

WELFARE OF FARM ANIMALS

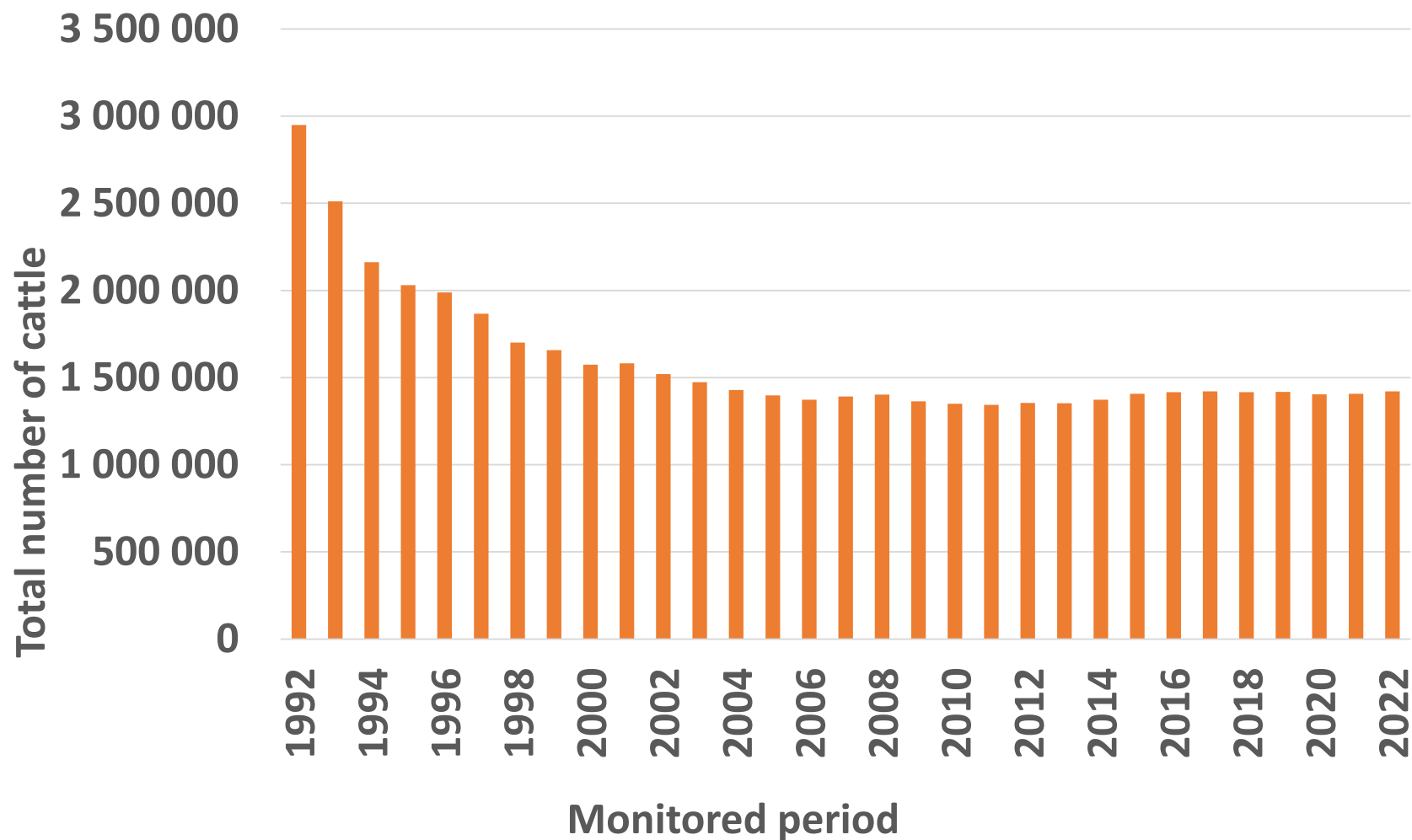
Welfare of dairy and beef cattle

Practical course 2

All links from this presentation and links to other materials (articles and videos) can be found in useful links on the website

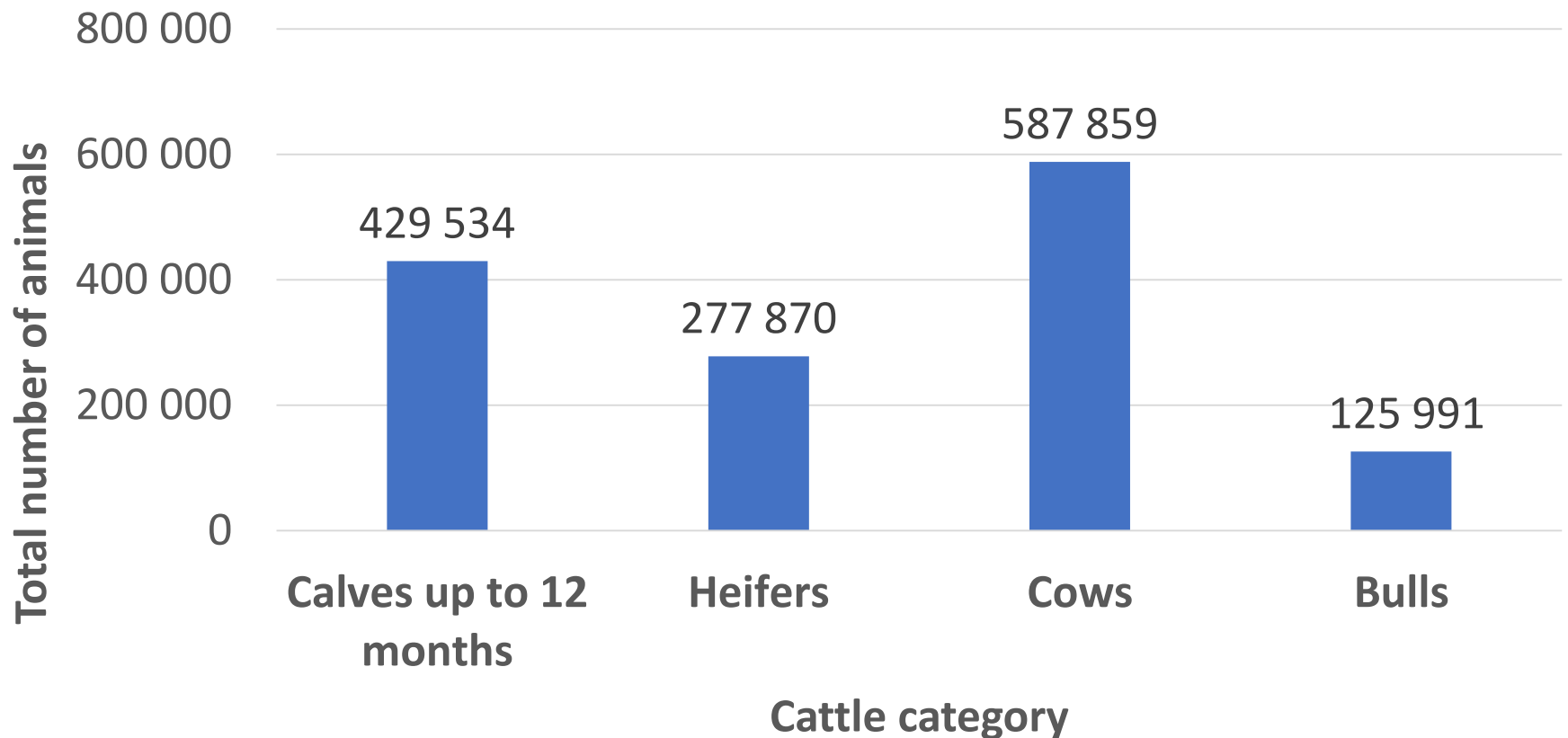


Cattle breeding in the Czech Republic



Categories of cattle – numbers of animals in the Czech Republic (2022)

- Total number: **1 421 254** animals



Breeds of Cattle used for milk production in the Czech Republic

Holstein-Friesian cattle

- dairy breed

Czech Fleckvieh cattle

- dualpurpose breed of cattle suitable for both – milk and meat production

More information in the links

Breeds of Cattle used for meat production in the Czech Republic

- **Charolaise**
- **Limousine**
- **Aberdeen angus**
- **Simmental**
- **Highland**

More information about breeds reared in the Czech Republic:

- <https://www.cschms.cz/english/index.php?page=home>

Legislation regulating farm animal welfare

- **246/1992 Coll.,**

Act of the Czech National Council
on the Protection of Animals Against Cruelty

- **208/2004 Coll.,**

Decree on minimum standards for the protection of farm
animals

Supervision in the field of animal welfare and protection in the Czech Republic

SVA

State Veterinary Administration

- public administration body under the Ministry of Agriculture of the Czech Republic

RVA

Regional Veterinary Administration of the State Veterinary Administration

Municipal Veterinary Administration in the territory of the Capital of Prague

- **RVA inspectors** – Specialized official veterinarians in the field of animal welfare Protection and newly also graduates of follow-up Master study of Animal Protection and Welfare

208/2004 Coll., Decree on minimum standards for the protection of farm animals

- § 1a Concepts (definitions)
- § 1b Minimum standards for livestock facilities
- § 1c General requirements for the keeping of livestock
- **§ 2 Minimum standards for the Protection of bovine animals**

§ 1 Introductory provisions

- Livestock shall be **bred with regard to species and age category** and other specific requirements for their protection and welfare according to minimum standards.

Freestall housing system

- *allow a cow to recline, rise, and change position without coming into contact with any portion of the stall except the base or bedding.*
- *Items and stall supports should be guides that define the cow's resting area but do not hinder her movements or result in injuries*

Box

§ 1b - Minimum standards for livestock facilities

- The box must be **differentiated in size and design according to housing technology, type and age category or weight of livestock**



Bedding for cattle

§ 1b - Minimum standards for livestock facilities

- Straw, compost bedding (separated manure solids) and mattress are the most common in the CZ
- *Sand and sawdust exceptionally*

More information about compost bedding:

<https://www.ontario.ca/page/using-separated-manure-solids-compost-bedding>

Deep litter

- for beef cattle and selected categories of dairy cattle (highly pregnant cows)
- **Pros and Cons of Deep-Litter Bedding:**

<https://homesteadontherange.com/2019/01/14/pros-and-cons-of-deep-litter-bedding/>

Floors

§ 1b - Minimum standards for livestock facilities

- Shall be adequate for the weight of the livestock
- Minimise the risk of slipping



How ensure the cleanliness of alleyways in the stall?

Flush

<https://www.youtube.com/watch?v=BBz9-Vb7n-U>

- *Flush systems release a fast-moving flow of water from one end of the alley to a receiving gutter at the other end of the alley.*
- *As the water rushes through the alley, it collects the manure and transports it to the receiving gutter, which then conveys the liquid to a processing system or long-term storage.*

Scrape

- *Scrape systems push or drag manure down the barn alley to a reception pit or cross gutter channel for conveyance to a reception tank via flush flume or horizontal auger.*
- *These systems can be manual or automatic.*
- *Manure can also be scraped directly into a reception tank.*

Manual scrape system

Automatic scrape system – scraper blade

<https://www.youtube.com/watch?v=cTLtG6WpqCY>

Vacuum tanks

https://www.youtube.com/watch?v=yCJxN_3nnEc

- Manure robot

Crape system that collects the manure and transports it to a storage location or lagoon. These are available as vacuum scraper trucks or as trailed implements.

Manure vacuums feature a scraper blade attached to a wheeled collecting tank. The scraper collects the manure across the width of the alley, and the vacuum system suctions the material collected by the scraper up into the tank.

When the tank is full, it can be unloaded into the manure storage area. Vacuum tanks are especially well suited to large facilities where manure needs to be conveyed to a central processing facility.

Material

§ 1b - Minimum standards for livestock facilities

- The material used for the construction of housing, for troughs and gutters, as well as equipment with which the animals may come into contact, **must not be harmful to the animals.**

Category of bovine animals

- **"Calves "** - animals aged **six months or less**
- **„Cows and heifers,,** - bovine breeding females and heifers aged **from six months**
- **„Breeding bulls"** use in natural breeding and insemination and for bred breeding stock **bulls aged six months and over**
- **“Cattle in fattening "**



The minimum standards for the protection of the category calves

§ 2 (1)

- **After birth**, the caretaker in intensive cattle farms check and provide basic treatment of the cow and calf including treatment of **the calf's navel** with appropriate disinfectant; as soon as possible, and **at the latest within 6 hours after birth**, a **sufficient quantity of colostrum** from the mother or from another source
- calves **shall not be tethered**, *except for herd calves which may be tethered during feeding with milk or milk replacer, but not more than 1 hour*,
- calves **must not be muzzled**

- **all calves must be fed at least twice a day;** for all calves housed in group that are not fed to satiation according to the animal's own needs or by means of automatic feeding system, **access to feed must be provided at the same time as the other calves in the group;** in hot weather or for sick calves, **fresh water** shall be provided shall be provided at all times,
- calf **diets must contain sufficient iron** to ensure average blood levels hemoglobin

Individual calf pen

- shall be at **least the height of the calf at the withers**
- **the length** of the pen must be at least **equal to the length of the body multiplied by a factor of 1,1**
- must not have solid walls, walls with openings which give calves **direct visual and *tactile* contact with others**
- *however, this provision shall not apply to calves kept with their mothers for the purpose of suckling, and stalls where less than 6 calves are housed*
- **Calf over eight weeks old may not be kept in an individual pen unless**

Look at useful links: calving, calf management, calf housing

The minimum standards for the protection of the **category calves**

§ 2 (1)

- **Requirements for space and suitable bedding**
- Lighting requirements, natural or artificial - must be provided in calf stalls; **artificial is used for at least from 9 am to 5 pm** in an intensity corresponding to natural light.
- Calves must be **inspectited in buildings at least twice a day; outside the building once day.**
- **calves under one week old and calves with incompletely healed navels do not move** they were born **only in exceptional cases**; when calves and transporting them to market, measures must be taken to protect their health and welfare.
- **power tools using electric shock shall not be used when handling calves.**

The minimum standards for the protection of the **category breeding bulls** (bulls aged 6 months and over)

§ 2 (3)

- **Admission area** shall be designed and maintained in such a way as **to prevent injury** to the breeding bull or breeding bull or dam
- **Mechanical devices** forcing breeding bulls to move may be switched on **at the necessary for the necessary time**
- **Permanent chaining** of breeding bulls around the neck **shall not be used.**
- Breeding bulls may be used to mount another breeding bull when semen collection.

- **Binding housing - permanent chaining of farm animals not be used.**
 - New building construction - prohibition from 1.2. 2021; for old bulding will be prohibition from 2030.

246/1992 the Czech National Council on the Protection of Animals Against Cruelty

The minimum standards for the protection of the **category fattening cattle** (bulls and heifers from the age 6 months not used for breeding)

§ 2 (6)

- **horned and dehorned cattle may not be kept together** in groups unless they are free access to the paddock or to grazing,
- **electric wires must not be used to prevent bulls from jumping** on each other live wires.

The minimum standards for the protection of the **category cows and heifers** (from the age 6 months for use in breeding)

§ 2 (7)

- **the number of free-range animals must not be greater than the number of boxes and the number of places in the feedlot**
- **to restrict the movement of standing cows and heifers**, in particular during milking, or to restrict calving and urination into a particular area of the manure alley, **not used electric wires**
- **the milking technique** must be selected and the milking equipment maintained in **such a way as to avoid damage to the mammary gland.**

Types of milking parlors

- Parallel parlour

<https://www.youtube.com/watch?v=Ut2nRYNTZr0>

- Tandem parlour

<https://www.youtube.com/watch?v=J9vrUbn2egA>

- Rotary parlour

<https://www.youtube.com/watch?v=tGz49zuBsO8>

- Herringbone parlour

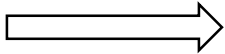
<https://www.youtube.com/watch?v=LAswFrj7o8Y>

Overview of all types:

<https://www.dairydiscoveryzone.com/blog/4-modern-milking-parlor-designs>

Hygienic milking practices

- **inspecting the animals** on a daily basis, they must **attention must be paid to the mammary gland and the genital organs.**



- Milking personell must maintain personal hygiene
- Clean udder, teat, groin, flank and abdomen of the animal
- Disinfect milking vessels/equipment
- Avoid any damage to the teat/udder tissue

Look at useful links

Examples of unsuitable environment technology or welfare

- **Microclima condition:** heat stress (production dairy cows, calves) or cold stress (calves up to 4 weeks of age)
- **Environmental hygiene:** problem with hooves, mammary gland (environmental mastitis)
- **Housing area:** lack of places (lying boxes), number of places in the feeding area
- **Handling:** inadequate, rough handling
- **Milking parlor:** technical condition of the milking machine (vacuum size)
- **Nutrition and watering:** frequency and quality of feed ration, hygiene of feeding and watering equipment
- **Animal health status:** hooves (overgrowth, deformities, changes in posture...) malnutrition
- **Behaviours:** stereotype

Heat stress evaluation

For interest only:

<https://www.partners-in-reproduction.com/wellbeing/stress-factors/heat-stress/>

Main health problems in cattle

Dairy cattle

- **Hoove diseases** (overgrowth, deformities, laminitis - changes in posture)

Particular attention must be paid to the condition of the hooves **in all categories of adult cattle**; preventive measures include checking the condition of the hooves and hoof treatment carried out in at regular intervals so as to prevent overgrowth of horn or other damage hoof and painful conditions causing a change in physiological posture or mobility of animals.

Hoof trimming

- Hoof trimming should be performed every 6 months or more

Look at useful links

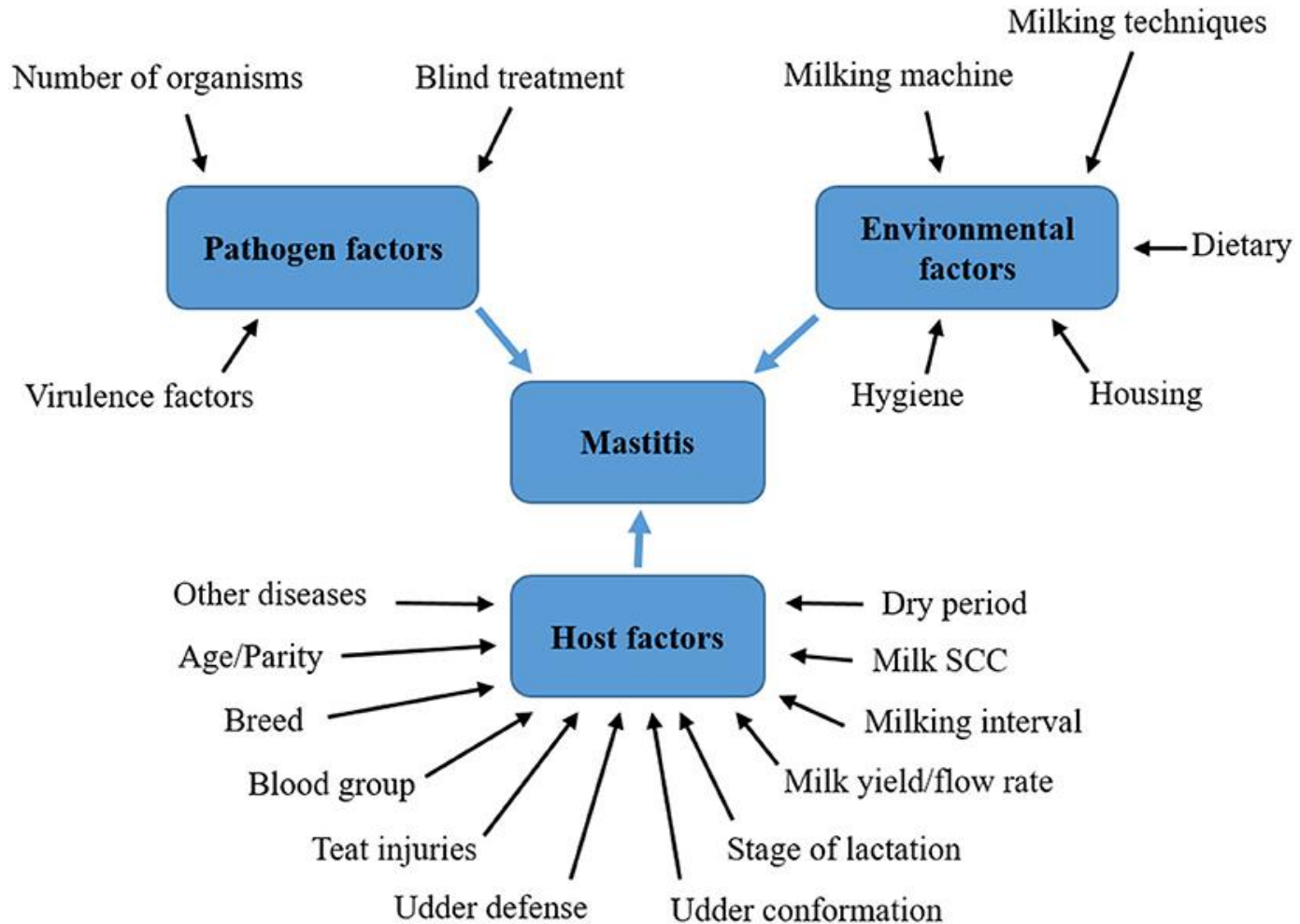
The Lameness Scoring System

Assessment of a cow's lameness score gives a visual assessment of the severity of a cow's lameness.

- **Lameness Score 0** - Walks evenly. No action required.
- **Lameness Score 1** - Walks unevenly. Minor action required. Record and keep an eye on her - some cows normally walk unevenly.
- **Lameness Score 2** - Lamé. Action required. This cow is lame and needs to be reported, drafted and examined within 48 hours.
- **Lameness Score 3** - Very lame. Urgent action required. This cow is very lame and needs urgent attention. Draft and examine as soon as possible within 24 hours. She may require a vet.

<https://www.dairynz.co.nz/media/5559877/lameness-scoring-poster-dairynz.pdf>

Mammary gland disease (mastitis)



For interest only:

<https://www.researchgate.net/publication/349461299> Maintaining Optimal Mammary Gland Health and Prevention of Mastitis

Other metabolic diseases of cattle

Energy Related Disorders:

- *Fatty Liver Syndrome*
- *Ketosis*
- *Rumen Acidosis*
- *Laminitis*
- *Displaced Abomasum*
- *Milk Fat Depression*

Minerals/Vitamins Related Disorders

- *Hypocalcemia (Milk Fever)*
- *Udder edema*
- *Retained Placenta*

Body condition score of cattle

- Body Condition Score (BCS) charts come in either 1-through-5 or 1-through-9 versions. The Body Condition Score is something to consider when estimating or predicting size, weight or frame scores in cattle. BCS's may be used as a standardized description for communicating with your veterinarian, when buying or selling cattle and other situations. Since body condition greatly affects reproductive performance as well as feed efficiency, knowing and monitoring BCS can influence a producer's bottom line.

- https://www.dairygoldagri.ie/farm_focus/bcs/

1 – so thin

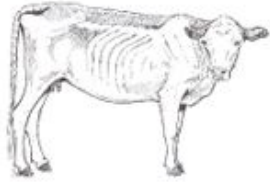
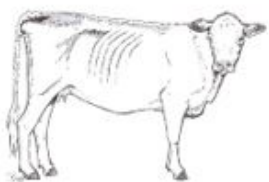
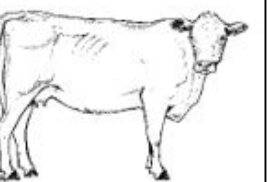
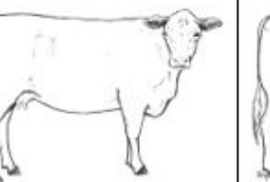
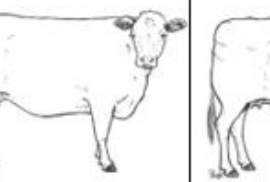

5 – so fat

3,5 - before birth

2,5 – after lacting period

Hold in range 2,5 – 3,5

Mature cow body condition scores for Angus

	BCS 0	BCS 1	BCS 2	BCS 3	BCS 4	BCS 5
						
Brief Description	<ul style="list-style-type: none"> • Weak, with no body reserves. At risk of death from cold, wet weather or other stressors • Recovery for transport dependent on high quality care but will be slow 	<ul style="list-style-type: none"> • Healthy but with significant muscle wastage • Able to recover from transport if adequately fed 	<ul style="list-style-type: none"> • Lean but strong and healthy with evident muscle wastage 	<ul style="list-style-type: none"> • Moderate condition with rounding of skeletal features • Ideal condition for cows at weaning 	<ul style="list-style-type: none"> • Healthy with significant fat reserves • Ideal condition for cows at joining 	<ul style="list-style-type: none"> • Excessively fat animals with no skeletal features visible • A block shaped appearance and mobility only to walk.
Pin bones	<ul style="list-style-type: none"> • Inside of pin bones deeply sunken to the bone 	<ul style="list-style-type: none"> • Inside of pin bones sunken 	<ul style="list-style-type: none"> • Inside of pin bones slightly sunken 	<ul style="list-style-type: none"> • Filled but not mounded 	<ul style="list-style-type: none"> • Filled and mounded 	<ul style="list-style-type: none"> • Not identifiable due to fat coverage
Hip and rump	<ul style="list-style-type: none"> • Hook bone prominent with rump deeply concave 	<ul style="list-style-type: none"> • Hook bone prominent with rump concave 	<ul style="list-style-type: none"> • Hook bone prominent with rump slightly concave 	<ul style="list-style-type: none"> • Hook bone prominent 	<ul style="list-style-type: none"> • Smoothly rounded 	<ul style="list-style-type: none"> • Not identifiable due to fat coverage
Backbone	<ul style="list-style-type: none"> • Spines of backbone individually identifiable 	<ul style="list-style-type: none"> • Spines of backbone identifiable 	<ul style="list-style-type: none"> • Easily seen 	<ul style="list-style-type: none"> • Not prominent 	<ul style="list-style-type: none"> • Not prominent with rounded appearance 	<ul style="list-style-type: none"> • Not identifiable due to fat coverage
Short ribs	<ul style="list-style-type: none"> • Very prominent and easy to see individually 	<ul style="list-style-type: none"> • Prominent and very sharp to the touch 	<ul style="list-style-type: none"> • Visible but not individually and <u>fairly sharp</u> to the touch 	<ul style="list-style-type: none"> • Visible and are easily felt with firm pressure as 'rounded' rather than sharp 	<ul style="list-style-type: none"> • Visible and are easily felt with firm pressure 	<ul style="list-style-type: none"> • Cannot be seen or felt
Dewlap	<ul style="list-style-type: none"> • Dewlap is a skin fold with sternum identifiable 	<ul style="list-style-type: none"> • Dewlap has no fat 	<ul style="list-style-type: none"> • Dewlap has some fat 	<ul style="list-style-type: none"> • A little fill in the brisket/sternum 	<ul style="list-style-type: none"> • Full in the brisket /sternum 	<ul style="list-style-type: none"> • Rounded fat deposit at the brisket/ sternum

- **Reproductive disorders**

- **Infertility**

- **Postpartum complications - retained placenta, downer cow complex...**

Beef cattle

– especially parasitic diseases but also the disorders mentioned above but usually in few cases

Model examples

- Use the **Decree on minimum standards for the protection of farm animals**
- select the appropriate provision of the decree – **address** (§ 2 (3) n)
- Is the case pursuant to/ against the decree?

Amendment of the minimum standards for the protection of the **category cows and heifers**

Automatic milking system (AMS): is robotically (comprehensive) absolutely controlled automatic milking system, which also ensures **fully controlled movement of the herd in the stable (system of selective gate for moving of cows)**

- **it is possible to increase the number of housed animals by up to 20 % compared to the number of lying boxes if the animal movement control system ensures that the number of animals in the lying box area does not exceed**
- **must be provided an adequate number of AMS per dairy cow, there must be no reduction in the throughput of the milking parlor and no excessive accumulation of dairy cows waiting to be milked. '**

Automatic milking system

- <https://www.youtube.com/watch?v=5cWiEp10ruA>