Animal-based and resource-based indicators to assess animal welfare

Xavier Manteca & Deborah Temple

Facultad de Veterinaria, UAB

4.ª CONFERENCIA MUNDIAL DE LA OIE SOBRE BIENESTAR ANIMAL
Guadalajara (México), 6-8 diciembre de 2016

ORGANIZACIÓN MUNDIAL DE SANIDAD ANIMAL
Proteger a los animales, preservar nuestro futuro

Outline of the presentation

- Assessment of animal welfare
- Animal-based vs. resource-based indicators
- Examples of animal-based indicators
- Challenges
- Concluding remarks

Outline of the presentation

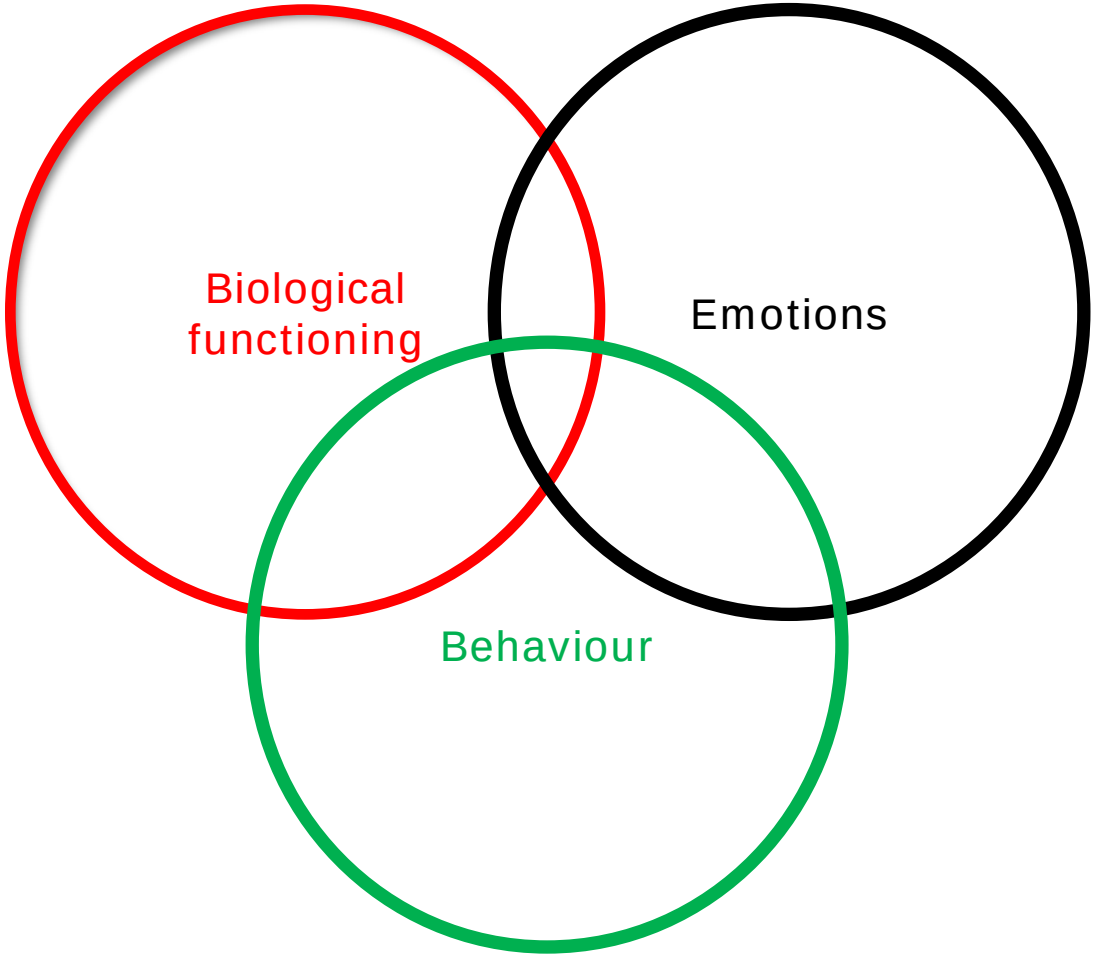
- Assessment of animal welfare
- Animal-based vs. resource-based indicators
- Examples of animal-based indicators
- Challenges
- Concluding remarks

Assessment of animal welfare

- Several indicators

- The concept of animal welfare is “multi-dimensional”

Assessment of animal welfare



(Fraser, 2008)

Assessment of animal welfare

- Several indicators
- The concept of animal welfare is “multi-dimensional”
- Indicators should be valid, reliable and feasible

Assessment of animal welfare

- Several indicators
- The concept of animal welfare is “multi-dimensional”
- Indicators should be valid, reliable and feasible
- Resource-based or animal-based?

Outline of the presentation

- Assessment of animal welfare
- Animal-based vs. resource-based indicators
- Examples of animal-based indicators
- Challenges
- Concluding remarks

Animal-based vs. resource-based (example I)

- Resting behaviour is an essential element of dairy cattle welfare.

Animal-based vs. resource-based (example I)

- Resting behaviour is an essential element of dairy cattle welfare.

- Resting behaviour will be affected by housing – number, size and design of cubicles.

Animal-based vs. resource-based (example I)

- Resting behaviour is an essential element of dairy cattle welfare.

- Resting behaviour will be affected by housing – number, size and design of cubicles.

- Can we assess resting behaviour by looking at the characteristics of the cubicles?

Animal-based vs. resource-based (example I)

- Resting behaviour is an essential element of dairy cattle welfare.
- Resting behaviour will be affected by housing – number, size and design of cubicles.
- Can we assess resting behaviour by looking at the characteristics of the cubicles?
- In principle yes, but…

SYMPOSIUM: SELECTION FOR MILK YIELD

Consequences of Selection for Milk Yield from a Geneticist's Viewpoint

L. B. Hansen
Department of Animal Science,
University of Minnesota, St. Paul 55108

ABSTRACT

The annual genetic trend for milk yield of Holsteins in the United States has accelerated with time and had means of 37 kg during the 1960s, 79 kg during the 1970s, 102 kg during the 1980s, and 116 kg from 1990 to 1996. Selection programs of the dairy cattle breeding firms in the United States have become more selective and effective with time, and selection goals continue to place major emphasis on yield traits, which clearly impact profitability of dairying. Traits other than yield are also included in selection goals of the industry. Type traits, especially those related to udder conformation, body size, and angularity have been included in selection programs and have altered the appearance and physiological functions of Holstein cows. Selection programs have continued to increase the body size of Holsteins despite mounting evidence that smaller cows have advantages for survival and efficiency. Favorable

outward appearance of cows, including 1) overall conformation or "type," 2) udder composite, which is an index of type traits of the udder, 3) body size, including stature (height), strength (chest width), and body depth, 4) angularity, and 5) feet and legs. Type traits have been included in improvement programs of dairy cattle since early in the 20th century. More recent additions to the list of nonyield traits include 1) somatic cell score (**SCS**) as an indicator of mastitis, and 2) productive life, which measures actual time in the dairy herd and, is, therefore, a composite of yield, reproduction, health, and functionality of dairy cows.

The annual genetic trend for milk yield has been estimated by the Animal Improvement Programs Laboratory of the USDA, and is available at their web site (http://aipl.arsusda.gov). The genetic trend for Holsteins had a mean of 37 kg/yr during the 1960s, 79 kg/yr during the 1970s, 102 kg/yr during the 1980s, and 116 kg/yr for the period from 1990 to 1996.

Animal-based vs. resource-based (example II)

- Space allowance is an essential part of fattening pigs' welfare.

Animal-based vs. resource-based (example II)

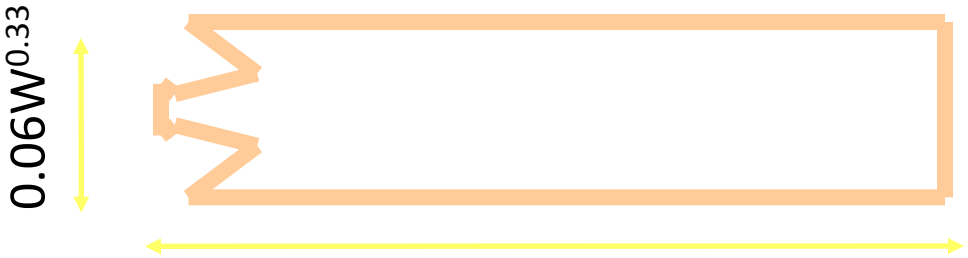
- Space allowance is an essential part of fattening pigs' welfare.

- Can we assess whether space allowance is adequate by measuring the size of the pens?

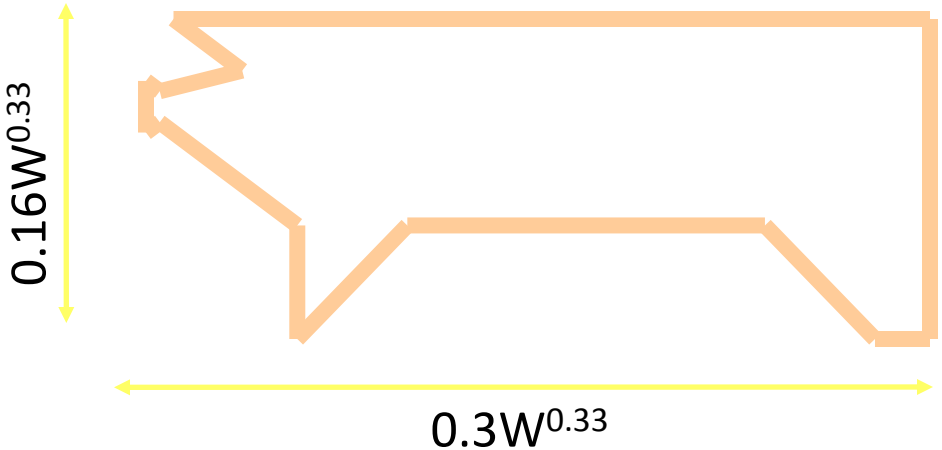
Animal-based vs. resource-based (example II)

- Space allowance is an essential part of fattening pigs' welfare.
- Can we assess whether space allowance is adequate by measuring the size of the pens?
- In principle yes, but…

Animal-based vs. resource-based (example II)



Aprox. 0,4 m2



Aprox. 1 m2

(Petherick and Baxter, 1981)

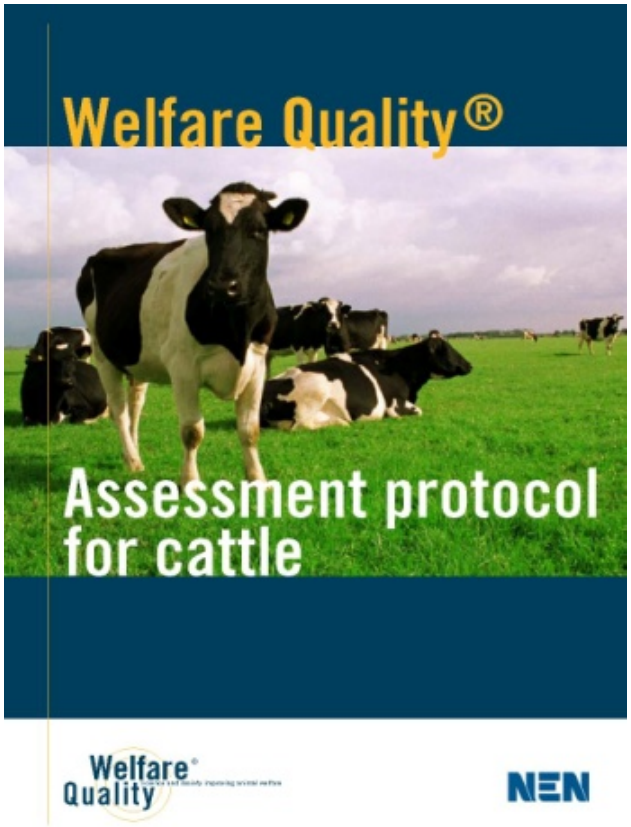
Animal-based vs. result-based: summary

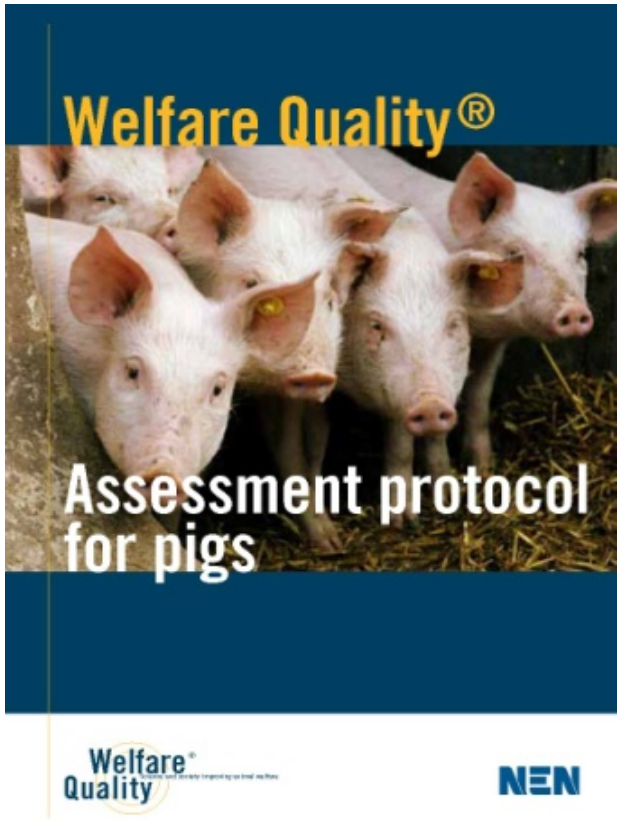
- When assessing welfare, animal-based indicators should be used whenever possible.
- Occasionally, resource-based indicators have to be used.
- Resource-based indicators are needed to design improvement strategies.

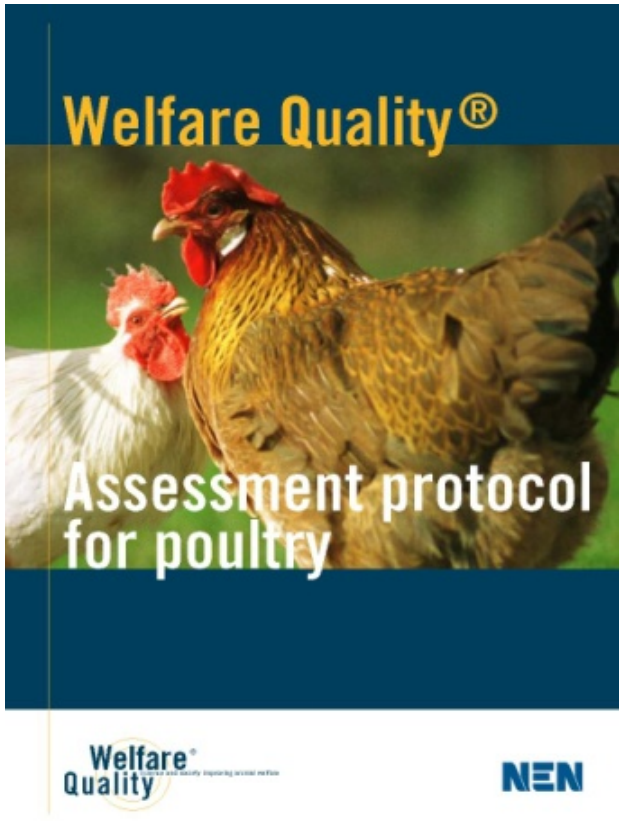
Outline of the presentation

- Assessment of animal welfare
- Animal-based vs. resource-based indicators
- Examples of animal-based indicators
- Challenges
- Concluding remarks

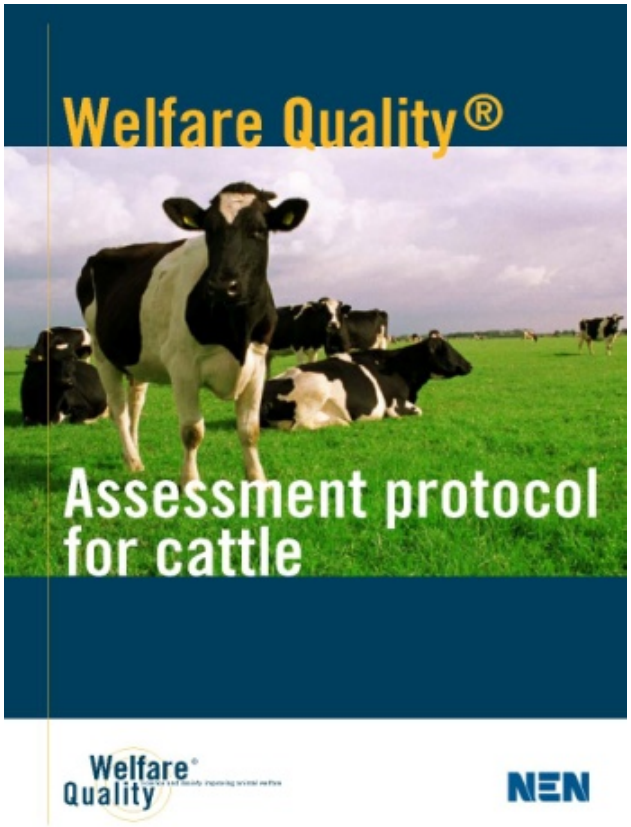
ASSESSMENT PROTOCOLS WQ®
(“NEN PROTOCOLS”)







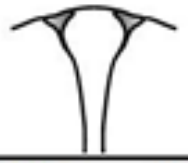
ASSESSMENT PROTOCOLS WQ® ("NEN PROTOCOLS")



Principle	Criteria
Good feeding	Absence of prolonged hunger
	Absence of prolonged thirst
Good housing	Comfort around resting
	Thermal comfort
	Ease of movement
Good health	Absence of injuries
	Absence of disease
	Absence of pain induced by management procedures
Appropriate behaviour	Expression of social behaviour
	Expression of other behaviours
	Good human-animal relationship
	Positive emotional state

Animal-based indicators

- Appearance of the animals
- Signs of disease and injuries
- Behaviour

Body Condition Score	Vertebrae at the middle of the back	Rear view (cross-section) of the hook bones	Side view of the line between the hook and pinbones	Cavity between tailhead and pinbone	
				Rear view	Angled view
1 Severe underconditioning					
2 Frame obvious					
3 Frame and covering well balanced					
4 Frame not as visible as covering					
5 Severe overconditioning					

Outline of the presentation

- Assessment of animal welfare
- Animal-based vs. resource-based indicators
- Examples of animal-based indicators
- Challenges
- Concluding remarks

Challenges

- Reducing time needed to run the protocols.
- Adapting the protocols to extensive systems.
- Developing and implementing training programs to use animal-based indicators.

Outline of the presentation

- Assessment of animal welfare
- Animal-based vs. resource-based indicators
- Examples of animal-based indicators
- Challenges
- Concluding remarks

Thank you!