

INTERNATIONAL COMMITTEE FOR ANIMAL RECORDING

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Chairman ICAR Conformation Working Group 24/05/01 (Modifications)

SECTION 5.1 CONFORMATION RECORDING OF DAIRY CATTLE

5.1.1 Introduction

The ICAR conformation recording recommendation integrates with the World Holstein-Friesian Federation guidelines on the international harmonisation of linear type assessment, trait definition, evaluation standards and publication of type proofs for bulls. The data collected within these recommended standards qualifies for MACE evaluation.

5.1.2 Linear Type Traits

Linear type traits are the basis of all modern type classification systems, and are the foundation of all systems for describing the dairy cow. Linear classification is based on measurements of individual type traits instead of opinions. It describes the degree of trait not the desirability.

Advantages of linear scoring are:

- Traits are scored individually
- Scores cover a biological range
- Variation within traits is identifiable
- Degree rather than desirability is recorded

5.1.3 International Standard Traits

The International standard traits satisfy the following definitions:

- Linear in a biological sense
- Single Traits
- Heritable
- Economic value
- Possible to measure instead of score
- Variation within the population
- Essential

Approved Standard Traits

1. Stature
2. Chest Width
3. Body Depth
4. Angularity
5. Rump Angle
6. Rump Width
7. Rear Legs Set
8. Rear Legs Rear View
9. Foot Angle
10. Fore Udder Attachment
11. Rear Udder Height
12. Central Ligament
13. Teat Length

5.1.4 Standard trait definition

The precise description of each trait is well defined and it is essential that the full range of linear scores to identify the intermediate and extremes of each trait be used.

The assessment parameters for the calculations should be based on the expected biological extremes of two year-old heifers. The scale must cover the biological extremes of the pop-

ulation in the Country of assessment.

5.1.4.1 Recommended Scale 1 - 9

STATURE

Ref. Point: Measured from top of the spine in between hips to ground. Precise measurement in centimetres/inches, or linear scale:

- 1 Short
- 5 Intermediate
- 9 Tall

CHEST WIDTH

Ref. Point: Measured from the inside surface between the top of the front legs:

- 1 - 3 Narrow
- 4 - 6 Intermediate
- 7 - 9 Wide

BODY DEPTH

Ref. Point: Distance between top of spine and bottom of barrel at last rib – the deepest point:

- 1 - 3 Shallow
- 4 - 6 Intermediate
- 7 - 9 Deep

ANGULARITY

Ref. Point: The angle and openness of the ribs, combined with flatness of bone avoiding coarseness – not a true linear trait:

- 1 - 3 Lacks angularity/coarse bone
- 4 - 6 Intermediate
- 7 - 9 Very angular/flat bone

RUMP ANGLE

Ref. Point: Measured as the angle from the top of the hip to the top of the pin bone:

- 1 High Pins
- 2 High Pins
- 3 Level
- 4 Slight slope
- 5 Intermediate
- 7
- 9 Extreme slope

RUMP WIDTH

Ref. Point: Distance between the most posterior point of pin bones:

- 1 - 3 Narrow
- 4 - 6 Intermediate
- 7 - 9 Wide

REAR LEGS SIDE VIEW

Ref. Point: Angle measured at the front of the hock:

- 1 - 3 Straight
- 4 - 6 Intermediate
- 7 - 9 Sickled

REAR LEGS REAR VIEW

Ref. Point: Angle of toe out of the rear feet:

- 1 Extreme toe out

5 Intermediate

9 Parallel feet

FOOTANGLE

Ref. Point: Angle at the front of the rear hoof measured from the floor to the hairline:

1 – 3 Very low angle

4 – 6 Intermediate angle 45 degrees.

7 – 9 Very steep

FORE UDDER ATTACHMENT

Ref. Point: The strength of attachment of the fore udder to the abdominal wall: Not a true linear trait - Optical

1 – 3 Weak and loose

4 – 6 Intermediate acceptable

7 – 9 Extremely strong and tight.

REAR UDDER HEIGHT

Ref. Point: The distance between vulva (pin bone) and the milk secreting tissue: in relation to height of the animal:

1 – 3 Very low

4 – 6 Intermediate

7 – 9 High

CENTRALLIGAMENT

Ref. Point: The depth of cleft, measured at the base of the rear udder:

1 – 3 Convex to flat floor

4 – 6 Slight definition

7 – 9 Deep definition

UDDER DEPTH

Ref. Point: The distance from the lowest part of the udder floor to the hock:

1 Below hock

2 Level with hock

5 Intermediate

9 Shallow

TEAT PLACEMENT REAR VIEW

Ref. Point: The position of the centre of the front teat placement at the point of the udder:

1 – 3 Outside of quarter

4 – 6 Middle of quarter

7 – 9 Inside of quarter

TEAT LENGTH

Ref. Point: The length of the front teat:

1 – 3 Short

4 – 6 Intermediate

7 – 9 Long

5.1.5 Type Inspection System:

- One organisation should be in charge of classifications within each evaluating system.
- There should be a head-classifier in charge of training and supervising other classifiers within the evaluating system to achieve and maintain a uniform level of classification. Additionally the exchange of information between head-classifiers from different systems/countries is advised.
- Individual full time professionals should complete classification. Classifiers should be independent of commercial interest in AI-bulls/studs.

d. Bull proofs to be based on the classification of first calved heifers. If the evaluating system is modified repeat classifications can be added. If there is a herd classification system additional classification may only be possible if completed by the same organisation of evaluation and sufficient herd mates (contemporaries) are scored during the same visit. All bulls in AI should be included in classification programmes.

e. A minimum of 5 heifers are inspected at the same visit

5.1.6 Evaluation Model

- Modern BLUP evaluation techniques should be used to obtain accurate unbiased evaluations.
- Data should be corrected for influencing factors such as age, stage of lactation and season by the model. Classifiers should not make corrections during scoring.
- Corrections for variation between classifiers are required to avoid heterogeneity of variance.
- Herd mates are defined as the contemporaries of the evaluated heifers in the same lactation, scored during the same visit by the same classifier.

5.1.7 Publication of Information

- Publish bull-proofs around an average of 0 and a standard deviation of 1.0.
- Proofs of widespread used bulls should be published as bar graphs covering the range between +3 and -3 standard deviations.
- The base of sire evaluation should follow the definition of the production proofs, given by Interbull. This includes a stepwise fixed base that should be renewed every five years. For example: currently the base is animals born in 1995.

5.1.8 Composite Traits

- Composite traits are groups of linear traits relating to one specific area.
- The individual linear traits are weighted according to economic breeding objectives.
- The main composite traits are - Mammary, Feet/ Legs and Body.

5.1.9 General Characteristics or Breakdown for Non Linear Traits

- Type classification programmes also include phenotype assessment. These are described as general characteristics or combined traits, which are not linear in a biological sense. A subjective score is given for the desirability of the cow according to the breeding goal.
- Female animals are inspected, classified and assigned grades/scores ranging from 50 -97points.
- The most common scales are:
 - Excellent 97 - 90 points
 - Very Good 85 - 89 points
 - Good Plus 80 - 84 points
 - Good 79 - 75 points
 - Fair/Poor/Insufficient 74 - 50 points
- The awarding of classification grades varies in each country depending upon the breeding goals, and therefore

classification scores must be considered in the context of the country of inspection.

e. The final class and score are derived from a breakdown of the main functional areas of the female;

- Body
- Dairy Character
- Legs/Feet
- Mammary System
- Assessment of additional functional traits is included in a number of countries.

f. It is recommended that the final score should be calculated using a minimum of 40% mammary system score.

g. The weighting of component breakdown scores should meet the breeding objective in the Country of inspection.