Welfare Monitoring System

Assessment protocol for horses

LIVESTOCK RESEARCH
WAGENINGEN UR

Colophon

Welfare Monitoring System – Assessment protocol for horses – version 2.0

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Wageningen UR Livestock Research and Central Veterinary Institute of Wageningen UR, both part of Stichting Dienst Landbouwkundig Onderzoek (DLO Foundation), together with the Department of Animal Sciences of Wageningen University comprises the Animal Sciences Group of Wageningen UR (University & Research centre).

WELFARE MONITORING SYSTEM FOR HORSES: PROTOCOL

Assessing animal welfare is a multidisciplinary process in which the total assessment ought to be based on various measures that make up a more complete picture of the welfare of an animal at that time. Therefore the protocol for assessing the welfare of horses consists of both physiological and behavioral measures, with emphasis on health and behavior.

This document describes the protocol for horses in more detail. For the development of the protocol the Welfare Quality® framework was used. For each measure there is a description how to assess the measure including the method of classification.

The protocol for assessment of the welfare of horses consists of animal based measures and environmen based measures (Part A) and general characteristics of the farm and horses (Part B). In carrying out the welfare monitoring system for horses a sample (a limited number of horses) is drawn in which the welfare is assessed on the basis of animal- and environment based measures. Each measure is assessed for each animal. The assessment scales (classification) differ from measure to measure: an incremental scale of 'no evidence for a problem ' to 'evidence for a problem' , assessment choices using non-ascending or descending categories (i.e. housing type). For most measure a score of 0 represents a normal (no evidence for a problem) condition. The value and interpretation (what does this mean for the welfare?) that can be attributed to a deviation from the normal state is being established in advance by a group of experts.

The Welfare Monitoring System for horses need to be conducted by a trained assessor. The assessor will need to be trained by certified trainers. The training implies the assessment of photographs, but largely implies practical training 'on farm'.

While running the Welfare Monitoring System for horses it is important that the assessor should not enter into discussions with the owner or stable manager on the prevalence or severity of health and behavior problems, nor advise at the moment of monitoring. Executing the welfare monitor is limited strictly to data collection according to the assessment protocols. Results should be made available as feedback for the horse owner and/or stable manager. How to improve welfare, based on the results of the monitor, will need to be implemented in the advice of the professionals (veterinarian, behaviorist, farrier, dental caregiver etc.).

The description of the measures is followed by sampling and practical information (Part C). This will include attention to safety, additional manpower, order and required time and sample size requirements.

PART A

Measures that fit into the Welfare Quality® classification

Table 1. Classification of animal- and environment based parameters for horses according to the Welfare Quality® system

Principle		Welfare criteria	Animal-based measure	Management/resource -based measure
Good feeding	1	Absence of prolonged hunger	Body Condition Score, wear pattern incisors	Feed intake (roughage/concentrates, interval (time) forage/roughage intake, height concentrates trough, order roughage-concentrates), inspection
	2	Absence of prolonged thirst	*As yet, no animal based measure has been developed*	Water provision (cleanliness, functioning, availability)
Good housing	3	Comfort around resting	*As yet, no animal based measure has been developed*	Comfort around resting (noise around box, clean and dry lying area, bedding)
	4	Thermal comfort	*As yet, no animal based measure has been developed*	Climate (temperature, humidity, ventilation, ammonia in the box; shelter)
	5	Ease of movement	*As yet, no animal based measure has been developed*	Ease of movement (area per horse in relation to its withers' height, space in paddock/pasture)
Good health	6	Absence of skin lesions and wounds	Patches of white hairs, wounds, swollen legs, length whiskers, hoof condition, lameness	Safety (public and horse area) in terms of risk of slipping, sprain/stumbling/ tripping, injuring at protrusions or crevices, bumping.
	7	Absence of disease	Breathing, coughing, nasal discharge, skin irritation lower legs, generalized skin problem, rubbed and broken hairs mane and tail, coat condition, itchiness, ocular discharge, Body Condition Score	*As yet, no environment based measure has been developed*
	8	Absence of discomfort caused by use	Back muscles, mouth corners, bars	*As yet, no environment based measure has been developed*
Appropriate behaviour	9	Expression of social behaviours	*As yet, no animal based measure has been developed*	Possibilities for social contact
	10	Expression of other, species-specific behaviour	Wear incisors, abnormal behaviour	*As yet, no environment based measure has been developed*
	11	Good human-animal relationship	*As yet, no animal based measure has been developed*	*As yet, no environment based measure has been developed*
	12	Positive emotional state	*As yet, no animal based measure has been developed*	Possibilities for providing visual horizon

1. Good Feeding

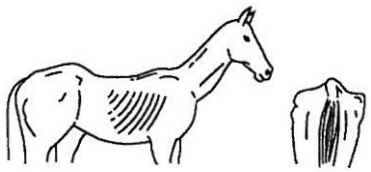
1.1. Absence of prolonged hunger

Title	Poor Body Condition
Scope	Animal based parameter
Method description	Assess the horse without a rug, at a sufficiently lit space, where it is safe to walk around the horse. 1. Approach the horse quietly from the front, comfort the horse and start with a general inspection from the side of the horse 2. Visually assess the fat/muscle covering the ribs, neck, shoulder, back, abdomen and hindquarters 3. If the ribs are not visible approach the horse and palpate the ribs 4. Stand at a safe distance behind the horse and assess the fat reservoirs/deposits around the tail bone/caudal vertebra of the horse, assess the shape of the croup, the visibility of the spine and hip bone Use the Body Condition Score system of Carrol and Huntington (1988) with a scale from 0 (very poor) to 5 (very fat). This system is used for all breeds and all purposes of use. Only for broodmares use the custom made system (Carol and Huntington, 1988). *Exception* For this measure only assess horses that are (too) poor or moderate (score 0, 1, 2) and/or normal (score 3). Horses that are (too) thick/fat/overweight (score 4 and 5) are scored at a separate measure.
Classification	**0** – Very poor **1** – Poor **2** – Moderate **3** – Good

Score 1

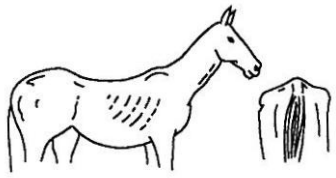
Score 2

BCS system for all horses, exception broodmares



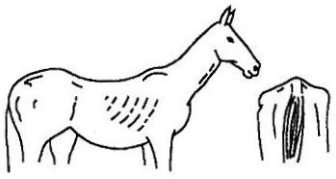
0 Very poor

Pelvis	*Back and ribs*	*Neck*
Angular, skin tight Very sunken rump Deep cavity under tail	Skin tight over ribs Very prominent and sharp backbone	Marked ewe neck Narrow and slack at base



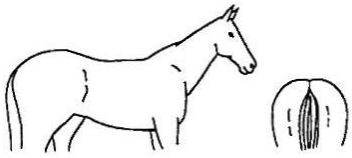
1 Poor

Pelvis	*Back and ribs*	*Neck*
Prominent pelvis and croup Sunken rump but skin supple Deep cavity under tail	Ribs easily visible Prominent backbone with skin sunken on either side	Ewe neck, narrow and slack at base



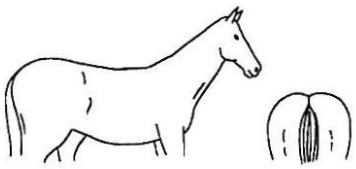
2 Moderate

Pelvis	*Back and ribs*	*Neck*
Rump flat either side of backbone Croup well-defined, some fat Slight cavity under tail	Ribs just visible Backbone covered but spines can be felt	Narrow but firm



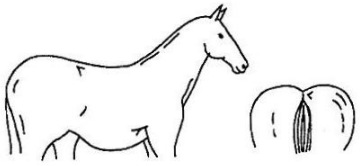
3 Good

Pelvis	*Back and ribs*	*Neck*
Covered by fat and rounded No gutter Pelvis easily felt	Ribs just covered and easily felt No gutter along back Backbone well covered but spines can be felt	No crest (except for stallions) firm neck



4 Fat

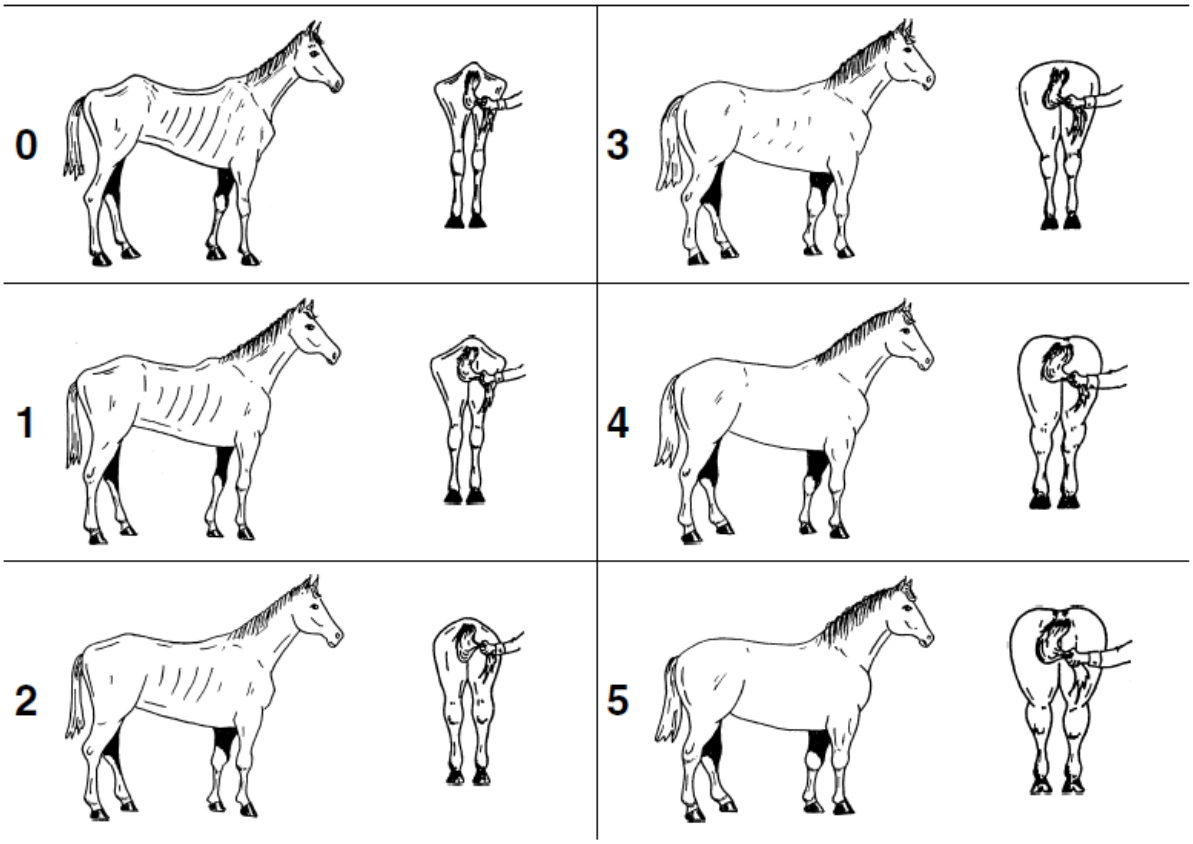
Pelvis	*Back and ribs*	*Neck*
Gutter to root of tail Pelvis covered by soft fat Need firm pressure to feel	Ribs well covered – need pressure to feel	Slight crest Wide and firm



5 Very fat

Pelvis	*Back and ribs*	*Neck*
Deep gutter to root of tail Skin dispended Pelvis buried, cannot be felt	Ribs buried, cannot be felt Deep gutter along back Back broad and flat	Marked crest Very wide and firm Folds of fat

BCS system broodmares



Condition	*Neck*	*Withers*	*Back & Loin*	*Ribs*	*Hind Quarters*
0 very poor	Bone structure easily felt no muscle shelf where neck meets shoulder	bone structure easily felt	3 points of vertebrae easily felt	each rib can be easily felt	tailhead and hip bones projecting
1 poor	can feel bone structure slight shelft where neck meets schoulder	can feel bone structure	spinous process can be easily felt transverse processes have slight fat covering	slight fat covering, but can still be felt	can feel hip bones
2 moderate	fat covering over bone structure	fat deposits over withers dependent on conformation	fat over spinous processes	can't see ribs, but ribs can still be felt	hip bones covered with fat
3 good	neck flows smoothly into shoulder	neck rounds our withers	back is level	layer of fat over ribs	can't feel hip bones
4 fat	fat deposited along neck	fat padded around withers	positive crease along back	fat spongy over and between ribs	can't feel hip bones
5 very fat	bulging fat	bulging fat	deep positive crease	pockets of fat	pockets of fat

Title	Wear pattern incisors: feed intake
Scope	Animal based measure
Method description	Check for abnormal wear of the incisors possibly negatively affecting feed intake. • Comfort the horse • Gently spread the upper and lower lips from each other • Assess the position of the incisors relative to each other Indicate for each of the following types of irregularities and/or abnormalities if there is evidence for it or not. 1. overbite (parrot mouth) or underbite (sow mouth) where grinding surfaces do not make contact 2. smile, smirk, diagonal curvature *Exception* The abnormal wear of incisors that is characteristic for crib-biting (from outside to inside; 'from lips to cavity') should be recorded at another measure.
Classification	**0** — No evidence of abnormal wear pattern of this type **1** — Evidence of abnomral wear pattern of this type

Type 1, score 1

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Type 2, score 1

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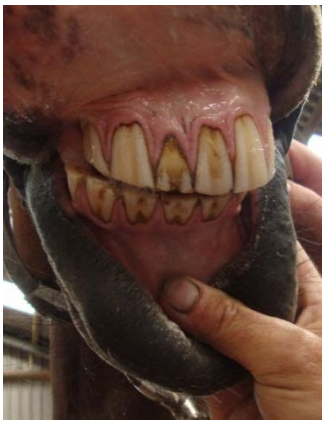

Type 2, score 1

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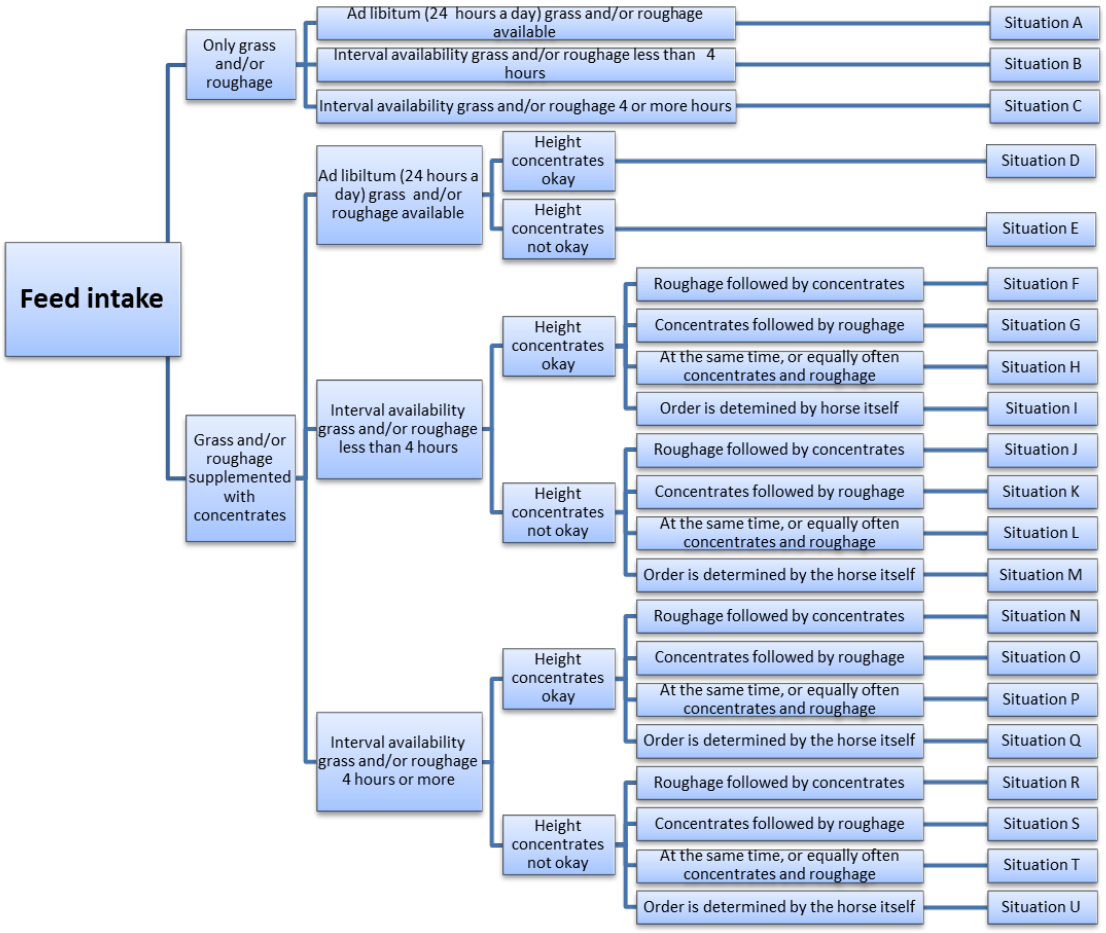
Title	Inspection horse teeth
Scope	Environment based measure
Description method	Ask if, and if so, with what frequency the horse teeth are being inspected by an equine dental technician or veterinarian.
Classification	**0** — At least once a year **1** — Less than once a year **2** — No inspection by equine dental technician or veterinarian

Title	Feed intake
Scope	Environment based measure
Description method	Follow the decision tree feed intake taking into account the following points and determine which situation is most applicable for this horse 1. Determine if the horse is fed only roughage or roughage and concentrates 2. Determine if roughage (exclusive straw bedding) or grass is available ad libitum (24 hours a day) or if there is an interval (more or less than 4 hours) between the availability to eat roughage or grass

	3. If the horse is fed concentrates assess the height of the feed trough (the height is okay if the highest point of the feed trough is equal or lower in relation to the horse's onset of the neck). 4. If the horse is fed both roughage and concentrates determine the order in which roughage and concentrates are given: a. First roughage, followed by concentrates b. First concentrates, followed by roughage c. Simultaneously fed roughage and concentrates or equally often fed roughage followed by concentrates and vice versa d. Horse determines the order itself (for example hit active stables).



Classification	Classify the horse in one of the 21 possible (A – U) situations

1.2. Absence of prolonged thirst

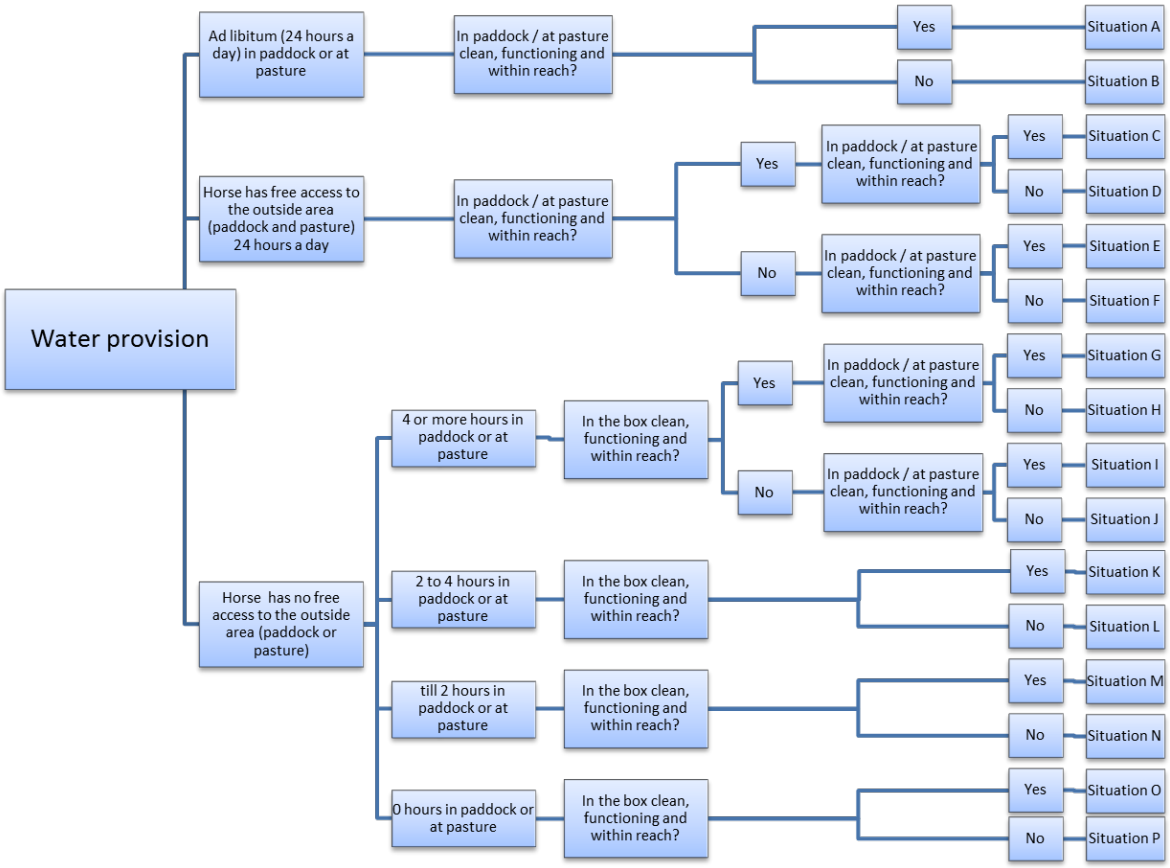
Title	Water provision
Scope	Environment based measure
Description method	Follow the decision tree water provision taking into account the following points and determine which situation is most applicable for this horse 1. Determine the possibilities of access to pasture/paddock 2. If the horse is not free to move inside and outside ask how many hours a day the horse is put outside (pasture/paddock) at this moment:

- 0 hours
- up to 2 hours
- 2 to 4 hours
- over 4 hours

3. For the horses which stay not outside 24 hours a day determine if the water provision in the box
   - is functioning
   - is within reach (highest point not higher than the onset of the neck)
   - if the water is clean (clear and does not smell)

   If one of these points can be answered with *no*, choose *no* in the decision tree
4. For the horses which are put outside for more than 4 hours a day determine if the water provision at pasture/paddock is:
   - is functioning
   - is within reach (highest point not higher than the onset of the neck, not too steep, not frozen etc.)
   - if the water is clean (clear and does not smell)

   If one of these points can be answered with *no*, choose *no* in the decision tree.

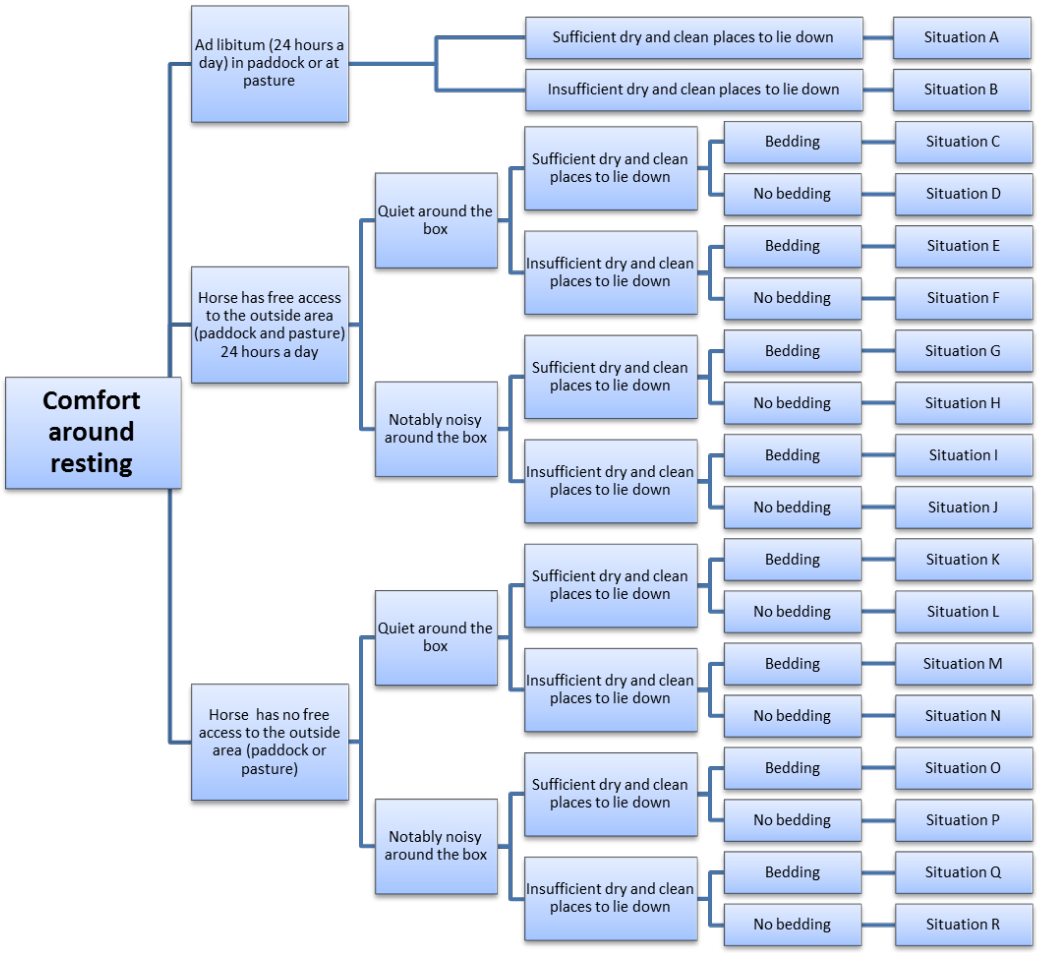


Classification	Classify the horse in one of the 16 (A – P) possible situations

2. Good Housing

2.1. Comfort around resting

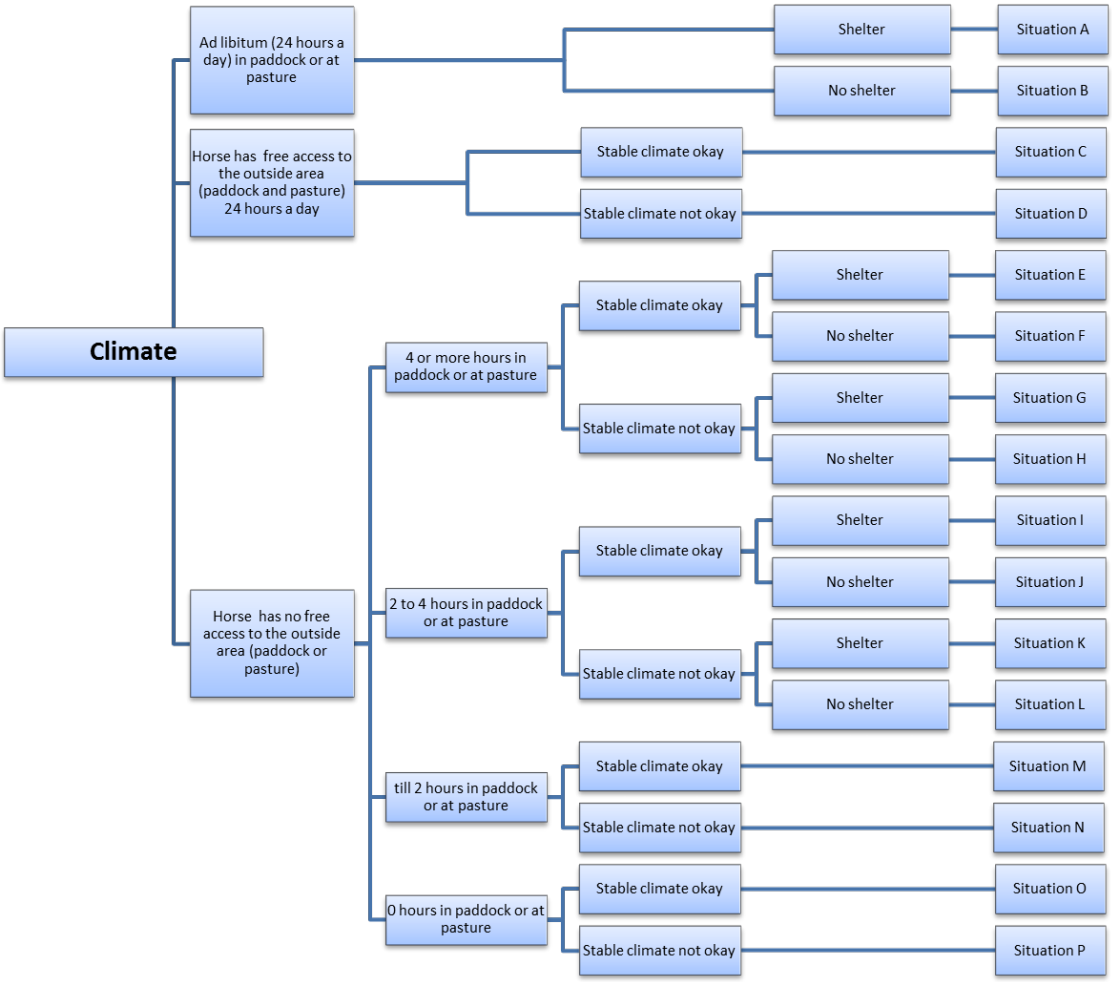
Title	Comfort around resting
Scope	Environment based measure
Description Method	Follow the decision tree comfort around resting taking into account the following points and determine which situation is most applicable for this horse 1. Determine the possibilities of access to pasture/paddock 2. For horses which stay not outside (pasture/paddock) 24 hours a day determine if: • it is quiet in the direct vicinity of the box or • if it is notably noisy in the direct vicinity of the box (i.e. loudspeakers, shouting children, noisy fans, tractors, feeding machines, mechanical sweeper) 3. Determine if there are sufficient dry and clean places to lie down for all horses (there are *in*sufficient dry places if the pasture or paddock is entirely muddy) 4. Determine the bedding of the horses which have a stall inside: • Bedding (straw/shavings/hemp/flax/rubber/sand) • No bedding (concrete)



Classification	Classify the horse in one of the 18 (A – R) possible situations

2.2. Thermal comfort

Title	Climate
Scope	Environment based measure
Description method	Follow the decision tree climate taking into account the following points and determine which situation is most applicable for this horse 1. Determine the possibilities of access to pasture/paddock 2. If the horse is not free to move inside and outside ask how many hours a day the horse is put outside (pasture/paddock) at this moment: • 0 hours • up to 2 hours • 2 to 4 hours • over 4 hours 3. Determine if the climate in the box is okay for the horses which have a stall inside. The climate is okay when 3 of the following 4 characteristics are okay, including ventilation and concentration ammonia. • ventilation • concentration ammonia • temperature • humidity **Procedures** *Ventilation* De ventilation (air circulation) is subjectively assessed at the height of the horse's abdomen, preferable in the middle of the box. Use a small powder smoke bottle to determine how quick the powder disperses. Hold the powder smoke bottle in the middle of the box at the height of the horse's withers. Squeeze once and count the seconds until the powder has dispersed. The air circulation is valued okay when the powder has dispersed in more or less all directions within 3 seconds. *Concentration ammonia* Determine if ammonia can be smelled in the box. The concentration ammonia is valued okay when it cannot be smelled. *Temperature* Measure the temperature in de box at the height of the horses's abdomen. Note the air temperature in whole grades Celsius. The temperature in the box is valued okay when it is within the thermoneutral zone (+5 en +25 graden Celsius) or when it is outside the thermoneutral zone when it is definite clear that the horse is offered sufficient possibilities to compensate (feeding, water, shelter). *Relative air humidity* The relative air humidity is measured at the height of the horse's abdomen, preferable in the middle of the box. Note the relative air humidity in whole percentages. The relative air humidity is regarded OK when it lies between 60-80% (including the 60% and the 80%). 4. Determine for the horses which stay outside (paddock/pasture) for more than 2 hours a day if there are sufficient possibilities to seek shelter (including trees, bushes) for precipitation, wind and/or sun.



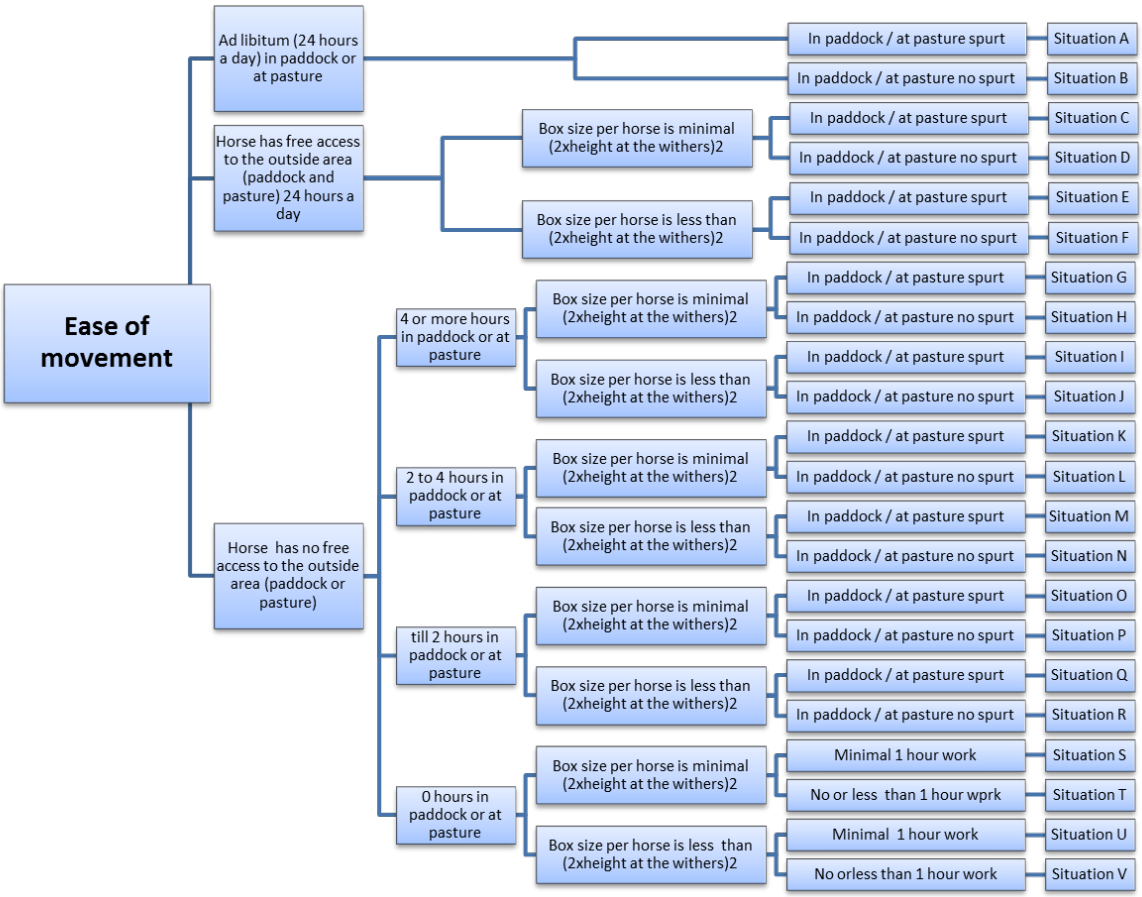
Classification	Classify the horse in one of the 16 (A – P) possible situations

2.3. Ease of movement

Title	Ease of movement
Scope	Environment based measure
Description method	Follow the decision tree ease of movement taking into account the following points and determine which situation is most applicable for this horse. Presume that each horse is also being worked normally (including training). 1. Determine the possibilities of access to pasture/paddock 2. If the horse is not free to move inside and outside ask how many hours a day the horse is put outside (pasture/paddock) at this moment: • 0 hours • up to 2 hours • 2 to 4 hours • over 4 hours 3. Determine for horses which have a stable the area per horse in relation to the equitation (2 x height at the withers)^2 by quantifying: • the maximum number of horses using the same inside area (box) • the height of the withers of the horse, or the average of the

height of the horses
- the surface area of the inside area / box

4. For the horses which stay outside or are put outside in paddock/pasture determine if the area is large enough for a small spurt (minimum of 5 gallops)
5. Determine for the horses which do not come outside in paddock or pasture how many hours a day they are being worked (training, instruction lessons, trainingsmill).

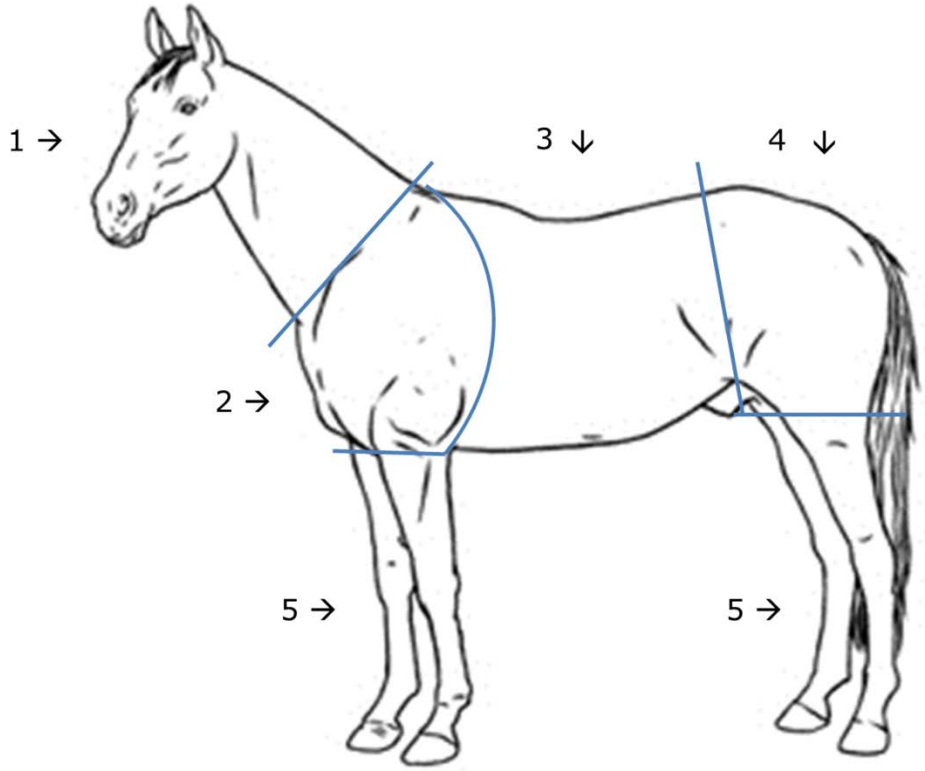


Classification	Classify the horse in one of the 22 (A - V) possible situations

3. Good health

3.1. Absence of injuries

Title	Patches of white hairs
Scope	Animal based measure
Description method	Check the horse for obtained unnatural patches of white hairs, presumably caused by harnass (including halters, bridles, girths, saddles, rugs, tendon boots, bandages, breastcollar, crupper, trace, equipment on the horse that prevents cribbing and weaving) Note: also grey horses and horses with white markings need to be checked fully. Check at each of the following 5 locations for obtained unnatural patches of white hairs. **Locations** 1. Head/neck at places where harnass is or could have been present 2. Shoulder/frontquarters at places where harnass is or could have been present (i.e. rug) 3. Middle piece (including the withers) at places where harnass is or could have been present (i.e. saddle, girth) 4. Hindquarters at places where harnass is or could have been present (i.e. rug) 5. Legs at places where harnass is or could have been present (i.e. tendon boots, bandages)



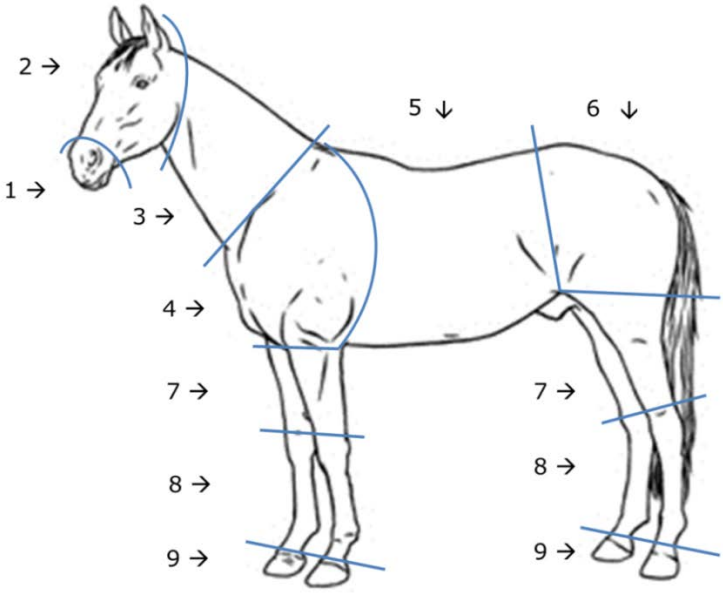
Classification	**0** – No evidence of obtained unnatural patches of white hairs **1** – Evidence of obtained unnatural patches of white hairs

Location 1, Score 1

Location 3, Score 1

Location 5, Score 1

Title	Wounds
Scope	Animal based measure
Description method	Check the horse for injuries. If it is necessary for the assessement, horses may be palpated at the areas of concern only if the safety of horse and humans is not compromised. *Exception* • Injuries and wounds at the mouth corners, bars, tailonset, and manes are not included in this measure. For these areas use the specific measures: mouth corners, bars, tails and manes. • Swollen legs, presumable caused by an internal factor (i.e. windgalls, trush, hygroma, stocking up legs, carpal hygroma), are not included in this measure. For these use the specific measure swollen legs. Check at each of the following locations the severity of the injury: **Locations** 1. muzzle 2. head (including the ears) 3. neck (excluding withers, excluding chest) 4. shoulder and voorhand (excluding elbow) 5. barrel, girth, back and withers 6. hindquarters (including croup, thigh, flank; excluding stifle) 7. upper legs (including elbow, excluding knee; including stifle, excluding hock) 8. lower legs (including hock, knee, pastern, excluding coronet) 9. hoofs and coronet



Classificatie	**0** – no evidence of injuries or wounds that are worth mentioning **1** – loss of hair: hairless spot or scar (minimum 1 cm^2 (pinknail) or 3 or more laesies of 2 or more cm per location) **2** – swollen spot (presumably caused by external factor) with or without loss of hair **3** – superficial wound where the skin is not perforated, underlying tissue is not visible (scrapes, bites, kicks) **4** – injury with a (minor) cut through the skin, or wound that has been stitched **5** – larger injury, wound (>3 cm) through the skin involving damage to deeper tissue, or a larger wound that not has been stitched.

Location 1, score 0 (only 1 scratch)

Location 5, score 1

Location 7, score 3

Location 5, score 4

Location 8, score 4

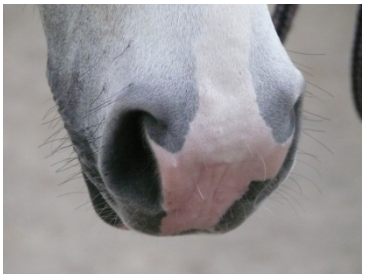
Title	Swollen legs
Scope	Animal based measure
Description method	Determine if the horse has swollen legs presumably caused by an internal factor such as: windgalls, trush, hygroma, stocking ups legs, carpal hygroma. Swelling needs to be clinically visual from a distance of 3 meters. If necessary, horse can be approached and legs can be palpated carefully to seek for confirmation only if horse and human safety are not being compromised.
Classification	**0** – no evidence for swollen legs with an internal cause **1** – evidence of swollen legs with presumably an internal cause

Windgall – score 1

Trush – score 1

Title	Length whiskers
Scope	Animal based measure
Description method	Determine the length of the whiskers at the muzzle. Regard the longest whiskers.
Classification	**0** – longest whisker measures more than 1 cm **1** – longest whisker measures less or equal to 1 cm

Score 0



Score 0

Score 1

Title	Hoofcondition
Scope	Animal based measure
Description method	Determine the condition of the hoofs on a hard and even ground. Check for signs of neglection such as far too long feet, toes backed up, severely diverging growrings, severe hoof cracks and laminitis slippers
Classification	**0** – no signs of neglection **1** – signs of neglection

Score 0

Score 1

Score 1

Title	Lameness
Scope	Animal based measure
Description method	• Locomotion is assessed on a hard and even underground; if this is not possible it should be registered that the assessment took place on a soft underground. • Seek for a quiet and safe place to assess the locomotion (no barking dogs, moving vehicles, running children). • Rearing stock can be assessed in the group, this should be registered. • If a horse is obviously lame or known to be lame (information from owner of stable manager) there is no need for the full assessment procedure, a score 2 (lame) should be filled in directly. **Procedure** Seek for a safe place and instruct the handler: 1. handler handles and walks/trots with the horse 2. the head of the horse can move freely: the rope between the handler and the halter is curved 3. when the horses is too excited, a bridle should be used 4. walk for approximately 20 meter in a straight line, turn around (wide turn) and walk back 5. trot for approximately 30-40 meters (easy but active trot), change to walk, turn around, trot back. With a forelimb lameness, the head will drop when the sound foot hits the ground and rise when weight is put on the lame leg. This is logical because the animal is attempting to minimize the stress and weight put on the affected limb. With a hindlimb lameness, the arc of the foot flight is often reduced. The pelvis will rise just as the lame foot hits the ground.
Classification	**0 =** no evidence of irregular locomotion or lameness **1 =** evidence of irregular, stiff, short locomotion; not possible to point out which leg is causing the irregular motion or lameness **2 =** evidence of lameness; clear which leg is causing the lameness If applicable register: soft underground and/or assessed in group.

Title	Safety – public area
Scope	Environment based measure
Description method	Check if the farm has a safety certificate which includes safety of housing of horses. If the farm has a safety certificate all 4 risk fields

	mentioned below can be assessed as 'no or minor risk' (score 0). If the farm has no safety certificate which included safety of housing horses the assessor needs to assess all four risk fields below. Assess the risk for each risk field as 'no or minor risk' or 'reasonable or large risk' **Risk fields** 1. to slipp (slippery floors) 2. to sprain, stumble (substantially uneven underground) 3. to injure (cracks in partitions and/or projections of >2 cm) 4. to bump (too low ceiling: lowest point is less than 1 meter above height of wither; too small corridors (less than 1,2 m); too low entrances (less than 2,10 m)
Classification	**0** – no or minor risk **1** – reasonable or large risk
Additional information	When one or more of the above mentioned risk fields are assessed with a score 0 (no or minor risk) the safety of the horse area of the horse has to be assessed as well.

Title	**Safety – horse area**
Scope	Environment based measure
Description method	Determine if the horse in the box is exposed to any risk to injury itself Assess the risk for each risk field as 'no or minor risk' or 'reasonable or large risk' **Risk fields** 1. to slipp (slippery floors) 2. to sprain, stumble (considerable uneven underground) 3. to injure (cracks in partitions and/or projections of (>2 cm) 4. to bump (too low ceiling: lowest point is less than 1 meter above height of wither; too small corridors (less than 1,2 m); too low entrances (less than 2,10 m)
Classification	**0** – no or minor risk **1** – reasonable or large risk

Risk field 4, score 1

Risk field 3, score 1

Risk field 3, score 1

3.2. Absence of disease

Title	Breathing
Scope	Animal based measure
Description method	*Preparation* • Assess the horse preferably in its home environment (box), otherwise choose a quiet not too cold or warm place • If applicable, have the rug removed • Acclimatisation: wait for 1 minute, or until horse seems at ease. If this takes too long, or does not work, assess the breathing at a later stage • The horse should be haltered during the assessment, with its head in a normal and relaxed position Observe the horse's breathing. Preferably, stand diagonally behind the horse. Abnormal breathing is defined as a deep and too abdominal breathing (expiration is visibly supported by the muscles in the trunk) often accompanied by a pronounced sound and/or abdominal/labored breathing and/or heaving (clear difference between passive and active phase).
Classification	**0 =** No evidence of abnormal breathing **1 =** Evidence of abnormal breathing

Preferably stand diagonally behind the horse

Title	Coughing
Scope	Animal based measure
Description method	Count the number of coughs during the assessment of health and behaviour. Every cough counts.
Classification	Number of coughs

Title	Nasal discharge
Scope	Animal based measure
Description method	Nasal discharge is defined as clearly visible non transparent and/or not waterlike discharge from one or both nostrils Note: Only assess the horse when it has not worked the previous 30 minutes. Check with the handler.
Classification	**0** – No evidence of nasal discharge **1** – Evidence of nasal discharge (at least one nostril)

Score 0

Score 0

Score 1

Title	Skin irritation lower legs
Scope	Animal based measure
Description method	Check if the horse has dermatitis at the lower legs, especially in the pastern. If necessary, horse can be approached and legs can be palpated carefully to seek for confirmation only if horse and human safety are not being compromised.
Classification	**0** – No evidence of equine pastern dermatitis at the lower legs / pastern **1** – Inflammation with red skin and flakes at the lower legs / pastern **2** – Scaps, chaps, swelling at the lower legs / pastern

Score 1

Score 2

Title	Gegeneralised skin problem
Scope	Animal based measure
Description method	Check the horses for other skin problems indicating a generalised skin problem. For example: sunburn. If necessary, horse can be approached and spots can be inspected carefully to seek for confirmation only if horse and human safety are not being compromised.
Classification	**0 =** No evidence of generalised skin problem **1 =** Evidence of generalised skin problem

Sunburn - score 1

Title	Rubbed and broken hairs in mane and tail
Scope	Animal based measure
Description method	Check the manes and the tail onset for clearly visible displacements of hairs and/or onnatural broken hairs and/or affected skin and coat due to excessive rubbing manes or tail. If necessary, areas can be palpated carefully to seek for confirmation only if horse and human safety are not being compromised.
Classification	**0** – No evidence for rubbed and broken hairs in mane or onset of tail **1** – Evidence of an area of at least 10 cm (manes) or 5x5 cm (onset of tail) unnaturally broken and clearly visible displaced hairs **2** – Evidence of unnatually broken and clearly visible displaced hairs accompanied with clearly visible alterations in skin and/or coat due to excessive rubbing

Score 1

Score 2

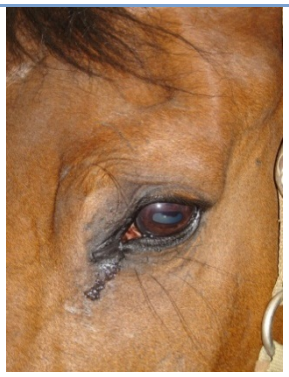
Title	Coat condition
Scope	Animal based measure
Description method	Assess the coat condition. Base the assessment on a picture of the whole horse. *Exception* • Local alterations in coat condition are not included • Changing coat Please note that some breeds chang coats later in the season or have an irregular change pattern.
Classification	**0** — Sleek, glossy, nicely sited coat **1** — dull, dry coat with or without rough coat

Score 0

Score 1

Title	Itchiness
Scope	Animal based measure
Description method	Assess wether or not the horse show signs of itching: stamp one's hoofs, rubbing one's head against legs, or rub any other bodypart against objects or persons without being caused by external factors like on the moment present insects. *Exception* Itching at the tail onset and manes are excluded in this measure; for these the measure rubbed and broken hairs in mane and tails should be used. Ceck if the horses itches for one or both of the following locations: **Locations** 1. (lower) legs 2. Other body parts (excluding manes and tail)
Classification	**0** — No evidence for itching **1** — Evidence for itching

Title	Ocular discharge
Scope	Animal based measure
Description method	Check the horse's eyes for ocular discharge
Classification	**0** — No ocular discharge **1** — Dirty eye with (dried) mucus discharge from the corner of the eye without a visible eay discharge (eye discharge = > 1cm long flow) **2** — Dirty eye with (dried) mucus discharge from the corner of the eye with visible eye discharge (flow of discharge => 1cm long flow); **òr only** eye discharge (=> 1cm).

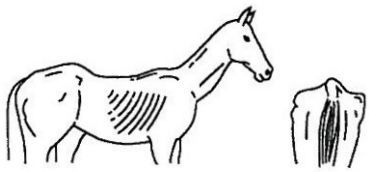


Score 0 Score 2

Title	(Very) fat body condition
Scope	Animal based measure
Description method	Assess the horse without a rug, at a sufficiently lit space, where it is safe to walk around the horse. 1. Approach the horse quietly from the front, set the horse at ease and start with a general inspection from the side of the horse. 2. Visually assess the fat/muscle covering the ribs, neck, shoulder, back, abdomen and hindquarters. 3. If the ribs are not visible approach the horse and palpate the ribs. 4. Stand at a safe distance behind the horse and assess the fat reservoirs/deposits around the tail bone/caudal vertebra of the horse, assess the shape of the croup, the visibility of the spine and hip bone. Use the Body Condition Score system of Carrol and Huntington (1988) with a scale from 0 (very poor) to 5 (very fat). This system is used for all breeds and all purposes of use. Only for broodmares use the custom system (Carol and Huntington, 1988). *Exception* For this measure only assess horses that are (very) fat (score 4, 5) and/or normal (score 3). Horses that are (too) poor or moderate (score 0, 1, 2) are scored at a separate measure.
Classification	**3** – Normal **4** – fat **5** – very fat

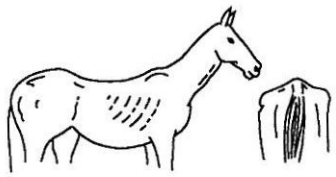
Score 4

BCS system all horses, except broodmares



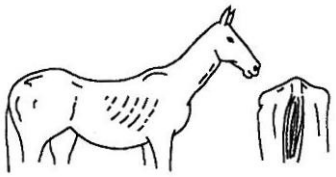
0 Very poor

Pelvis	*Back and ribs*	*Neck*
Angular, skin tight Very sunken rump Deep cavity under tail	Skin tight over ribs Very prominent and sharp backbone	Marked ewe neck Narrow and slack at base



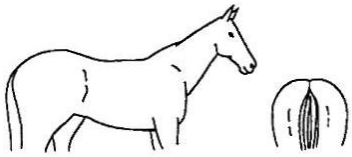
1 Poor

Pelvis	*Back and ribs*	*Neck*
Prominent pelvis and croup Sunken rump but skin supple Deep cavity under tail	Ribs easily visible Prominent backbone with skin sunken on either side	Ewe neck, narrow and slack at base



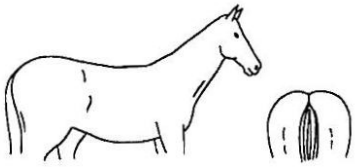
2 Moderate

Pelvis	*Back and ribs*	*Neck*
Rump flat either side of backbone Croup well-defined, some fat Slight cavity under tail	Ribs just visible Backbone covered but spines can be felt	Narrow but firm



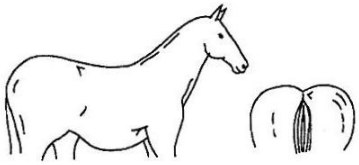
3 Good

Pelvis	*Back and ribs*	*Neck*
Covered by fat and rounded No gutter Pelvis easily felt	Ribs just covered and easily felt No gutter along back Backbone well covered but spines can be felt	No crest (except for stallions) firm neck



4 Fat

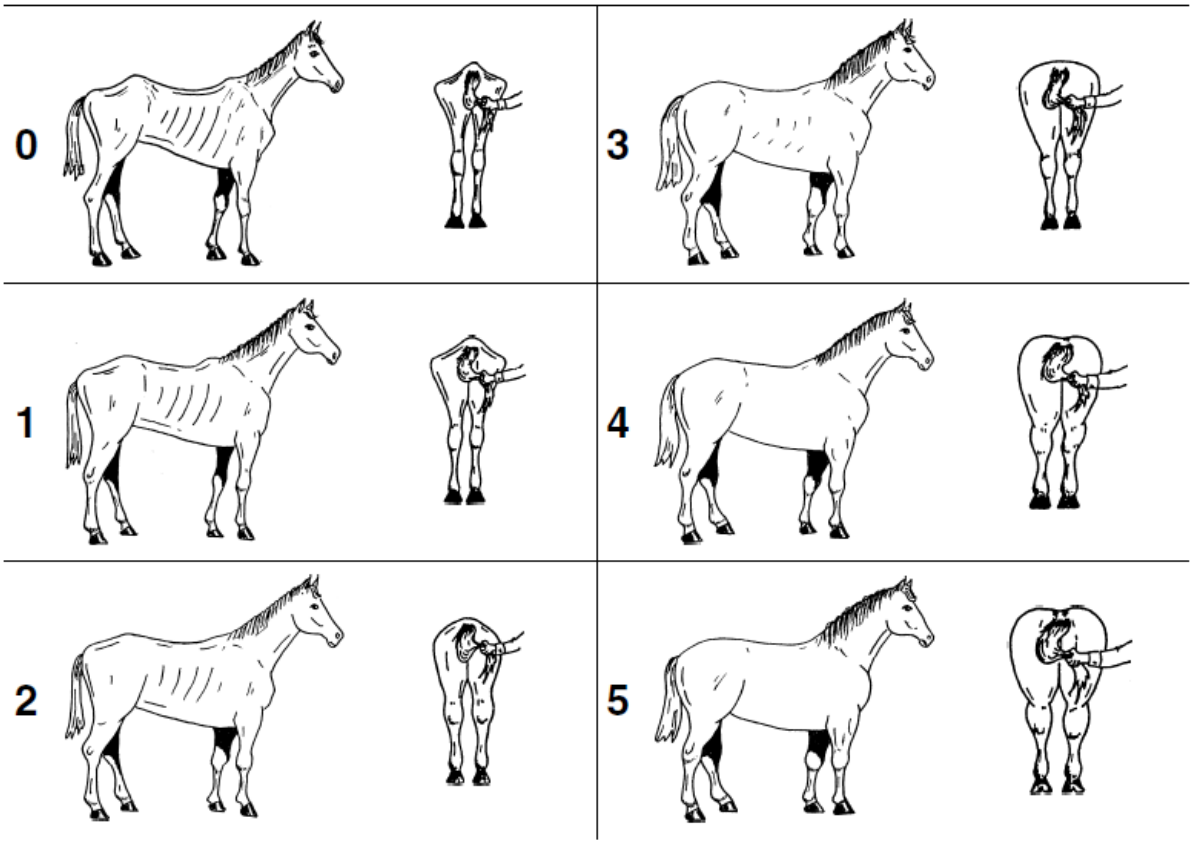
Pelvis	*Back and ribs*	*Neck*
Gutter to root of tail Pelvis covered by soft fat Need firm pressure to feel	Ribs well covered – need pressure to feel	Slight crest Wide and firm



5 Very fat

Pelvis	*Back and ribs*	*Neck*
Deep gutter to root of tail Skin dispended Pelvis buried, cannot be felt	Ribs buried, cannot be felt Deep gutter along back Back broad and flat	Marked crest Very wide and firm Folds of fat

BCS system broodmares



Condition	*Neck*	*Withers*	*Back & Loin*	*Ribs*	*Hind Quarters*
0 very poor	Bone structure easily felt no muscle shelf where neck meets shoulder	bone structure easily felt	3 points of vertebrae easily felt	each rib can be easily felt	tailhead and hip bones projecting
1 poor	can feel bone structure slight shelft where neck meets schoulder	can feel bone structure	spinous process can be easily felt transverse processes have slight fat covering	slight fat covering, but can still be felt	can feel hip bones
2 moderate	fat covering over bone structure	fat deposits over withers dependent on conformation	fat over spinous processes	can't see ribs, but ribs can still be felt	hip bones covered with fat
3 good	neck flows smoothly into shoulder	neck rounds our withers	back is level	layer of fat over ribs	can't feel hip bones
4 fat	fat deposited along neck	fat padded around withers	positive crease along back	fat spongy over and between ribs	can't feel hip bones
5 very fat	bulging fat	bulging fat	deep positive crease	pockets of fat	pockets of fat

3.3. Absence of discomfort caused by use

Title	Back muscles
Scope	Animal based measure
Description method	Assess the tension and/or sensitivity of the backmuscles of the horse. Seek a safe place to assess the backmuscles and cease the effort when behavioural responses become too dangerous. **Procedure** • Start to stand at the schoulder of the horse • Comfort the horse • Palpate the back with care (left and right sides of the spine; from the withers to hipbone) • Repeat the palpation with more pressure for a second time • Feel if the muscle is tense and observer the response of the horse • Walk to the other side of the horse and repeat the whole procedure (contralateral).
Classification	**0** – No evidence for tensed or sensitive back muscles (a small tightening of muscles can be expected) **1** – Evidence for tense backmuscles: back muscles feel tense, hard, crampt; none or only a small (behavioural) response (for example ears turned backwards) **2** – Evidence for a (very) tense back muscles: moderate to serious (behavioural) responses on pressure = back out of the procedure, dipping the back when pressed over the saddle contact areas, (attempt to) kick, bite, flee, turn away from person

Title	Mouth corners
Scope	Animal based measure
Description method	Assess the condition of the corners of the mouth. Check for wounds, fissures and redness of the tissue. Cease the procedure if behavioural responses become too dangerous. *Procedure* Stand in front of the horse, palpate with two thumbs simultaneously both mouth corners with caution. Palpate the inside, the corner and the outside. At the same time inspect the mouthcorners visually.
Classificatiion	**0** – No evidence for wounds, fissures and redness of the tissue of the mouthcorners **1** – Evidence for wounds, fissures and redness of the tissue of the mouthcorners

Score 1

Score 1

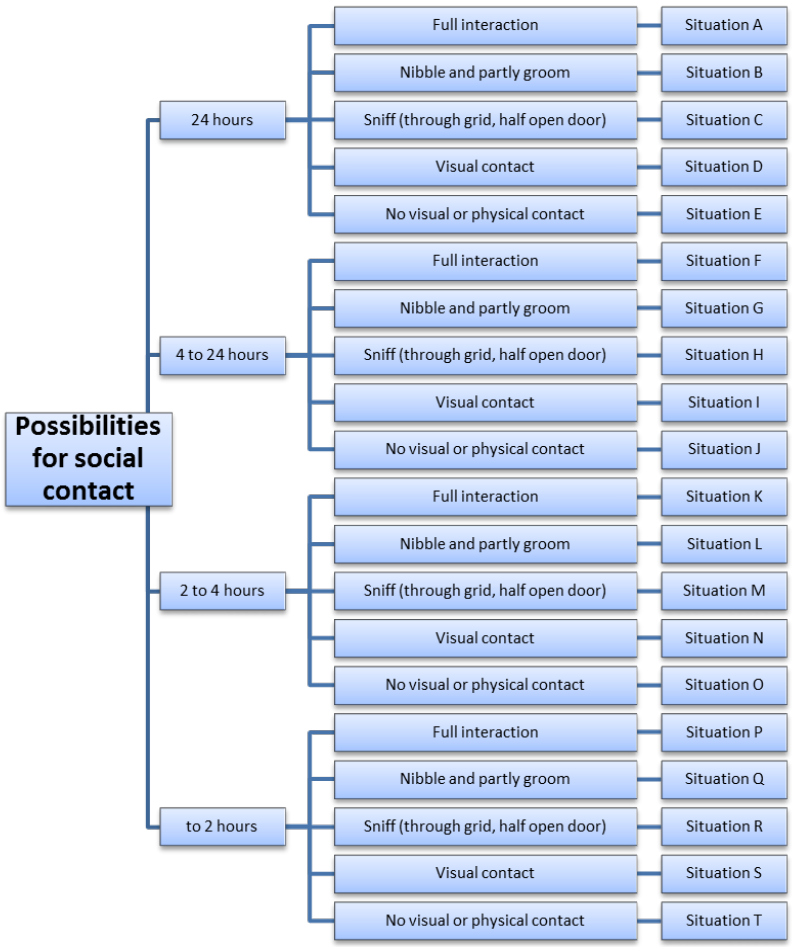
Title	Bars
Scope	Animal based measure
Description method	Assess the bars for old and fresh wounds / redness. Cease the procedure if behavioural responses become too dangerous. **Procedure** Palpate the bars and check for hardening and other irregularities. Palpate both the upper and lower bars all the way till the molar teeth. At the same time check for redness. Old wounds and fresh wounds are scored seperately. Assess for both (old and fresh wounds) if there is evidence for wounds: 1. old wounds (hardening / irregularities) 2. fresh wounds and/of redness
Classification	**0** – No evidence for wounds **1** – Evidence for wounds

Type 2, score 1

4. Appropriate behaviour

4.1. Expression of social behaviours

Title	Social contact
Scope	Environment based measure
Description method	Assess the quantity and quality of the possibilities for social contact (interaction) between horses over 24 hours. Record all situations (A – T) that are applicable for the horse. More than one situation per horse is possible. Use for the assessment of the quality of the possibilities for social contact (interaction) between horses the following options. The options are put into an order from most possibilities to least possibilities for social contact: 1. Possibility for full interaction and grooming (group housing) 2. Possibility to nibble and partly groom (whole neck, not whole body) (for example lower box partitions, paddock or pasture fences) 3. Possibility to sniff other horses (for example through grid) 4. Possibility to have visual contact (with horse in opposite box) 5. No possibilities for visual or physical contact



Possibility for full social contact

Possibility to sniff other horses

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Classification	Determine for the horse which situation (A – T) is applicable over a 24 hour period. More than one situation per horse is possible.

4.2. Expression of other, species specific behaviours

Titel	**Wear pattern incisors: crib-biting**
Scope	Animal based measure
Description method	• Comfort the horse • Gently spread the upper and lower lips from each other • Assess the posture of the incisors in relation to each other Determine whether there is evidence that the wear pattern is characteristic for crib-biting (wear pattern is form lips to cavity) *Exception* For the abnormal wear of incisors that can be descriped as over- or under bite, a smile, a smirk, and a diagonal wear a separate parameter should be used.
Classification	**0** – No evidence for abnormal wear pattern of the incisors that is characteristic for crib-biting **1** – Evidence for abnormal wear pattern of the incisors that is characteristic for crib-biting

Score 1

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Title	Abnormal behaviours
Scope	Animal based measure
Description method	Question the owner or caretaker if the horse is performing one or more of the following abnormal and/or undesired behaviours. Note: All forms of abnormal behaviours need to be registered; however only crib-biting, windsucking and weaving will be used in the model. **Abnormal behaviours** *Crib-biting* involves the grasping of a surface with the front incisors, extending the neck, and pulling back while contracting the ventral neck muscles, often producing a burplike sound. *Wind sucking* involves the same behaviour as crib-biting with the difference that the horse is not grasping any surface with its front incisors. *Weaving* involves the horse remaining stationary but shifting its weight from forelimb to forelimb and swinging the head from side to side. In some cases all four legs are involved, and the head swinging can be more or less dramatic. It can be typically seen over the stable door or other barrier. *Box walking* involves the pacing of a fixed routine around the stable without any purpose. The routine can be very different between horses and is comparable with the pacing of for example felines in zoos. *Head nodding* involves the vertical movement of the head and neck typically whilst the head is held above the stable door or other barrier. *Tongue playing* involves the repetitive tongue, mouth and jaw movements without any obvious food substrate in the mouth. It is comparable with the tongue-rolling in veal calves. *Door kicking* involves kicking the stable door, walls or other stable furnishings with the fore- legs. This, and similar activities such as pawing, is commonly seen in stabled horses prior to feeding or other potentially stimulating periodes of the day. *Wood chewing* involves the grasping, stripping and apparent ingestion of wooden surfaces in the stable, such as the top of the door or edges to stable walls. Several other behaviours may be considered undesirable by the stable manager but are either less profound defined as a stereotypy or maybe better described as redirected behaviour or behaviour learnt as a response to stable management. For example bed-eating and rasping teeth on grills. These need to be noted separately.
Classification	**0** – No evidence for this specific abnormal and/or undesired behaviour **1** – Evidence for this specifice abnormal and/or undesired behaviour

Type 1, crib-biting

Type 2, weaving

4.3. Good human-animal relationship

As yet, no measure has been developed.

4.4. Positive emotional state

Title	Visual horizon
Scope	Environment based measure
Description method	It is important to have a visual horizon to be able to predict some of the activities happening at the farm. Assess the quality of the visual horizon of the horse: • The horse has the possibility to broaden its visual horizon by positioning its head over the stable door or other stable barrier • The horse has a partly possibility to broaden its visual horizon because of the grills between neighbouring stalls. • The horse has no possibility to broaden its visual horizon as there is no possibility to put its head over any barrier nor watch through the grids of the wall partitions. If the horse has no stable, but is free to move at pasture or paddock, assess this measure as if it has the possibility to broaden its visual horizon.
Classification	**0** – Fully possibe to broaden its visual horizon **1** – Has partly possibility to broaden its visual horizon **2** – No possibilities to broaden its visual horizon

Score 0

Score 1

Score 2

PART B

Other measures characteristic for farm, animal or management

The following measures will need to be registered when applicable for the farm, the horse and/or the management but will not be included into the Welfare Quality® model[1].

Title	Outside climate
Scope	Environment based measures
Description method	1. Record the season (winter season: half October – half April; summer season: half April – half October) 2. Record the range of outside temperatures over the day 3. Record the outside relative humidity *Temperature* Take three times during the day to record the whole range of the outside temperature. Measure at an open space, approximately 10 metres from any building. *Relative humitidy* Measure the relative air humidity once during the day. Measure at an open space, approximately 10 metres from any building.
Classification	*Season* **1** – Winter **2** – Summer *Outside temperature* a. First measurement b. Second measurement c. Third measurement *Outside relative air humidity* **0** – Within the range of 60-80 % **1** – Lower than 60% **2** – Higher than 80%

Title	Farm characteristics
Scope	Environment based measures
Description method	1. Ask what is the most important line of business (only one answer possible) 2. Ask the size of the farm (number of horses)
Classification	*Farm type* **1** – Privately owned horses **2** – Mainly riding school **3** – Mainly livery yard **4** – Mainly training/sport/breaking in **5** – Mainly breeding/young stock and/or milking **6** – Combination riding school and livery yard **7** – Combination livery yard and training/sport/breaking in *Farm size*

[1] These measures will not be included into the Welfare Quality® model since they are either not validated sufficiently yet, cannot be assessed for all animals included in the sample size and/or are regarded as possible identifyers for risk factors rather than welfare parameters

	1 — 7 or less horses **2** — 8 to 20 horses **3** — 21 to 60 horses **4** — Over 61 horses

Title	**Horse characteristics**
Scope	Animal based measures
Description method	1. Ask for the age of the horse 2. Ask for the gender of the horse 3. Ask for the height at the withers of the horse 4. Ask what the most prominent use of the horse is (only one answer possible)
Classification	*Age* Age in years *Gender* **1** — mare **2** — stallion **3** — gelding *Height at the withers* Height at the withers in centimeters *Use* **1** — recreation **2** — instruction (riding lessons) **3** — sport **4** — breeding, young stock, milking **5** — company for other horses / grazing (nature reserves) **6** — other

Title	**Housing management**
Scope	Environment based measures
Description method	1. Determine the housing type where the horses are based most of the time 2. Determine in group housing if horses have the possibility to avoid contact with other horses (physical and visual), if horses can withdraw to rest, if horses can use different entrances and/or exits 3. Determine if there is a solid box partition with the neigbouring stall at the concentrate feeding place
Classification	*Type of housing* **1** — group (2 or more) **2** — individual (loose) **3** — tie-stall (tied single or duo) **4** — other *Possibilities to avoid contact in group housing* **0** — Evidence that there is sufficient possibilities to avoid contact **1** — No evidence that there are sufficient possibilities to avoid contact *Solid box partition feeding area* **0** — Evidence that there is a solid partition at the (concentrates) feeding area between neighbouring boxes of at least 1 m^2 **1** — No evidence that there is a solid partition at the (concentrates) feeding area between neighbouring boxes of at least 1 m^2 , or the solid partition is less than 1 m^2 **Not applicable** when the horse is not stabled inside or when the horse is not fed concentrates individually or when there are no neighbouring horses.

Solid box partition at (concentrates) feeding area of at least 1m^2

Title	Climate management
Scope	Environment based measures
Description method	1. Ask, if the horse is outside most of the time, if it is being stabled at extreme weather conditions 2. Ask, if the horse is put on a rug when temperature or precipitation makes this necessary (i. e. dependent on wether or not horses are shaved)
Classification	*Stabling at extreme weather conditions* **0** – Evidence that horses are being stabled at extreme weather conditions **1** – No evidence that horses are being stabled at extreme weather conditions **Not applicable** when horses are not being housed outside 24 hours a day. *Rug when weather conditions make this necessary* **0** – Evidence that horses are put on a rug when weather conditions make this necessary **1** – No evidence that horses are put on a rug when weather conditions make this necessary

Title	Light
Scope	Environment based measure
Description method	Determine for horses that are less than 4 hours a day outside or horses that are only outside during the evening/night if the light intensity in the stable is lower or higher than 200 lux.
Classification	**0** – 200 lux or more **1** – Less than 200 lux

Title	Health management
Scope	Environment based measure
Description method	1. Ask if the horse is put on a protective rug because it suffers from summer itch 2. Ask if the horse is given predescribed medicines 3. Ask if the horse is vaccinated for the compulsory vaccinated diseases 4. Ask if the hrose is being dewormed according to advice of a veterinarian 5. Ask the interval (in weeks) that horses are being checked and if necessary treated by a farrier

Classification	*Rugs summer itch* **0** — Evidence that the horse is put on a rug because of summer itch **1** — No evidence that the horse is put on a rug because of summer itch **Not applicable** when horse does not suffer from summer itch *Medication* **0** — No evidence that horse received prescribed medicine **1** — Evidence that horse received prescribed medicine *Vaccination* **0** — Evidence that the horses is being vaccinated for the compulsory vaccination diseases **1** — No evidence that the horses is being vaccinated for the compulsory vaccinated diseases *Deworming* **0** — Evidence that the horse is being dewormed according the advice of a veterinarian **1** — Evidence that the horse is being dewormed according the advice of a veterinarian *Farrier* Interval (in weeks) this horse is being checked, and if necessary received treatment, by a farrier **Not applicable** when the horse is not checked by a farrier

Title	**Breathing frequency**
Scope	Animal based measure
Description method	*Preparation* • Assess the breathing frequencey preferable in the box. If not possible choose a quite and not too warm or cold place outside the box • If applicable, remove rug(s) from the horse • Let the horse come at ease for at least one minute, or as long as necessary • During the assessment of breathing frequency have the horse hold on a leadrope with the head in relaxed and upricht position Count the number of breaths **over a period of 30 seconds**.
Classification	**Number of breaths**

Title	**Feeding lumps**
Scope	Animal based measure
Description method	Determine if you see feeding lumps in the stable, indicative of having problems with feeding
Classification	**0** — No evidence of feeding lumps present in the stable **1** — Evidence of feeding lumps present in the stable **Not applicable** (group housing)

Title	**Consistency of manure**
Scope	Animal based measure
Description method	Determine if you see fresh (not more than half a day old) manure in the stable. Assess the consistency of the manure.
Classificatie	**0** — Normal **1** — too dry **2** — loose structure

3 – cow dung
4 – waterlike
not applicable (not fresh or group housing)


Score 0


Score 2


Score 3

Title	Ear hairs
Scope	Animal based measure
Description method	Check the inside of the auricle and assess whether or not the hairs are being clipped or shaved. Do not include the ears outside the auricle in the assessment
Classification	**0** – No evidence that the inside of the auricles of both ears have been clipped or shaven **1** – Evidence that the inside of the auricles of both ears have been clipped or shaven


Score 0


Score 1

Title	Human Approach Test
Scope	Animal based measure
Description method	*Exceptions:* • Only perform this test for horses that are housed loose in individual boxes. • Wait with the application of this test when the horse is either eating concentrates or hard feed or when the horse is focussed on the person when the test is about to start. *Test:* 1. Explain to the handler how you will perform this test to prevent any disturbance of the test 2. Wait on at least one horse length of the box for the right moment to start (horse is not eating concentrates or hard feed, nor the horse is focussed on you)

	3. Walk in a self-confident manner to the box, go stand in the middle in front of the box at a distance of approximately 3 meters from the stable door 4. Take two large steps (approximately 2 meter, 1 seconds between steps) towards the stable and clicking with your tongue twice to make the horse attentive to your presence 5. Observe the horse's prominent response during the first 5 seconds
Classification	**1** – Interest => horse moves in a friendly way towards the person, horses turns its head towards this person in a friendly manner, horses reaches out / sniffs to the person in a friendly manner **2** – Neutral => horse does not make a distinct movement towards the person or only turns its ears to the person, without turning its head **3** – Mild threat => horse does not make a distinct movement towards the person, but displays threatening behaviour i.e. ear flattening or bite threats or threatening with legs **4** – Agressive approach => horse makes a distinct threatening or agressive movement towards the person **5** – Avoidance => horse spooks away from the person **Not applicable** (no individual loose housing)

Score 1

Title	Novel Object Test
Scope	Animal based measure
Description method	• Explain the test to the handler • Have the handler stand next to the horse; horse loosely hold on a lead rope, head of the horse relaxed and in an upright position attentive to the assessor • Explain that the horse is allowed to walk forward or to spook when it wants to when the novel object is presented *Test:* 1. Approach the horse from the front, stop approximately 2 meter in front of the horse with the Rubiks Cubicle in one hand on the back and click with your tongue twice 2. Stretch the hand with the Rubiks Cubicle horizontally to the front, with Rubiks Cubicle facing the ground (horse does not see the Cubicle yet) 3. Turn the hand around showing the Rubiks Cubicle to the horse 4. Observe the prominent response over the first 5 seconds
Classification	**1** – Touch => horse stretches its neck immediately and steps forward if necessary to touch the Cubicle (within 5 seconds) **2** – Reach => horse carefully moves forward or streches its neck to investigate by sniffing, not touching, the Cubicle; horse

eventually steps forward to touch but does not succeed to do so within 5 seconds

3 – Neutral => horse does not stretch its neck forward, nor steps foreward

4 – Turn away => horse turns its head or body away from the Cubicle in a quiet manner

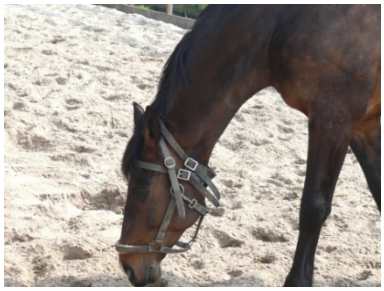
5 – Spook => horse spooks away from the Cubicle

Score 1

Score 2

Score 3

Title	Stereotypies intervention methods
Scope	Environment based measures
Description method	Determine if the horse is prevented to perform stable vices **Note:** being tied in a stable should not be determined as a prevention to perform stable vices. Assess for each of the following intervention methods whether or not there is evidence that this is applicable for the horse *Intervention method* **1** – Apparatus on the horse that prevent the horse from performing stereotypies (i.e. anti air swallowing device, anti crib bite collar) **2** – Stable adjustments to prevent the performing of stereotypies (barbed wire or electricity wire on stable door, liniment on crib-biting surfaces, anti weaving grill, chain in the box to prevent box walking and weaving etc.) **3** – Apparatus on the horse decreasing ease of movement to prevent undesirable behaviour (i.e. neck rack, muzzles)
Classification	**0** – No evidence of apparatus on the horse or stable adjustments to prevent stereotypies or other undesired behaviour **1** – Evidence of apparatus on the horse or stable adjustments to prevent stereotypies or other undesired behaviour



Type 1 (Anti-wind sucking collar)

Type 2 (anti weaving rack)

PART C

Sampling and practical information

The assessor arrives at the farm and checks with the stable manager to get familiar with the map of the farm and the handler(s) and co-workers. The assessor explains to the stable manager and co-workers what the monitor will include and how this can be incorporated best with the daily activities at that stable at that particular day. The stable manager will show the map of the stable (that has been requested upon first contact with the farm) with all horses and type of housing indicated. The assessor then chooses, semi-randomly[2], the horses that will be included in the sample size.

The assessor and stable manager or co-worker(s) will walk through the stable and all buildings to discuss safe places to monitor the horses, especially a safe place to test for lameness.

Table 2. The order for carrying out measures and time required for protocol assessment welfare of horses

Measures	Time needed approxi-mately per horse	Total time needed approximately
1. Introduction and selecting horses		15 min
2. Outside climate		10 min
3. Farm characteristics, housing management, health management, horse characteristics – interview with stable manager		30 min
4. Human Approach test, breathing	3 min	
5. Novel Object test	1 min	
6. Animal based measures • Body Condition Score • Coat condition • White hairs • Wounds • Skin irritation lower legs • Swollen legs • Generalized skin problems • Rubben and broken hairs main and tail • Itchiness • Hoof condition • Length of whiskers • Ear hairs • Nasal discharge • Occular discharge • Coughing • Back muscles	8-11 min	

[2] Semi-randomly: for each type of housing (i.e. group housing, individual box, tie stall) a relative percentage of horses should be included in the sample size.

• Mouth corners • Bars • Lameness • Abnormal behavior • Feeding lumps • Consistency manure		
7. Environment based measures • Feed intake • Water provision • Comfort around resting • Climate • Ease of movement • Safety • Possibilities for social contact • Possibilities for providing visual horizon • Stereotypies intervention methods • Light in the stable	3 - 5 min	
Total	15 – 20	55 min
Total for 20 horses		**355 – 455 min** **5.9 – 7.6 hours**

Maximum sample size for each farm is 20 horses a day.

For all visual observation of the horse (animal based parameters) a handler/co-worker of the farm, familiar with the horses, handles and holds the horses. All animal based measures, except Human Approach Test and breathing and check for lameness take place in the corridor (as close as possible to the home environment of the horse) or at a quiet and safe place at the yard. Human Approach Test (when applicable) and breathing take place in home environment. Check for lameness takes place at a safe outside corridor with a hard and even underground of at least 45 metres long and 3 meters wide.

All procedures should be ceased when horse's behavioural responses become too dangerous or if the horse is visually experiencing discomfort or pain.