

Animal Care



Quick Guide to Animal-based Measurement Protocols

The Animal-based Measurement Protocols include step-by-step instructions for the assessment of dairy cattle for the following animal-based measures:

1. Body Condition Score
2. Hock, Knee, and Neck Scores
3. Mobility: gait score or in-stall score

This Quick Guide summarizes the general protocols for assessments.

Please note: assessors must meet the qualification criteria set by Dairy Farmers of Canada (DFC) and the provincial association, and must have completed DFC training in animal assessments.

Protocols on farm

1. **Determine the sample size:** determine the number of cattle you need to assess by referring to Table 1, and following these steps:
 - a) Choose the herd size closest to the number of cattle in the milking herd (lactating only) (i.e. round to the nearest number).
 - b) Select the related sample size according to the cattle assessment frequency the farm is on (24 months or 12 months).

Remember: follow strict biosecurity practices. Use clean coveralls for each farm, and disinfect boots before and after each farm. In tie-stall barns, you should consider disinfecting your boots after scoring mobility, and before you score knees and necks, if you will be standing in the feed alley to score these measures.

Note: cattle assessments must be done every 2 years, and within 24 months before the farm's registration anniversary date (e.g. the due date for the proAction validation or self-declaration). If a herd's results are low, the frequency will increase to every 12 months.

Table 1 – Sample size calculator

| Average number of cattle in milking herd (lactating cattle) | Sample Size for 24-month Frequency | | Sample Size for 12-month Frequency | |
|---|--|----------------------------------|--|------------------------------------|
| | Sample size: minimum number of cattle for assessment | Approximately every _____ animal | Sample size: minimum number of cattle for assessment | Approximately every _____ animal |
| ≤ 20 | 14 | All to every 2 nd | 19 | Almost every animal |
| 30 | 18 | 2 nd | 28 | All to every 2 nd |
| 40 | 21 | 2 nd | 36 | All to every 2 nd |
| 50 | 23 | 2 nd | 44 | All to every 2 nd |
| 70 | 27 | 3 rd | 59 | All to every 2 nd |
| 90 | 29 | 3 rd | 73 | All to every 2 nd |
| 100 | 30 | 3 rd | 80 | All to every 2 nd |
| 150 | 33 | 5 th | 108 | All to every 2 nd |
| 250 | 37 | 7 th | 152 | 2 nd |
| 350 | 38 | 9 th | 183 | 2 nd |
| 450 | 39 | 12 th | 207 | 2 nd |
| 550 | 40 | 14 th | 226 | 2 nd to 3 rd |
| 700 | 40 | 18 th | 248 | 3 rd |
| 1,000 | 5% | 20 th | 278 | 4 th |
| 2,000 | 5% | 20 th | 322 | 6 th |
| 3,000 | 5% | 20 th | 341 | 9 th |
| 4,000 | 5% | 20 th | 351 | 11 th |
| 5,000 | 5% | 20 th | 357 | 14 th |

Note: sample sizes for the 24-month frequency are calculated on the basis of 95% confidence level and a margin of error of 15, except for herd sizes over 1,000 cattle. Sample sizes for the 12-month frequency are calculated on the basis of 95% confidence level and a margin of error of 5 for all herd sizes.

2. Select sample of cattle

a) General rules:

- Select cattle from the lactating cattle only.
- Choose animals randomly.
- Assess all of the cattle in the sample for all of the measures on the same day.

- If cattle are distributed amongst different pens, select animals proportional to the number of animals in each pen.

For example:

$$\frac{\text{\# animals per pen} \times \text{sample size}}{\text{Total herd size}} = \text{\# animals to be sampled per pen}$$

- Exclude cattle in the sick pens, because the farmer is already taking corrective actions to care for those animals. Before starting the assessment in a tie-stall, ask the farmer if he/she has a sick pen or if sick animals remain in their stalls. If sick animals remain in their stalls, ask the farmer which animals would be considered “sick pen” animals so that you can determine which animals can be excluded from the assessment (i.e. equivalent to an animal that would be in a sick pen in a free-stall barn). Record the number of sick animals in the sick pen or the number of animals excluded from the assessment.

b) Specific protocols for free-stalls and other loose housing barns:

- Strive for moving cattle calmly and freely.
- The recommended methods, in order of preference, are:
 - i. During milking or by moving the cattle through the parlour in between milkings and releasing them through the return alley. Select animals according to the 3rd or 5th column in Table 1.
 - ii. After milking with cattle secured in headlocks and released. Select animals according to the 3rd or 5th column in Table 1.
 - iii. Between milkings with cattle crowded in one end of the pen and released. Select animals according to the 3rd or 5th column in Table 1. This method is not preferred because it is disruptive to the group of cattle throughout the process and risks cattle rushing and slipping.
 - iv. Between milkings in free-stall / bedded pack barns by searching for specific animal IDs. Use a random number generator to identify the specific animal IDs to be selected.

c) Specific protocols for tie-stalls:

- Before entering the barn, decide which cow you are going to start with, so that the choice is random. For example, decide if you are going to start with the 1st, 2nd or 3rd stall on the left-hand side before walking into the barn.
- From the initial animal, walk down the line and choose animals according to the 3rd or 5th column in Table 1.

3. Assess cattle

- a) Assess the cattle in the sample size according to the protocols outlined in the Quick Guides for Body Condition Score, Hock, Knee and Neck Scores, Mobility (Gait Scoring) and Mobility (In-stall Lameness Scoring). All animals are scored as either ‘acceptable’ or ‘requires corrective action’ for each measure, except for Gait Scoring, which is a 3-point scoring system of ‘acceptable,’ ‘monitor’ or ‘requires corrective action.’
- b) Dirty cattle: if less than 20% of the sample cattle are too dirty to score, simply select replacement animals. If 20% or more of the sample cattle are too dirty to score, you will be unable to score that

parameter accurately. Score the dirty animals as R (requires corrective action) for that parameter(s) (e.g. hock/knee) that cannot be properly scored, and note that they were too dirty to score.

4. Record the results

Record the results of the assessment in the forms provided, including the summary results.

For hock score, the measure is recorded as R if one hock is scored as R. The same applies for knee score.

5. Generate peer reports

Table 2 outlines the targets for the animal-based measures and the zone thresholds, which have been established based on the results of the first round of cattle assessments across Canada. The Green, Yellow and two Red zones represent the top, middle and bottom results, with the thresholds adjusted for simplicity.

Green zone = meeting the excellent target. Green means good.

Yellow zone = caution and a corrective action plan is recommended.

Red zone = corrective action plan required. The farm must document a corrective action plan, in consultation with a dairy professional, and implement the plan to improve.

Dark Red Zone = corrective action plan required and increased cattle assessments are required (i.e. next cattle assessment is due in 12 months with higher numbers of cattle to be assessed). The farm must document a corrective action plan, in consultation with a dairy professional, and implement the plan to improve.

Table 2: Targets for animal-based measures and zone thresholds

| Measure | Zones | | | |
|----------------------|---------------------------------|--|--|--|
| | Green Meets excellent target | Yellow Corrective action plan recommended | Red Corrective action plan required | Dark Red Corrective action plan and increased cattle assessments required** |
| Body Condition Score | ≥95%* | 80% to <95% | 60% to <80% | <60% |
| Hock Score | ≥90% | 75% to <90% | 60% to <75% | <60% |
| Knee Score | ≥90% | 75% to <90% | 60% to <75% | <60% |
| Neck Score | ≥90% | 75% to <90% | 60% to <75% | <60% |
| Mobility Score | ≥90% | 75% to <90% | 60% to <75% | <60% |

*Percentage of cattle in the sample scoring Acceptable

**Next cattle assessment is due in 12 months with a larger sample size