

Variation factors of overall health score using Welfare Quality® protocol in French dairy herds

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Production systems and dairy cattle welfare?

40 years of epidemiological studies to identify risk factors for the multifactorial production diseases of dairy cows **but for each disease separately**

Example : Lameness *VS* Mastitis and Housing System



Straw yard

Cubicles



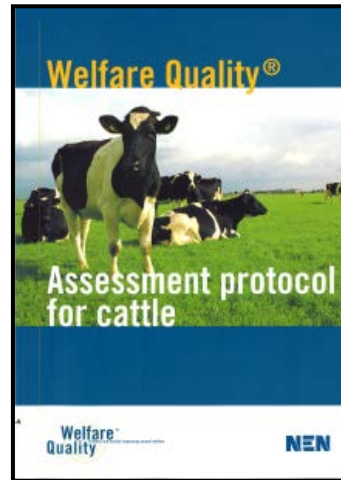
Which advice should then be delivered to farmers ?



Need to consider all diseases together to provide relevant knowledge in dairy farming



Welfare Quality® assessment protocol



- **Cross-sectional survey** (evaluation of **all aspects of welfare on a one-day visit**)
- **Focus on animal-based observations** (« outcome » of the **interaction between the animal and its environment**)
- Working with **aggregated welfare scores providing an overall assessment of welfare in a given farm**

[Welfare Quality® (2009). Welfare Quality® assessment protocol for cattle]

Welfare Quality® assessment protocol

Σ warnings + alarms of the farm (collective)

FEEDING

Observations (individual + collective)

Lameness, integument alterations

Coughing, nasal discharge, ocular discharge, hampered respiration, diarrhoea, vulvar discharge, milk somatic cell count, mortality, dystocia, downer cows

HEALTH

Disbudding/dehorning, tail docking

Observations (5)
Score for the corresponding criterion [0-100]
Criteria (2)

Criteria

Score
Absence of injuries

Overall assessment

Absence of diseases

Score
Absence of pain

Criteria (4)

Observations (4)



criteria scores

HOUSING

OVERALL HEALTH SCORE [0-100]

Obse



BEHAVIOUR

At each step, the weight attributed to each observation or score is based on experts' opinion



Health scores based on disorders likely to produce pain = Great innovation of this protocol

Objectives of the study

Using Welfare Quality® assessment protocol:

OVERALL HEALTH SCORE




- Describe the distribution of the overall health score in a sample of French dairy farms
- Investigate which production systems and related herd management factors are associated with a variation of the overall health score


Study design

1. Cross-sectional survey

Breed



Housing system



Welfare Quality NEN

2. Study sample

Random sampling to find diversity of different dairy systems protocol
N=130 herds

Performed in **130 herds**
 5 trained investigators
 (1 investigator per farm)

Farm location



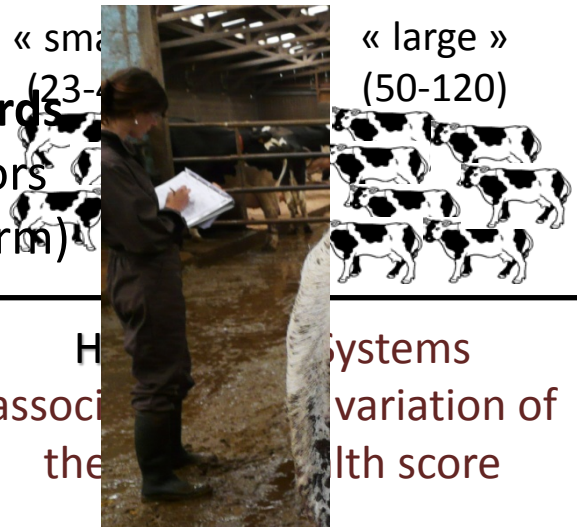
3. Selected strata

Milking system : MP vs AMS



Herd size

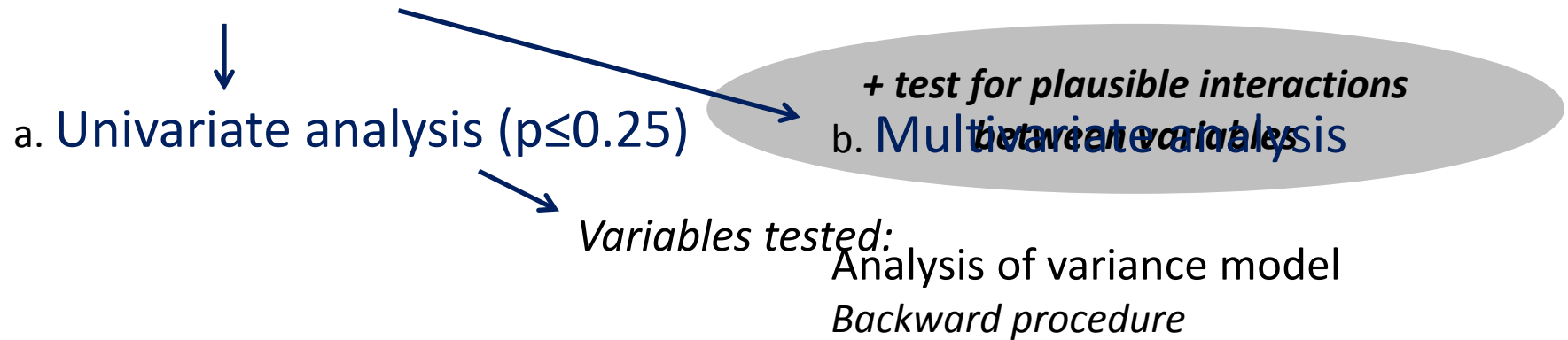
« small » (23-40)
 « large » (50-120)



Herd size associated with the systems variation of the body condition score

Data analysis

1. Description of the distribution of the overall health score in the sample
2. Identification of herd level variation factors



PRODUCTION
SYSTEMS

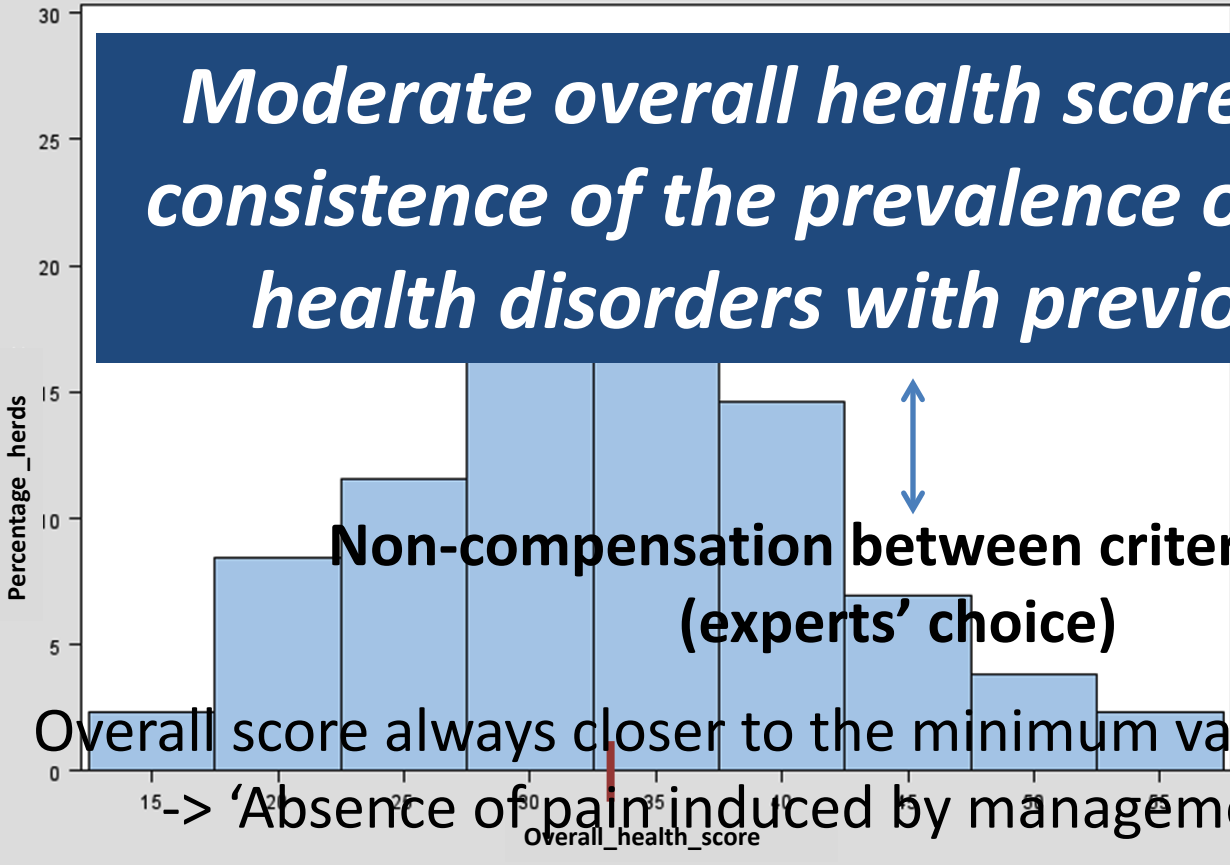
Breed; Farm location; Herd size; Housing system-Milking system

RELATED HERD
MANAGEMENT
FACTORS

Proportion of very clean cows per herd; Herd milk production adjusted on breed;

Results and Discussion

Moderate overall health score despite the consistence of the prevalence of most of the health disorders with previous studies



Non-compensation between criteria scores (experts' choice)

Weaknesses (high prevalence)



Overall score always closer to the minimum value of criteria scores

15 -> 'Absence of pain induced by management procedures'

- Disbudding of calves without use of anaesthetics / analgesics
- Nasal discharge
- Milk SCC

Poor **Acceptable** **Good**

Current French regulations do not allow farmers to use local anesthesia while disbudding performed essentially by them

Results and Discussion: Variation factors

(multivariate results)

OVERALL HEALTH SCORE

PRODUCTION SYSTEMS



Housing system_milking system

Breed

...Lower disease susceptibility of the breed less specialized in milk production...



...Benefit of comfort bedding...

Category	Adjusted means	p-value	Adjusted means	p-value
Straw yard_Milking parlor	38.4	0.07	38.4 ^a	<0.0001
Cubicles_Milking parlor	34.4		29.9 ^b	
Cubicles_Automatic parlor	31.9		30.1 ^b	

Results and Discussion: Variation factors

(multivariate results)

OVERALL HEALTH SCORE

RELATED HERD MANAGEMENT FACTORS



Herd average parity: indicator to detect herds with health problems?

Proportion of very clean cows per herd (%)

Herd average parity adjusted on breed



...Benefit of herd cleanliness on herd health...



...Young herds face a high culling rate maybe due to a high prevalence of diseases...

Category	Adjusted means	p-value	Category	Adjusted means	p-value
>65%	36.1	0.002	Montb: $x \leq 2.5$; Holst: $x \leq 2$	30.6 ^a	0.03
≤65%	29.6		Montb: $2.5 < x \leq 3$; Holst: $2 < x \leq 2.5$	35.4 ^b	
			Montb: $3 < x$; Holst: $2.5 < x$	32.4 ^a	

General discussion & Conclusion

- Strengths and limits of this study:

First description at such a scale of welfare assessment in dairy cattle including health aspects

Originality of an overall health score : Only method allowing an overall assessment of dairy cows' health

Herd health assessment based on the opinion of a selected group of experts



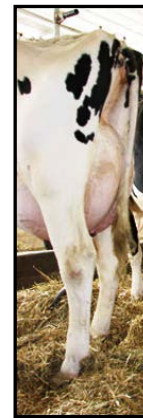
Welfare Quality® protocol = Just one way of looking at the level of health

The moderate overall health score in France must be interpreted with caution

General discussion & Conclusion



- Overall health score associated with expected factors...



Confirmation of production systems and hygiene practices associated with a negative change in herd health scores

Acknowledgments

All dairy farmers



Bretagne, Pays de la Loire,
Rhône-Alpes, Auvergne

*Thank you
for your
attention*

