Animal welfare assessment through smartphone applications. Challenges and opportunities

Elisabetta Canali
Department of Veterinary Medicine
University of Milan, Italy

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Animal welfare

....an animal as being in good animal welfare if it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and . . . is not suffering from unpleasant states such as pain, fear, and distress (OIE, 2008).

The welfare of an animal is linked to:

the emotional state
the biological functioning
the environment
Welfare analysis is multidimensional including health, physiology and behaviour and involves the assessment of many welfare indicators.

Develop a toolbox of animal based measures
Animal welfare assessment

From resources indicators to animal-based measures
Animal welfare assessment

Input-based vs outcome-based

Input-based standards describe the housing and management

Outcome-based standards describe the actual welfare state of the animals

Essential to have both. Resource and management based measures to identify presence of hazards or safeguards. Animal-based measures to determine actual presence of good or poor welfare.

Courtesy L. Keeling
FP7-KBBE-2010-4 program:

2011-2015: Animal Welfare Indicators (AWIN)

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

Duration: 4 years (started in May 2011)
11 partners
5 complementary Work Packages (WP)

Coordinator Professor Adroaldo Zanella
Specific aims of WP1

• To develop and test animal-based welfare, including pain, indicators and protocols in: sheep, goats, horses, donkeys and turkeys

• To assess the practical on-farm feasibility of the welfare assessment protocols

• To present welfare assessment protocols to stakeholders

Coordinator Professor Elisabetta Canali
Animal welfare assessment

challenges due to:

- new indicators
- new technologies and instruments

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sound and feasible protocols
Animal welfare assessment

- differences in species attitudes and husbandry
Identification of suitable indicators

- Following the 4 principles and 12 criteria set up in WQ®

- Absence of prolonged hunger
- Absence of prolonged thirst
- Comfort around resting
- Thermal comfort
- Ease of movement
- Expression of social behaviours
- Expression of other behaviours
- Good human-animal relationship
- Positive emotional state
- Absence of injuries
- Absence of disease
- Absence of pain induced by management procedures
AWIN new approach: stepwise strategy assessment

First level of welfare assessment

- Group assessment for sheep and goats
- Sample size for horses and donkey
AWIN new approach: stepwise strategy assessment

Second levels of welfare assessment: in-depth assessment

- Valid and reliable indicators
- More comprehensive assessment
- Feasible in a given time

- Detailed individual assessment
AWIN new approach: immediate outcome

The aim of the output is:
✓ to give a visual feedback on the welfare of the animals on the farm;
✓ to highlight positive conditions;
✓ to enable comparison with a reference population.
From the AWIN protocols to applications
Why develop an application?

- permit to collect, aggregate and analyse data faster and error-free
- avoid problems linked with data collection using paper sheets
Why develop an application?

- creation of a virtual server to collect and aggregate data
- automatic dispatch to the server
Why an app to assess animal welfare at farm level?

Create an immediate visual output

dialogue with farmers on the welfare of their animals and the actions needed to improve it.
How does it work?

Data collection of animal-based indicators

visual output, bar chart
Future challenges

- reference population more geographically representative
- data collection must be undertaken on a larger scale and be more widely distributed
Future challenges

Specific training on how to assess and score the welfare indicators

Digital education
Future challenges

Server to store and analyze the welfare data in a harmonized way
Future challenges

- On line training
- Harmonize the collection of data in different countries
- Store and analyze welfare data

enforce animal welfare policies
Thanks to: AWIN WP1 members

Minero M.¹, Mattiello S.¹, Barbieri S.¹, Ferrante V.¹, Estevez I.², Ruiz R.², Dwyer C.³, Stilwell G.⁴, Dalla Costa E.¹, Battini M.¹, Dai F.¹, Zanella A.⁵

1 Department of Veterinary Medicine, University of Milan, Milano, Italy
2 Neiker-Tecnalia, Arkaute Agrifood Campus, Animal Production, Vitoria-Gasteiz, Spain
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Thank you

Elisabetta Canali
DVM, Professor Department of Veterinary Medicine, University of Milan