Measuring Cow Comfort

Can cow comfort be reliably measured? Several indices of cow comfort have been proposed including:

- **Cow Comfort Index** (CCI) - the proportion of cows lying down in stalls;
- **Stall Standing Index** (SSI) - the proportion of cows standing in stalls (1-CCI), and;
- **Proportion Eligible Lying** (PEL) or Stall Usage Index - the proportion of cows not eating that are lying down in stalls.

Targets of >85% for CCI and >75% for PEL taken at 1 hour after return of the cows from the morning milking have been suggested, but these benchmarks have been derived from observations in very few herds.

A recent Wisconsin study measured indices of comfort over a 24 hour period. The objective was to determine the most appropriate time of day for measurement in terms of the ability of each index to predict cow behaviour and lameness. Twelve farms participated in the study with the start time of morning milking serving as a reference point to align the data for each farm. Cow activities were monitored using time-lapse video recording. Every hour, the researchers counted the number of cows in the high group pen who were lying in stalls, standing in stalls with all four feet, perching in stalls with the rear two feet in the alley, standing in the alley, drinking or feeding. For each hour, the three cow comfort indices were calculated. Locomotion scores for all cows were also determined, using a four point system.

None of the indices were good predictors of lying time at all hours of the day. However, there was a good correlation between mean daily standing time in stalls and CCI or SSI measured at 5 and 2 hours before morning milking, with the reading at 2 hours being the best (see graph above).

At 2 hours before morning milking, there was also a good relationship between CCI/SSI and lameness prevalence in the pen. SSI greater than 24% was consistently associated with lameness prevalence rates greater than 20%.

Based on their results, the authors of the study suggest that SSI, measured 2 hours before morning milking can be used as a reliable predictor of standing behaviour. An SSI greater than 24% at this time could be used to trigger locomotion scoring of the herd and a more detailed investigation of lameness and free stall design.

source: Nigel Cook et al., University of Wisconsin