# 9. Meeting of the sub-group on calves and dairy cows

**nineth meeting, 15.12.2022, 9:30 to 12:30**
**(videoconference)**

**– MINUTES –**

| | |
|---|---|
| **Independent expert** | Francesca Fusi |
| **Civil society organisations** | EDA<br>Eurogroup<br>Slow food |
| **Business and professional organisations** | Farm & Animal Health<br>Copa Cogeca |
| **Member States** | Sweden<br>The Netherlands<br>Ireland<br>Denmark |
| **European Commission** | DG SANTE – Colleagues from Unit G5, E4 |
| **Guest** | Jacopo Goracci (Slowfood) |

## 1. Welcome

The Chair welcomed the participants to the 9th meeting.

## 2. Presentation of legal requirements for animal welfare indicators

**Art. 21(8) of Regulation (EU) 2017/625 on official controls (OCR)** establishes that Commission is empowered to adopt rules in the cases and conditions where official controls may include the use of specific animal welfare indicators based on measurable performance criteria, to verify compliance with animal welfare requirements, and the design of such indicators based on scientific and technical evidence.

**Art. 96 (b) of OCR** establishes the role of EURCAWs on providing scientific and technical expertise for the development and application of the animal welfare indicators.

Currently, the required animal-based indicators to be monitored by operators and reported to the competent authorities are foot-pad dermatitis in broilers and the effect of stunning in slaughterhouses. The lack of agreed indicators makes difficult to measure the level of animal welfare. This undermines the capability of operators and competent authorities to identify situations of poor animal welfare and take measures to correct them.

Some EFSA opinions on calves (2006), beef cattle (2012) and dairy cows (2009, 2012 and 2015) refer to welfare indicators. In the case of dairy cows, some of the opinions provide animal-based measures that can be used in the evaluation of the welfare on farm, and in some cases at the slaughterhouse.

According to their nature, indicators can be "resource indicators" (focusing on structural requirements) or "animal-based indicators" (ABI) (variables that are measured directly on animals, e.g., injury or lameness). According to their purpose, indicators can be management indicators (used to assess the animal welfare situation on-farm, they can be measured on farm or at slaughterhouse) or policy indicators (used to evaluate the effectiveness of the policy and the legislation itself).

## 3. Presentation on "Animal Welfare Indicators" (EDA)

Animal welfare is complex and could be looked from three different perspectives:

- Farmer perspective: biological function
- Consumer perspective: naturalistic
- Animal's perspective: hedonistic (feelings)

Animal welfare can be defined as "to have a good life by having most positive experiences and as few negative experiences as possible" (Prof. Jan Tind Sørensen, AU, DK).

The assessment of animal welfare may be done through:

1. Resource and management-based assessment: skills of farmers are preconditions to recognise risk factors for a good cow life.

2. Data (registration and observation)

There are big differences in the interaction animal-environment/housing system and management. This is the major reason for doing animal-based recording instead of looking (only) at resource-based indicators. However, using animal-based indicators is challenging from the validity, robustness, reliability and feasibility point of view, and measurements can be time consuming.

On farm, animal-based indicators (ABI) can be used for:

- farm benchmarking (self-assessment)
- Audits of quality assurance programs for dairies/slaughterhouses
- Audits of animal welfare labels
- Audit of legislation (limited, due to most input-based requirements)

SWOT analysis for application of self-assessment of welfare on herd level (modified after Zapf et al. (2017):

| Strengths | Weaknesses |
|---|---|
| • Strengthening the animal managers' self-responsibility<br>• "Measurability" of animal welfare<br>• Reliability for the animal manager<br>• Transparency<br>• Clear identification of starting points for improvement actions | • Time requirement<br>• The quality of data recorded, can be adversely affected through errors/misunderstanding/manipulation of data by the animal manager |
| Opportunities | Threats |
| • Continuous improvement of treatment of animals on the farm<br>• Demonstration of problem awareness<br>• Open communication<br>• Making discussions more factual<br>• Positive economic effects | • Possible regulations through control officials where results are "negative"<br>• Excessive demands on the farm business in terms of high time and documentation inputs<br>• Rejection of the concept in practical farming |

Some examples of **animal-based indicators** based on observation/data according to Welfare Quality® are:

- **Indicators of good feeding** (O)[1]: body condition score.
- **Indicators of good housing** (O): lying inside/outside of the cubicle, time for lying down/arise, collision with interior, cleanliness.
- **Indicators of good health**: lameness / overgrown claws (O), abrasions & Lesions (O), somatic Cell Count (DB)[1], mortality (cows, calves) (DB), stillborn calves (DB), pain face (O).
- **Indicators of appropriate behaviour** (O): flight distance, agonistic behaviour, qualitative behaviour assessment (QBA).

[1] O – observation, DB – data bases

- **Other indicators** (DB): frequency of treatment(s), variation of age at 1st calving, % early culled cows (0-60 days), longevity, differences in milk yield, protein, fat, ratios, etc.
- **Data from slaughterhouses** (DB): respiratory disorders, peritonitis, parasites, fatty liver, liver abscess, fracture.

According to Welfare Quality® a combination of resource-based and animal-based indicators may be used to assess different criteria and could reduce the number of resource-based requirements to be audited/controlled.

Based on literature and practical experience some important animal-based indicators can be monitored during self-assessment/audits (mobility, cleanliness, lesions/abrasions, body condition) or using registered data in national herd databases (mortality, somatic cell count, average life span for cows).

The challenge is to establish in the legislation the good rate between indicators and the acceptable threshold for each indicator. Having cows with lesions not treated would not be acceptable; however, having some issues at herd level could be acceptable if animals are treated. Which number of cows showing lesions is acceptable, or from which % of cows with lameness, action should be taken at farm level (i.e., 5%), are ethical/political decisions.

Examples of thresholds for animal-based indicators were presented. The level of an indicator is considered major when a significant number of animals have unmanaged health and welfare issues, minor when a few animals have unmanaged health and welfare issues. For instance, in the case of cows, thresholds could be 15% and 5% for the major and minor level respectively for mobility, 25% and 10% for cleanliness, 5% and 1% for body condition score, and 10% and 5% for lesions/abrasions.

To find the acceptable level of an animal-based indicator and establish thresholds, a method based on target and alarm values is proposed. The target area is considered the area between the optimal condition for an indicator and a target value. An early warning area is the area between the target value and the alarm value. The alarm area is the area between the alarm value and the worst condition. An example was shown for cow mortality, where the target value was 3.2% of mortality and the alarm value 8.6%. In the example 25% of herds were in the target area (best), with a mortality between 0-3.1%, 65% of herds were in the early warning area (ok) with a mortality between 3.2% and 8.5% and 10% of herds were in the alarm area (worst) with a mortality between 8.6% and 17%. A political decision is needed to decide on these thresholds.

Assessing animal-based indicators is time consuming. Technology (i.e., computer vision, camera-based technologies, AI algorithms, etc.) could be used in a future to help for having objective, robust, validated, reliable and feasible measurements/data. However, the question of how this technology is used, the ownership of algorithms and the use of data was raised.

The Arla guide for assessing cows on four animal-based indicators was presented. According to this guide, welfare is assessed using four indicators: mobility, cleanliness, abrasions/lesions, and body condition. A three point-scale for each indicator is used, where “0” indicates normal cows, “1” cows with minor deviations compared to normal cows and “2” major deviations from normal cows. The purpose of assessing the cows individually is to get an overview of the welfare situation in a herd and provide a good starting point for addressing any challenges in the herd health.

Links to different existing technologies were provided in the presentation.

**Summary:**

➢ Animal welfare is a complex issue which may be assessed from different perspectives (biological function, natural live, feelings).

➢ Animal welfare can be measured by resource based and animal-based indicators.

➢ Many animal-based indicators are developed, but only a few are used in practice.

➢ Thresholds on animal-based indicators should be based on data.

➢ Lot of (new) technology is /will be developed to give more "robust" data.

## 4. Presentation on "Animal based measures in animal welfare assessment in extensive and transhumant systems" (External expert Slow Food)

The presenter explained that animal welfare is a sustainability criterion; reducing the consumption of animal products in the diet, will decrease the negative impact in environment and animal welfare.

Animal welfare is a multidimensional concept for which the evaluation can involve indirect indicators (resource and management-based measures) and direct indicators (animal-based measures). Each animal-based measure is related to many resource and management indicators. There are a lot of indicators, but many of them refer to a similar situation. There is then no reason to analyse many different indicators when we can observe only a few (iceberg indicators) to have an indication of a similar situation.

Examples of **animal-based iceberg indicators** are:

1. **Body condition**
   The body condition scoring in dairy cattle is an important indicator, which is linked to livestock management, feeding strategy, health status and ethological needs. Body condition can influence other parameters (age of replacement, replacement rate, longevity). Body condition have a strong repercussion on farm profitability.
2. **Longevity**
   Longevity is more relevant in dairy than in beef production. Longevity is easier to monitor than calculating the replacement rate.
3. **Cleanness score**
4. **Lameness score**
   More relevant in dairy than in beef production. Conditions predisposing to lameness are multifaceted, linked to hock conditions, leg hygiene, overcrowded pens, lying and resting behaviour, claw trimming, poorly designed stall, locomotion scoring and feeding strategy. A five-point score of lameness was shown by the presenter.

Only resource or management indicators are not sufficient to assess animal welfare. Animal-based indicators are also needed. Technology can help on observation to analyse the situation and brin consistency.

New skills are needed for inspectors. To this end, the expertise of EURCAWS is available and should be used. However, the animal welfare supervisor is not the inspector, is the farmer. Awareness of farmers on animal welfare is an important element. In case of problem in a farm, a non-punitive, but formative action plan is needed to enable compliance with animal thresholds.

**Intensive housing vs. pasture-based systems:**

The positive and negative effects of pasture-based systems (considered advantageous for animal welfare) and intensive housing systems (considered causing behavioural and welfare problems) were enumerated.

Among the positive effects of pasture-based systems, the decrease of hock damage, lameness, and claw disorders, the increase of activity, metabolism and longevity, and improvement of health status and possibility to express natural behaviour were cited. Negative effect mentioned are nutritional deficiencies, parasites burden, thermoregulation demands, predation, and less coping ability.

The risks linked to a conversion of farms currently with tie-stalls were described as farm abandonment, grasslands regression, loss of biodiversity, severe socio-economic changes.

The presenter explained the advantage of the transhumance of dairy cows to highland summer pastures using dual and local breeds to influence body condition, milk yield and quality, decreasing the gaps in production (with less variations of milk quality) and maintaining body fat reserves. Animals keep on pasture should be provided with sufficient quantity and quality of water. They also must be protected from adverse weather conditions.

## 5. Discussion

The use of different databases in different countries, and even in different regions in a same country was highlighted. The possibility to have cross-country databases that could be used by all Member states, and the difficulties engendered by using these databases were stressed (i.e., ownership of algorithms, connexion with companies, harmonised collection of data to allow comparison, use of new technologies to avoid human bias).

Having data from slaughterhouse was also considered useful, but differences on data from dairy (end of career cows) or beef cattle (homogeneous groups at the end of the production period) were underlined and the need to take them into consideration when analysing the outcomes.

Italy shared its experience with data property regarding Classyfarm, for which the owner of data is the Ministry, that transfer data the Istituto Zooprofilattico (also public). No companies or universities deal with that data in Italy. Data collected is a combination of both resource and animal-based indicator data, which is used to stablish a risk assessment scoring. For broilers, a derogation to increase density is possible based on two indicators (footpad dermatitis and body condition at slaughterhouse). For pigs a similar system is in place using tail-biting and docking. Data is currently collected manually (Excel), but Italy is working on a database. For calves it is at the level of scientific project. In the future farmers providing data to the system will have access to labels.

Data was considered a big component on how to create a fare system of evaluation across countries, fare for farmers but also for consumers. However, there was divergent views on the way this data should be collected and used.

Some members considered that some animal-based indicators could be defined at EU level but collected at MS level and considered for each MS because there are many scenarios in one country, leading to many different scenarios in the EU. How to have repeatability in data in those conditions was considered a problem (i.e., mortality is collected in different ways across countries). To be useful, indicators must be measured correctly and in a comparable manner.

Other members of the group expressed the opinion that indicators should not be country-based indicators and propose using ISO technical specifications for measuring and collecting data on animal-

based indicators. This would allow collecting compatible and standard data across the EU that could be compared using thresholds at EU level (i.e., thresholds for alert). In case these thresholds are exceeded an action plan with actions to be taken could be put in place.

Other members were against a harmonised data collection which should be done at MS level, as harmonisation was considered non appropriate in the context of the dairy sector due to the high diversity of practices across the EU compared to other sectors (i.e., broilers). They highlighted the need to be careful when legislating indicators at EU level and avoid an increased administrative burden on farmers and authorities, that could in addition cost money.

The subgroup mentioned the indicators and thresholds for alert and target values developed by Germany with the involvement of veterinarians and farmers. Denmark explained the system they have developed, where a risk assessment is performed using body condition and cleanliness scored in green, yellow and red, to decide which farm must be visited.

Most of the subgroup members considered important to have a combination of both resource and animal base indicators, to have less input base indicators and look more at how animals are performing. New technologies could help on measuring this performance. Even if the subgroup agreed that it is possible to assess animal welfare only with ABIs, using only them seems challenging mainly in terms of enforcement. Specific resource requirements would secure a minimum level of animal welfare in all cases and would make easy to enforce and to ensure farmers comply with. The members of the subgroup underlined the problem on how to measure indicators to decide if the situation is compliant or not. Measuring resource indicators (i.e. length of a cubicle) was considered much easier for the farmer than assessing animal-based indicators. In addition, resource requirements were considered essential for farmers being able to obtain financial support. The subgroup indicated that indicators for self-assessment and indicators for legislations could be different, but also stressed the importance to avoid duplications.

Indicators in slaughterhouses could also be used and have data from slaughterhouse and from authorities for farmer to assess the animal welfare in the farm.

The use of animal-based indicators was considered challenging in terms of time spent for observation and expensive. For this reason, the subgroup judged the use of iceberg indicators as the most appropriate approach.

The subgroup also referred to the 3 indicators pointed out by the last EFSA opinion as iceberg:

1. Mortality, emergency slaughter and euthanasia – This is an alert indicator that can indicate that something is wrong in the farm. The cause of the dead can change depending of the period. Need to monitor the three to have a correct idea of the mortality.
2. SCC
3. Lameness score

On data:

- At slaughterhouse: alerts about farmers with recurrent issues
- At farm: get information and monitor improvement

Members of the subgroup identified cleanliness, body condition, injuries, and mortality as the best indicators for calves. For dairy cows, the SCC, cleanness, lameness, BCS and lesions/injuries were given as the most relevant.

There were diverging opinions on the appropriateness of having longevity as it could be influenced by many factors mainly economic linked to the management of the farm. Longevity standing alone was considered misleading, but adequate as positive indicator if assessed together with other indicators. Even if longevity is considered an ethical consideration, in dairy sector, the replacement is currently so high that even from a climate/environmental point of view, the subgroup considered there is a need to reflect on how to increase longevity.

The subgroup explored possible technologies that could help for assessing indicators. Those could include:

- Body scans
- Means to assess lameness (i.e., being photographed when fed, even if not adapted for all breeds or farming conditions).

Regarding thresholds of different indicators, the subgroup believed that if different causes have similar consequences, producing the same amount of suffering, they should be assessed in the same way. However, there was consensus on a different approach for big and small farms as a same threshold could represent a different situation in a big and a small farm (i.e., one lame cow in a 5-cow herd is not the same than one lame cow in a 30-cow herd in terms of percentage. One lame cow does not mean poor welfare conditions in a farm).

The lack of assessment of feelings as behaviour indicators (i.e., fear linked with human relationship) in addition to lesions, the possibility to use technology in this area, as well as the need to promote positive indicators in addition to indicators of negative impacts on welfare was underlined by the subgroup. A qualitative behaviour assessment was considered an emerging tool in the future.

The need to train assessors and controllers to have a similar assessment was pointed out as essential. In this sense, the subgroup agreed that the EURCAW has an important role to play, and its expertise should be used to improve the skills of people assessing the animal-based indicators.

Additional information was brought to the group on recent research from Ireland on ABIs for dairy cows where 100 herds assessed at pasture and again at housing against 7 indicators[2].

## 6. Calendar for the next meetings

**23 January 2023**,14:30 – 17:30
Health of dairy cows

**7 February 2023**, 9:30 – 16:30
Wrap-up meeting (physical)

[2] Assessing dairy cow welfare during the grazing and housing periods on spring-calving, pasture-based dairy farms - PubMed (nih.gov)