

Guidelines for Recording, Validation and Use of Claw Health Data

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1. Introduction

- Several countries have implemented a recording system for claw health data.
- ICAR promoted the implementation and the publication of **ICAR Claw Health Atlas**.



**ICAR Atlas claw
health published in
May 2015.
Translations in 19
languages**

Objective

**The aim of this work is to present the
Guidelines for Recording, Validation and
Use of claw data developed by ICAR**

2. Data Recording:

Three main sources of claw health data

- **Claw trimming data**
High coverage and regular structure (Highly valuable for genetic analyses)
- **Veterinary diagnoses**
Mainly for severe cases (Low coverage)
- **Lameness and locomotion scoring**
Recorded by farmers for animals showing signs of pain

2. Data Recording:

- **Minimum requirements:**
 - Animal-ID
 - Herd-ID
 - Records on animal level
 - Date of trimming
- **Highly recommended:**
 - Trimmer-ID (essential for data validation)

Claw trimming data

- **Optional/additional information:**
 - Location of the disorder/lesion: leg (e.g. left front leg), claw (inner or outer claw)
 - Positions (claw zones)
 - Severity degree: e.g. mild, severe, M-stages for DD

3. Data Validation:

There are two main steps in the data validation process:

- Data screening
- Data verification

Check for data screening include:

- Valid animal-ID
- Valid claw disorder code
- Valid date
- Valid herd – ID
- Additional criteria (e.g. severity degree)

Data verification consists in checking

- Correctness of data
- Completeness of data

The process depend on:

- The purpose of use
- Data sources

Example: Data verification for genetic analyses

Several editing criteria have been reported within each level of data:

- **At trimmer level:**

- Minimum no of records per trimmer
- Check for continuity of data provision from trimmer
- Calculate incidence rates and variation per trimmer
- Check plausibility if data are generated by different persons

Example: Data verification for genetic analyses

- **At herd level:**

Check for valid herds (e.g. minimum % of trimmed cows)

- **At animal level:**

Correct animal-ID (see screening)

Check for correct additional information

- **At record level:**

Check for new lesion or new case

A new Lesion:

- 4 months after the previous case
- Same disorder in another location

4. Use of Claw Data:

Claw health status at cow or claw level are used for:

- Herd management
- Benchmarking
- Genetic analyses

For Herd Management

Claw reports should answer :

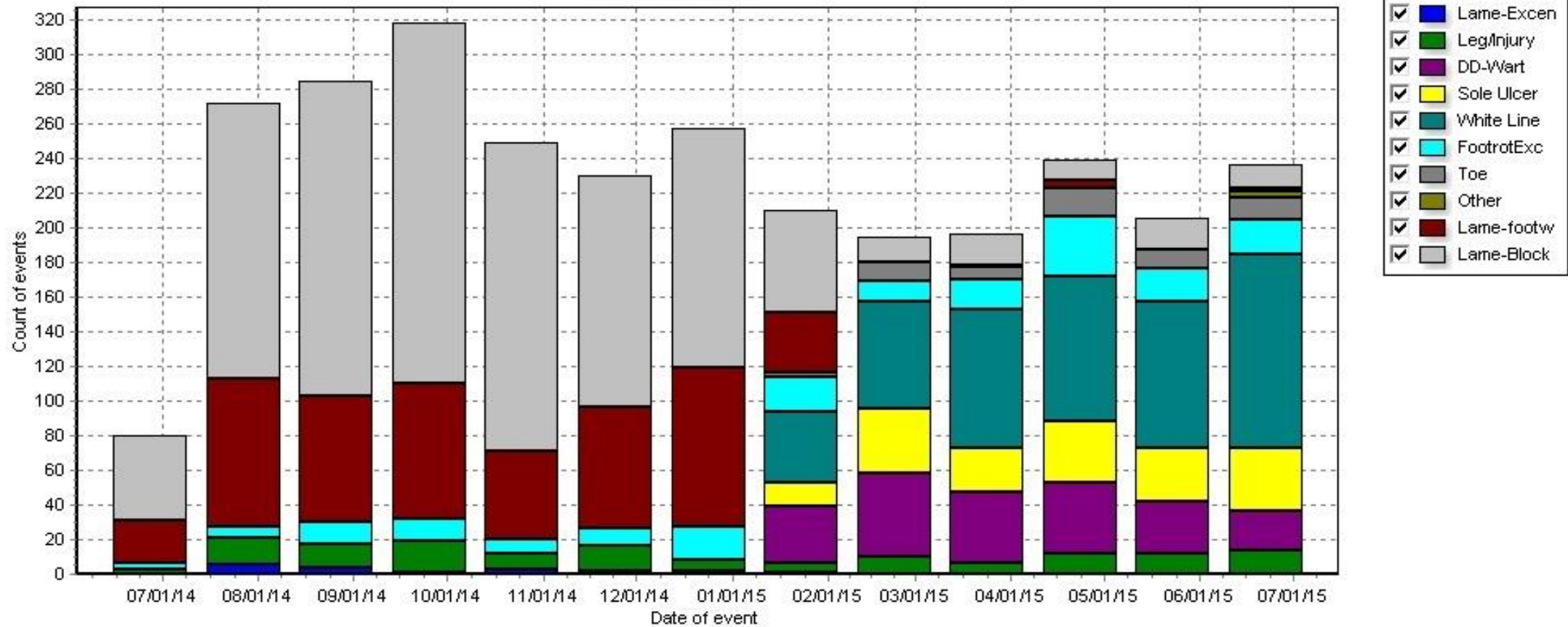
- 1- Whether the claw health status has changed or not?
- 2- The timing (lactation/season) of the change?
Which cows are affected?
- 3- Whether the farms stated hoof trimming goals are being met?

A Chronic cow/lesion: A lesion which persists over 3 consecutive trimmings during lactation with intervals in between >4 months

Figure: Example of herd management report which describes the occurrence of claw disorders at different dates (Cramer, 2018).

Has level of lameness changed?

EGRAPH LAME:14P



DairyComp 305 (<http://web.vas.com>)

For Benchmarking

Benchmarking reports should be able to define:

1- What is the current performance?

2- What is the position within the reference group?

Figure: An example of benchmarking report which displays the variation of frequencies of claw disorders within 12-month period

Canadian DHI Foot Health Benchmark Report (Christen A.M., 2018)

Foot Health

As of **Apr 25, 2018**

Farm Name: **Farm Name** Herd Number: **99999** Current Herd Count: **331** Housing / Milking System: **Free Stall / Milking Parlour** Last Trim Date: **Feb 7, 2018**

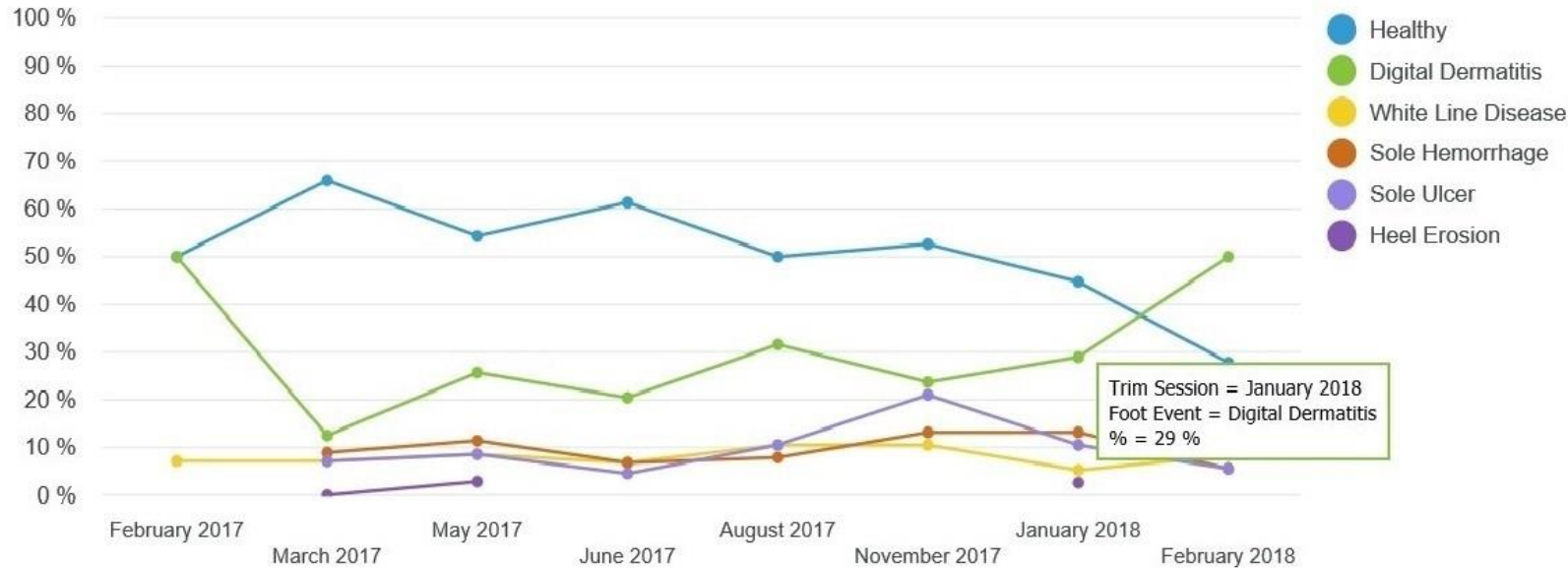
Period: **Feb 7, 2017 - Feb 7, 2018**

Housing / Milking System: **Free Stall / Milking Parlour**

Summary Animals Not Trimmed Lesions
 Include: Cows Heifers Both

Healthy			Digital Dermatitis			White Line Disease			Sole Hemorrhage			Sole Ulcer			Heel Erosion		
52%	ON	56%	27%	ON	20%	8%	ON	10%	9%	ON	11%	9%	ON	11%	1%	ON	1%
	CA	56%		CA	22%		CA	8%		CA	9%		CA	11%		CA	1%

Chart Chart - Lesions Table



Trim Session = January 2018
Foot Event = Digital Dermatitis
% = 29 %

For Genetic Analyses

Heritability estimates for the most common claw disorders

Trait	Threshold model	Linear model
Digital / interdigital dermatitis	0.09 - 0.20	0.01 - 0.11
Heel horn erosion	0.09	0.03 - 0.07
Interdigital hyperplasia	0.19 - 0.39	0.01 - 0.14
Sole hemorrhage	0.07 - 0.09	0.02 - 0.08
Sole ulcer	0.07 - 0.18	0.01 - 0.12
White line disease	0.06 - 0.10	0.01 - 0.09

Genetic improvement of claw health is possible even though claw disorder traits show low heritability

5. Conclusions:

- An efficient and systematic validation process is essential to provide good and (possibly comparable) results.
- A fast and clear feedback fosters the improvement of data quality.
- ICAR Guideline for Validation and Use of Claw Health Data aim to provide tools for making decisions and will be published soon on ICAR website.

Acknowledgement:

To The International Experts on claw health for their support and proposals for the elaboration of new standards for the recording and validation of claw health information.



THE GLOBAL STANDARD
FOR LIVESTOCK DATA

ICAR CLAW HEALTH ATLAS



Thank you for your attention!

