AWIN welfare assessment protocol for

Donkeys

awin
ANIMAL WELFARE INDICATORS

Acknowledgement

The present document results from the Animal Welfare Indicators (AWIN) project, which has been co-financed by the European Commission, within the VII Framework Program (FP7-KBBE-2010-4). The text represents the authors' view and the content does not reflect the official position of the European Commission, who is not held responsible for the use which may be made of the information contained therein.

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- The purpose of carrying out the welfare assessment is to gain information on donkey welfare mainly by observation. Most measures do not require the animals to be touched. Handling should be kept to a minimum and always performed in obedience with good practice rules or European and national Laws on animal ethics.
- The photos and drawings included are examples to illustrate a specific condition; these must not be considered as the only representation of animal or farm conditions.

Safety and welfare are the first priorities. The assessor, the handler, the stable manager and the animals should never be put in danger. The animals should be handled gently and with consideration at all times. If it is not possible to complete all or part of the assessment without compromising the animal welfare through fear, discomfort, pain, or excessive restraint, the assessment should be stopped.

This document forms an integral part of the protocol.

For specific information about this protocol, contact Michela Minero (michela.minero@unimi.it).

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FOREWORD

The European Animal Welfare Indicators (AWIN) project addressed the development, integration and dissemination of animal-based welfare indicators, with an emphasis on pain assessment and pain recognition.

AWIN research objectives were carried out in four complementary workpackages and focused on sheep, goats, horses, donkeys and turkeys, species that, although commercially relevant world-wide, have so far been overlooked in previous science-based animal welfare assessments.

Workpackage 1 developed practical, science-based, welfare assessment protocols, including pain indicators. AWIN also translated the welfare assessment protocols into interactive apps to facilitate data collection, data storage and data analysis.

Workpackage 2 studied the impact of diseases and pain on animal welfare and developed interactive apps to facilitate data collection, data storage and data analysis.

Workpackage 3 examined the effects of different prenatal social environments, social dynamics and prenatal handling methods on developmental and welfare outcomes of the offspring of sheep, goats and horses.

Workpackage 4 developed interactive learning objects to disseminate the scientific work developed in the AWIN project, and created the Animal Welfare Science Hub to promote transparency, establishing a global research and education repository in animal welfare science.

The AWIN project remains committed to promote solid science, which could be used in practical settings.

A list of partners of the AWIN project is reported at the end of the document.

Draft protocols were subjected to an extensive consultation process with interested parties, across many European countries, and the wider world. Stakeholders actively contributed to testing the draft protocols and offered useful feedback. In order to increase the feasibility of protocols, AWIN proposes a stepwise strategy of assessment, with a more detailed assessment dependent on the outcome of a smaller number of important first measures.

This document includes the AWIN welfare assessment protocol for donkeys, developed by:

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This document was edited by Emanuela Dalla Costa, Francesca Dai and Michela Minero, with the contribution of Elisabetta Canali, Sara Barbieri (Università degli Studi di Milano, Italy) and Adroaldo J. Zanella (Universidade de São Paulo, Brazil).

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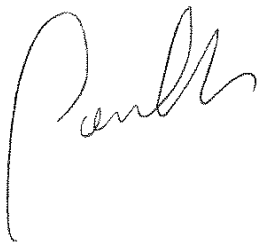

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HOW TO USE THIS DOCUMENT

This document presents the on-farm protocol to assess the welfare of donkeys developed by AWIN and it is divided into three parts:

- **Chapters 1, 2, 3** – preliminary information relevant for applying the protocol.
- **Chapters 4, 5** – description, assessment and scoring of the welfare indicators (presented according to the four principles and twelve criteria of Welfare Quality®); flow of first and second level welfare assessment; description of the outcome of the assessment.
- **Appendix A, B** – recording sheets to collect data.

TABLE OF CONTENT

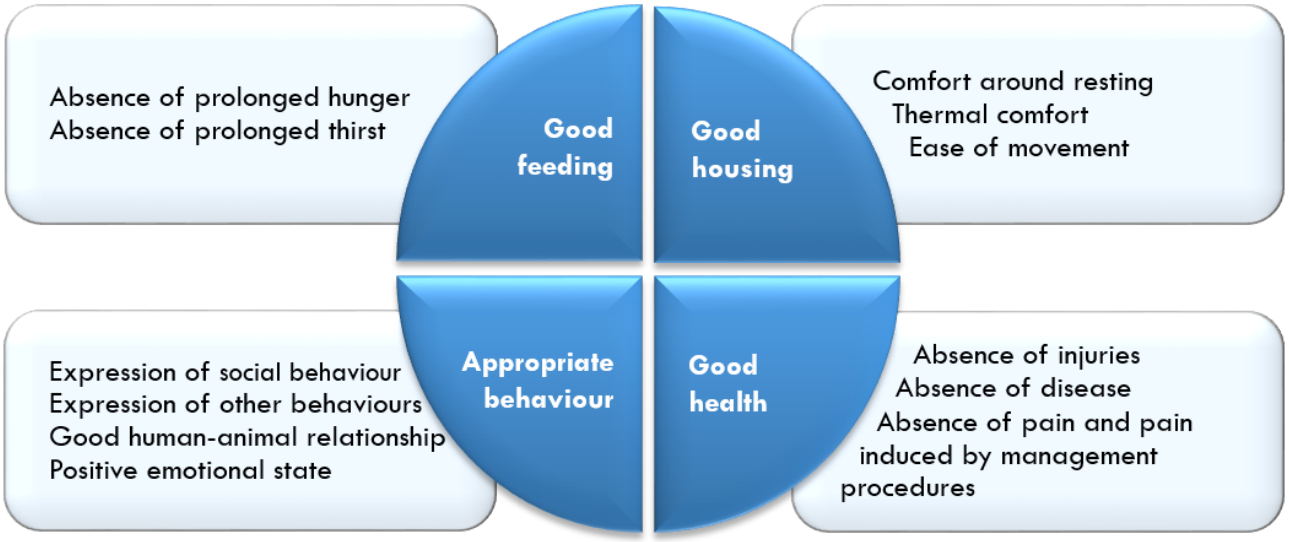
1. INTRODUCTION

Good animal welfare is a prerequisite for high-quality and sound farm animal production. Providing environmental and management conditions that favour animal welfare is not only expected by consumers and the general public, but is also related to achieving system-appropriate levels of performance and profitability. Animal welfare assessment is thus one of the pillars of productive, efficient and sustainable production systems.

In order to develop valid welfare assessment protocols it is important to remember that current, accepted definitions of animal welfare are based on a multidimensional concept, defined as a state of complete mental and physical health where the animal is in harmony with its environment (Hughes, 1976), and as its state as regards its attempts to cope with its environment (Broom, 1986). The physical environment, resources available to the animals and management practices of the farm can affect the welfare of animals, which adjust to these inputs with behavioural, and physiological responses. Since the beginning of the 21st century, on-farm welfare monitoring systems have been developed. Initially monitoring schemes were largely based on environmental assessments, such as design or resource indicators, which assess inputs that could affect animal welfare. These resource-based and management-based measures should be considered as risk factors that might affect welfare; however in order to assess animal welfare at farm level, it is crucial to develop and use animal-based measures. These indicators provide a more accurate welfare assessment as they give direct information about the response of, and the effects on, the animal. Animal-based measures are considered by EFSA to be “the most appropriate indicators of animal welfare and a carefully selected combination of animal-based measures can be used to assess the welfare of a target population in a valid and robust way” (EFSA, 2012). The European Commission emphasizes the use of science-based animal welfare indicators as a possible means to simplify the legal framework and allow flexibility to improve competitiveness of livestock producers (EC, 2012).

The first welfare assessment protocols built on animal-based measures were developed by the Welfare Quality® project for pigs, poultry, dairy and beef cattle (Welfare Quality® Protocol, 2009a, Welfare Quality® Protocol, 2009b, Welfare Quality® Protocol, 2009c). This project, funded within the 6th EU Framework Programme, developed a scheme where the needs of animals are related to four principles and twelve criteria, considered necessary to cover all aspects of animal welfare (Fig. 1). This approach was the basis for future research on welfare assessment at farm level.

Figure 1. Welfare principles and criteria according to Welfare Quality®



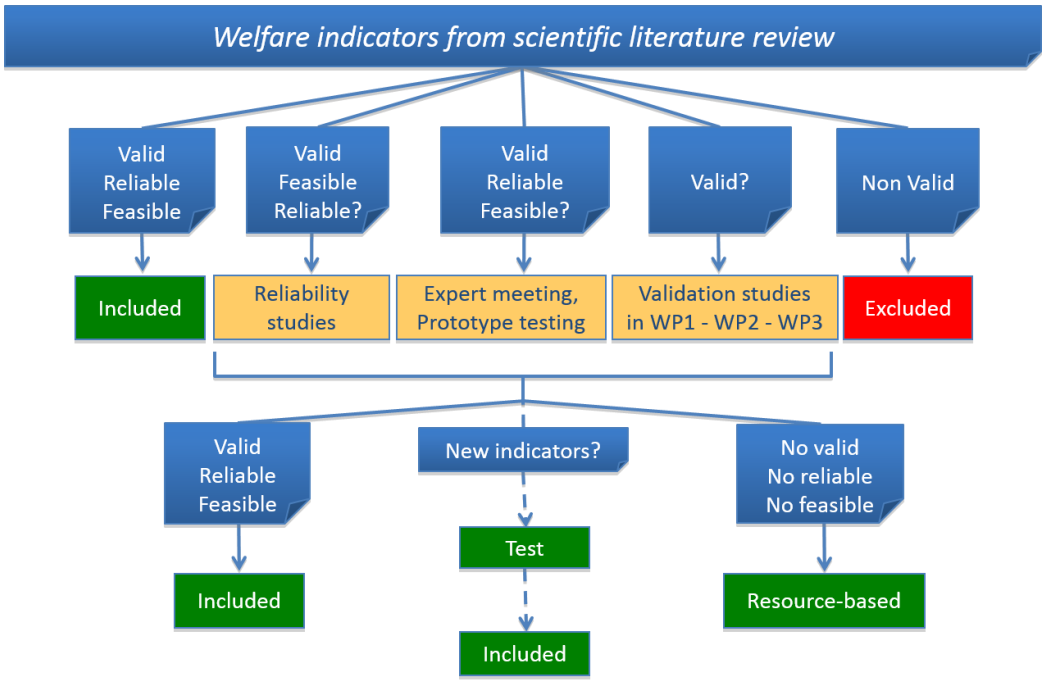
After dealing with welfare assessment of some of the most common farmed species, in the 7th Framework Programme, the European Commission required the development, integration and dissemination of animal-based indicators, including pain, in commercially important husbandry species not yet covered in previous projects. In 2011 the AWIN (Animal Welfare Indicators) project was funded with the overall goal of improving animal welfare of sheep, goats, horses, donkeys and turkeys by developing, integrating and disseminating information about animal welfare indicators. These animal species offer challenges since they have been less studied and thus there is generally less information available on well-validated welfare indicators. In addition, the heterogeneity of the farming systems and environments in which these animals live may make the assessment more difficult. AWIN also puts special emphasis on the recognition and assessment of pain, as pain is an area that is frequently lacking from many animal welfare assessments and yet is often key when animal welfare problems arise.

AWIN workpackage 1 (WP1) aimed to develop and refine welfare assessment protocols using animal-based indicators, including pain, in the above mentioned species. The welfare assessment protocols developed by AWIN are grounded on the four welfare principles and twelve criteria developed by Welfare Quality® and are complete but not complex, so that their application can meet current needs.

This Section briefly summarizes the principles and the rationale of the AWIN welfare assessment protocols for sheep, goats, horse, donkeys and turkeys, to be applied for on-farm welfare assessment; information about the animal based indicators, data processing and outcome will be presented later in the document.

As a starting point WP1 reviewed background scientific information to select promising animal-based indicators to be included in the protocols. Indicators were classified according to the four principles and the twelve criteria developed by Welfare Quality® (Fig. 1), and assessed for their validity, reliability and feasibility, identifying gaps in current knowledge (Fig. 2).

Figure 2. Characteristics and process to identify promising animal-based indicators



From this process, at least one indicator for each welfare criterion was selected to be included in the protocols. AWIN scientists developed a research action plan to address the lack of knowledge regarding the validity, repeatability and feasibility of single promising indicators where this was not present in the literature.

The work involved collaboration with workpackage 2 of the AWIN project, which addressed the relationship between disease, pain and animal welfare and with workpackage 3, which examined the effects of prenatal social environments, social dynamics and prenatal handling methods on the development and welfare of the considered species. Workpackage 4 maximised the effective translation of WP1 scientific results into learning objects. New indicators were developed and results were published in peer reviewed journals. Welfare assessment protocols were developed using animal-based indicators, although some resource-based indicators were included when no animal-based indicator were available to assess specific aspects.

To develop the welfare assessment protocols, stakeholders' perception of the selected indicators was taken into consideration. The purpose of involving the stakeholders was to increase the acceptability of the project outcomes through stimulation of a multidisciplinary dialogue, and identify solutions to potential barriers to the application of the protocols in practice. Stakeholders' opinion and farmers' experience were crucial for the successful implementation of the protocols. An on-line questionnaire in five languages was developed with the aim of understanding the current opinion of various stakeholders (farmers, veterinarians, owners) on welfare evaluation of the different species. In addition, the welfare assessment protocols for horses, donkeys, sheep, goats and turkeys were discussed with a network of stakeholders in

several meetings, gaining feedback on their acceptability and feasibility, and facilitating the experimental phases of the project through practical support for the on-farm testing of the protocols.

The protocols were refined according to the results of WP1 studies and the feedback from the stakeholders favouring the use of indicators with the highest acceptability.

A two level approach is adopted for animal welfare assessment at farm level to increase feasibility and acceptability without losing scientific validity. The protocols offer, as a first level, a quick screening, consisting of a selection of robust and feasible animal-based indicators, which can be readily applied and require no or minimal handling of animals. Depending on the outcome of the first level assessment, a second level, consisting of more comprehensive and in depth assessment, may be recommended. In the second level protocols, animals are often handled, but the welfare assessment is still feasible and can be conducted in a reasonable amount of time.

The outcome of the protocols aims to give a clear and immediate visual feedback to the farmers about the welfare of the animals on the farm, highlighting positive conditions and enabling comparison with a reference population.

AWIN protocols are designed to enable comparisons among similar production and management systems and are intended to assess animal welfare in order to guide its improvement throughout Europe and elsewhere in the world.

It should be underlined that this document presents the first version of the assessment protocol for donkeys on March 2015 and that scientific research will progress, refining indicators so that AWIN protocols could be updated according to new scientific knowledge. It should also be highlighted that proper training and adequate knowledge are essential to apply the protocols.

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2. AIMS

AWIN aimed to develop welfare assessment protocols that provide a toolbox of sound, feasible and practical animal-based indicators to assess animal welfare in order to promote improvements in animal production systems throughout Europe. The protocols were developed for species with broadly different rearing systems, ranging from very intensive to pasture based systems, and different production settings, ranging from intensive milk production to extensive meat production or working animals.

The AWIN welfare assessment protocol for donkeys is intended to function as a highly accepted and applicable welfare assessment tool for donkeys over than 1 year old.

3. PRELIMINARY INFORMATION

The objective of this section is to ensure that assessors know how to organise a visit, how to behave on a donkey farm, how to approach the stable manager and how to present the protocol, so that results are reliable and useful to all.

Before contacting the stable manager, assessors should be sure that they have a good knowledge of:

- how the protocol works;
- possible constraints in the protocol application;
- farm practices and husbandry features for donkeys;
- donkey behaviour;
- sanitary rules and common diseases.

3.1 Contact the stable manager

It is essential to contact the stable manager and plan an appointment to visit the farm taking into account the timing of the farm routine.

When talking to the stable manager, the assessors should discuss and agree the objectives of the visit, timetable and methods. It should be made clear that special arrangements and changes in routine will be kept to a minimum.

It is important to underline that the welfare assessment is neither dangerous for the donkeys nor for the people involved. All procedures conducted as part of the welfare assessment are non-invasive and routine operations that any good handler would conduct as part of daily checks. How and for how long the stable manager and/or the handlers may be involved should be specified.

Assessors should require:

- to herd donkeys in one place so as to have easy access to them;
- to find donkeys without rugs;
- the collaboration of a handler to handle the donkeys with a head-collar.

3.2 Equipment required

Useful materials for the welfare assessment are: recording sheets, paper, pens/pencils, tablet or smartphone, camera, measuring tape or laser distancemeter, stopwatch, safety shoes/boots, disposable shoe covers and disinfectants.

3.3 Biosecurity

Biosecurity is a crucial issue. Welfare assessors should never be a potential disease-spreading source, or be seen as such. In the case of a donkey is showing signs of infectious disease (e.g. discharge, diarrhoea) the animal must not be touched.

Clean clothes and safety shoes/boots are essential even if additional disinfection will be performed on the farm premises.

3.4 Arriving and working

On arrival, assessors should look for the stable manager and/or handlers in charge of the animals and ask them to briefly present the farm safety rules and if there are any donkeys that, in their opinion, are aggressive or dangerous.

During this conversation, the welfare protocol should be presented, including the objectives, the approximate assessment duration, the assessor' schedules and activities and the indicator collection order. This will provide the stable manager with precious information on where the assessors will be at any time. Although the flow of the welfare assessment protocol cannot be changed, the plan should be discussed so that the assessment is conducted without interfering with routine work.

When walking around the farm, assessors should be discreet. Any disturbance to people working on the farm or to the animlas must be kept to the minimum possible.

Knowing how donkeys behave is crucial when entering the paddock where animals are kept. This will not only ensure adequate assessment but will also allow the identification of aggressive, threatening or fear signs.

Other advice on how to move around and behave on the farm is:

- do not leave the gates and doors open after going through;
- avoid talking too loud and making sudden movements;
- do not leave any object within reach of the animals;
- avoid being licked on the hands;
- avoid touching the donkeys if it is not necessary;
- keep focused on the work at all times.

If records are to be checked, assessors should always ask for permission and, if possible, consult them with the stable manager or whoever is in charge.

3.5 Safety handling

The present welfare assessment protocol is designed for use by trained assessors. Safety and welfare are of prime importance. The assessors, the handlers or the animals should never be put in danger. During the single animal welfare assessment, ensure the donkey is wearing a head-collar and is gently but firmly restrained by the handler using an adjoining lead rope loosely under the chin. The assessment must be terminated if the donkey shows any behaviour that can be dangerous for people involved.

3.6 Sampling

This welfare assessment protocol is intended for donkeys over than 1 year old.

3.6.1 Selecting donkeys for first level welfare assessment

In the first level welfare assessment sampling of donkeys is needed.

It is important to be aware that there are many possible sources of bias that could affect animal sampling on-farm. For instance, the first animals in a group that allow themselves to be approached and assessed are usually the ones that have a better relationship with humans or that are more dominant. The likelihood of sampling bias may be affected by specific conditions, e.g. lame animals cannot flee as much as the others and aggressive animals tend not to be assessed. In order to avoid sampling bias, the sampling should be randomized as much as possible.

3.6.1.1 Number of donkeys to be assessed for the first level welfare assessment

In order to select the number of animals to be assessed, it is important to know the current number of donkeys over than 1 year old. The number of donkeys to be sampled should then be determined according to the following table:

Farm size – number of donkeys over than 5 years	Suggested sample*
1-14	All animals
15-19	13
20-24	16
25-29	19
30-34	21
35-39	24
40-44	26
45-49	28
50-59	29
60-69	32
70-79	35
80-89	37
90-99	39
100-124	41
125-149	44
150-174	47
175-199	49
200-224	51
225-249	53
250-299	54
300-349	56
350-399	57
> 400	58

**The sample size is calculated for an expected variation in data of 0.5, at the level of confidence of 0.9 and a precision of the estimate (δ) of 0.1*

3.6.2 Selecting donkeys for second level welfare assessment

In the second level welfare assessment it is recommended to assess all the donkeys over than 1 year old.

4. AWIN WELFARE ASSESSMENT PROTOCOL FOR DONKEYS

4.1 Welfare indicators divided by principles and criteria

This Section reports description, assessment and method of scoring of each AWIN welfare indicator for donkeys, listed according to WQ® principles and criteria. It is always specified if the indicator should be assessed at individual or group level, or if it is resource-based. In order to highlight the association between welfare indicators and principles throughout the document, different colours are used to identify each principle. Even though some indicators can be informative of more than one issue, positive assessment of each indicator communicates that a specific criterion has been fulfilled. For example, poor Body Condition Score can be related to a variety of factors such as food availability, disease and feeding practices, however, optimal Body Condition Score reflects prolonged appropriate nutrition. As there is a logic order in which the different indicators should be collected, Sections 4.2 and 4.3 report the flow of the first and second level welfare assessment.

Welfare principles	Welfare criteria	Welfare indicators
Good Feeding	Appropriate nutrition	Body Condition Score
	Absence of prolonged thirst	Skin tent test
		Water availability
Good Housing	Comfort around resting	Bedding
		Shelter dimensions
	Thermal comfort	Signs of thermal stress
	Ease of movement	Not considered relevant to animals reared in extensive conditions
Good Health	Absence of injuries	Integument alterations
		Swollen joints
		Lameness
		Prolapse
	Absence of disease	Hair coat condition
		Faecal soiling
		Discharges
		Cheek palpation
		Abnormal breathing
		Coughing
	Absence of pain induced by management procedures	Signs of hoof neglect
		Signs of hot branding
Appropriate Behaviour	Expression of social behaviour	Social interaction
	Expression of other behaviours	Stereotypies
	Good human-animal relationship	Human-animal relationship tests
	Positive emotional state	Qualitative Behaviour Assessment

BODY CONDITION SCORE

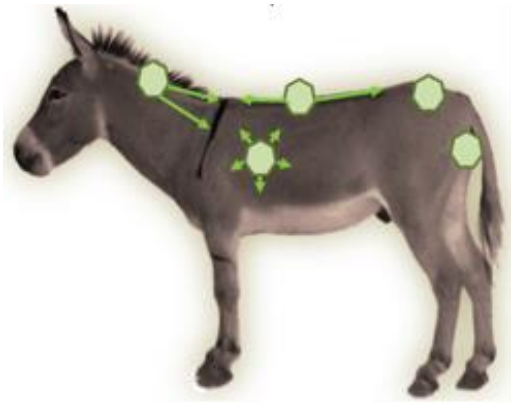
GOOD FEEDING
APPROPRIATE NUTRITION

Description

Body Condition Score (BCS) is a standardized method to evaluate the amount of fat on a donkey's body. Body condition can be affected by a variety of factors such as food availability, reproductive activities, weather, performance or work activities, parasites, dental problems, diseases and feeding practices.

How to assess [Individual]

Ask the owner to handle the donkey.
Body condition is assessed visually and by palpation. Start with a general visual inspection, followed by manual palpation of the side and rear of the donkey as shown in the figure, and examine the covering of fat on:



- Neck & shoulders*
- Back
- Ribs*
- Rump
- Hindquarters

**Note: Fat deposits on the neck and ribs should be carefully palpated – deposits here are not as important if the donkey is over than 7 year old or if the rest of the body condition is normal.*

How to score

Use the Body Condition Score developed by The Donkey Sanctuary*. The scale ranges from poor to obese. This system is used for all breeds of donkey and all purposes of use.

Score 1 (poor)

©The Donkey Sanctuary

Neck thin, all bones easily felt. Neck meets shoulder abruptly, shoulder bones felt easily. Dorsal spine of withers prominent and easily felt. Ribs can be seen from a distance and felt with ease. Backbone prominent, can feel dorsal and transverse processes easily. Hip bones visible and felt easily. Little muscle cover. May be cavity under tail.

Score 2 (moderate)

Some muscle development overlying bones. Slight step where neck meets shoulders. Some cover over dorsal withers, spinous processes felt but not prominent. Ribs not visible but can be felt with ease. Dorsal and transverse processes felt with light pressure. Poor muscle development either side midline. Poor muscle cover on hindquarters, hip bones felt with ease.

Score 3 (ideal)

Good muscle development, bones felt under light cover of muscle/fat. Neck flows smoothly into shoulder, which is rounded. Good cover of muscle/fat over dorsal spinous processes withers flow smoothly into back. Ribs just covered by light layer of fat/muscle, ribs can be felt with light pressure. Cannot feel individual spinous or transverse processes. Muscle development either side of midline is good. Good muscle cover in hindquarters, hip bones rounded in appearance, can be felt with light pressure.

Score 4 (fat)

Neck thick, crest hard, shoulder covered in even fat layer. Withers broad, bones felt with firm pressure. Ribs dorsally only felt with firm pressure, ventral ribs may be felt more easily. Can only feel dorsal and transverse processes with firm pressure. Slight crease along midline. Hindquarters rounded, bones felt only with firm pressure. Fat deposits evenly placed.

Score 5 (obese)

Neck thick, crest bulging with fat and may fall to one side. Shoulder rounded and bulging with fat. Withers broad, unable to feel bones. Large, often uneven fat deposits covering dorsal and possibly ventral aspect of ribs. Ribs not palpable. Back broad, unable to feel spinous or transverse processes. Deep crease along midline bulging fat either side. Cannot feel hip bones, fat may overhang either side of tail head, fat often uneven and bulging.

**available at:*
http://www.thedonkeysanctuary.org.uk/sites/sanctuary/files/document/142-1404405754-donkey_health_and_welfare_11.pdf

SKIN TENT TEST

GOOD FEEDING

ABSENCE OF PROLONGED THIRST

ONLY SECOND LEVEL

Description

The skin tent test determines whether the donkey is dehydrated. An estimate of dehydration is made by pinching a fold of skin gently and noting how quickly it returns to normal (Pritchard et al. 2008 Equine Vet J 40(6), 558-564).
It is important to be aware that changes in skin tent may be attributable to changes in coat moisture or to other factors, such as age.

How to assess [Individual]

Ask the owner to handle the donkey.
Gently pinch and immediately release a vertical fold of the skin at the base of the neck and observe when the skin returns to its normal position. Do not squeeze, roll or pull the skin too hard and pinch only once. If there is a delay in return of the tented skin to its normal position - where the skin remains raised from the surrounding skin and thus "tented" - the donkey could be dehydrated.

How to score

Loss of elasticity
Tented skin does not immediately return to normal

No loss of elasticity
Skin returns to normal immediately

WATER AVAILABILITY

GOOD FEEDING

ABSENCE OF PROLONGED THIRST

Description

Assessing the water availability means not only checking the presence of water points but also evaluating their functioning and cleanliness. Water is essential for life; every animal should have access to a water point. Equines must be fully hydrated to help preventing the development of health and welfare problems.

How to assess [Resource-based]

Enter the stabling area and check:

- the presence and the type of water points;
- the functioning;
- the cleanliness.

Record all these parameters separately.

How to score

Evaluate the presence and type of the water point

No water point

Trough

Any water container which is manually filled and contains some water

Automatic drinker

A water container connected to a water network which is automatically filled after every use

Evaluate if the automatic drinker is functioning

Not functioning

Functioning

Evaluate the water point cleanliness

Dirty

Water point and water dirty at the moment of inspection

Partly dirty

Water point dirty but water clean at the moment of inspection

Clean

Water point and water clean at the moment of inspection

BEDDING

Description

Comfort around resting relies on suitable bedding. Bedding material should be nontoxic, free of mould and excessive dust, and allow effective drainage, or be absorbent enough to maintain a dry bed and assist in keeping the air fresh. Whatever bedding is used (e.g. straw, shavings, rubber mats etc.) it should be well managed and changed or cleaned regularly.

How to assess [Resource-based]

Enter the stabling area and determine if:

- there is bedding and the quantity of the bedding material is sufficient;
- the bedding material is clean;

Record all these parameters separately.

How to score

Evaluate the quantity of the bedding material

No bedding

Insufficient
(floor areas not covered by bedding are clearly visible)

Sufficient

Evaluate the cleanliness of the bedding material

Dirty
(presence of faeces more than a day old, obviously wet)

Clean

SHELTER DIMENSIONS

GOOD ENVIRONMENT

COMFORT AROUND RESTING

Description

Sufficient space should be provided to all the donkeys to lie down at the same time should they wish to. Insufficient space increases the competition for personal space with herd mates, this in turn increases stress which can affect the temperament of the donkey.

How to assess [Resource-based]

Enter the stabling area and, using a measuring tape, record the height at the withers of the donkeys. Measure the length of the 2 shelter sides and calculate the area of the shelter (length of the first side x length of the second side).
Compare the area of the shelter with the satisfactory dimensions reported in the table* below:

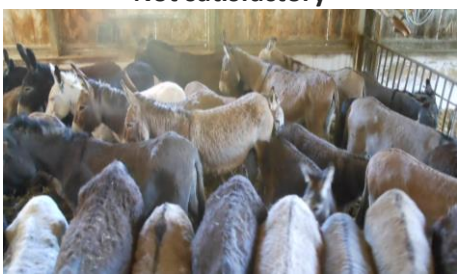
Height at the withers	<120 cm	120-148 cm	148-162 cm	162-175 cm
Shelter area per donkey	5.5 m^2	7 m^2	8 m^2	9 m^2

**Swiss Animal Welfare Ordinance (TSchV) of 23 April 2008 (position as at 1 April 2011)*

How to score

Evaluate whether the shelter dimensions are satisfactory

Not satisfactory



Satisfactory

SIGNS OF THERMAL STRESS

Description

Both extremes of thermal stress must be considered. Despite originating from a hot arid climate, domesticated donkeys may still suffer during hot periods. It should be considered that they do not have the same waterproof coat as horses, therefore donkeys should not be exposed to heavy rain, snow, hail or to strong winds for other than very short periods.

How to assess [Individual]

Outside the stabling area, observe the donkey for 1 min and determine if:

- **Heat Stress**

The animal displays most (more than three) of the following signs: flared nostrils, increased respiratory rate (> 31 breaths per min), increased respiratory depth with head movement, apathy, profuse sweating, sunburn (particularly in pale/white animals, on nose or exposed skin) (Pritchard et al 2006 Equine Vet J 38, 433–438).

- **Cold Stress**

The animal displays most (more than three) of the following signs: shallow breathing, decreased respiratory rate (< 13 breaths per min), shivering, huddling together, apathy.

How to score

Evaluate the presence of signs of thermal stress

Present

Signs of thermal stress

©The Donkey Sanctuary

Absent

No signs of thermal stress

INTEGUMENT ALTERATIONS

GOOD HEALTH

ABSENCE OF INJURIES

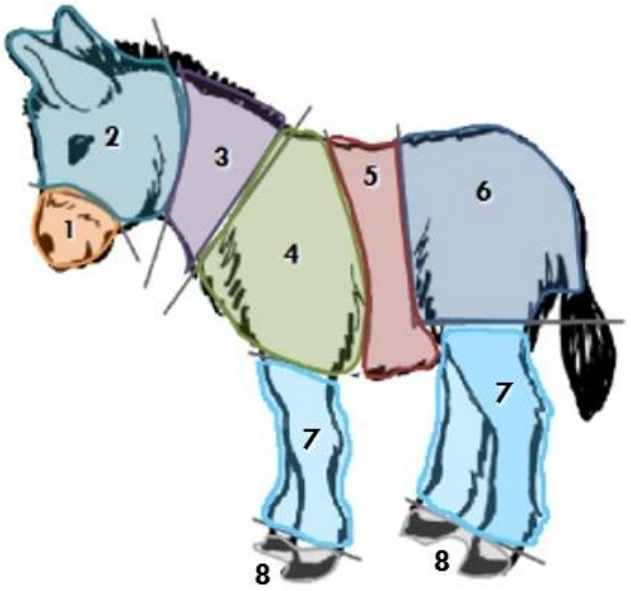
Description

Hairless patches, scabs, skin lesions, wounds and swellings are all considered as integument alterations. They may be present due to a variety of reasons, such as traumas, type and quality of the equipment used, type, quantity and intensity of work, fights with other donkeys as well as diseases (e.g. ectoparasites).

How to assess [Individual]

Ask the owner to handle the donkey.
Start with a general visual inspection from the side and assess every area looking for integument alterations (on both sides of the body). Ideally divide the donkey into 8 areas:

1. Muzzle
2. Head (including ears)
3. Neck (excluding withers)
4. Shoulder (including withers; excluding elbow)
5. Midsection (back, loin, flank, barrel)
6. Hindquarters (including croup, thigh,dock, excluding stifle)
7. Legs (including elbow, stifle, pastern, excluding coronet)
8. Hooves (including coronet)



Take into consideration only lesions larger than a 1x2 cm area or more than 4 cm length (for linear lesions).

No alterations
No evidence of integument alterations that are worth mentioning

Alopecia
Loss of hair: hairless spot or scar

Skin lesion
Superficial wound with a minor cut through the skin, superficial underlying tissue is visible

©The Donkey Sanctuary

Deep wound
Wound through the skin involving damage to deeper tissue

©The Donkey Sanctuary

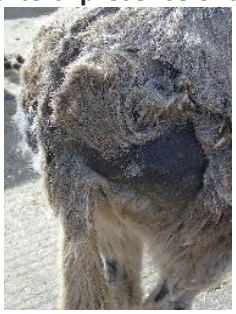
Swelling
An increase in the size or a change in the shape of an area of the body.
It includes hernias, but no swollen joints

How to score

First level welfare assessment

For each area, evaluate the presence of integument alterations. If there are small, multiple and grouped alterations (distinguishable or not distinguishable) that cover an area bigger than a 1x2 cm^2 or more than 4 cm length (for linear lesions), score presence of integument alterations.

Hindquarters: **presence of alopecia**



Hindquarters: **absence of integument alteration**

Second level welfare assessment

For each area, count the number of integument alterations.

If more than 20 alterations per area are present, or one alteration is bigger than the palm of a hand, score >20.

If there are small, multiple and grouped alterations (distinguishable or not distinguishable) that cover an area bigger than a 1x2 cm^2 or more than 4 cm length (for linear lesions), score 1 integument alteration.

If single alterations are not distinguishable and the area covered is bigger than the palm of a hand, score >20.

If there are different categories of alterations at the same location (e.g. swelling and lesion at one leg) or adjacent to each other (e.g. a round hairless patch with a lesion in its centre) all these alterations are counted.

Hindquarters: alopecia bigger than the palm of a hand (yellow circle)
Score: **Hindquarters – Alopecia >20**

Legs: Alopecia bigger than a 1x2 cm area (yellow circle) + single Skin lesion bigger than a 1x2 cm area (red circle)
Score: **Legs – Alopecia 1 + Skin lesion 1**

SWOLLEN JOINTS

Description

Swollen joints happen when there is an increase of fluid in the tissues that surround the joints. Swollen joints can be painful and indicative of several conditions such as arthritis, injuries, infection or broken bones.

How to assess [Individual]

Ask the owner to handle the donkey.
Start with a general visual inspection of the donkey (both sides). Determine if swellings around the elbow, knee, fetlock, stifle and hock are present.

How to score

Assess the presence of swellings

Present


Absent


LAMENESS

GOOD HEALTH

ABSENCE OF INJURIES

Description

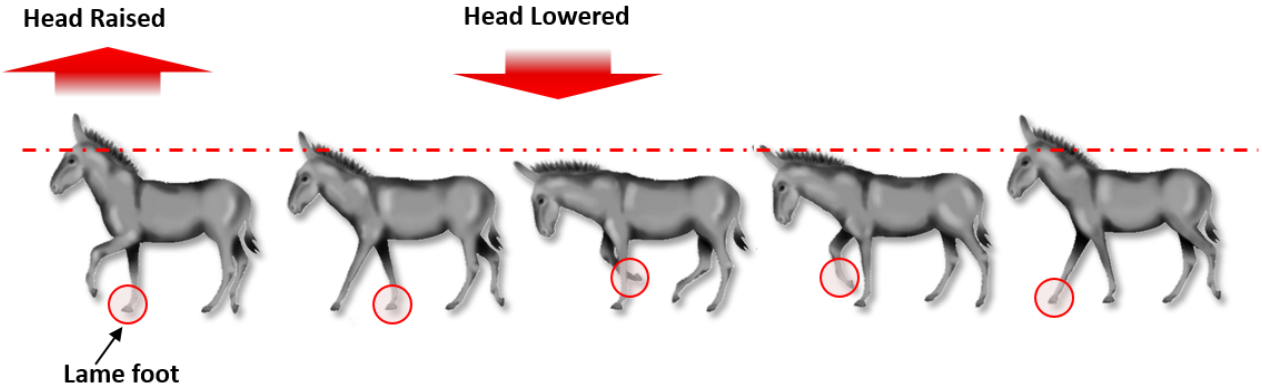
Lameness describes an abnormality of movement and is most evident whilst the animal is in motion. Lameness reduces a donkey ability to use one or more limbs in a normal manner, with severe cases reducing mobility or resulting in an inability to bear weight on the limb(s). Lameness indicates that the donkey is experiencing pain and discomfort and may be the result of several clinical conditions.

How to assess [Individual]

Outside the stabling area, observe the donkey posture at rest to see if it can stand and bear weight equally and fully on all limbs. If it requires assistance to rise, is unable to bear any weight on one leg or shows halted movement the assessment of the donkey gait is not required.
Then, ask the handler to handle the donkey and assess its gait. Observe the donkey from the front, side and rear during a 10 m walk in a straight line*. The rope between the handler and the animal's halter/head collar should be slack to allow the animal's head to move freely.

For lameness on forelegs, observe whether the donkey:

- changes head position during movement: when pressure is placed on the lame foot, the head rises, when pressure is removed from the lame foot, the head lowers (see diagram below).



Assessment of hind limb lameness might be more difficult to perform, observe whether the donkey:

- takes a shorter stride with one hind foot in comparison to the other;
- raises pelvis as one hind leg hits the floor; this is the lame hind leg.

**Always assess an animal for potential lameness on a hard, even surface!*

How to score

Non-ambulatory
The donkey is unable to stand without assistance or is unable to bear any weight on one leg or shows halted movement. the assessment of the donkey gait is not required

Lame
The donkey has imperfect locomotion, but can walk. When walking the head rises when the pressure is placed on the lame foot. Pelvis raises as the lame hind leg hits the floor

Not Lame
Can bear weight equally and fully on all limbs at rest and when walking

PROLAPSE

GOOD HEALTH

ABSENCE OF INJURIES

Description

A condition in which an internal organ protrudes through a natural opening. Prolapses of the uterus, vagina or rectum may be found in donkeys.

How to assess [Individual]

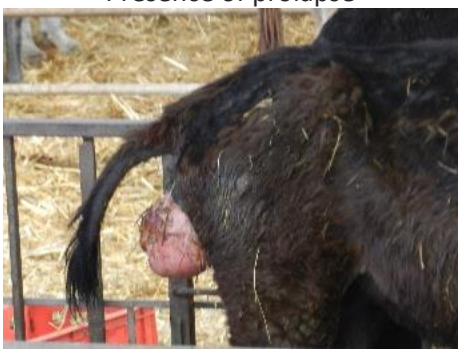
Ask the handler to handle the donkey and make a visual assessment of the anus and vulva.

How to score

Assess the presence of prolapse

Present

Presence of prolapse



Absent

No prolapse

HAIR COAT CONDITION

GOOD HEALTH

ABSENCE OF DISEASE

Description

Good hair coat condition is an indicator of both good coat health and also good general health. Vice versa, bad hair coat condition could indicate a number of clinical conditions or poor nutrition. Donkeys' coats tend to be longer and coarser than those of horses.

How to assess [Individual]

Ask the owner to handle the donkey and observe the coat condition. Base the assessment on a picture of the whole donkey. Do not take into consideration:

- local alterations in coat condition;
- changing coat (please note that some breeds change coats later in the season or have an irregular change pattern);
- breed characteristics;
- alterations to the coat caused by harnessing.

How to score

Unhealthy

Dull coat in which some or all of the hair is or has matted, scabby, scurfy, scaly, dandruff, balding

Healthy

Flat, smooth, sleek coat

FAECAL SOILING

GOOD HEALTH

ABSENCE OF DISEASE

Description

Faecal soiling is the presence of faecal residue on hind limbs. Faecal soiling is due to diarrhoea, which could indicate a clinical condition.

How to assess [Individual]

Ask the owner to handle the donkey and make a visual assessment of hind limbs.
Take into consideration the area inside the thighs, inside the hocks and the back of the hocks (Pritchard et al 2005 Preventive Vet Med 69, 265–283).

How to score

Present
Faecal soiling present on one or two limbs

Absent
No faecal soiling

DISCHARGES

GOOD HEALTH
ABSENCE OF DISEASE

Description

Discharges from natural orifices (nose, eyes, vulva or penis) can be a symptom of the presence of a localized or generalized disease.

How to assess [Individual]

Ask the owner to handle the donkey and observe the nose, the eyes, the vulva or penis.
Evaluate both sides of the head. The animal is observed, but must not be touched.

How to score

Nasal discharge

Present
Clearly visible flow/discharge from one or two nostrils (may be watery or thick, transparent, yellow/green or hematic)

Absent
No nasal discharge

Ocular discharge

Present
Clearly visible flow/discharge from one or two eyes (may be watery or thick, transparent, yellow/green or hematic)

Absent
No ocular discharge

Discharge from vulva or penis

Present

Clearly visible flow/discharge from the vulva or penis (may be watery or thick, transparent, yellow/green or hematic)

Absent

No discharge

CHEEK PALPATION

GOOD HEALTH

ABSENCE OF DISEASE

Description

The cheek palpation helps to determine whether the donkey has any potential major dental irregularities (such as a swollen gum, a missing tooth or a sharp dental overgrowth).

How to assess [Individual]

Ask the owner to handle the donkey and make a manual palpation. Gently and slowly draw hands down either side of the jaw, gently pressing to feel for any lumps or abnormalities.

How to score

Evaluate the presence of abnormalities

Presence of abnormalities	No abnormalities
Feeling of any asymmetry and irregular swelling(s)	No asymmetries and irregular swelling(s)

ABNORMAL BREATHING

GOOD HEALTH

ABSENCE OF DISEASE

Description

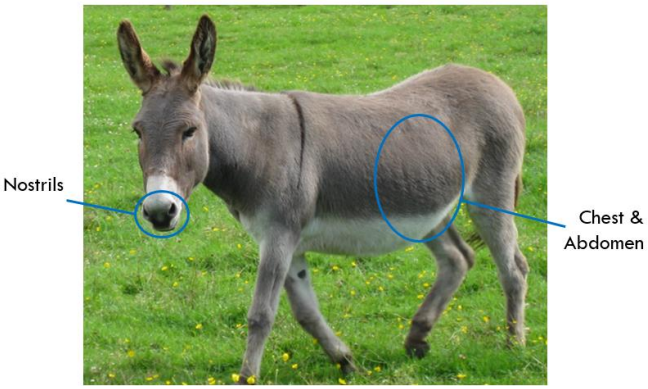
Abnormal breathing is characterized by an exaggerated effort to breathe. Under standard climate conditions and at rest, abnormal breathing can be the consequence of different health problems.

How to assess [Individual]

Assess the donkey for 1 min under standard climate conditions and at rest. It is important to be familiar with donkey normal respiratory rate. Measured as breaths per min; it should be around 20.

Make a visual assessment of the donkey breathing, paying particular attention to the sides, checking the focal areas: nostrils, chest and abdomen.

Abnormal breathing is present when any of the following signs are observed: flaring of the nostrils, increased or decreased breathing rate, heaving abdomen, asynchrony between movements of the chest and abdomen, noisy breathing.



How to score

Score if the breathing is normal or abnormal

Present	**Absent**
Presence of abnormal breathing	Breathing is normal

COUGHING

GOOD HEALTH

ABSENCE OF DISEASE

ONLY SECOND LEVEL

Description

Coughing is a vigorous inspiratory contraction, followed by a rapid exhalation, with the genesis of a sound vibration.

How to assess [Individual]

Evaluate the donkey at rest for 5 min and pay attention to any coughing.

How to score

Coughing	Not coughing
The donkey coughs at least once	The donkey does not cough

SIGNS OF HOOF NEGLECT

GOOD HEALTH

ABSENCE OF PAIN INDUCED BY MANAGEMENT PROCEDURES

Description

Neglected hooves are overgrown, rarely trimmed or trimmed incorrectly and can be painful for donkeys.

How to assess [Individual]

Ask the handler to handle the donkey and determine the condition of the hooves on a hard and even ground. Walk around the donkey and examine each hoof.
Check for signs of neglect: severely overgrown hooves, toes backed up, severe hoof cracks.

How to score

Present
One or more hooves show one or more signs of neglect

Absent
None of the hooves shows any sign of neglect

SIGNS OF HOT BRANDING

GOOD HEALTH

ABSENCE OF PAIN INDUCED BY MANAGEMENT PROCEDURES

Description

Hot branding is a method of applying a red-hot iron to the skin and is generally used for identification purposes and proof of ownership – usually in the form of a symbol or serial/classification number. Research shows that hot-iron branding is painful to equines and it leads to a skin burn that causes swelling and skin sensitivity for several days. The hot-iron induced scar results in permanent alopecia.

How to assess [Individual]

Ask the owner to handle the donkey. Check both sides of the body of the donkey, paying particular attention to shoulders, neck and hip areas. Determine if there are any signs of scarring due to hot iron in the shape of a symbol or numbers.

How to score

Present

Signs of hot branding

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Absent

No signs of branding

SOCIAL INTERACTION

APPROPRIATE BEHAVIOUR

EXPRESSION OF SOCIAL BEHAVIOUR

Description

Social interaction is any contact between two or more animals. Donkeys are social creatures, and thus, contact with their own kind is extremely important for their mental wellbeing.

How to assess [Resource-based]

Observe the habitual environment of the donkey and note whether the donkey is housed with other donkeys or whether it is on its own. When housed singly, note if physical contact with other donkeys is always accessible.

How to score

No social contact

Donkey is isolated from other donkeys, no physical contact with any other donkeys

Social contact

Donkey is housed with other donkeys or, if housed singly, physical contact with other donkeys is always accessible

STEREOTYPIES

APPROPRIATE BEHAVIOUR

EXPRESSION OF OTHER BEHAVIOURS

ONLY SECOND LEVEL

Description

Stereotypies are repetitive, relatively invariant behaviours with no obvious function, which are generally believed to be indicative of an ongoing or previous welfare problem. Although primarily performed by horses, donkeys may also exhibit stereotypic behaviours (albeit much less frequently), such as: crib-biting, weaving, fence pacing.

How to assess [Individual]

Observe the donkey for 5 min in its own environment without disturbing it. Evaluate if the donkey is prevented to perform stereotypies or if the stabling area shows one or more recent sign of undesired behaviour. Evaluate if the donkey is performing one or more of the following stereotypic behaviours:

- crib-biting: the donkey anchors their top incisor teeth on a fixed object (e.g. fence, stall or building structures), pull backward, contract the neck muscles, emitting an audible grunt;
- weaving: occurs when the donkey swings its head and neck from side to side and shifts its weight from one foreleg to the other, sometimes in coordination with the hindquarters while standing in the same place;
- fence-pacing: occurs when the donkey repeatedly moves back and forth in a straight line or perhaps moves in a circular or figure eight pattern at fence or perimeter of the stabling area.

How to score

Evidence of stereotypies	No evidence of stereotypies
Indirect signs of stereotypies and/or observation of stereotypic behaviour	No evidence of indirect signs of stereotypies and/or observation of stereotypic behaviour

HUMAN-ANIMAL RELATIONSHIP TESTS

APPROPRIATE BEHAVIOUR

GOOD HUMAN-ANIMAL RELATIONSHIP

Description

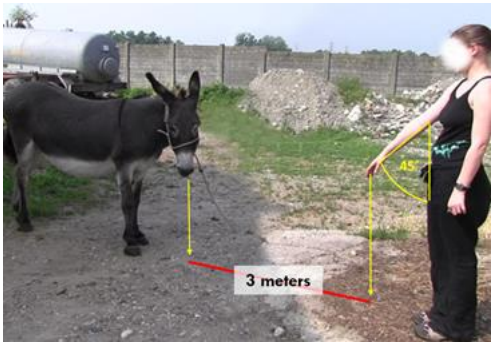
Human-animal relationship tests are behaviour tests aimed to assess the quality of the relationship between donkeys and humans. A donkey perception of humans and the interaction with them has a major impact on donkey welfare and human safety.
It is important to be aware that under particular conditions (e.g. if the donkey has had little human handling) a lack of positive behaviours during the tests does not necessarily indicate that a donkey has been badly handled.

How to assess - Avoidance Distance (AD) [Individual]

Ensure the donkey is wearing a head-collar. Ask the owner to restrain the donkey by holding an adjoining rope loosely under the chin, allowing enough movement away from the approaching human should the donkey want to take a few steps away.

- Starting Position

You are in front of the donkey that you want to assess.
The distance between you and the donkey should be approximately 3.5 m.
Raise your right arm to 45° from your chest, the back of your hand should be facing up. The tip of the fingers of your hand should be at the distance of 3 m from the donkey.



- Testing Phase

Test should start when the donkey is looking at you (paying attention). If the donkey is not paying any attention, call him (clicking with your tongue three times). As soon as the donkey is looking at you, you can start walking calmly and slowly (1 step per s); your arm should be kept in the starting position (45°). The test ends as soon as the donkey shows any avoidance behaviour (e.g. moving away, turning its head away).

How to score – Avoidance Distance (AD)

As soon as you see an avoidance behaviour (e.g. moving away from you, turning the head), stop and score presence of avoidance.

Avoidance behaviour

No avoidance

How to assess – Walking Down Side [Individual]

Follow the procedure developed by Burn et al 2009 (Anim. Welfare, 18, 177-87).
Walk Down the Side Test should be conducted immediately following the Avoidance Distance Test.

- Starting Position

Ensure the donkey is wearing a head-collar and the rope is loose under the chin, allowing enough movement away from the approaching human. Approach the animal's side, keeping a distance of approximately 30 cm and gently place a hand at withers.

- Testing Phase

With your hand still gently on the animal, walk down the side of the animal towards its tail. Then, turn and walk back up to the head again.

How to score – Walking Down Side

Record any sign of the animal being alert to your presence at any point as you walk along its side and including the return walk back to its head.

Negative

If the donkey shows any negative reaction to the movement of the observer (e.g. ears flat back, trying to flee, attempting to bite or kick, defecation)

Neutral/Positive

If the donkey shows no interest OR if the donkey shows any positive reaction (remains calm and stationary, ear rotation towards observer, maintaining contact with observer, sniffing) to the movement of the observer

How to assess - Tail tuck [Individual]

During your walk down the donkey's side, when you are level with the tail of the animal, stop for two s and note whether the animal tucks in or clamps down its tail and/or tucks in or tenses its hindquarters while you are level with its back end.

How to score - Tail tuck

Present

Absent

QUALITATIVE BEHAVIOUR ASSESSMENT

APPROPRIATE BEHAVIOUR

POSITIVE EMOTIONAL STATE

ONLY SECOND LEVEL

Description

The Qualitative Behaviour Assessment (QBA) relies on the ability of humans to integrate perceived details of behaviour, posture, and context into descriptions of an animal's style of behaving, or "body language", using descriptors such as "relaxed", "tense", "frustrated" or "content". Such terms have an expressive, emotional connotation, and provide information that is directly relevant to animal welfare and may be a useful addition to information obtained from quantitative indicators (Wemelsfelder 2007 Anim. Welfare, 16, 25-31).

How to assess [Group]

Perform the assessment at least 30 min after the feed distribution. Assess the donkeys from outside the stabling area without disturbing them. Perform the assessment on the whole group and not on individual animals.
Select observation points that enable observation of the different stabling areas. The number of observation points depends on the complexity of the housing environment and the group size. Consequently, select the timing of the observations.
The observation session may last from 10 to 20 min, depending on the complexity of the housing environment and the group size, with the time spent at each observation point ranging from 2.5 (8 points) to 10 min (1 or 2 points) according to the following table.

Number of observation points	Duration of observation from each point (min)	Total observation time (min)
1	10	10
2	10	20
3	6.5	19.5
4	5	20
5	4	20
6	3	18
7	2.5	17.5
8	2.5	20

The assessment takes place during activity periods of donkeys, when different behavioural expressions may be exhibited.

How to score

At the end of the observation period, find a quiet spot and score the list of descriptors (see below) using the visual analogue scales (VAS). The group will not be scored during the observation, and only one integrative assessment will be made per farm (integrate the information from each observation point).
Each VAS is defined by its left "minimum" and right "maximum" point. "Minimum" means that, at this point, the expressive quality indicated by the term is entirely absent in the whole group under observation. "Maximum" means that, at this point, this expressive quality is dominant across all observed animals. Intermediate scores depend on:

- number of animals involved in an activity;
- intensity of a behaviour;
- interactions with the rest of the herd.

The measure for that term is the distance in mm from the minimum point to the point where the VAS is ticked. It is important not to skip any term and to follow the predefined order.

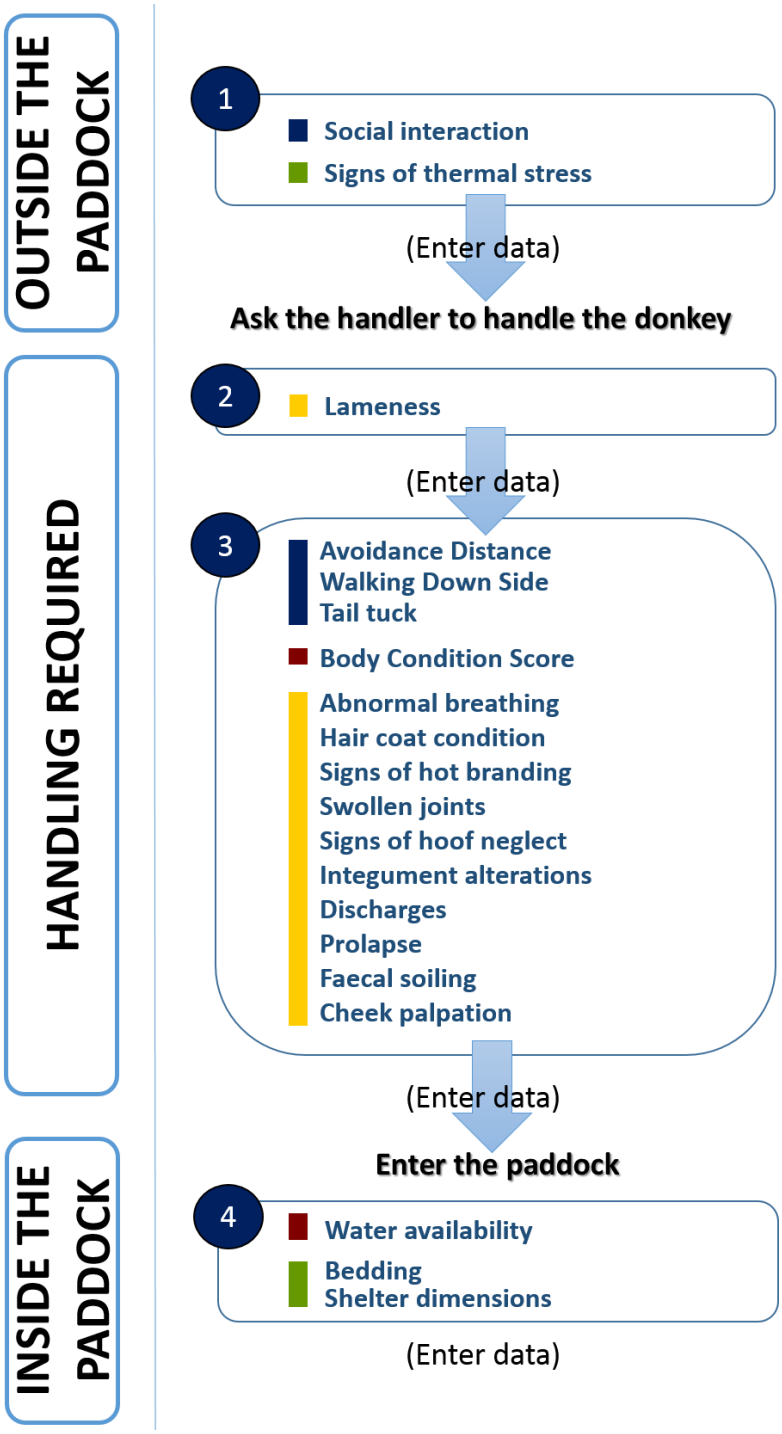
Descriptors	
At ease	Relaxed, calm with other animals, not anxious, carefree
Curious	Inquisitive, wishing to investigate (i.e. approach person/object of curiosity)
Friendly	Companionable, affectionate, helpful, kind, sociable, on the same side; not hostile, positive feelings toward another animal or person (i.e. the donkey approaches another animal/person and expressing grooming behaviour, may sniff or interact in some way)
Happy	Feeling showing or expressing joy, pleased, lively, playful, satisfied
Playful	Very active, wanting to have fun, frisky/frolicsome, mischievous
Relaxed	Not tense or rigid, easy-going, calm, carefree, tranquil
Responsive	Active, acknowledging, receptive, aware of the environment, responding to what is going on in the environment, perhaps vocalizing or showing a flehmen response
Apathetic	Having or showing little or no emotion; disinterested, indifferent, not responsive to the environment, on its own, depressed, not moving, stoic
Agitated	Highly active, restless, fidgety, excited, worried/upset, disturbed, in a bad mood, annoyed (i.e. separation from friend; lots of flies; stereotypy; – weaving, fence pacing, head shaking, muscle twitch, tail swishing, ear movements / may be anticipating food or other stimulus)
Aggressive	Hostile, attacking, disruptive, angry, wants to fight/attack another donkey, dominance, defensive aggression (e.g. provocation during play or safeguarding) (i.e. bite/kick/vocalise/chase, position of ears flat-back against head, intention to harm)
Anxious	Worried/tense, troubled, apprehensive, distressed, jumpy, nervous, watchful, responsive to a possible threat/danger (i.e. startled reaction to loud noise, looking around/vigilant, moving ears)
Distressed	Much troubled, upset, afflicted, distraught, worried (i.e. high resistance to handling, attempts to escape, defecation, rearing up)
Fearful	Startled, afraid, hesitant, timid, uneasy, not rational, not necessarily linked with something going on in the environment (i.e. flight response, back up, refuse to move further)
Pushy	Assertive or forceful (i.e. displacement of another donkey, head butt out the way)
Uncomfortable	Painful, rough, afflicted, irritating (i.e. shooing away flies, trying to remove a too tight head-collar)
Withdrawn	Unsociable, introverted, reclusive, shy, not searching for contact with others, solitary, uncompanionable (“leave me alone!”)

4.2 Flow of first level welfare assessment

The assessors should first become familiar with the farm and the stabling area where donkeys are kept. There is a specific order in which the different welfare indicators should be collected and data entered, represented below.

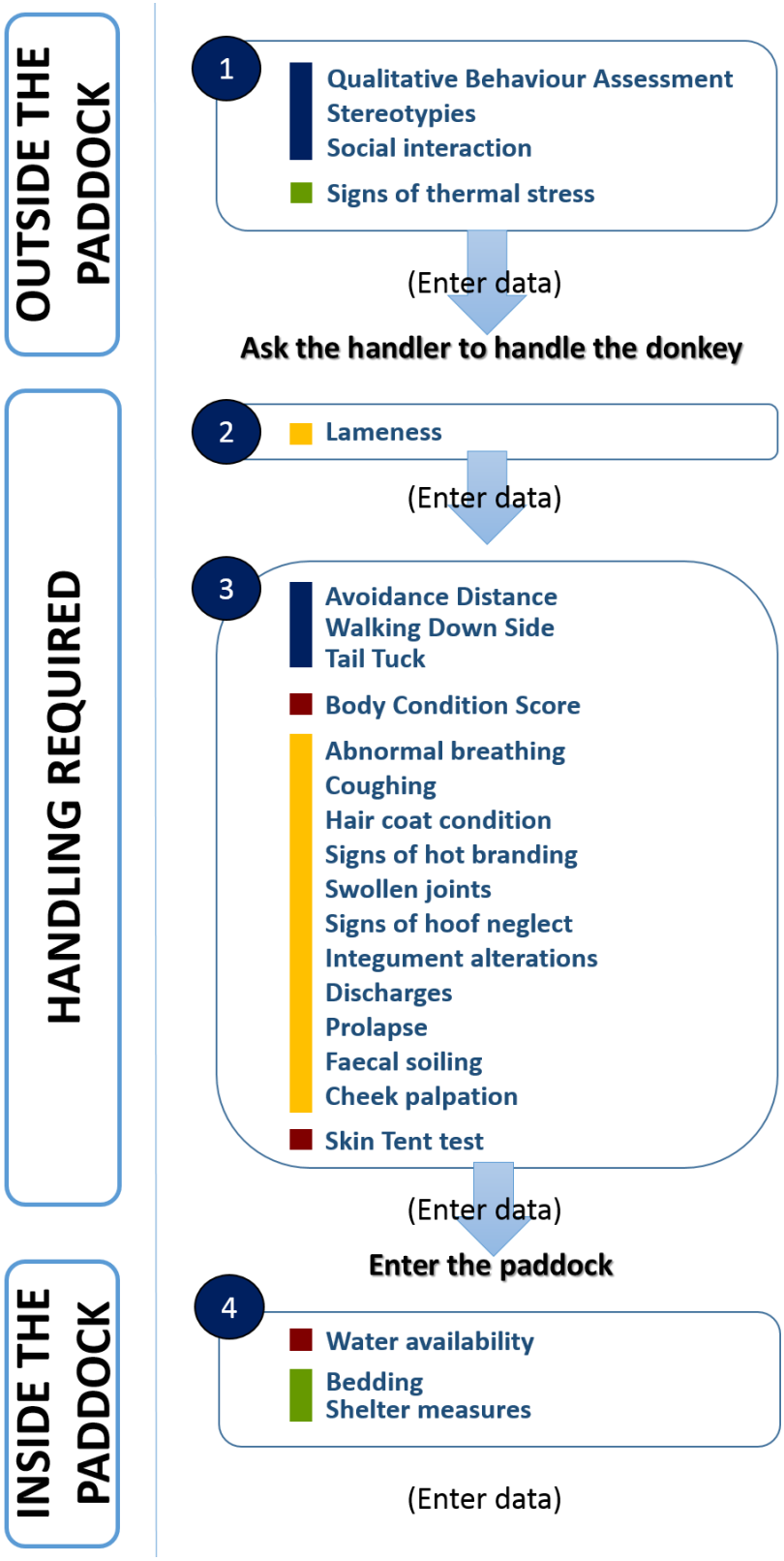
For those indicators which require handling, the assessors ask the handler to move the donkey to a place where they can assess it individually.

Time needed approximately for assessing a donkey is 5 min.



4.3 Flow of second level welfare assessment

Performance of second level welfare assessment is recommended in conditions listed in Section 5.2. Time needed approximately for assessing a donkeys is 10 min.



5. OUTCOME OF WELFARE ASSESSMENT

After the assessment, welfare data should be entered into a data set and an objective descriptive output should be generated. The aim of the output is to give a visual feedback on the welfare of the animals on the farm, to highlight positive conditions and enable comparison with a reference population. Currently, the reference population displayed for the output refers to data collected during the AWIN project on 20 farms in Italy and UK.

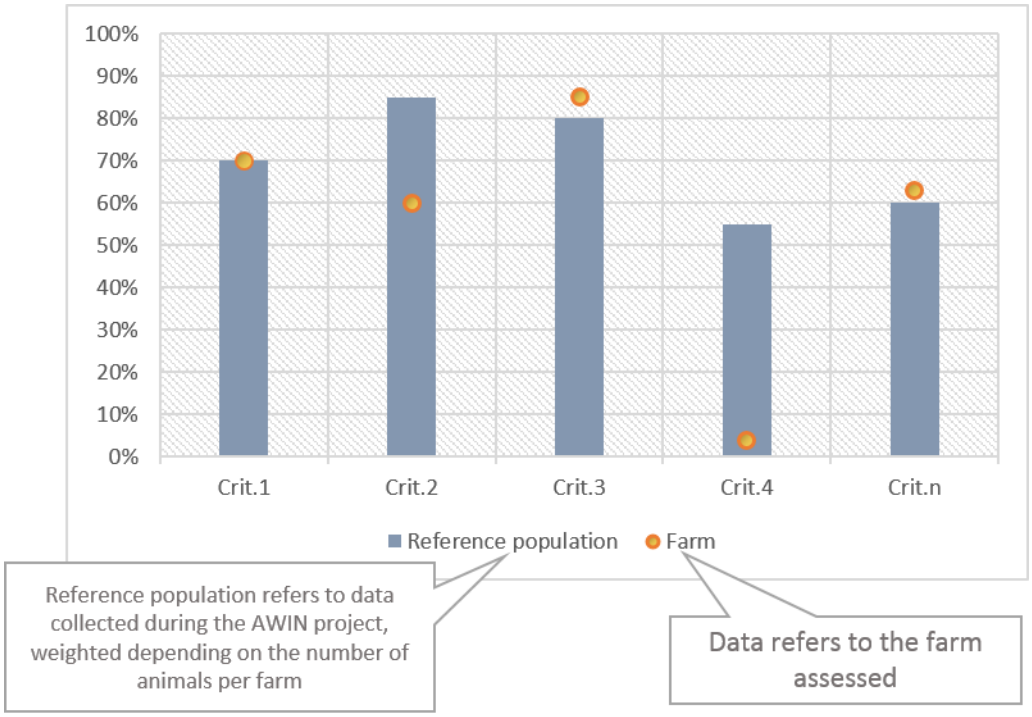
5.1 Data entry, data aggregation and output of first level welfare assessment

The file for data entry and data aggregation of first level welfare assessment can be downloaded here.
Specifically, welfare indicators of the first level welfare assessment can be aggregated at criterion level reporting the proportions of donkeys for which the criterion is satisfied, e.g. proportion of animals enjoying appropriate nutrition, good human-animal relationship, etc.

Welfare criteria	**How to report data in the output**
Appropriate nutrition	Proportion of donkeys with "BCS = 3"
Absence of prolonged thirst	The condition "presence of automatic drinker + functioning + clean" OR "presence of trough + clean" is satisfied
Comfort around resting	The condition "presence of sufficient bedding + clean + satisfactory shelter dimensions" is satisfied
Thermal comfort	Proportion of donkeys with "no signs of thermal stress"
Absence of injuries	Proportion of donkeys with "no integument alterations + no swollen joints + no lameness + no prolapse"
Absence of disease	Proportion of donkeys with "healthy hair coat condition + no faecal soiling + no discharges (ocular, nasal, vulva/penis) + cheek palpation = no + no abnormal breathing"
Absence of pain induced by management procedures	Proportion of donkeys with "no signs of hoof neglect + no signs of hot branding"
Expression of social behaviour	Proportion of donkeys with "social contact"
Good human-animal relationship	Proportion of donkeys with "Avoidance Distance = no avoidance + Walking Down Side = neutral/positive + Tail tuck = no"

In the example reported below, information is aggregated at criterion level, resulting in an assessment of how an individual farm complies with each criterion. The criteria are displayed in the output and the position of the assessed farm is highlighted in comparison with the median value of the reference

population. All data used to calculate the proportions is weighted according to the number of donkeys on the farm.



If there are less than 10 donkeys on the farm, calculating the proportions of animals is unsuitable, it is preferable to consider how individual animals comply with each criterion.

As donkeys have a long life expectancy, focus on individuals, besides farms, may be relevant. In this case data could be also considered for each donkey, thus enabling to appreciate how much each individual is affected by various welfare problems.

5.2 From first to second level welfare assessment

The second level welfare assessment is recommended:

- when there is noncompliance with the current legislation;
- if there is only one donkey;
- when at least one of the following conditions is present:

Welfare criteria	Conditions
Appropriate nutrition	The within-farm proportion of animals meeting the criterion is lower than the proportion of animals observed in the worst 5% of the farms of the reference population
Absence of prolonged thirst	Absence of functioning and clean automatic drinker OR Absence of clean trough
Absence of disease	The within-farm proportion of animals meeting the criterion is lower than the proportion of animals observed in the worst 5% of the farms of the reference population
Absence of injuries	The within-farm proportion of animals meeting the criterion is lower than the proportion of animals observed in the worst 5% of the farms of the reference population
Absence of pain induced by management procedures	The within-farm proportion of animals meeting the criterion is lower than the proportion of animals observed in the worst 5% of the farms of the reference population
Good human-animal relationship	The within-farm proportion of animals meeting the criterion is lower than the proportion of animals observed in the worst 5% of the farms of the reference population

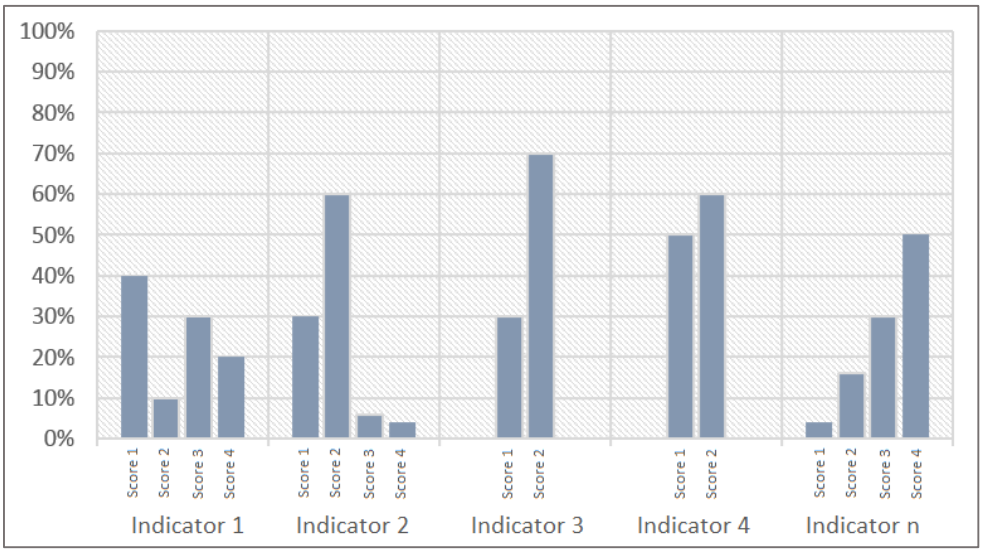
The second level welfare assessment can be run independently any time the assessor deems it appropriate.

5.3 Output of second level welfare assessment

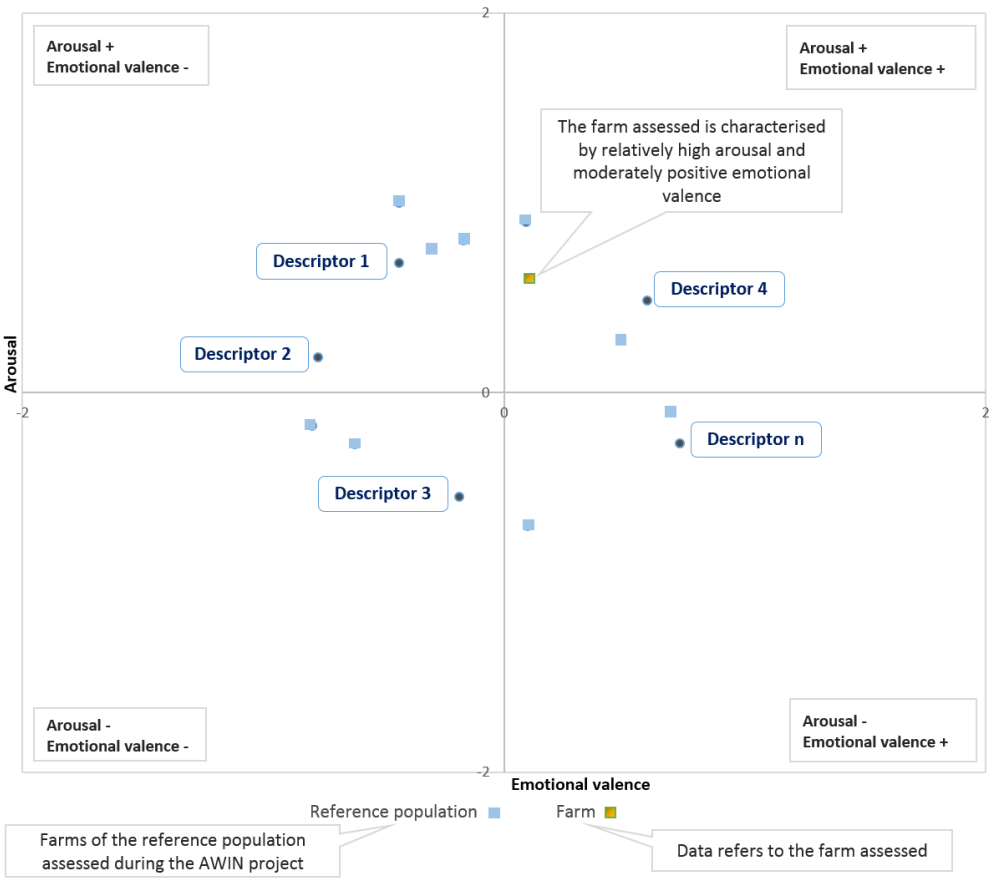
In the output of the second level welfare assessment, the proportion of animals with different scores for each welfare indicator is reported. Second level indicators are expressed as follows:

Welfare criteria	**How to report data in the output**
Appropriate nutrition	Proportion of donkeys of each score of BCS
Absence of prolonged thirst	Proportion of donkeys of each score of skin tent test
Comfort around resting	Scores regarding bedding and shelter dimensions
Thermal comfort	Proportion of donkeys of each score of thermal comfort
Absence of injuries	Proportion of donkeys of each score of integument alterations; swollen joints; lameness and prolapse
Absence of disease	Proportion of donkeys of each score of hair coat condition; faecal soiling; discharges (ocular, nasal, vulva/penis); cheek palpation; abnormal breathing and coughing
Absence of pain induced by management procedures	Proportion of donkeys with each score of signs of hoof neglect and signs of hot branding
Expression of social behaviour	Proportion of donkeys with each score of social interaction
Expression of other behaviour	Proportion of donkeys with each score of stereotypies
Positive emotional state	PCA plot
Good human-animal relationship	Proportion of donkeys with each score of Avoidance Distance, Walking Down Side and Tail tuck

In the example reported below, the proportion of animals with different scores for each welfare indicator is displayed.



QBA could be considered as an additional indicator that is a valuable tool when discussing the general demeanour of the animals with the stable manager. In the QBA output, a Principal Component Analysis (PCA) plot is generated. Farm values are included with those of the reference population and shown in a different colour. An example is given below:



TERMS AND DEFINITIONS

Animal-based indicator
Indicator that is taken directly from the animal

Assessor
Person in charge of collecting data using the welfare assessment protocol developed by AWIN on an individual animal or on a group of animals

Farm
Farm refers to any type of facility housing equines where the assessment may take place

Handler
Person in charge of restraining the donkeys during the individual welfare assessment

Management-based measure
Measure which refers to what the stable manager does on the animal group and what management processes are used

Reference population
The reference population is defined by a geographic area where the assessment occurred and/or a time period when the assessment occurred and/or the type of animals covered by the assessment. Throughout this document, the term “reference population” refers to data collected during the AWIN project on 20 farms in Italy and UK

Resource-based measure
Measure that is taken regarding the environment in which the animals are kept

Shelter
A structure that provides cover or protection, as from the weather

Stable manager
Person responsible for the planning and daily management of the farm. It should be clarified that stable manager refers also to the owner or the primary carer of the animals

Welfare assessment protocol
A welfare assessment protocol is a description of the procedures and requirements for the overall assessment of welfare

Welfare criterion
A welfare criterion represents a specific area of welfare, which indicates an area of welfare concern (WQ®)

Welfare indicator
An observation, a record or a measurement used to obtain information on animal welfare

Welfare principle
A welfare principle is a collection of criteria associated with one of the following areas: feeding, housing, health and behaviour (WQ®)

Units of measure are abbreviated according to standard International System of Units usage.

APPENDIX A – FIRST LEVEL WELFARE ASSESSMENT RECORDING SHEET

Date: _____ Assessor: _____ Farm: _____

Farm recording sheet	
Total number of donkeys	_____
Attitude	☐ Milk ☐ Pet ☐ Therapy ☐ Riding ☐ Farm work ☐ Trekking ☐ Other ☐ NA
Resource-based indicators	
Shelter dimensions	☐ Not satisfactory ☐ Satisfactory ☐ NA
Bedding - Quantity	☐ No bedding ☐ Insufficient ☐ Sufficient ☐ NA
Bedding - Cleanliness	☐ Dirty ☐ Clean ☐ NA
Water availability - Type of water points	☐ No water point ☐ Trough ☐ Automatic ☐ NA
Water availability – Functioning of automatic drinkers	☐ Not functioning ☐ Functioning ☐ NA/trough
Water availability – Cleanliness of water points	☐ Dirty ☐ Partially dirty ☐ Clean ☐ NA

Date: _____ Assessor: _____ Farm: _____ Donkey ID: _____

Single donkey recording sheet	
Sex	☐ Male ☐ Gelding ☐ Female ☐ Pregnant female
Age	_____ years
Outside the stabling area	
Social interaction	☐ No social contact ☐ Social contact ☐ NA
Signs of thermal stress	☐ Presence of signs of thermal stress ☐ Absence of signs of thermal stress ☐ NA
Donkey handled	
Lameness	☐ Non-ambulatory ☐ Lame ☐ Not lame ☐ NA
Avoidance Distance	☐ Avoidance behaviour ☐ No avoidance ☐ NA
Walking Down Side	☐ Negative ☐ Neutral/Positive ☐ NA
Tail tuck	☐ Present ☐ Absent ☐ NA
BCS	☐ Score 1 ☐ Score 2 ☐ Score 3 ☐ Score 4 ☐ Score 5 ☐ NA
Abnormal breathing	☐ Present ☐ Absent ☐ NA
Hair coat condition	☐ Unhealthy coat ☐ Healthy coat ☐ NA
Signs of hot branding	☐ Present ☐ Absent ☐ NA

Swollen joints	☐ Present ☐ Absent ☐ NA
Signs of hoof neglect	☐ Present ☐ Absent ☐ NA

Integument alteration: if you see any alteration thick the corresponding cell

	Muzzle	Head	Neck	Shoulder	Back, girth & ribs	Hindquarters	Legs	Hooves & coronet
Alopecia								
Skin lesion								
Deep wound								
Swelling								

Discharge - Ocular	☐ Present ☐ Absent ☐ NA
Discharge - Nasal	☐ Present ☐ Absent ☐ NA
Discharge - Vulva or penis	☐ Present ☐ Absent ☐ NA
Prolapse	☐ Present ☐ Absent ☐ NA
Faecal soiling	☐ Present ☐ Absent ☐ NA
Cheek palpation	☐ Presence of abnormalities ☐ No abnormalities ☐ NA

Comments and notes

APPENDIX B – SECOND LEVEL WELFARE ASSESSMENT RECORDING SHEET

Date: _____ Assessor: _____ Farm: _____

Farm recording sheet	
Total number of donkeys	_____
Attitude	☐ Milk ☐ Pet ☐ Therapy ☐ Riding ☐ Farm work ☐ Trekking ☐ Other ☐ NA

Qualitative Behaviour Assessment

At ease	
Curious	
Friendly	
Happy	
Playful	
Relaxed	
Responsive	
Apathetic	
Agitated	
Aggressive	
Anxious	
Distressed	
Fearful	
Pushy	
Uncomfortable	
Withdrawn	

Resource-based indicators	
Shelter dimensions	☐ Not satisfactory ☐ Satisfactory ☐ NA
Bedding - Quantity	☐ No bedding ☐ Insufficient ☐ Sufficient ☐ NA
Bedding - Cleanliness	☐ Dirty ☐ Clean ☐ NA
Water availability - Type of water points	☐ No water point ☐ Trough ☐ Automatic ☐ NA
Water availability – Functioning of automatic drinkers	☐ Not functioning ☐ Functioning ☐ NA/trough
Water availability – Cleanliness of water points	☐ Dirty ☐ Partially dirty ☐ Clean ☐ NA

Date: _____ Assessor: _____ Farm: _____ Donkey ID: _____

Single donkey recording sheet	
Sex	☐ Male ☐ Gelding ☐ Female ☐ Pregnant female
Age	_____ years
Outside the stabling area	
Social interaction	☐ No social contact ☐ Social contact ☐ NA
Stereotypies	☐ Evidence of stereotypies ☐ No evidence of stereotypies ☐ NA
Signs of thermal stress	☐ Presence of signs of thermal stress ☐ Absence of signs of thermal stress ☐ NA
Donkey handled	
Lameness	☐ Non-ambulatory ☐ Lame ☐ Not lame ☐ NA
Avoidance Distance	☐ Avoidance behaviour ☐ No avoidance ☐ NA
Walking Down Side	☐ Negative ☐ Neutral/Positive ☐ NA
Tail tuck	☐ Present ☐ Absent ☐ NA
BCS	☐ Score 1 ☐ Score 2 ☐ Score 3 ☐ Score 4 ☐ Score 5 ☐ NA
Abnormal breathing	☐ Present ☐ Absent ☐ NA
Coughing	☐ Coughing ☐ Not coughing ☐ NA
Hair coat condition	☐ Unhealthy ☐ Healthy ☐ NA
Signs of hot branding	☐ Present ☐ Absent ☐ NA
Swollen joints	☐ Present ☐ Absent ☐ NA

Signs of hoof neglect:	☐ Present ☐ Absent ☐ NA

Integument alteration: write the number of alterations in the corresponding cell

	Muzzle	Head	Neck	Shoulder	Back, girth & ribs	Hindquarters	Legs	Hooves & coronet
Alopecia								
Skin lesion								
Deep wound								
Swelling								

Discharge - Ocular	☐ Present ☐ Absent ☐ NA
Discharge - Nasal	☐ Present ☐ Absent ☐ NA
Discharge - Vulva or penis	☐ Present ☐ Absent ☐ NA
Prolapse	☐ Present ☐ Absent ☐ NA
Faecal soiling	☐ Present ☐ Absent ☐ NA
Cheek palpation	☐ Presence of abnormalities ☐ No abnormalities ☐ NA
Skin tent test	☐ No loss of elasticity ☐ Loss of elasticity ☐ NA

Comments and notes

AWIN CONSORTIUM

	AWIN partners	Country
SRUC	Scotland's Rural College, Edinburgh	Great Britain
NORWEGIAN UNIVERSITY OF LIFE SCIENCES	Norwegian University of Life Sciences, Ås	Norway
UNIVERSITÀ DEGLI STUDI DI MILANO	Università degli Studi di Milano, Milan	Italy
neiker tecnalia	Neiker-Tecnalia, Vitoria-Gasteiz	Spain
UNIVERSIDADE POSITIVO	Universidade Positivo, Curitiba	Brazil
UNIVERSITY OF CAMBRIDGE	University of Cambridge, Cambridge	Great Britain

	Universidade de Lisboa, Lisbon	Portugal
	Indiana University, Bloomington	USA
	Institute of Animal Science, Prague	Czech Republic
	Pferdeklinik Havelland, Equine Clinic, Beetzsee-Brielow	Germany
	Universidade de São Paulo, Pirassununga	Brazil

Colophon

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