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E SANITÀ PUBBLICA

How to evaluate the welfare of racing and sport horses?

Michela Minero
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66th EAAP Conference - Warsaw

• What brings us here?

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

How did it happen?

Who made it possible?

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• Outline

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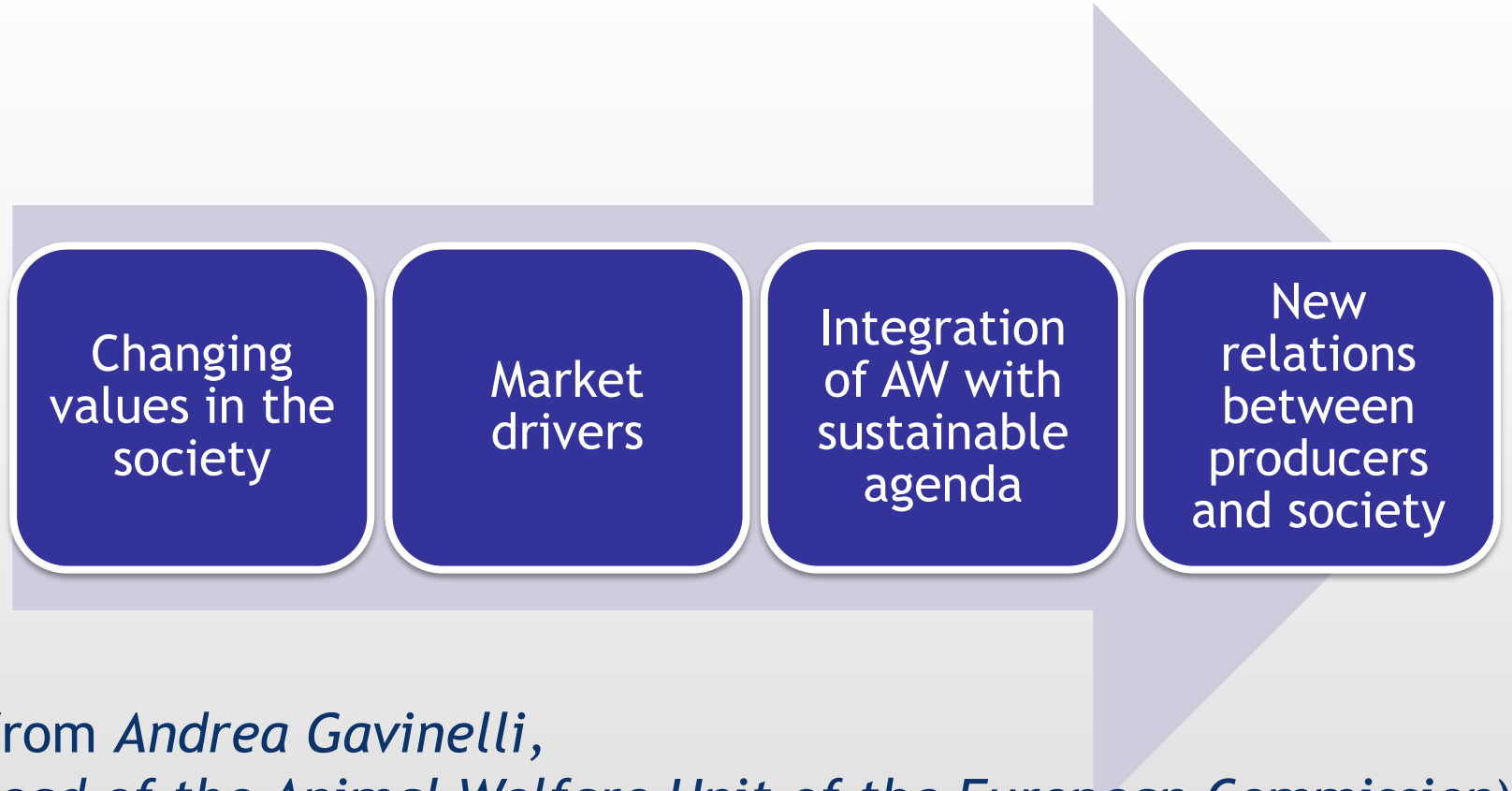
• Why do we need to assess welfare?

Main drivers for animal welfare policies



(from *Andrea Gavinelli*,
Head of the Animal Welfare Unit of the European Commission)

- Why do we need to assess welfare?

Challenges for sport horses (risk factors)

- Doping and medication abuse
- Sport issues
- Aggressive riding
- Injuries surveillance
- Travel with no training

(from *Graeme Cooke, FEI*)

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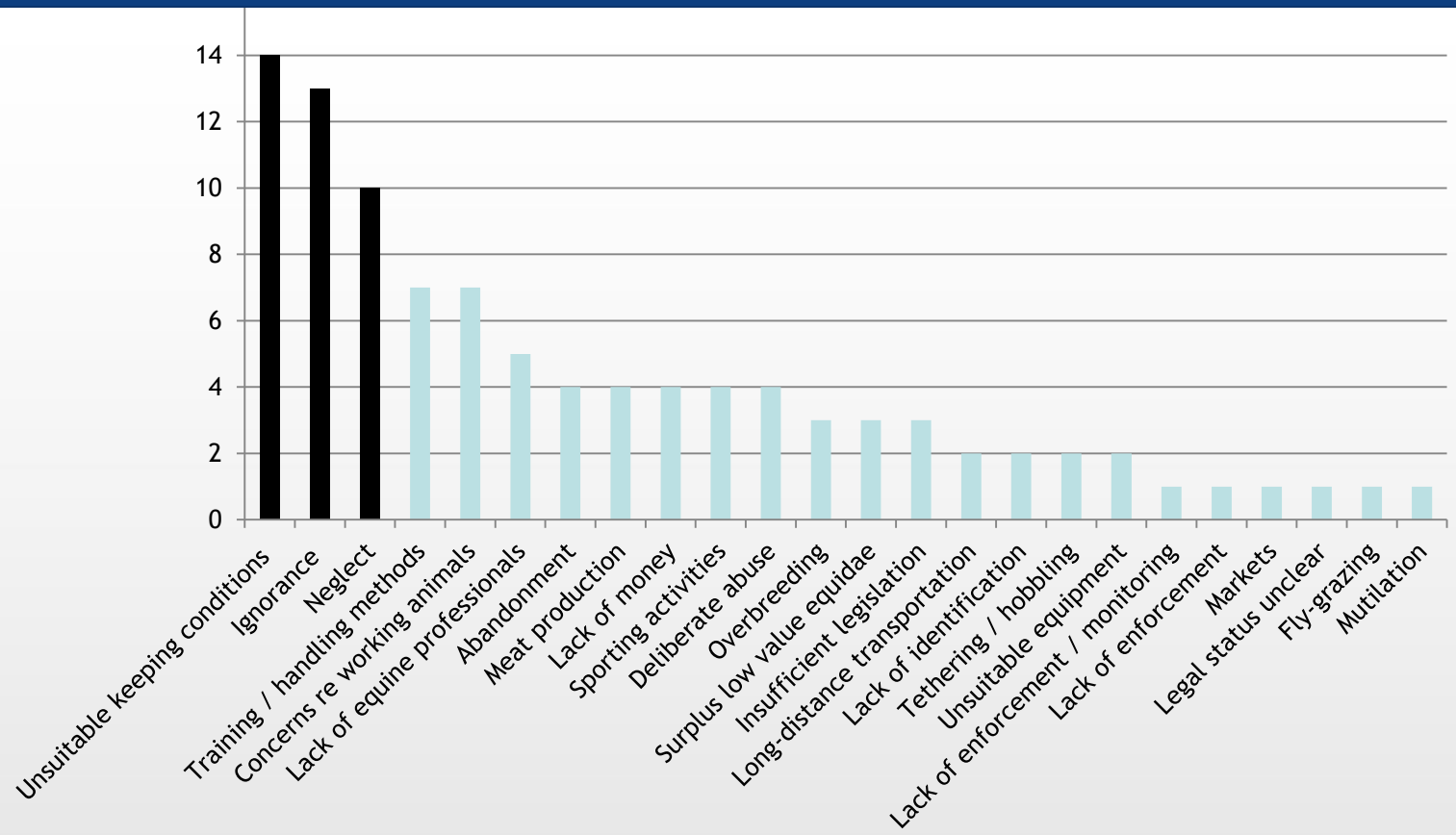
• Why do we need to assess welfare?

Reported welfare problems (risk factors)



From «Removing the blinkers»
(Roly Owers from WHW and Eurogroup 4 animals)

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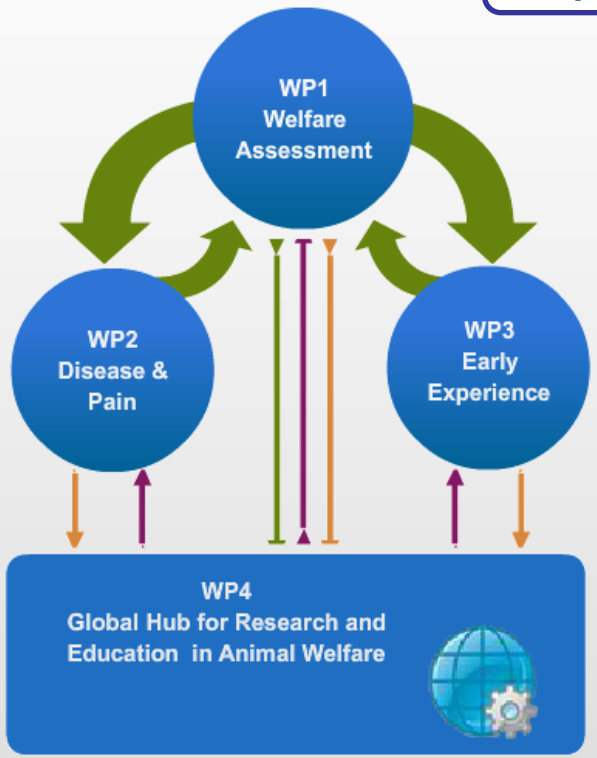
• The AWIN project

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/



animal welfare
science hub

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• 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

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• The AWIN project

Identify welfare conditions of horses in Europe

Offer a tool box to do it

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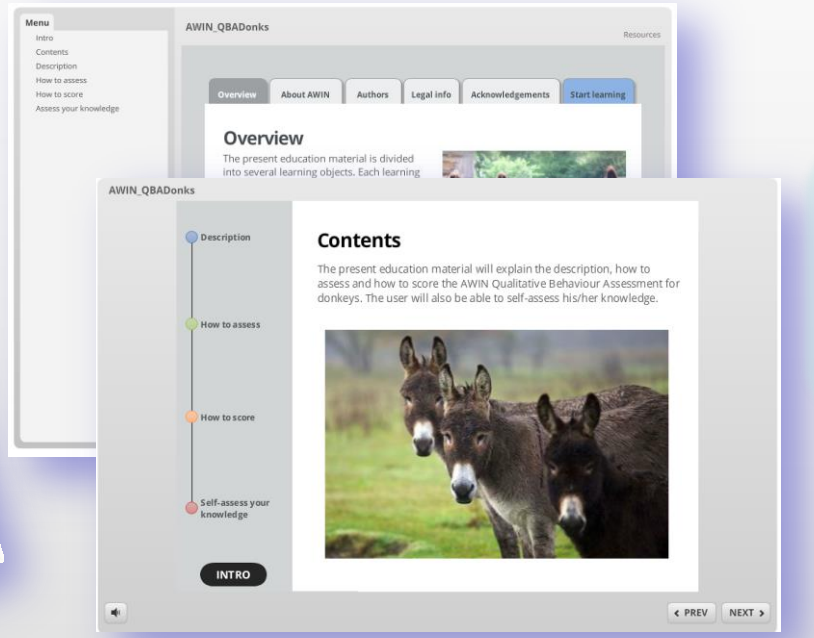
• The AWIN project

How did we face these challenges?

- Protocols, training material, learning objects and apps



www.animalwelfarehub.com

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• How to assess welfare

multidimentional concept
measurable quality of a living animal at a particular time

Input → **Evaluation according to the resources given**

Output → **Evaluation according to the animal based indicators**

We need integration!

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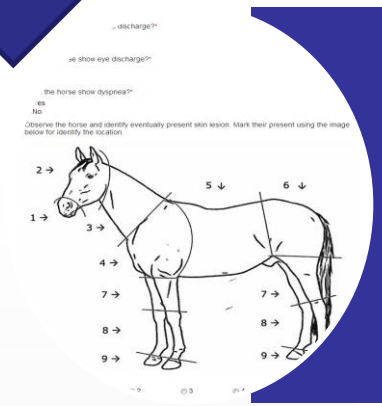
• How to assess welfare



Animal based indicators

Animal based indicators

- ✓ **Valid** = meaningful
- ✓ **Feasible** = practical during on-farm inspection
- ✓ **Reliable** = consistent

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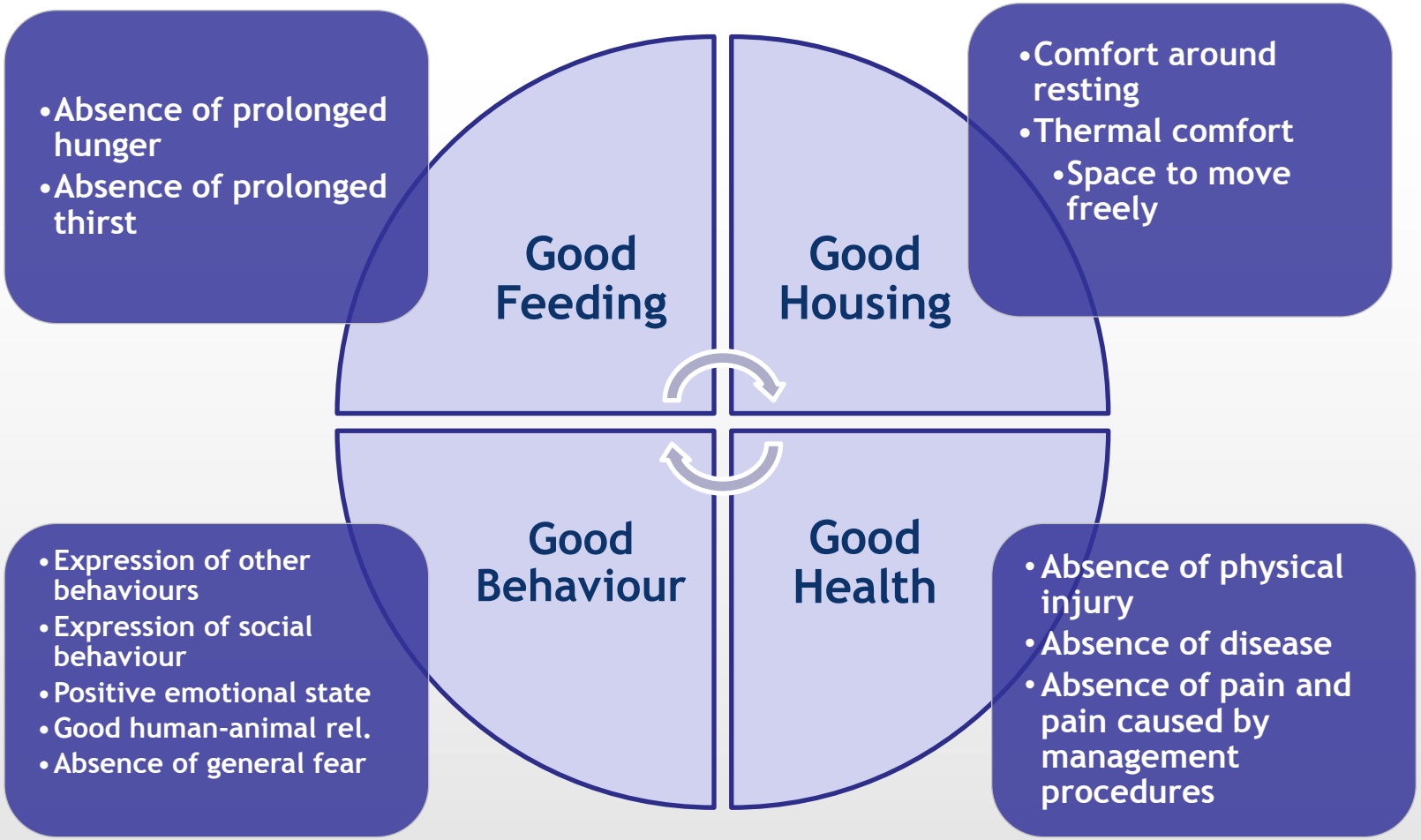
• How to assess welfare



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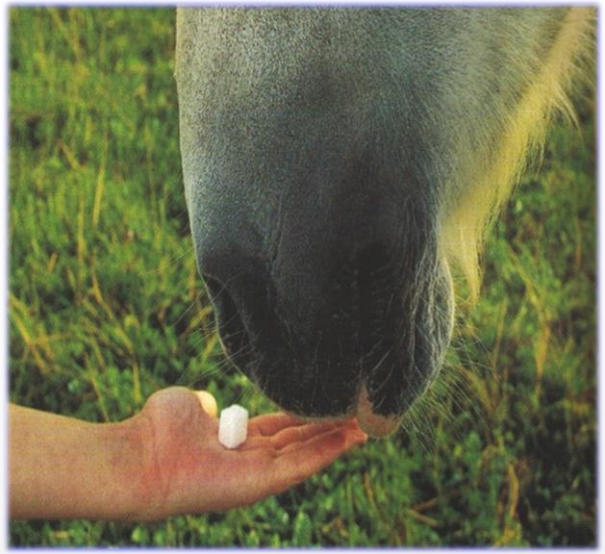
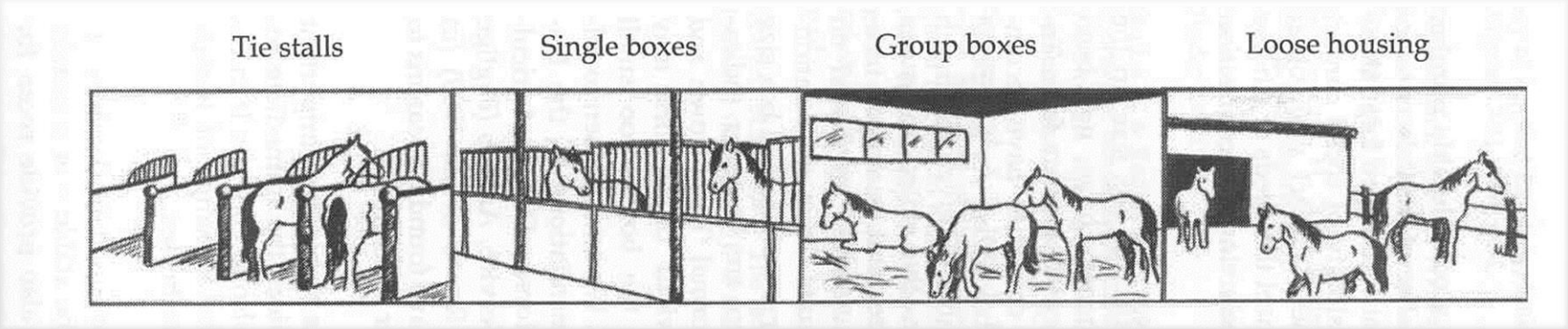
• Challenges faced

Long life expectancy



One facility:
each animal a different owner



Different housing conditions showing different prevalence in different European regions

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• Challenges faced

Transportation: frequent/over long distances

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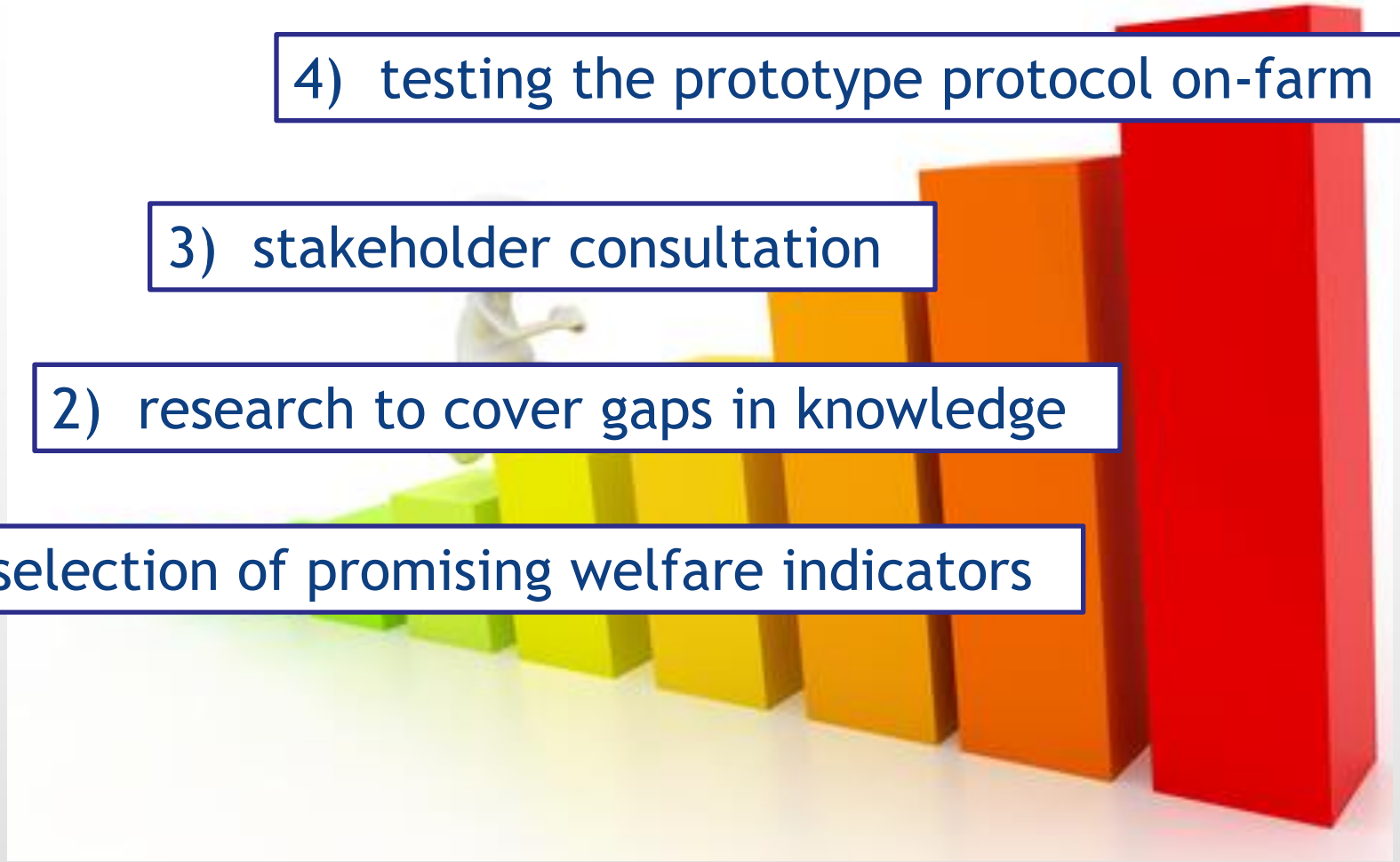
• Process to develop the protocol

4) testing the prototype protocol on-farm

3) stakeholder consultation

2) research to cover gaps in knowledge

1) selection of promising welfare indicators



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• Selection of promising welfare indicators

Choice of the most promising indicators during a focus group among AWIN scientits

Evaluation of validity, reliability, on-farm feasibility

Classification according to WQ®
4 Principles and 12 Criteria

Identification of animal-based indicators

Databases were searched to identify key studies addressing equine welfare indicators

WEB OF SCIENCE™

PubMed

SciVerse Scopus

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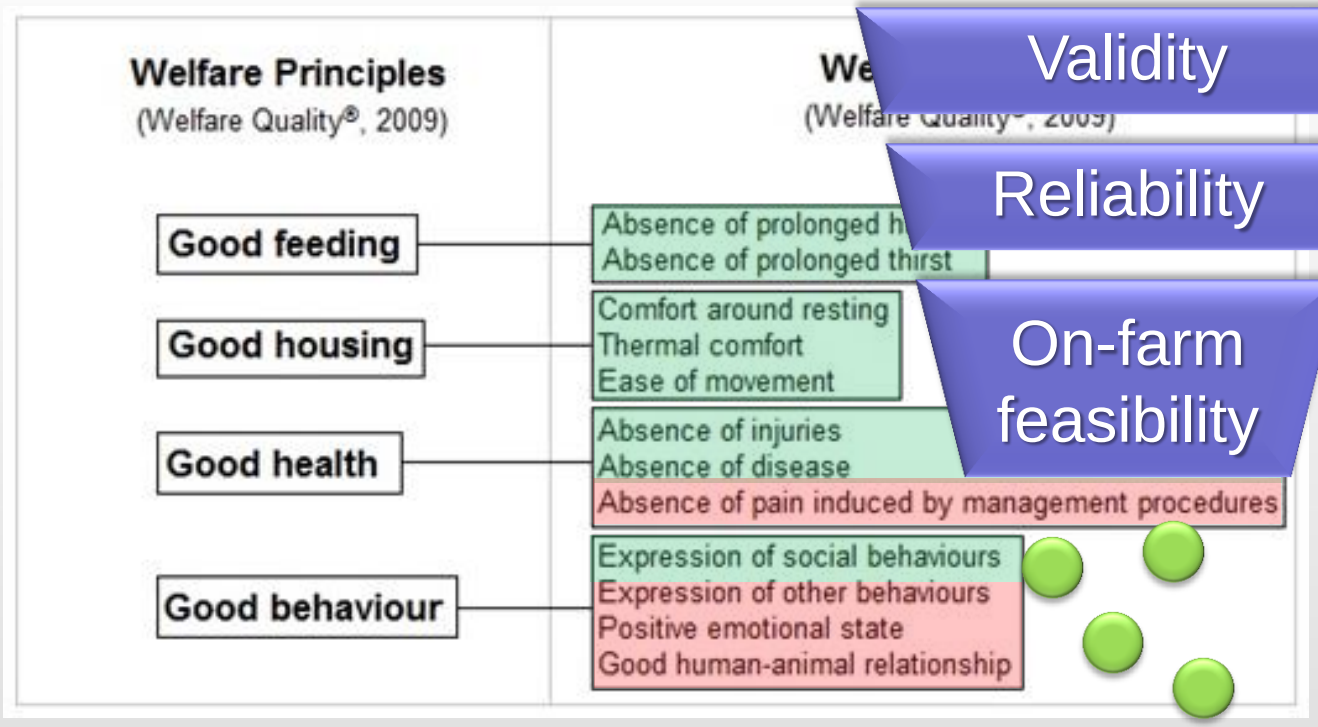
• Selection of promising welfare indicators

Some Criteria of equine welfare were thoroughly investigated and indicators seem ready for use

A total **49 welfare indicators** satisfied the search criteria

For other there is a lack of scientific research, particularly in terms of validity and reliability



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• Research to cover gaps in knowledge

- Dalla Costa E., Dai F., Lebelt D., Scholz P., Barbieri S., Canali E., Zanella A.J., Minero M.Welfare assessment of horses: the AWIN approach. Animal welfare, submitted.
- Minero M., Dalla Costa E., Dai F, Murray A.M., Canali E., Wemelsfelder F. Use of Qualitative Behaviour Assessment as an indicator of welfare in donkeys. Applied Animal Behaviour, submitted.

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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

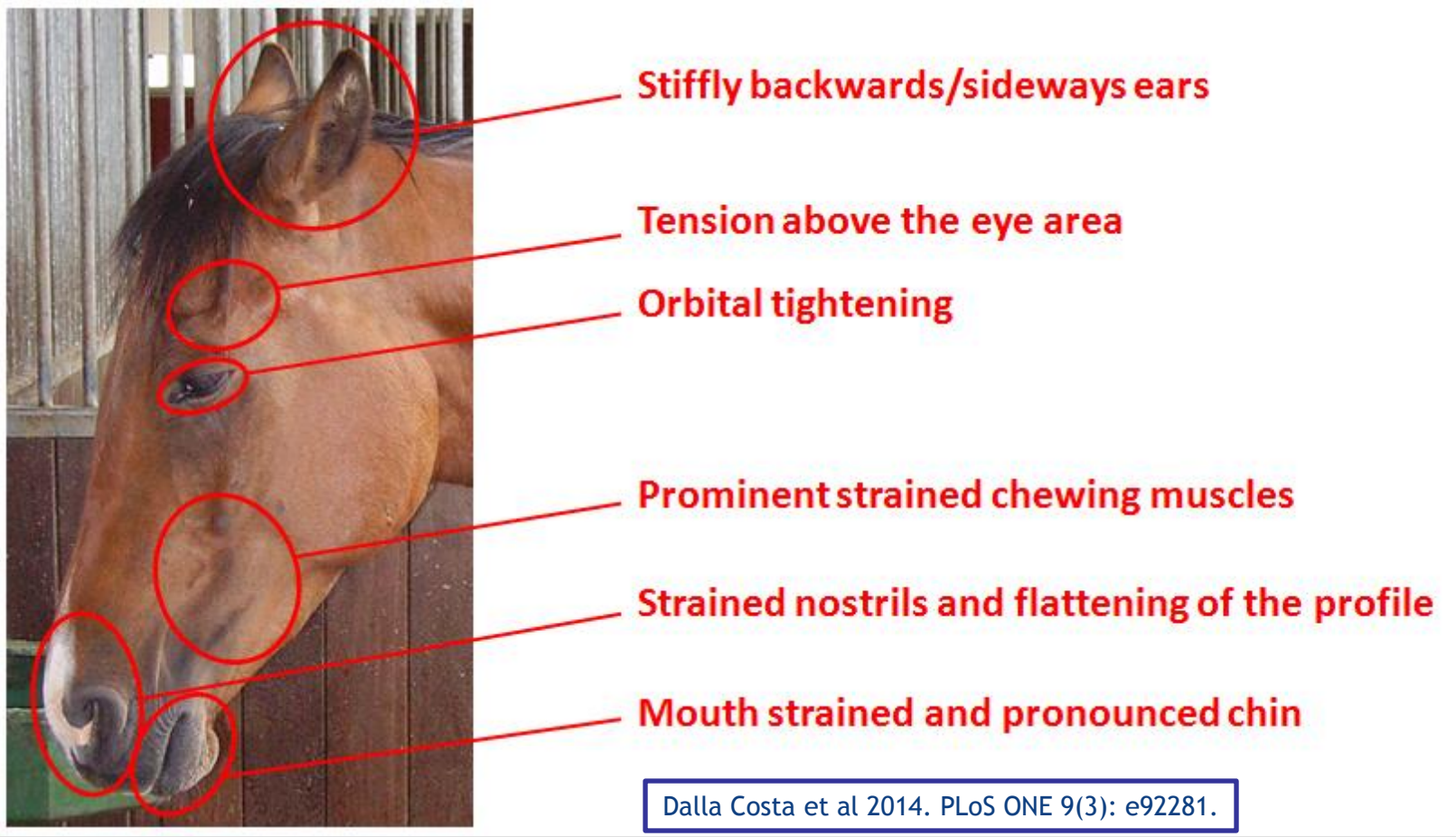
after a routine procedure such as castration

- 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)*

• Research to cover gaps in knowledge

• Horse Grimace Scale

Based on the scientific study, the Horse Grimace Scale was developed, composed of six facial action units:



Dalla Costa et al 2014. PLoS ONE 9(3): e92281.

• Research to cover gaps in knowledge

Great interest for the HGS by the media and the public

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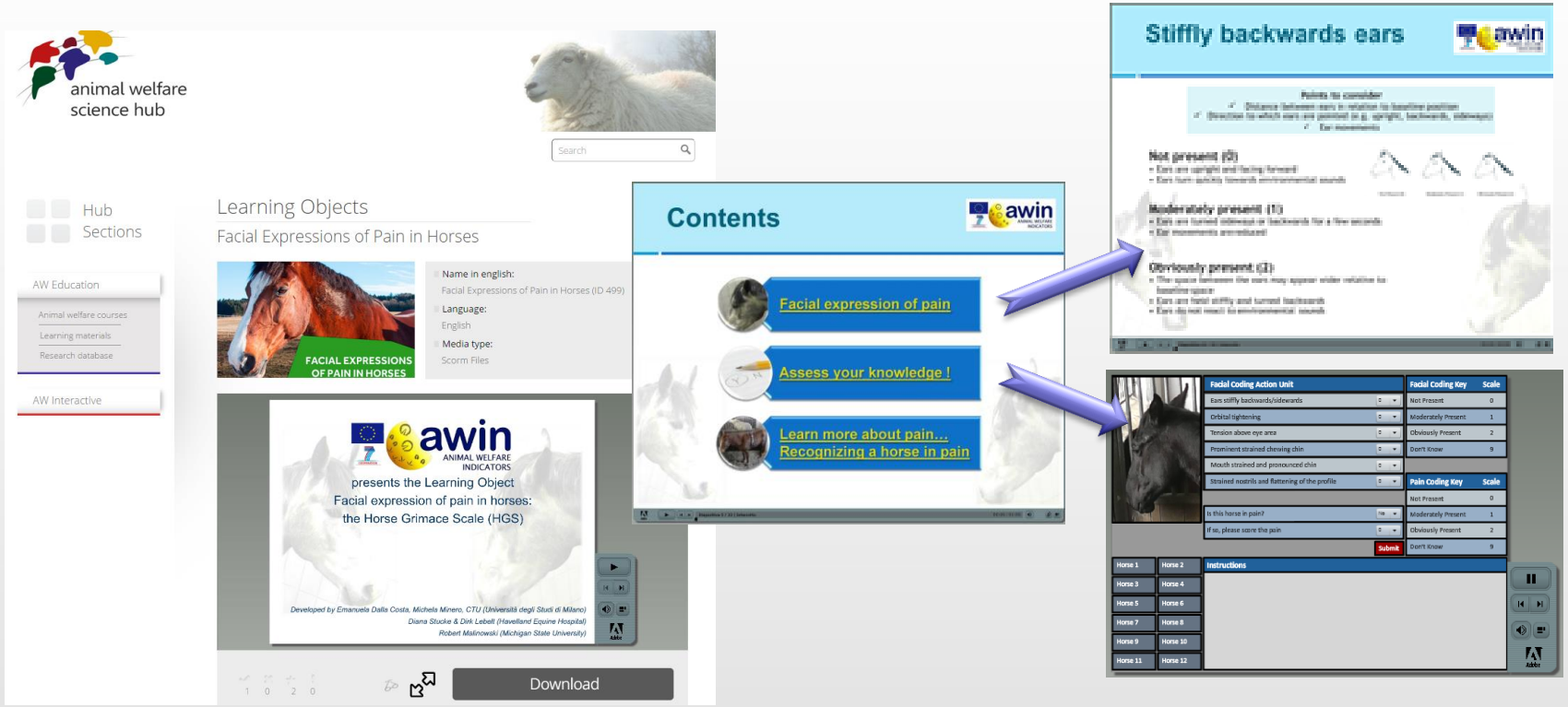
• Research to cover gaps in knowledge

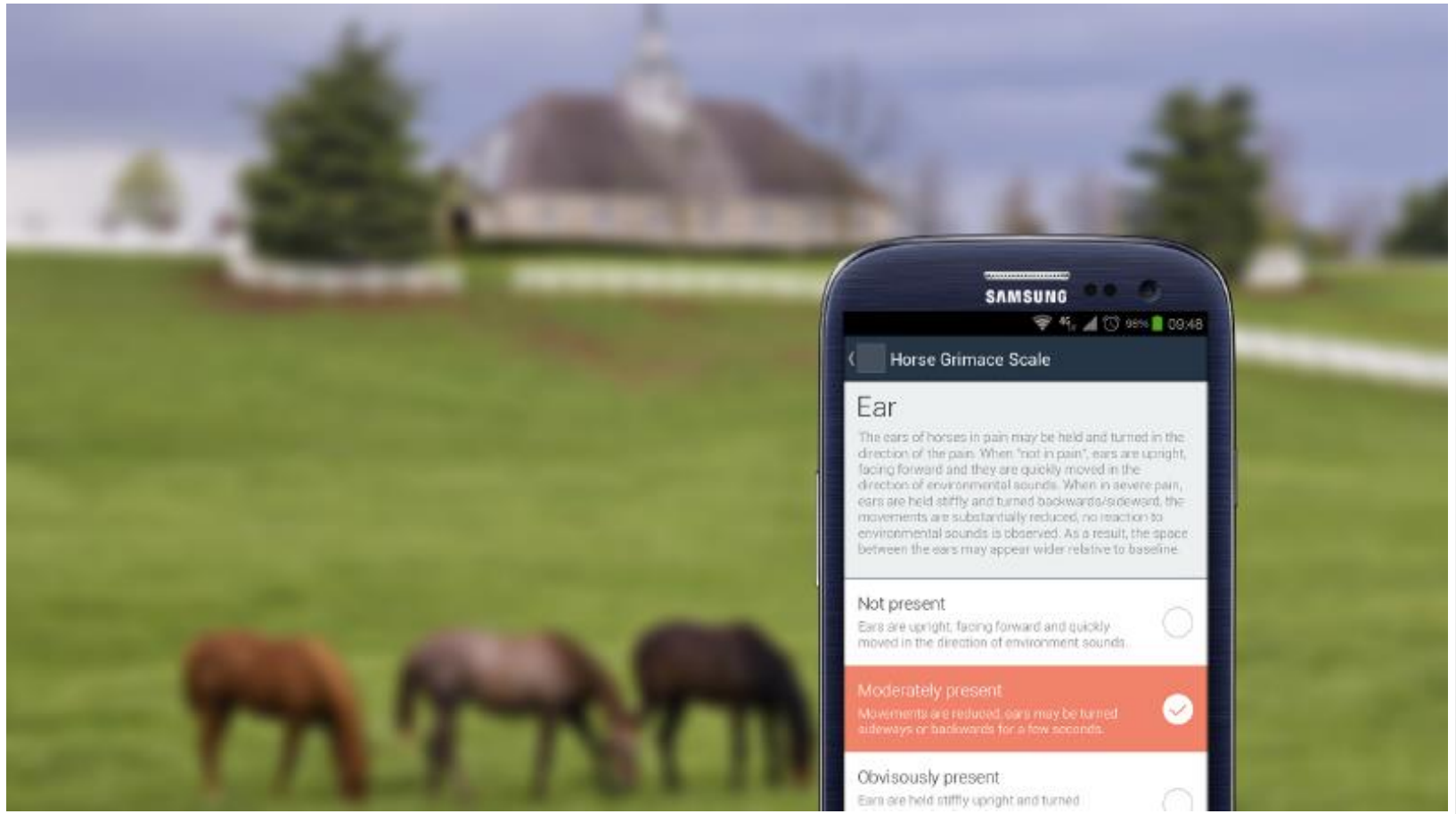
- **LO on horse pain (www.animalwelfarehub.com)**

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 then 500 downloads in 6 months

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• Research to cover gaps in knowledge

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

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• Research to cover gaps in knowledge

- Behavioural tests differentiate between horse facilities with good or sub-optimal human-animal relationship
- Repeatability, reliability and on-farm feasibility

Dalla Costa et al 2014. Applied Animal Behaviour Science, 163, 110-121.

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• Research to cover gaps in knowledge

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

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• 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

Dai et al 2014. Journal of Veterinary Behavior, 10, 128-136.

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• Stakeholder consultation

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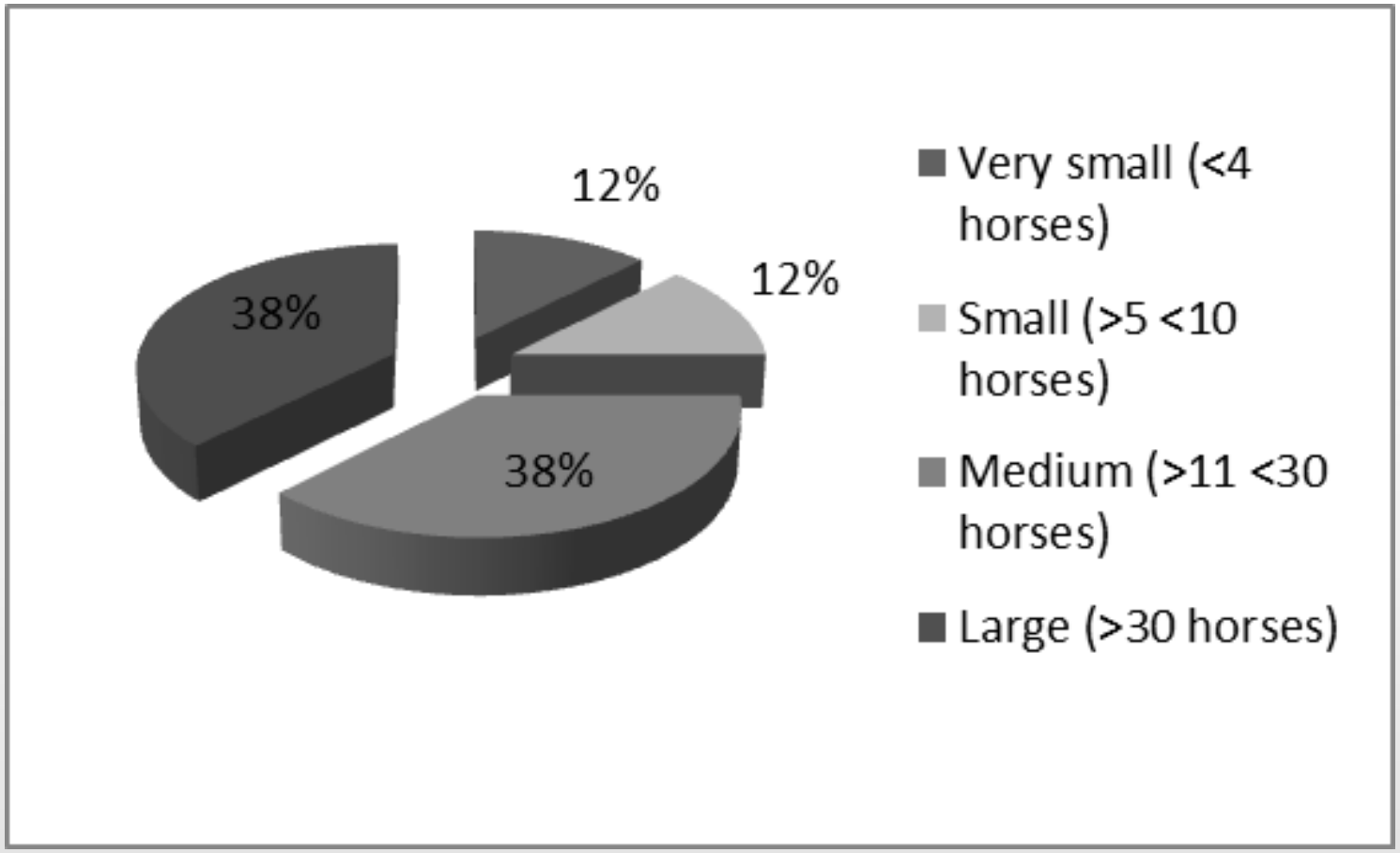
awin ANIMAL WELFARE INDICATORS

Testing the prototype protocol on farm

Tested in 40 facilities (in Italy and Germany)



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• 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

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• The AWIN protocol

First level	Second level
Valid and reliable indicators	
Iceberg indicators	More comprehensive assessment
Feasible in a short time	Feasible in a reasonable time
No or minimal handling required	
Short training of assessors	
Stakeholders' opinion	

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• The AWIN protocol - First Level

- Sampling of horses is needed
- An interactive app for data collection, data storage and data analysis

• The AWIN protocol - First Level

Farm size - number of horses over than 5 year old	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	51

**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*

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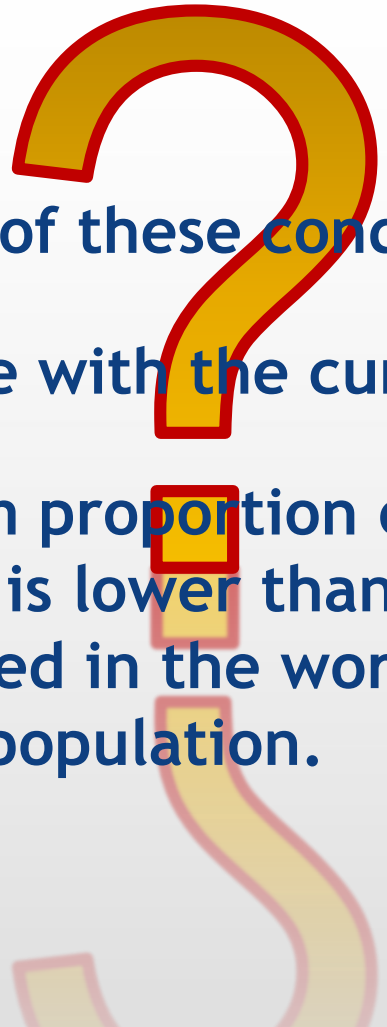
From 1st to 2nd level?



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.

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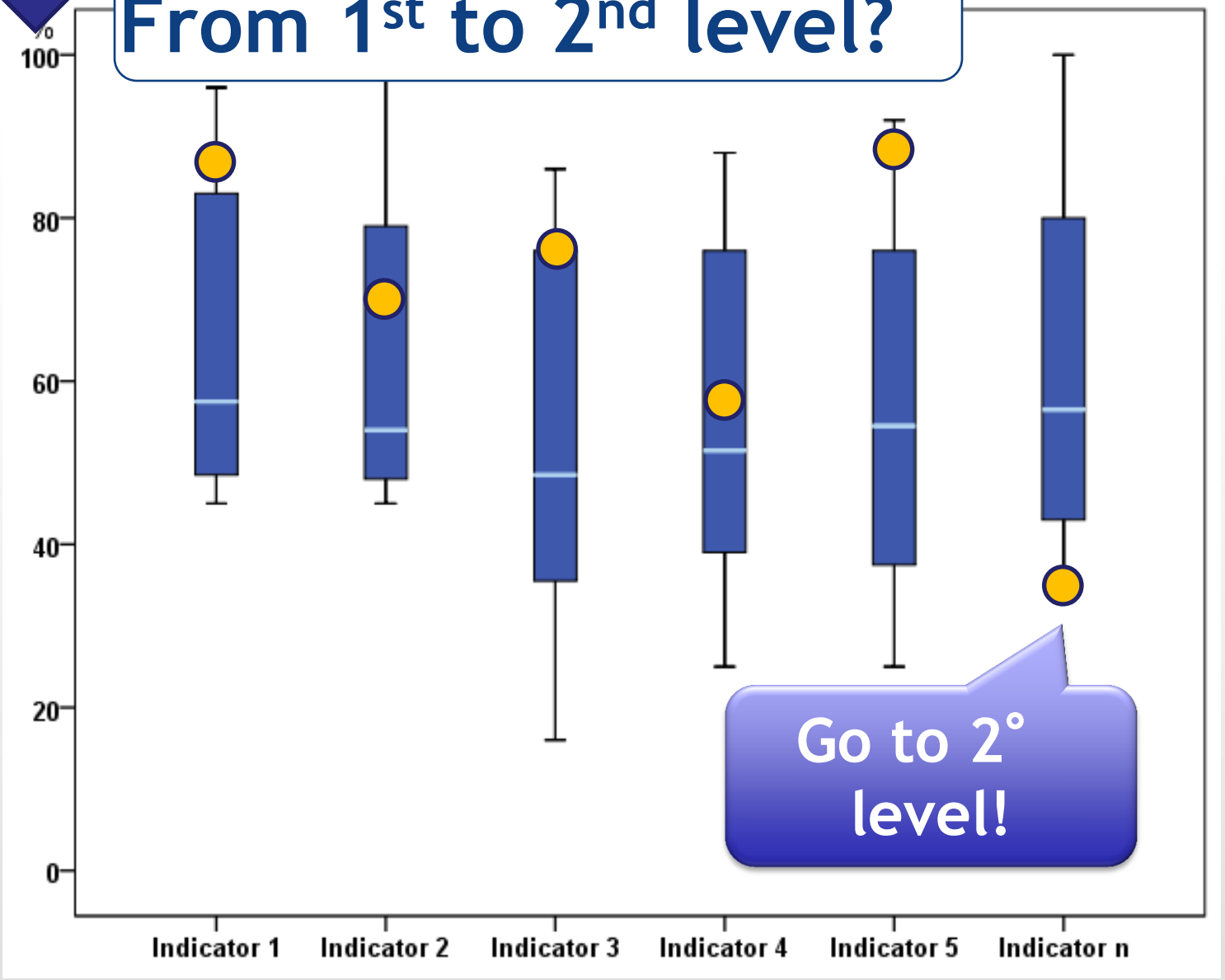
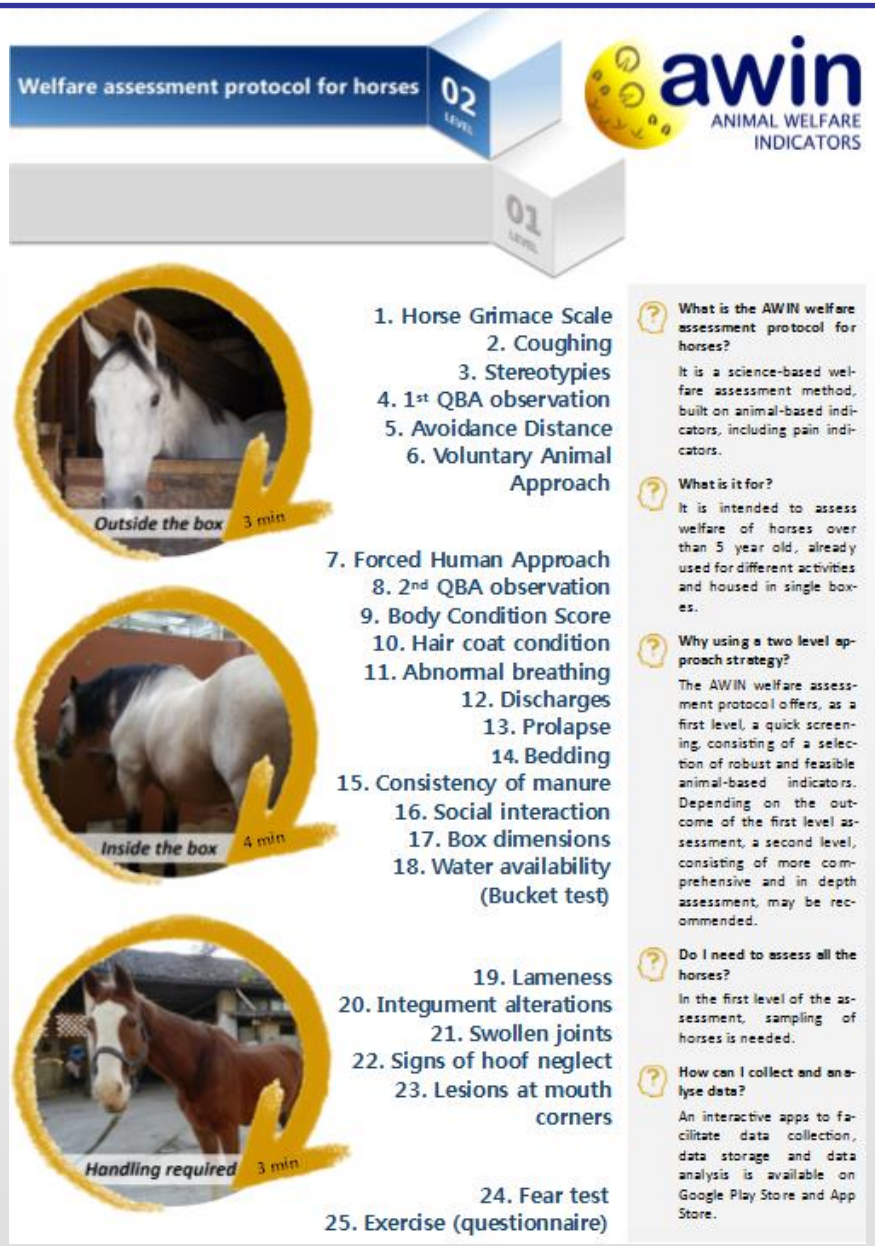
• The AWIN protocol

From 1st to 2nd level?



• The AWIN protocol – Second Level



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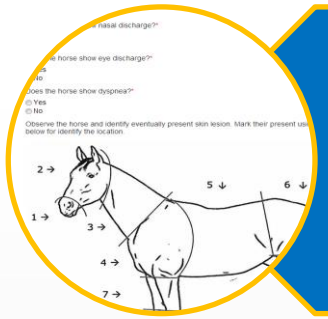
• Data collection and output



Data collection:
quick and reliable

Immediate feedback
to the farmer

Type of output

AWINHorse app
(on Google Play store)

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• Data collection and output

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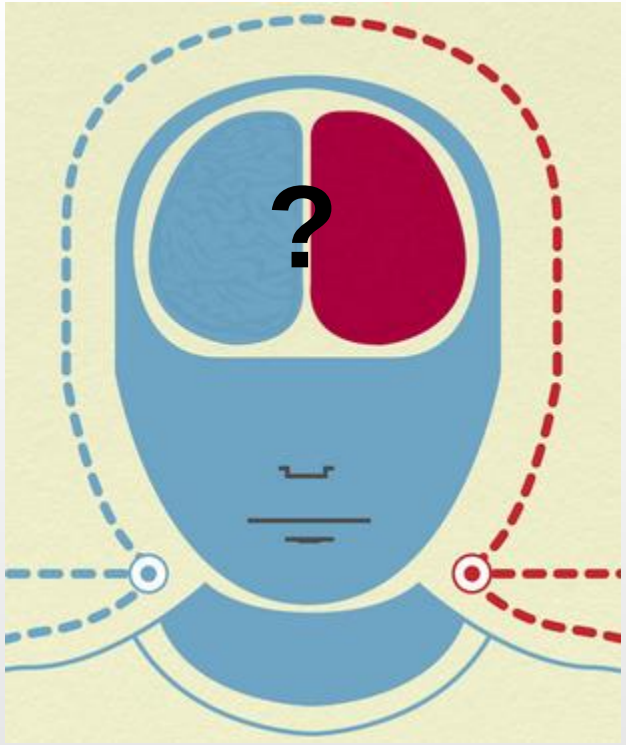
Challenges

- Better reference population
- Adaptation to specific management situation
- Neuroscience studies to evaluate affective states



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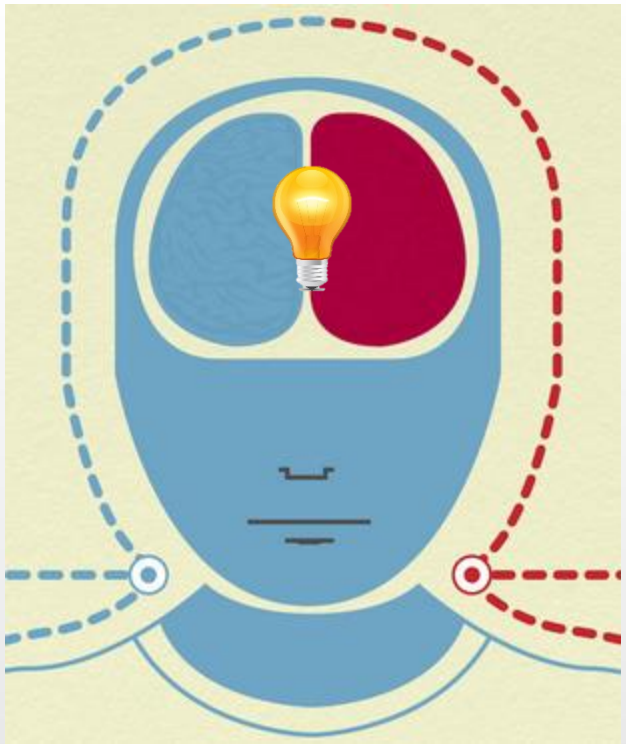
Solutions



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration

Thank you !

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