THE GLOBAL STANDARD FOR LIVESTOCK DATA

Section 22 - ICAR Guidelines for Sustainability recording traits

Section 22 – Sustainability Recording Traits
Version July, 2023

Network. Guidelines. Certification.

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Change Summary

Date of Change	Nature of Change
July 2023	Creation of the document.

1   Introduction to ICAR sustainability traits

The purpose of ICAR sustainability traits is to provide a harmonized approach to assess the sustainability of dairy herds. By providing a common definition of these traits, we encourage organizations that are involved in milk recording, breeding or any other way of data recording in dairy herds to develop tools to support farmers to increase the sustainability of their dairy herd.

The traits have been selected and defined by a group of ICAR related experts. As definition of sustainability itself the group has used the definition provided by the SAI platform (https://saiplatform.org/):

"Sustainable agriculture is the efficient, long-term production of safe, high-quality agricultural product, in a way that protects and improves the natural environment, the social and economic conditions of the farmers, their employees and local communities, and safeguards the health and welfare of all farmed species."

It is regarded not to be ICAR's role to standardize the make-up of Sustainability Indices. The weight of the various traits is a matter for the members or countries themselves to decide. Therefore, ICAR does not provide a sustainability index, but lets the user make a choice which traits to include in their own sustainability index. A selection of traits can be used to create an index that fits the data available and the specific circumstances in your organization or your country.

With this list of traits ICAR aims to identify the key traits in recording that effect sustainability, to provide definitions of these key traits and to harmonize measurement methods of these key traits.

ICAR sustainability traits are selected in such a way that they cover the most important aspects of the performance of the herd regarding sustainability. The traits have been defined in a way that they generally reflect data collected over a 365-day period in one herd. Data collected during a one-year period is more stable to influences on animal performance due to geography, seasonal calving, environmental impact related to weather conditions, herd size fluctuations etc.

Definitions of traits might differ according to how the used data is measured. Some traits are based on 365-day counts of the number of cows present in the dairy herd. Other traits are based on snapshot data (for example test-day average days in milk).

The list contains several categories of traits:

1.   Feeding and production
2.   Fertility
3.   Health
4.   Longevity and culling
5.   Young stock

The list of sustainability traits can be found below in Table 1 as short list with just the name and category. Different colours are used to distinguish the different categories, these colours have no particular meaning. The list of sustainability traits can also be found in Appendix 1 as

detailed list with the definitions of the traits. Appendix 2 of this Section contains prediction equations for feed intake, feed efficiency and methane for Dairy Cattle.

We recommend users of this list of traits to select one or more traits per category and to combine these traits into a sustainability index suitable to their national system. The weight per trait could be determined by each user. The sustainability index could be made available to members of your organization to support the sustainability of their herd or to proof sustainability or product quality to e.g. dairy processors.

2   Acknowledgements

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3   List of ICAR sustainability recording traits

Table 1. List of ICAR sustainability recording traits.

Number	Trait	Category
1	Age at slaughter (beef cattle)	Feeding and Production
2	Average Days in Milk	Feeding and Production
3	Body weight	Feeding and Production
4	Daily gain	Feeding and Production
5	Dry Matter Intake	Feeding and Production
6	Energy Corrected Milk	Feeding and Production
7	Feed efficiency	Feeding and Production
8	Methane Emissions	Feeding and Production
9	MUN /Urea rates in milk	Feeding and Production
10	% Cows with functional BCS	Feeding and Production
11	Apparent Pregnancy Loss Rate	Fertility
12	Average Days Open	Fertility
13	Average Calving Interval	Fertility
14a	Non-Return Rate 56 days	Fertility
14b	1st Service Conception Rate	Fertility
15	Pregnancy Rate	Fertility
16	% Cows culled due to reproductive problems	Fertility
17	% Cows with fertility disorders	Fertility
18	Average Somatic Cell Count	Health
19	Chronic infection rate	Health
20	Dry Cow Cure Rate	Health
21	Fresh Cow Infection Rate	Health
22	Selective Dry Cow Therapy Rate	Health
23	% Cows culled due to udder health	Health
24	% Cows culled due to lameness	Health
25	% Cows culled due to other disorders/diseases	Health
26	% Cows with FPR < 1 at first test day	Health
27	% Cows with FPR >1.3/1.5 at first test day	Health
28	% Cows with lameness	Health
29	% Cows with mastitis	Health
30	% Cows with subclinical metabolic issue	Health
31	Age at culling (dairy cattle)	Longevity
32	Average Daily Production of culled animals	Longevity
33	Average Lactation Number	Longevity
34	Average Lifetime Production of culled animals	Longevity
35	% Cows died ≤ 60 days in milk	Longevity
36	Age at first calving	Young stock
37	Young stock EBV ranking	Young stock
38	Young stock sire EBV ranking	Young stock
39	% Female young stock involuntary culled	Young stock
40	% Calves born dead	Young stock
41	% Female calves with diarrhea	Young stock
42	% Female calves with respiratory diseases	Young stock
43	% Mortality of female calves until 90 days	Young stock