

# How do we measure dairy cow welfare on-farm?

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## Summary

- Measuring welfare helps to ensure that every cow’s needs are being met and that her environment is suitable.
- Both animal-based (e.g. health scoring) and resource-based (e.g. facility design) measures of welfare are necessary.

## Introduction

Animal welfare is a reflection of how an animal is experiencing its environment. There are three focal areas: health and biological function (e.g. absence of disease, maintaining milk production), expression of natural behaviour (e.g. sufficient lying time, heat expression, social interaction), and affective state (experiencing positive or negative emotions, e.g. pleasure, fear, hunger). To ensure that we are meeting the cows’ needs in each of these areas it is important that we measure the state of the animals directly (animal-based measures), as well as the environment in which they live (resource-based measures). Animal-based measures of welfare (Table 1.) assess the animals’ own experience of their environment and how they interact with it. Resource-based measures of welfare (Table 2.) assess environmental factors that are typically related to the design of their facilities.

Measure	How is it measured?	Why is it important?
Body condition	Routine herd body condition scoring <i>Target: 2.75–3.25 at dry off &amp; start of breeding, 3–3.5 pre-calving</i>	Loss/gain in body condition → indicator of health problems or feed availability
Lameness	Routine herd mobility scoring <i>Target: &lt;2 on a 0–3 scale*</i>	Early detection reduces pain, improves recovery and productivity
Injuries	Hair-loss, skin abrasions and cuts	May be painful and indicate unsuitable environment
Disease	Frequency/type of disease & signs of poor health	Healthy cows are free from pain and discomfort, productive and capable of performing natural behaviours
Behaviour	Monitor lying time, social behaviours <i>Target: 10–14 hrs/d lying time</i>	Changes in normal behaviour may indicate environmental or management problems

Measure	How is it measured?	Why is it important?
Milking system	Collecting yard stocking density <i>Target: 1.5m<sup>2</sup>/cow</i>	Adequate space → reduced aggressive behaviours between cows
	Holding time pre- and post-milking	Long periods of time in the collecting yard → longer standing times → increasing lameness prevalence
Roadways	Daily walking distance	Long walking distances can increase lameness and reduce body condition
	Roadway condition	Dirty roadways → increased mastitis. Loose stones and eroded areas → increased lameness
Paddock	Presence of clean, functioning water troughs	Ad-lib access to safe drinking water is critical for health and production
	Quantity/quality of grass available	Ensures cows have sufficient grass to meet energy demands
Housing	Cubicle stocking density and comfort (e.g. bedding type & thickness) <i>Target: 1.1 cubicles/cow</i>	Overstocked & uncomfortable cubicles → decreased lying time → increased lameness, reduced rumination time and production
	Bedding cleanliness	Wet and soiled bedding → increases mastitis prevalence



Figure 1. Examples of animal- and resource-based welfare measures.

## Conclusions

Ensuring good animal welfare is a key factor in managing healthy and productive dairy cows and maintaining a sustainable dairy industry. Measuring animal welfare on farms is an important tool to assess how a cow is experiencing her environment. There are a variety of indicators that can be used to measure welfare, both animal- and resource-based, that can help us understand whether a cow is experiencing good or poor welfare.

\*<https://dairy.ahdb.org.uk/resources-library/technical-information/health-welfare/mobility-score-instructions/#.XN5dGo5Kg2w>