get a picture of the situation on your farm and you will know what you can improve.

1. Digital dermatitis

Mild	Moderate	Severe
• round/oval lesion < 2 cm • often at junction between skin and horn	• round/oval lesion 2-4 cm • often at junction between skin and horn	• round/oval lesion > 4 cm • often at junction between skin and horn

2. Heel horn erosion

Mild	Moderate	Severe
• foul-smelling matter on skin in interdigital space/dermatitis • some superficial horn defects in bulb area	• foul-smelling infection on interdigital skin • one or more V-shaped fissures in bulb area • not right down to living tissue	• foul-smelling infection on interdigital skin • a large loss of weight bearing area of heel • painful swelling on skin in bulb area

3. Sole bruising

Mild	Moderate	Severe
• yellow discolouration over entire surface or • some slight bleeding in sole	• haemorrhages over 20-50% of surface of sole	• major haemorrhages • detachment of sole over large area

4. White line disease

Mild	Moderate	Severe
• white line infection or detachment	• white line infection or detachment	• white line abscess with under-run wall or sole

5. Sole ulcer

Mild	Moderate	Severe
• bruising in typical place	• heavy bruising in typical place	• hole in sole, possibly protruding flesh, extremely painful

6. Chronic laminitis

• clear growth rings on front and/or kink

7. Interdigital growth

• tissue mass in interdigital space

8. Swollen hock

• Thickening of outside of hock

9. Toe necrosis

• foul-smelling hole in tip of claw
• hoof becomes increasingly shorter

10. Foul-in-the-foot

• whole of coronary band swollen
• severe lameness and fever

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Source: GD

Hoof Bandage Instruction card

You only need to apply a hoof bandage for severe digital dermatitis and serious horn lesions. Agree two hoof treatment days per week: Monday and Thursday or Tuesday and Friday.

Good foot-trimming crush. Plenty of light. Clean, sharp tools.

Clean the hoof and trim if necessary. Clean the lesion thoroughly and dry it. Remove scabs. Avoid bleeding.

Treat the lesion and gauze with effective medication.
See farm treatment plan.

Press the gauze firmly onto the wound. Apply the bandage.

Use a self-adhesive bandage in two colours, e.g. using colour 1 on Monday and colour 2 on Thursday.

Bandage wrapping order:

- wrap bandage round the foot twice;
- once from the front through the interdigital space on one claw;
- once from the front through the interdigital space on the other claw;
- wrap round the foot again, but not too tight

5

Remove the bandage after 3 or 4 days! Check the wound. Treat again if necessary.

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Udder health

Hygiene Score Card
Milking Instruction Card
Milk Sampling Instruction Card
Teat Health Score Card
California Mastitis Test (CMT) Instruction Card
Instruction Card for infusing the Udder

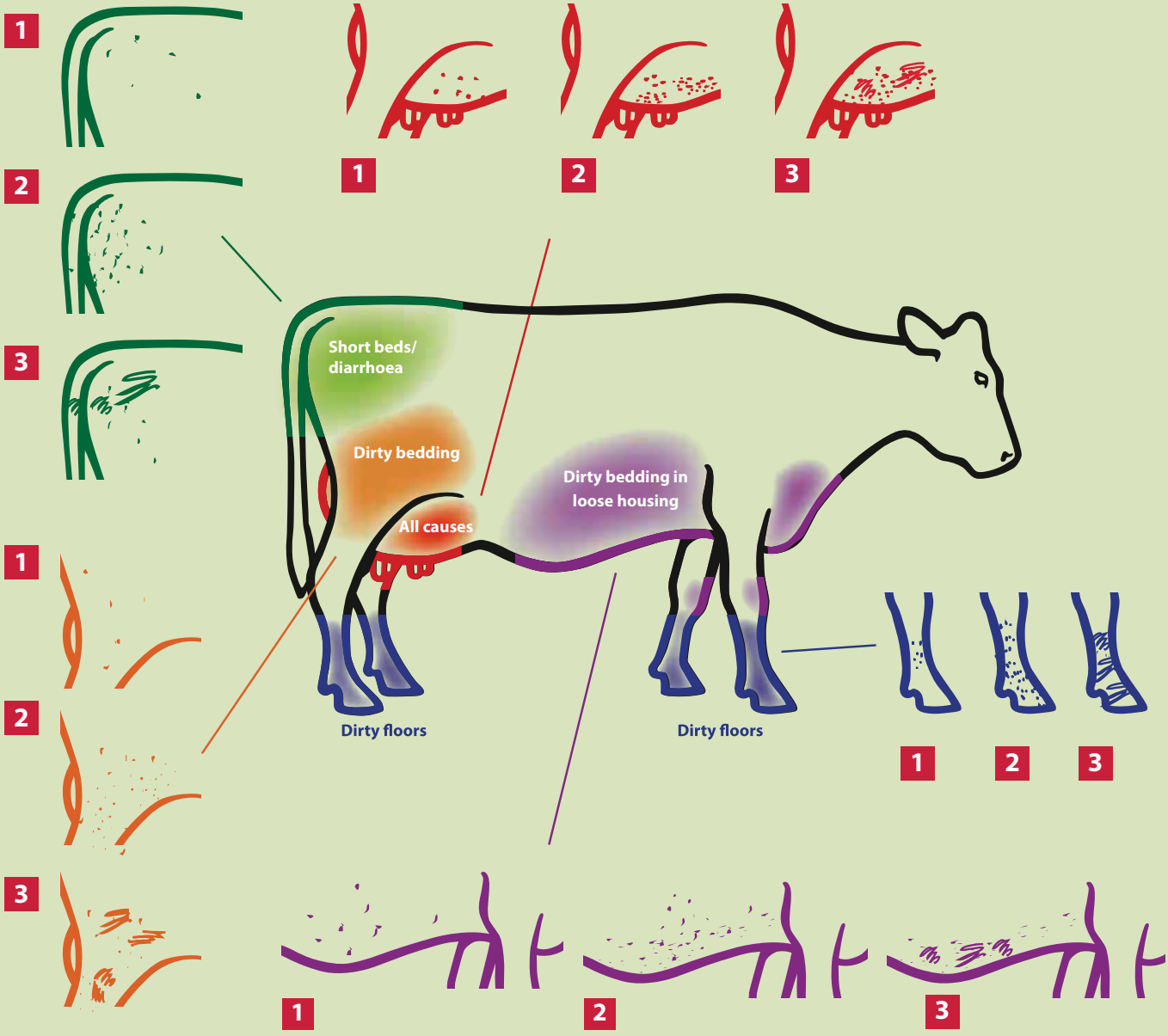
Cow Signals **Checkbook**

Working on health, production and welfare

Cow SIGNALS®

Hygiene Score Card

Goal: score 1 on all controll points.
Dry and hygienic beds, floors and udders are a successfactor for health and comfort of the cow.



How to score:
1. This clean or cleaner. <> 3. This dirty or dirtier.

Hazards of dirt
1. Dirty udders: higher risk of udder infections and thus of mastitis and high cell count.
2. Diarrhoea: a sign of reduced resistance of the animal; it makes legs, beds and udders dirty; can contain pathogens.
3. Dirty legs: higher risk of foot problems and lameness; more dirt on the udder.
4. Dirty beds: give discomfort; higher risk of skin wounds and ulcers, more dirt on the udder.

Cubicles that are too short cause tails to lie in manure, which results in dirty tail ends and hindquarters.

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Milking Instruction Card

Milking is routine work in which you need to make sure every cow is milked as efficiently as possible. And in the same way, because cows are creatures of habit. This will enable you to achieve the highest milk yield and will cause you the fewest udder problems.

Always use milking gloves

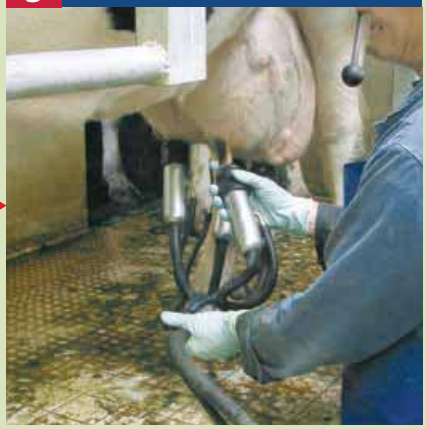
1 Initial clean

- wash and dry very dirty teats;
- use a pre-treatment agent.

2 Foremilk stripping and pre-milking

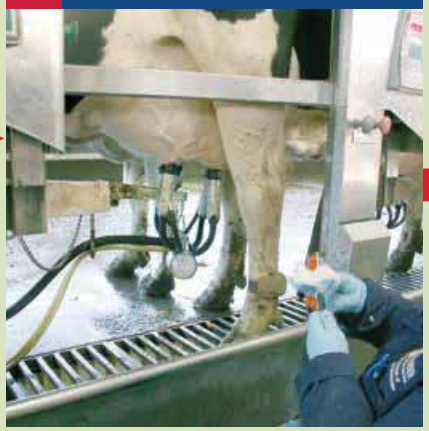
- express three squirts of milk;
- clean teat and teat end thoroughly and dry with a clean cloth;
- massage teat and udder for at least 15 seconds;
- keep hands (gloves) clean.

3 Attaching the cluster



- attach the cluster between 60 and 90 seconds after first touching the teat;
- suspend the cluster directly beneath the cow (long tube lengthways, weight of cluster distributed evenly between the teats);
- make sure that claws and short milk tubes are not twisted.

4 Milking

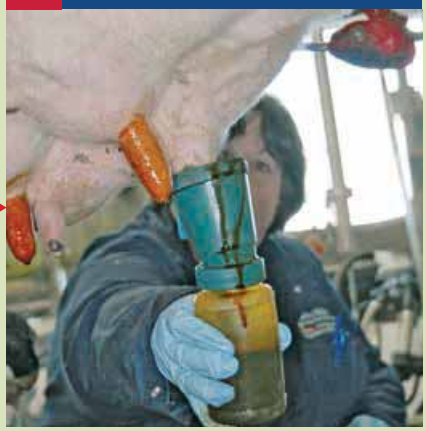


- check the position of the cluster and teat cups (use tube guides);
- check that the cows are not agitated.

5 Detaching the cluster

- when manual take-off:
  - switch off the cluster vacuum;
  - remove the cluster from the teat very gently by letting in air;
- examine the teats and udder.

6 Dipping/spraying



- make sure that at least the lower two-thirds of the teat are completely coated. This is much easier with dipping. This disinfects the teat skin which was in contact with the liner.

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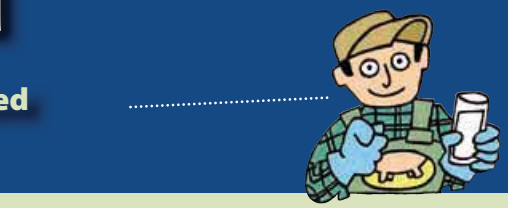
Milk Sampling Instruction Card

You will get the wrong result if you have not worked hygienically enough (contamination).



1 Clean the udder and the teats. Express three squirts of foremilk.

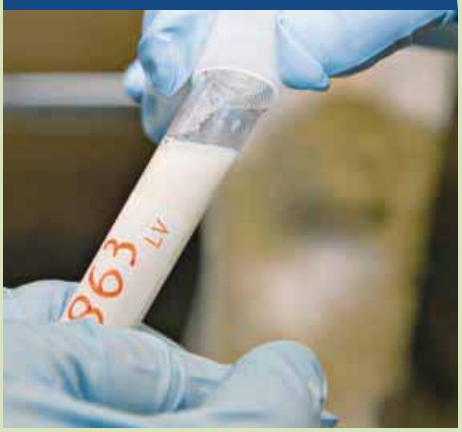
2 Clean and disinfect the teat end and opening.

3 Write the cow's number, quarter and date on the label.

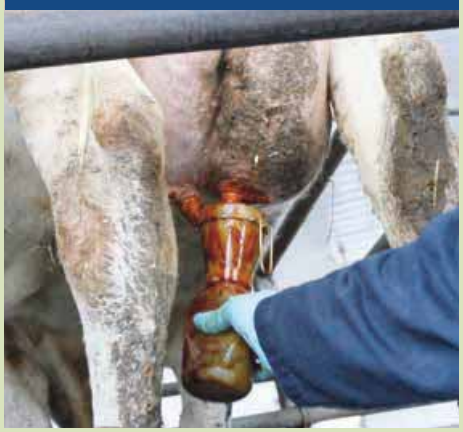
4 Express two squirts and throw them away.

5 Fill the test tube no more than three-quarters full.

6 Make sure there is no dirt in the test tube or on the cap.



7 Dip or spray the quarter (or milk the cow).



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Teat Health Score Card

Score the teat ends every three months, just after removing the milking cluster. Carry out a dynamic milking assessment if more than 10% of the cows score 3 or 4.

Causes of hyperkeratosis:

- milking vacuum too high;
- milking of the cow takes too long;
- overmilking when the quarter is empty;
- incorrect milk/rest phase (pulsator setting);
- the liner not fitting the teats.

Dry cows

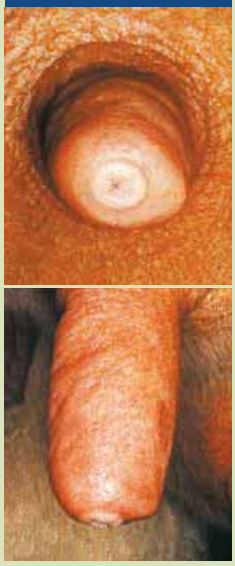
- If a cow has a score of 3 or 4 when she is dried off, the teat duct will close slowly or not at all. Use a teat sealing agent.

Score 1

no ring

Score 2

smooth or slightly rough ring



Score 3

moderately rough rings with a few fronds of keratin

Score 4

very rough rings with many fronds of keratin

Wet teat

If the teats are clearly wet after detaching the cluster, the milk claw is taking the milk away too slowly. As a result, milk in the teat cup can flow back into the teat. This can result in the udder becoming infected with bacteria from its own skin, or bacteria from the milk or skin of a previous cow.

Mouthpiece ring

As long as the liner surrounds the teat properly, the vacuum in the mouthpiece is much lower than under the teat end. If the teats are small (e.g. with heifers) or the liners too large, the vacuum in the mouthpiece chamber becomes too great and the cluster rides up. This often leads to a painful build-up of blood in the teat end, which makes the cow agitated. This can also occur with wet pre-treatment.

Tiny blood spots

Excessive vacuum at the teat end causes tiny blood spots in the skin of the teat. These are accompanied by a painful build-up of blood in the teat end, which will make the cow agitated.

Flat teat

The pinched area develops because the teat was compressed in the liner. The cause is either a worn or stiff/ loose liner, or too long a rest phase of the pulsator.

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California Mastitis Test (CMT) Instruction Card

Do a CMT to find out whether a quarter has a cell count of more than 400,000. This is evidence of udder infection.

Method

The California Mastitis Test (CMT) provides a quick indication of sub-clinical mastitis. By adding 3% sodium lauryl sulphate (a detergent) to milk in a four-compartment CMT test paddle you can tell straight away which quarter is infected.

1

Express a few squirts of milk and discard. Express two squirts of milk from each quarter into each of the separate paddle compartments.

2

Always hold the paddle under the cow in the same way, e.g. with the handle towards its head.

3

Pour excess milk out of the compartments (not onto the parlour floor) until the level reaches the shown guidelines.

4

Add an equal volume of test liquid and rotate for a minute to mix the contents.

Reading the result

Both photos show thickening in the bottom left compartment: that milk has a cell count over 400,000. The milk in the other three compartments shows no reaction. Note: you are not looking for a colour change.

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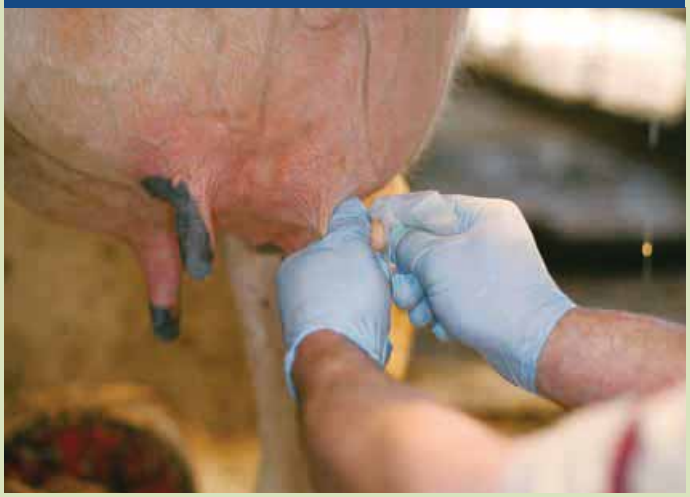
Instruction Card for infusing the Udder

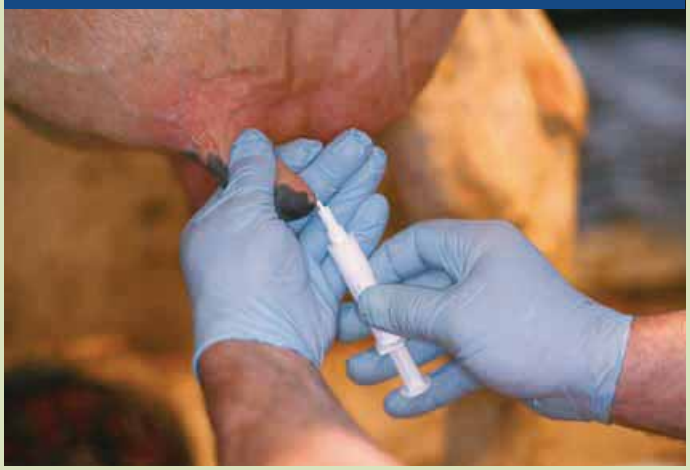
Imagine that you are doing the same work as nurses in a hospital.

1 **Express three squirts.**

2 **Disinfect the teat opening and the teat end e.g. with surgical spirit.**



3 **Insert the short nozzle into the teat opening and slowly empty the syringe. You do not need to rub.**



4 **Dip or spray the teats. Disinfect your gloves between cows.**

Make sure you use the right materials and that they are clean and effective.
Disinfectants must be clean and stored in a locked cabinet.
Monitor use-by dates.

The technique for internal teat sealants differs in that the base of the teat is squeezed whilst infusing to keep the teat sealant in the teat canal.

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Fertility

Score Card Oestrus Signals
Pregnancy Checklist
Instruction Card for Thawing Semen
Insemination Instruction Card
Insemination Technique Instruction card

Cow Signals **Checkbook**

Working on health, production and welfare

Cow SIGNALS®

Score Card Oestrus Signals

You want to know whether you need to inseminate the cow and when the best time would be do to it. An electronic oestrus detection device is as good if not better than a good farmer. Both together is best.

1 Pay more attention

Sniffing of the vulva, increased curiosity and chin resting behaviour are signals to pay more attention to the cow, but you cannot rely on the cow being or coming into oestrus.

Keep watching for a while, or go and have another look a couple of hours later. Check if the cow was in oestrus 21 days earlier. Note down that the cow could be in oestrus today.

2 Start of oestrus period

About 90% of cows in oestrus show mounting behaviour, which they start about 30 hours before ovulation. High-producing cows are in oestrus for less time, display less mounting behaviour or often none at all. If the mounted cow moves away straight away, it is almost certainly the mounting cow that is in oestrus. A cow shows mounting behaviour for around 12 hours. Standing heat and head-to-head mounting last for about 6 hours (2-8 hours).

Once you are sure she has just come into oestrus, inseminate after 6-18 hours. High-producing herds: 4-12 hours. In doubt? Then inseminate as soon as possible.

3 Certainty

You know for sure that a cow is in oestrus if she stands still when she is being mounted or she mounts other cows head-to-head.

Inseminate the cow within 6 hours. Inseminate the cow again if she is still in oestrus 24 hours after insemination.

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Flow chart
Getting cows pregnant

Dry period, calving and the start of lactation are the keys to the cow coming into oestrus and becoming pregnant.

Pregnancy rate = insemination rate x conception rate

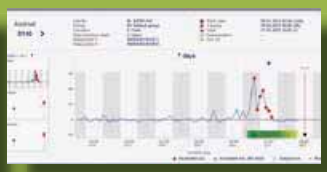
Best insemination practice

The cow stands still and you work with top quality materials.

The inseminator can do his job safely and effectively.

Detecting every cow in oestrus

The cow comes in oestrus and the farmer detects it.



Technology can see more than people.

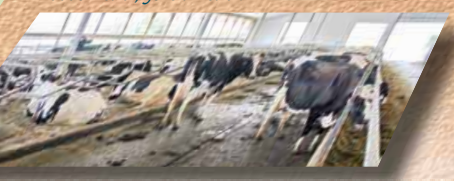
Day 55: Start Insemination period
Individual farms can decide a different starting date.

Day 42: Check
Uterus is healthy.
Cow is cycling.
Cow has a stable or increasing bcs: ≥ 2+.

Dry period
Excellent ration, feed, feeding and feed intake. Water. No stress, lots of room to move. Daily check.

Start of lactation
Comfort and intensive care during the first 21 days after calving.

End of lactation and dry-off
Body condition score, hoof health, udder health, general health.



Professional calving management
No stress. Excellent hygiene. Feed and water. Spontaneous.

Fertility = healthy uterus + healthy cow + no stress + excellent eating

CowSIGNALS®

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Instruction Card for Thawing Semen

When you perform insemination you must carry out all the steps properly with a great deal of sensitivity. This begins with thawing and transporting the semen.

1

Prepare a thermos flask of water at 35-37°C (warm water bath). Use a thermometer.

2

Make sure you know exactly which straw you want, in which canister. Keep the canister in the nitrogen container as deep as possible and use tweezers to select the straw you need.

3

Transfer the straw quickly from the nitrogen to the warm water bath, to let it thaw as quickly as possible. Leave it for at least 45 seconds. Slow or partial thawing damages the sperm cells.

4

Warm the gun up to body temperature (37°C) by holding it in your hand. Try it against your cheek to make sure it isn't too hot (≤38°C).

5

Insert the straw in the rod. Cut off the end. Put the sheath round it and secure the sheath.

6

Carry the rod to the cow, keeping it warm against your body, e.g. chest, under your clothing. Inseminate the cow within 5 minutes.

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Insemination Instruction Card

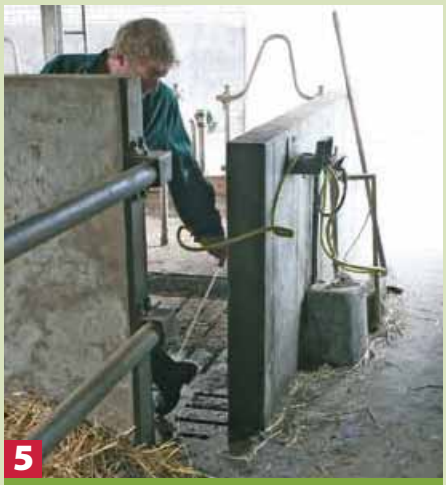
When performing insemination, your working method must be properly geared towards the facilities and materials, and vice versa. Then you will be able to work easily, safely and undisturbed.

1 You have all of your information, equipment and records in one place. This is your starting and finishing point.

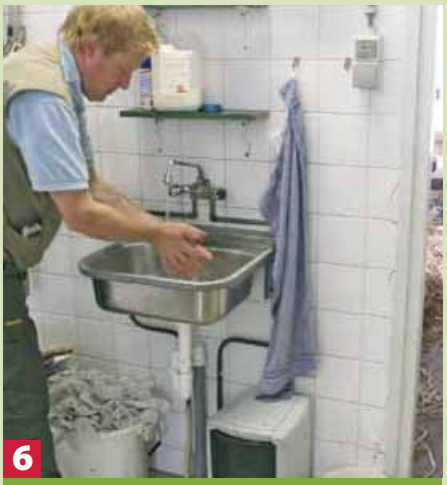
2 Keep yourself and your workplace clean. Avoid bringing in any manure, dirt or contamination.

3 Short, logical and easy access to the cows.

4 The cow is easily identified and is securely restrained. You are able to work undisturbed, with focus and in comfort.



5 You are able to wash your boots thoroughly between clean and dirty areas.



6 At the starting and finishing point you are able to wash and dry your hands. You have finished once everything is ready for next time and the information has been passed on.

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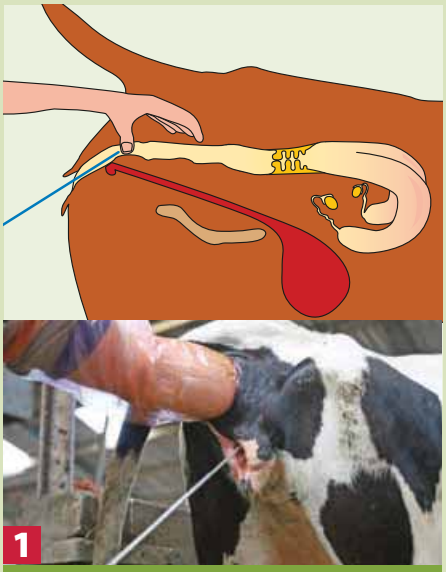
1103-UK-I-VI-01

Insemination Technique Instruction card

A poorly executed insemination can easily cut the chance of pregnancy by 5%...

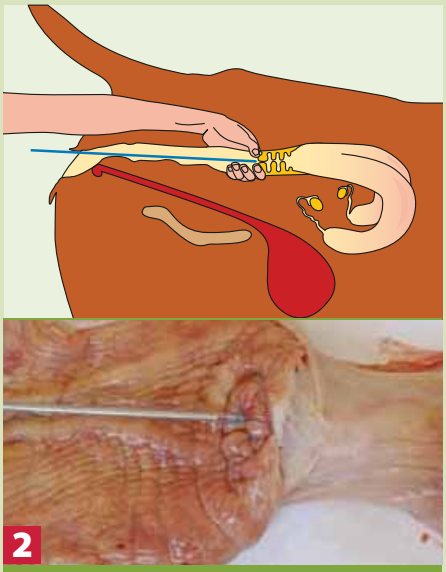
before

Make sure that the cow is standing nice and firm, you can get to her easily and you are able to work unhindered. Use plenty of lubricant. Remove any manure from the hind gut. Wipe the vulva with a cloth.



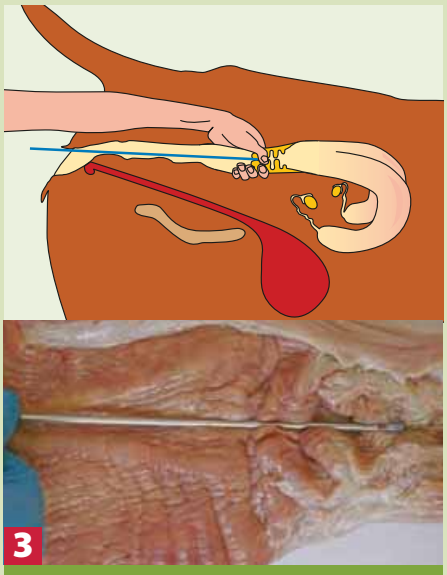
1

Make a fist and press down directly on top of the vulva to open it. Insert the pipette in the vagina and slide it into the first part at an angle of 30°. Then carefully continue to slide it in horizontally up to the cervix.



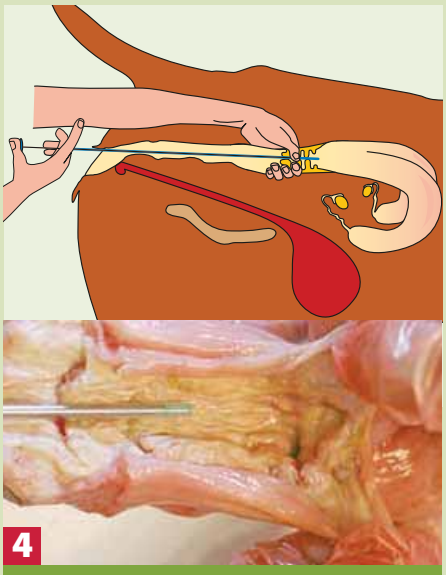
2

Carefully insert the pipette into the opening of the cervix by moving the cervix over the tip of the pipette, with the cervix opening between your thumb and your fingers. This requires a delicate touch and sensitive fingertips.



3

Grasp the whole cervix in your hand and guide the pipette through the folds in the cervix. You will usually have to pass four folds: three large ones followed by one small one.



4

Once the tip of the pipette has passed the fourth fold in the cervix, which is just a slight bump, you can perform the insemination. Make sure that the pipette does not move while you are emptying it. The correct position for insemination: the tip of the pipette is just past the fourth fold in the cervix.

after

After inseminating, always check the tip of the pipette for blood, pus and abnormalities. Work cleanly and with the greatest possible care. Never push the pipette further if you feel resistance, because you can very easily cause an injury. Moisture from wounds and blood kill sperm.

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Health & Disease

Health and Welfare Checklist
Sickness and Distress Checklist
Injection Instruction Card
Rule no. 1 for Effective Treatment
Checklist

Cow Signals **Checkbook**

Working on health, production and welfare

Cow SIGNALS®

Health and Welfare Checklist

Do you know which cow signals to look for in order to assess health and welfare?

Alert, active attitude
- distracted attitude: indicates poor health, low energy status and possibly rumen acidosis

Clear, bright eyes
- deep-set eyes: the cow is sick/dehydrated

Clean nostrils
- mucus with pus/blood and skin injuries: skin of the nose inflamed due to virus or cold
- clear mucus doesn't tell you much

Closed mouth
- some drooling: usually hunger
- lot of drooling: swallowing problems or mouth pain
- coughing: due to cold air, dust or disease

Strong rumination activity
- reduced chewing: diet lacks effective fibre
- spitting out the cud: tooth problems, prickly bits in the feed
- normal: 55 to 75 chews per cud

Undamaged knees with full hair covering
- bare knees: scraping on ground when getting up
- swollen knees: bruising when getting up, lack of space in cubicle

Sound, fully weight-bearing hooves
- tiptoeing, standing on tips of hooves
- injured or swollen coronary band
- eczema or scabs in interdigital space

Steady breathing
- rapid and shallow: heat stress or pain. Sometimes at start of rumination period as well.
- normal: 10 to 30 times a minute

Full belly
- belly too empty: hasn't eaten enough last week

Take account of the size of the calf, if any.

Straight back
- arched back: painful hooves or physical wear and tear
- injuries: usually bruising against cubicle partition

Glossy, intact coat
- dull coat: poor health or nutrition
- skin injuries: cause and result of agitation and reduced disease resistance

Undamaged teats and teat tips
- trodden teats: too much agitation, cubicles too narrow or too slippery

Check milking machine and technique (dynamic test) if you see:
- calloused teat tips: incorrect action of milking machine
- swelling, redness, tiny blood spots (also due to udder oedema)

Good rumen fill
- too empty: hasn't eaten enough today
- no discernible layered structure (apple shape): not enough fibre in diet

Optimum condition
- too thin: inadequate energy intake
- too fat: excessive energy intake
- normal: good flesh cover with a little fat

Good condition leads to improved disease resistance, fertility and health around calving (pay attention to breed).

Correct temperature
- too high (> 39.0°C): fever
- too low (< 38.0°C): milk fever or serious illness
- normal: between 38.0 and 38.5°C

Take temperature rectally.

Clean hindquarters
- dung on both sides of rump: dung too thin
- asymmetrical soiling: environment too dirty

Soft, symmetrical udder
- hard: due to oedema around calving, or mastitis (painful)
- enlarged quarter: active mastitis
- shrunken quarter: previous mastitis

Undamaged hocks with full hair covering
- bare hocks: scraping on cubicle floor; lack of grip
- thick hocks: lack of space, cubicle floor too hard
- scabs: inflammation due to dirt or moisture

Flat but formed, smooth dung
- long stems: insufficient rumination activity
- not too loose or too firm, always relate with ration components (e.g. grazing) and lactation stage (e.g. dry vs peak lactation)

Use the dung feedback to assess the diet: feeding methods, feed intake, digestion, water intake and health. Discuss with your nutritionist when the dung doesn't seem optimal.

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Sickness and Distress Checklist

If you recognise problems early, you can prevent worse.

Backbone bump(s)
- lying against stall divider

Empty rumen (danger triangle)
- has eaten too little

BCS 1-1.5/deep holes next to tail
- long-term physical problem

Arched back
- lame

Neck bump
- neck rail feed fence too low

Uplifted tail
- pain in the birth canal

Manure on pelvis
- diarrhoea

Droopy and/or cold ears
- sick

Pus on tail
- endometritis

Sunken eyes
- sick

Wound on flank
- wet resting surface

Hocks swollen, hairless
- stall surface too hard, abrasive or not enough grip

Broken rib
- stall divider

Uplifted belly/ poor gut fill
- pain/poor feed intake for days

Purulent discharge
- rhinitis/chronic lung problem

Swollen coronary band, crusts, leg lifting, shifting weight
- hoof diseases

Shoulder bump
- poorly designed feed fence/ feed too far away

Dirty udder
- dirty resting area and/or floors

Carpal joints swollen, hairless
- stall surface too hard, too little head space

Teat end calluses
- milking machine

Long, curling hoofs
- hoof trimming too late or not at all

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Injection Instruction Card

Like all treatments, make sure you always give injections in a very organised and relaxed way. This delivers better results and you make fewer mistakes.

Correct method

1 New needle, clean syringe

2 100% pure injection fluid

3 Record

4 Mark the cow

5 Inject with cow standing still, easy to access

6 Clean up and prepare everything for next time

Correct injection

1 Intramuscular (into the muscle)

Inject at right angles to the skin, in the green triangle. The triangle is a hand's width in front of the shoulder blade, under the neck edge and above the neck vertebrae (purple line).

2 Subcutaneous (under the skin)

Take a fold of skin and insert the needle diagonally between the skin and underlying muscles.

Subcutaneous injections can be given in the neck or behind the shoulder, as indicated by the yellow lines.

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Rule no. 1 for Effective Treatment Checklist

If it is easy to separate a cow off from the group to examine or treat her, you are more likely to do so as soon as the need arises.

one person can

A calm farmer:

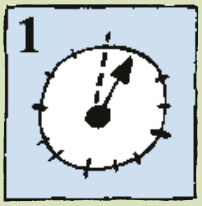
- is predictable and doesn't scare cows
- drives cows at their own pace and gives them time to pass tricky spots
- doesn't hurt cows, talks to and touches them

get **one cow**

Calm cows:

- react predictably and can be driven easily
- result from plenty of contact with calm people
- result from safe shed design (grip, no obstacles), good health (hooves in particular) and excellent feed management (no fighting for feed)

ready for treatment



Clever shed design:

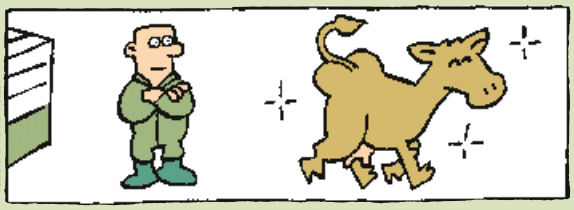
- cleverly positioned barriers guide the cow
- close the barriers on the way to the cow, open them again as you drive the cows
- the shed design doesn't give the cow the urge to escape

in **one minute**

and treat it properly in **one go**

Professional:

- you know what to do and how to do it
- all equipment at hand and ready to use (clean, sharp, safe)
- work area easily accessible and secure
- plenty of light, enough space, pleasant temperature, no draughts, sheltered from the elements
- working methods, apparatus and equipment are safe for yourself, bystanders and cows



Illustrations: Herman Roosen

Job well done!

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1103-UK-C-R1-01

Dry period-Transition

Dry Cows Management Checklist
Calving Assistance Instruction Card
Fresh Cow Management Instruction Card
10-Days plan: daily checklist for fresh cows

Cow Signals **Checkbook**

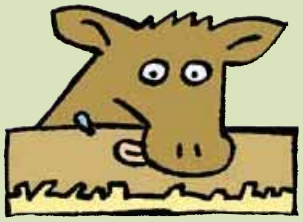
Working on health, production and welfare

Cow SIGNALS®

Dry Cows Management Checklist

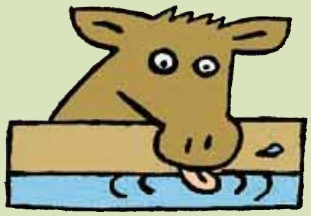
The seven facets of the Cow Signal Diamond are also the success factors for problem-free calving and starting to produce milk. No stress from dry-off to 3 weeks after calving.

Feed

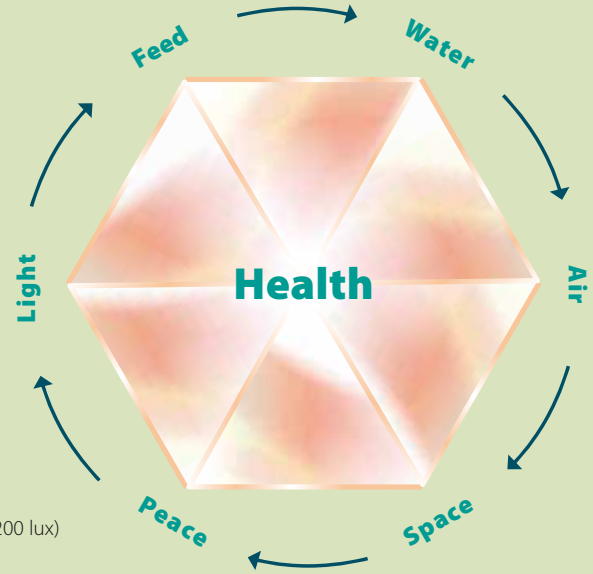


- always fresh and tasty
- properly measured, weighed and mixed
- room for every cow to eat

Water



- every cow can drink at any time
- fresh, clean, tasty
- 20 l per minute per trough



Light

- enough to perform proper inspections (≥ 200 lux)
- option: winter rhythm (16 h dark, 8 h light)

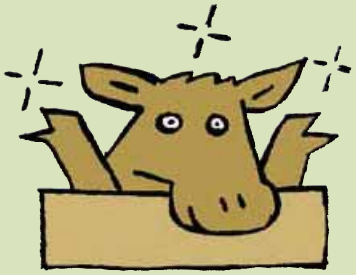
Air

- excellent ventilation
- ≥ 21° C: combat heat stress
- ≤ -5° C: extra feed to protect against cold

Peace

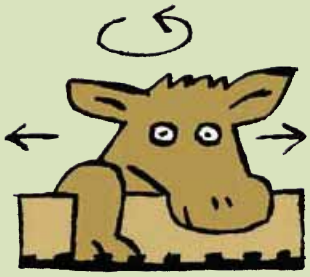
- no changing groups, or in groups
- calve in the group or near the group
- a soft, dry, spacious cubicle for every cow

Health



- healthy hooves
- no diseases, no parasites, no wounds
- check 2x daily

Space



- ≥ 2 routes to feed and water
- surface with good grip
- maximum room to move

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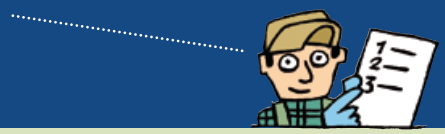
Calving Assistance Instruction Card

By assisting with calving in a hygienic and structured way, you are giving the calf and the mother the best possible start in life. Standard procedure for calving assistance



Step 1

Equipment: calving gown, bucket of tepid water containing disinfectant for yourself, bucket of cold water for the calf, halter for the cow and plenty of lubricant. Calving aid at the ready. Calving ropes are in the disinfectant water.

Step 2

The cow is restrained. Wash your arms and the cow's rear end with the disinfectant. Make sure none of it gets back into the bucket. Use plenty of lubricant. Tie the tail to the halter.

Sep 3

With reasonable traction on the calving aid, check if the calf is ready to be delivered. Practise recognising the feel of the pelvic entrance and the different parts of the calf. Most calving cows will lie down by themselves.

Step 4

Can the calf be delivered?

Assess whether the calf can pass through the pelvis. Too little space: call the vet.

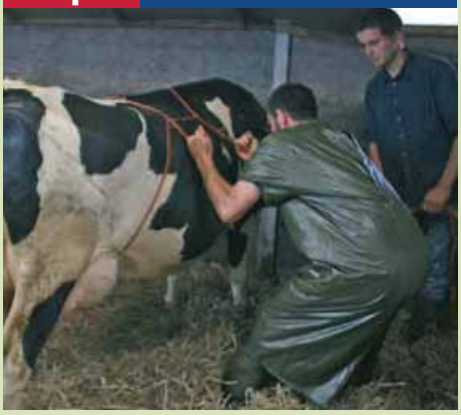
Normal position: At the pelvic entrance, feel the space over the calf's head and how the shoulders are lying with respect to the pelvic entrance. Are they in front of or outside the pelvic entrance? How far are they from the pelvic entrance?

You should find:

- you can get your hand over the head
- distance from pelvic entrance to both shoulders:
  - in a cow standing up < 10 cm
  - in a cow lying down < 5 cm (measure with your index finger).

If the calf is the wrong way round (posterior presentation): turn the calf's hindquarters 30° to the left or right. With reasonable traction, the heels should come to the level of the vulva. In the case of a heifer, take plenty of time to stretch the birth canal. Ask your vet how.

Step 5



A cow lying on its side (rather than on its belly) has a wider pelvic entrance and can push harder. With a rope under its belly, behind the forelegs and in front of the udder, you can make the cow lie down. Take your time. Pull when the cow pushes and stop pulling when she doesn't, to let the calf rest.

Step 6

After the birth, feel for another calf and check the birth canal for injuries. If the vagina is very blue or torn, cool it for 10 minutes with cold running water. Ask your vet for a treatment plan for these animals.

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Fresh Cow Management Instruction Card

Recently-calved cows are extremely vulnerable. Make sure they start producing milk well. This is different for every cow.

Immediately after calving

Make sure the cow eats and drinks as much as possible. Give her lukewarm water in a bucket and make sure that she can reach tasty food very easily.

Make sure that the cow suffers minimal stress. Remove the calf immediately. Put the cow in a straw pen immediately alongside the cows she walked past before calving. The straw bed must be dry and the pen well ventilated.

Every day

Make sure the cow is active and is walking freely to feed, water and a resting place. Assess the cow's rumen fill, manure and activity 2x daily. Ideally the cow should remain in a straw pen for up to 14 days or until she is eating and walking well and is healthy.

Take the cow's temperature at least once a day. In this way you will identify sick cows before they develop serious problems. < 38.4°C = cow requires attention, 38.4-39.0°C = OK 39.0-39.5°C = cow requires attention, > 39.5°C = treat.

Every month

Assess the number of problems and treatments in the previous month. Look ahead to the upcoming month: what is going to happen? How should you respond to it?

1x or 2x per year

Assess whether you can improve your procedures: see whether the result can be improved and whether the work can be made easier, quicker, more cost-effective or more pleasant. Use your knowledge from trade journals, meetings and advisors. Consult staff and colleagues.

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10-Days plan: daily checklist for fresh cows

If you help a cow to stay healthy during the first 10 days after calving, you are laying the foundations for problem-free lactation.

Rumen: fill

The rumen fill tells you whether the cow has eaten well during the past few hours.

Activity: cow is alert and active

Temperature: 38,0-39,0˚C

Eating and moving around with the other cows

Manure: lots, pasty, well digested

Pasty

Too thin

Badly digested

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Management

Standard Operating Procedures (SOP)
Instruction Card
Instruction Card for Communicating with Staff
Labour efficiency Checklist

Cow Signals **Checkbook**

Working on health, production and welfare

Cow SIGNALS®

Standard Operating Procedures (SOP) Instruction Card

Good Standard Operating Procedures are safe, simple, efficient and effective. And they are supported by the people who use them.

Step 1

Think about the procedure and write down how you would like to see it done.

Step 2

Obtain feedback and suggestions from the staff actually doing the work.

Step 3

Edit and complete the procedure.

Standard Operating Procedures should have a standard format. This format includes most if not all of the following:

1. **Purpose of the procedure.**
2. **Roles and responsibilities of management and staff.**
3. **Materials to be used, including personal protection equipment.**
4. **Procedure:**
   a. **sequence of job steps;**
   b. **potential hazards and prevention of these hazards.**
5. **Review and review procedures for SOP, e.g. annual review.**

Examples of procedures that can be captured in a standard operating procedure are cow movement procedures, milking procedures, treatment procedures, milk sample collection, heat detection, and insemination.

Intramammary treatments

This standard operating procedure defines intramammary treatment procedures at Pastures Farm.

It is the responsibility of the sick pen manager to perform the steps as outlined in this procedure. It is the responsibility of the herd manager to have all materials in place to be able to perform the procedure.

Materials:
- disposable gloves
- list of cows to be treated, obtained less than 2 hours before treatment
- orange velcro leg straps
- antibiotic treatments
- dip cup with 1% iodine teat dip
- paper towels
- disinfectant pads

1. Use clean gloves for each cow to be treated.
2. Identify the cow to be treated. Double check eartag with treatment list.
3. Ensure the cow is marked with an orange leg strap on the left hind leg.
4. Identify mastitis tube for treatment, double check with treatment list.
5. Dip the teat of the quarter to be treated with 1% iodine teatdip.
6. Wipe the teat clean after 30 seconds contact time using a paper towel.
7. Disinfect the teat with the disinfectant pad.
8. Insert the tip of the nozzle into the teat end, approximately 1/4 of an inch.
9. Inject the contents of the tube into the teat. Do not massage it in !
10. Dip the teat in 1% iodine.
11. Discard empty tube, disinfectant pad and gloves into medical waste basket.
12. Place checkmark next to cow id on the treatment list.

This procedure is reviewed by the herd manager and the vet every October.

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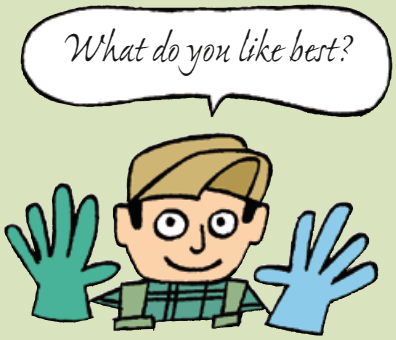
Instruction Card for Communicating with Staff

Communication is a skill, but it is also just a task that you can perform step-by-step.

Awareness
Communicate your goals clearly to your staff. It is a farm mission. Obtain buy-in.

Understanding
Explain how the day to day activities relate to your goals. So your staff also understands "why".

Preferences
Ask your staff for feedback on the plans that you have to obtain your goals.



Actions
Provide clear operating procedures.

Implementation

Loyalty
Success leads to loyalty.
Provide feedback and celebrate success.

Communication funnel
This diagram shows the steps to take, in the right order plus the relative amount of effort each step should get (indicated by width of the funnel).

Implementation ↔ Loyalty

Get them involved
People will start to feel involved when they can influence their work and see and experience the results.

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Labour efficiency Checklist

This management model helps you to improve the labour productivity on your farm.

1

Clear, well implemented business strategy with concrete objectives

2

Cow accommodation, layout, materials and cows all geared towards cow health and a lighter workload

3

Efficient and effective standard procedures

4

A daily/weekly/monthly/annual routine schedule

5

A strategy focused specifically on mechanisation, automation and specialisation

6

Labour efficiency is always at the back of your mind.

Keep it Simple and Safe

Situation today

Situation Future

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With the cooperation of: AcconAVM

Become a main part of the sustainable dairy chain

Animal welfare, food safety, and environment are becoming more and more important requirements in our society. Therefore sustainability plays an indispensable role in the world we live in. Dairy farming has a main part in all of this, because dairy farming is about cows, milk products, and our planet.

Animal welfare

We believe in taking responsibility. And if you take care of animal health, welfare, and environmental sustainability, we want to become your partner and preferred supplier of practical cow-based knowledge and training. We can help you to improve your skills. We believe in educating dairy processors, feeding companies, vets, farmers, farm staff and farm advisors. If we all understand the principles of keeping cows healthy, we can make the difference for cows, farmers, and our environment.

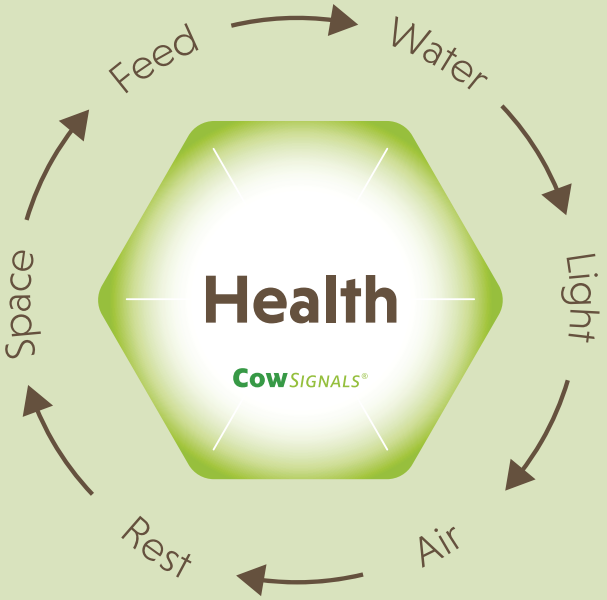
Cow-based experience

CowSignals® Training Company is an independent training organization since 1999. Our team consists of CowSignals® Experts, which are all veterinarians. They all have international cow-based experience and a worldwide network. Our main drivers are health, welfare and sustainability to secure Happy Cows, Happy Farmers, Happy Planet!

CowSignals® guarantees

The CowSignals® concept is based on proven results, therefore we guarantee you:

- Impact on health and well-being of cows
- Healthy dairy cows, higher efficiency, and lower costs
- Cow-based knowledge by independent CowSignals® Experts
- Sustainable dairy solutions
- Practical skills and tools



Education

We supply excellent live and online training with cow-based knowledge. All our courses contain real-life practical examples. In our live courses we combine theory and practice with interactive lectures and practical barn workshops. We keep it simple and stimulate thinking in solutions.

CowSignals® master training

4 Days live training. Blended learning (with an online pre-course), interactive lectures with practical barn workshops. Focused 50% on CowSignals® and 50% on PeopleSignals®. As a licensed CowSignals® Master you can be a trainer to your colleagues and farmers.

CowSignals® advisor training

2 Days live training. Blended learning (with an online pre-course), interactive lectures with practical barn workshops. Practical cow-based knowledge combined with 1-to-1 advisor skills. As a licensed CowSignals® Advisor you can be a partner and advisor to farmers.

CowSignals® e-learning

Upgrade your skills and knowledge about how cows can live longer, have more lactations and can be more productive by our online courses:
CowSignals® | HoofSignals® | YoungStock Signals® | Feeding Signals® | Fertility Signals® | Udder Signals® | PeopleSignals® for Advisors | PeopleSignals® for Trainers | Dry-to-Fresh | Robotic-Milking | Stress-free-Stockmanship.

CowSignals® company license

The key is not saying you are better, but being better. That is why we developed the CowSignals® Company License. We train employees with practical cow-based knowledge and solutions so they can build sustainable relationships with farmers. We also have the possibility to create a tailor-made learning journey in your academy, the so called 'CowSignals® Inside'.

CowSIGNALS®

PeopleSIGNALS® Trainer

PeopleSIGNALS® Advisor

YoungstockSIGNALS®

FertilitySIGNALS®

UdderSIGNALS®

HoofSIGNALS®

FeedingSIGNALS®

BuildingFORTHECOW

StressfreeSTOCKMANSHIP

DrytoFRESH

RoboticMILKING

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CowSIGNALS®
HAPPY COWS, HAPPY FARMERS, HAPPY PLANET!

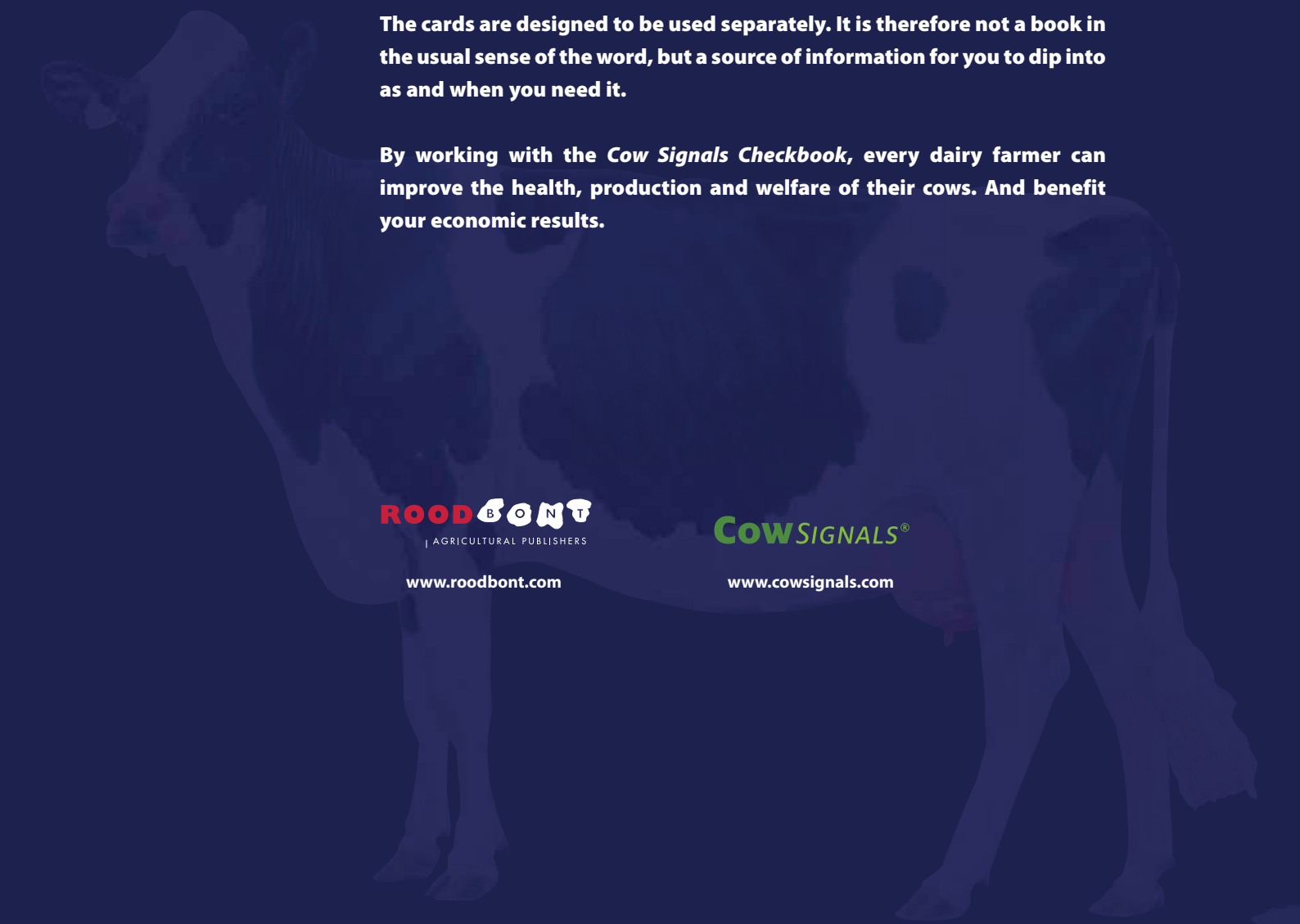
Cow Signals **Checkbook**

Working on health, production and welfare

The *Cow Signals Checkbook* is a collection of the 54 most important check-lists, score cards and instruction cards designed to help dairy farmers manage their day-to-day operations. These cards cover all aspects of cow husbandry. This Checkbook is part of the successful Cow Signals series.

The cards are designed to be used separately. It is therefore not a book in the usual sense of the word, but a source of information for you to dip into as and when you need it.

By working with the *Cow Signals Checkbook*, every dairy farmer can improve the health, production and welfare of their cows. And benefit your economic results.



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