How to evaluate the welfare of racing and sport horses?

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• What brings us here?

EUROPE 2030
The equine sector: the story of a sustainable success

How did it happen?
Who made it possible?
• Outline
• Why do we need to assess welfare?

Main drivers for animal welfare policies

- Changing values in the society
- Market drivers
- Integration of AW with sustainable agenda
- New relations between producers and society

(from Andrea Gavlinelli, Head of the Animal Welfare Unit of the European Commission)
Challenges for sport horses (risk factors)

- Why do we need to assess welfare?
- Doping and medication abuse
- Sport issues
- Aggressive riding
- Injuries surveillance
- Travel with no training

(from Graeme Cooke, FEI)
Why do we need to assess welfare?

Reported welfare problems (risk factors)

From «Removing the blinkers»
(Roly Owers from WHW and Eurogroup 4 animals)
Development, integration and dissemination of animal-based welfare indicators, including pain, in commercially important husbandry species, with special emphasis on small ruminants, equidae and turkeys

http://www.animal-welfare-indicators.net/
• The AWIN beneficiaries

01. Scotland's Rural College, Scotland
02. Norwegian University of Life Sciences, Norway
03. The University of Milan, Italy
04. Neiker-Tecnalia, Spain
05. Centro de Estudos Superiores Positivo, Brazil
06. Technical University of Lisbon, Portugal
07. University of Cambridge, Great Britain
08. Washington State University, USA
09. Indiana University, USA
10. Institute of Animal Science, Czech Republic
11. Havelland Horse Clinic, Germany
Identify welfare conditions of horses in Europe

Offer a tool box to do it
• The AWIN project

How did we face these challenges?

• Protocols, training material, learning objects and apps

www.animalwelfarehub.com
multidimensional concept
measurable quality of a living animal at a particular time

- How to assess welfare

Evaluation according to the resources given

Evaluation according to the animal based indicators

We need integration!
• How to assess welfare

Animal based indicators

- **Valid** = meaningful
- **Feasible** = practical during on-farm inspection
- **Reliable** = consistent
• How to assess welfare

Good Feeding
- Absence of prolonged hunger
- Absence of prolonged thirst

Good Housing
- Comfort around resting
- Thermal comfort
  - Space to move freely

Good Behaviour
- Expression of other behaviours
- Expression of social behaviour
- Positive emotional state
- Good human-animal rel.
- Absence of general fear

Good Health
- Absence of physical injury
- Absence of disease
- Absence of pain and pain caused by management procedures
• Challenges faced

Long life expectancy

One facility:
each animal a different owner

Different housing conditions showing different prevalence in different European regions
• Challenges faced

Transportation: frequent/over long distances
• Process to develop the protocol

1) selection of promising welfare indicators

2) research to cover gaps in knowledge

3) stakeholder consultation

4) testing the prototype protocol on-farm
Choice of the most promising indicators during a focus group among AWIN scientists

- Identification of animal-based indicators
- Classification according to WQ® 4 Principles and 12 Criteria
- Evaluation of validity, reliability, on-farm feasibility
- Databases were searched to identify key studies addressing equine welfare indicators
Some Criteria of equine welfare were thoroughly investigated and indicators seem ready for use. For others, there is a lack of scientific research, particularly in terms of validity and reliability.

A total of 49 welfare indicators satisfied the search criteria.
• Research to cover gaps in knowledge


Development of the Horse Grimace Scale (HGS) as a pain assessment tool in horses undergoing routine castration

Pain assessment in horses is difficult, **no golden standard is available**. There is a need of method to recognize whether a horse is in pain after a routine procedure such as castration.

- The approaches used in non verbalizing humans can provide a framework for animal pain assessment ([Grunau and Craig, 1987](#)).
- Facial expressions of pain have been already used to assess pain in other species ([Jordan et al., 2011](#)).
- This method resulted easy to learn and apply in practice as it takes advantages of the natural human instinct to look at the face ([Leach et al., 2011](#)).
Based on the scientific study, the Horse Grimace Scale was developed, composed of six facial action units:

- Stiffly backwards/sideways ears
- Tension above the eye area
- Orbital tightening
- Prominent strained chewing muscles
- Strained nostrils and flattening of the profile
- Mouth strained and pronounced chin

Great interest for the HGS by the media and the public
- Research to cover gaps in knowledge

- **LO on horse pain** ([www.animalwelfarehub.com](http://www.animalwelfarehub.com))

Enables the user to know more about horse pain assessment and the use of the Horse Grimace Scale.
• Research to cover gaps in knowledge

• HGS app (www.animalwelfarehub.com)

More than 500 downloads in 6 months
A study on validity and reliability of on-farm tests to measure human-animal relationship in horses and donkeys

- Human-animal relationship plays an important role in animal welfare
- The literature review identified several HA relationship tests
- Lack of information regarding validity, reliability and on-farm feasibility
• Behavioural tests differentiate between horse facilities with good or sub-optimal human-animal relationship

• Repeatability, reliability and on-farm feasibility

Validation of a fear test in sport horses using infrared thermography

- Fearful temperament plays an important role in determining a long term negative emotional state and over-reaction to fear-eliciting stimuli.

Finding appropriate indicators for assessing fearfulness in horses has important practical implications, not only for horse welfare, but also for human safety.
• Research to cover gaps in knowledge

• Validity of a fear test in adult sport horses

• Thermography proved to be useful in assessing physiological reactions of fear in horses

• Stakeholder consultation
Testing the prototype protocol on farm

Tested in 40 facilities (in Italy and Germany)

- 38% Very small (<4 horses)
- 12% Small (>5 <10 horses)
- 12% Medium (>11 <30 horses)
- 38% Large (>30 horses)
• The AWIN protocol

What is the aim of our protocol?

• To assess welfare in order to guide its improvement throughout Europe

Who are the users?

• Official assessors (trained owners) throughout Europe

How is the protocol?

• Two levels:
  • 1 Iceberg
  • 2 Comprehensive
• The AWIN protocol

<table>
<thead>
<tr>
<th>First level</th>
<th>Second level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid and reliable indicators</td>
<td>More comprehensive assessment</td>
</tr>
<tr>
<td>Iceberg indicators</td>
<td>Feasible in a reasonable time</td>
</tr>
<tr>
<td>Feasible in a short time</td>
<td></td>
</tr>
<tr>
<td>No or minimal handling required</td>
<td></td>
</tr>
<tr>
<td>Short training of assessors</td>
<td></td>
</tr>
<tr>
<td>Stakeholders’ opinion</td>
<td></td>
</tr>
</tbody>
</table>
The AWIN protocol - First Level

1. Horse Glimace Scale
2. Stereotypies
3. Avoidance Distance
4. Voluntary Animal Approach
5. Body Condition Score
6. Hair coat condition
7. Abnormal breathing
8. Swollen joints
9. Integument alterations
10. Discharges
11. Prolapse
12. Social interaction
13. Signs of hoof neglect
14. Consistency of manure
15. Bedding
16. Box dimensions
17. Water availability
18. Exercise (questionnaire)

What is the AWIN welfare assessment protocol for horses?
It is a science-based welfare assessment method, built on animal-based indicators, including pain indicators.

What is it for?
It is intended to assess the welfare of horses over than 5 years old, already used for different activities and housed in stable huts.

Why using a two level approach strategy?
The AWIN welfare assessment protocol offers, as a first level, a quick screening, comprising of a detection of robust and feasible animal-based indicators. Depending on the outcome of the first level assessment, a second level, comprising of more comprehensive and in-depth assessments, may be implemented.

Do I need to assess all the horses?
In the first level of the assessment, sampling of horses is needed.

How can I collect and analyse data?
An interactive app for data collection, data storage and data analysis is available on Google Play Store and Apple Store.
• The AWIN protocol - First Level

<table>
<thead>
<tr>
<th>Farm size - number of horses over than 5 year old</th>
<th>Suggested sample*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-14</td>
<td>All animals</td>
</tr>
<tr>
<td>15-19</td>
<td>13</td>
</tr>
<tr>
<td>20-24</td>
<td>16</td>
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<td>25-29</td>
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<td>150-174</td>
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<td>175-199</td>
<td>49</td>
</tr>
<tr>
<td>&gt;200</td>
<td>51</td>
</tr>
</tbody>
</table>

*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
When at least one of these conditions is satisfied:

1. non compliance with the current legislation;

2. the within-farm proportion of animals meeting a given criterion is lower than the proportion of animals observed in the worst 5% of the farms of the reference population.
• The AWIN protocol

From 1\textsuperscript{st} to 2\textsuperscript{nd} level?

Go to 2\textdegree level!
The AWIN protocol - Second Level

1. Horse Grimace Scale
2. Coughing
3. Stereotypes
4. 1st QBA observation
5. Avoidance Distance
6. Voluntary Animal Approach
7. Forced Human Approach
8. 2nd QBA observation
9. Body Condition Score
10. Hair coat condition
11. Abnormal breathing
12. Discharges
13. Prolapse
14. Bedding
15. Consistency of manure
16. Social interaction
17. Box dimensions
18. Water availability (Bucket test)
19. Lameness
20. Integument alterations
21. Swollen joints
22. Signs of hoof neglect
23. Lesions at mouth corners

What is the AWIN welfare assessment protocol for horses?
It is a science-based welfare assessment method built on animal-based indicators, including pain indicators.

What is it for?
It is intended to assess welfare of horses over than 5 years old, already used for different activities and housed in single boxes.

Why using a two-level approach strategy?
The AWIN welfare assessment protocol allows, on a first level, a quick screening, identifying those with a greater risk and feasible animal-based indicators. Depending on the outcome of the first level assessment, a second level, consisting of more comprehensive and in-depth assessment, may be recommended.

Do I need to access all the horses?
In the first level of the assessment, sampling of horses is needed.

How can I collect and manage data?
An interactive app to facilitate data collection, data storage, and data analysis is available on Google Play Store and App Store.
Data collection and output

- Data collection: quick and reliable
- Immediate feedback to the farmer
- Type of output

AWINHorse app (on Google Play store)
• Data collection and output
Challenges

• Better reference population
• Adaptation to specific management situation
• Neuroscience studies to evaluate affective states
Solutions
This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration

Thank you!