



Measuring Lying Behavior of Dairy Cows

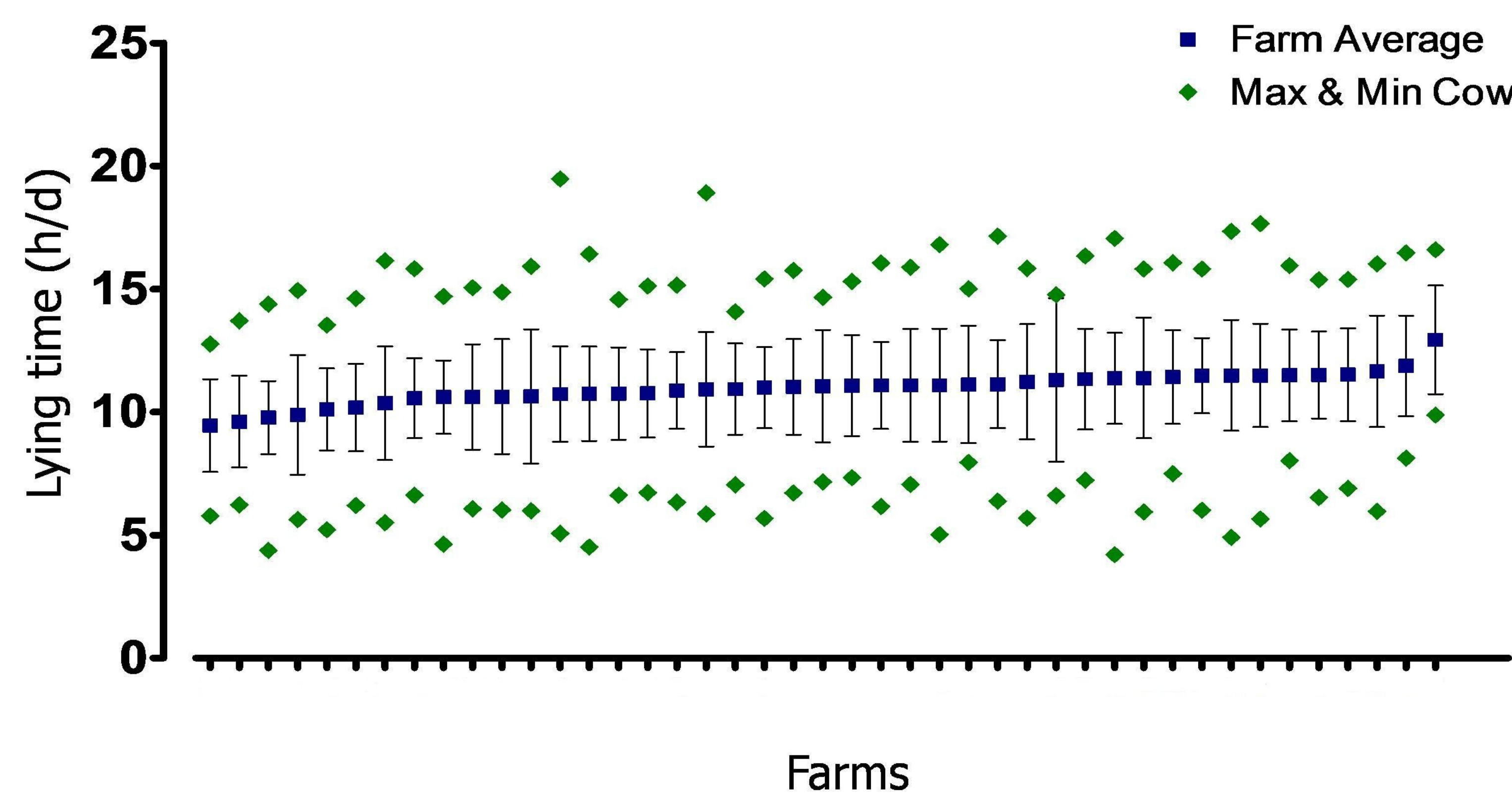
K. Ito, D.M. Weary, and M.A.G. von Keyserlingk

Background: Lying behavior of dairy cows can be used to evaluate stall use. However, measuring lying behavior on farm is challenging. In practice, cow comfort index (CCI) and stall use index (SUI) are commonly used to estimate lying time.

Aims: 1) to describe the variation in lying behavior of free-stall housed dairy cows, 2) to establish a sampling and recording methods of measuring lying behavior, and 3) to validate the adequacy of CCI and SUI as an estimate for lying behavior.

How long do cows lie down?

Used electronic data loggers to record lying or standing (2033 cows from 43 farms) at 1-min intervals for 5 d



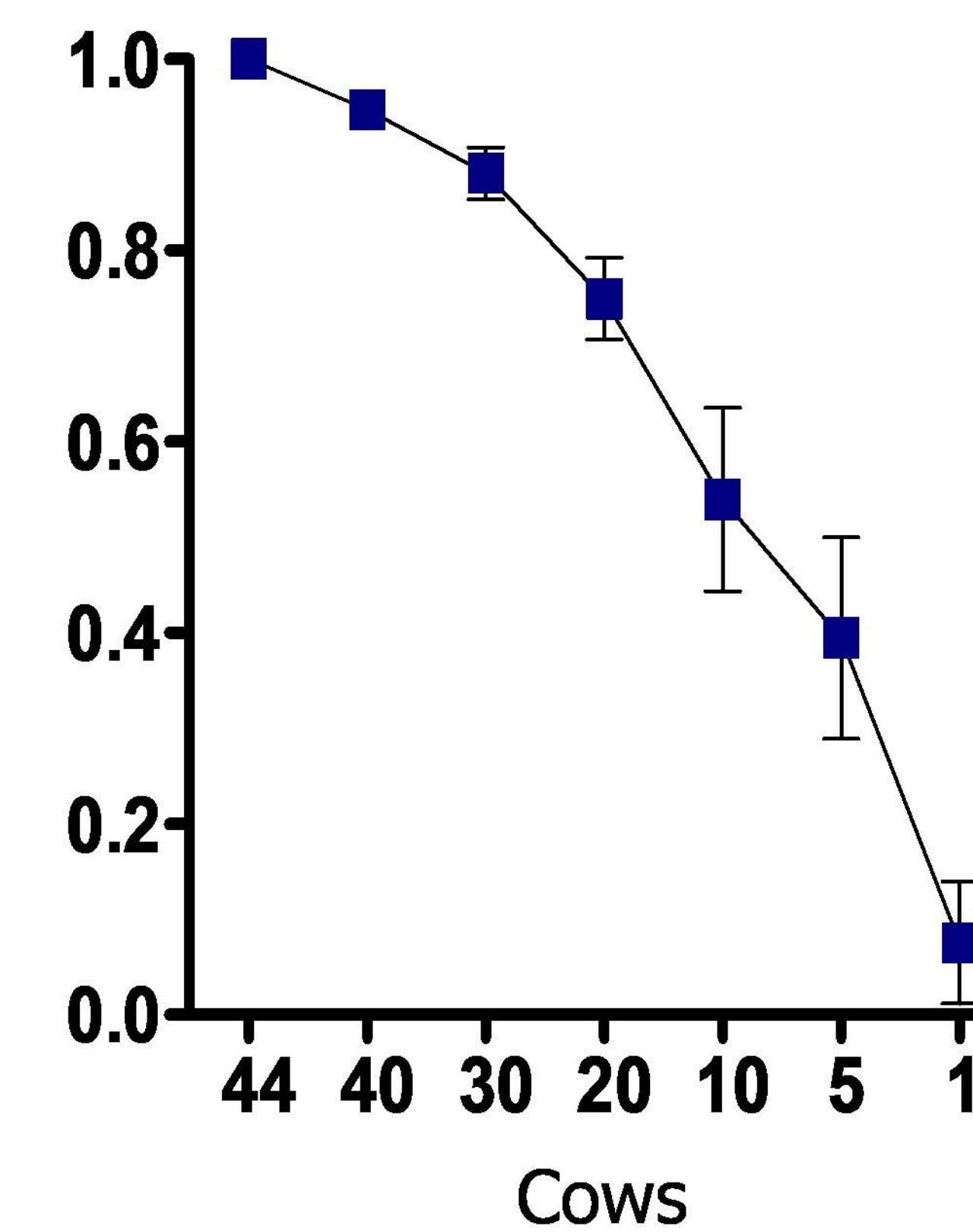
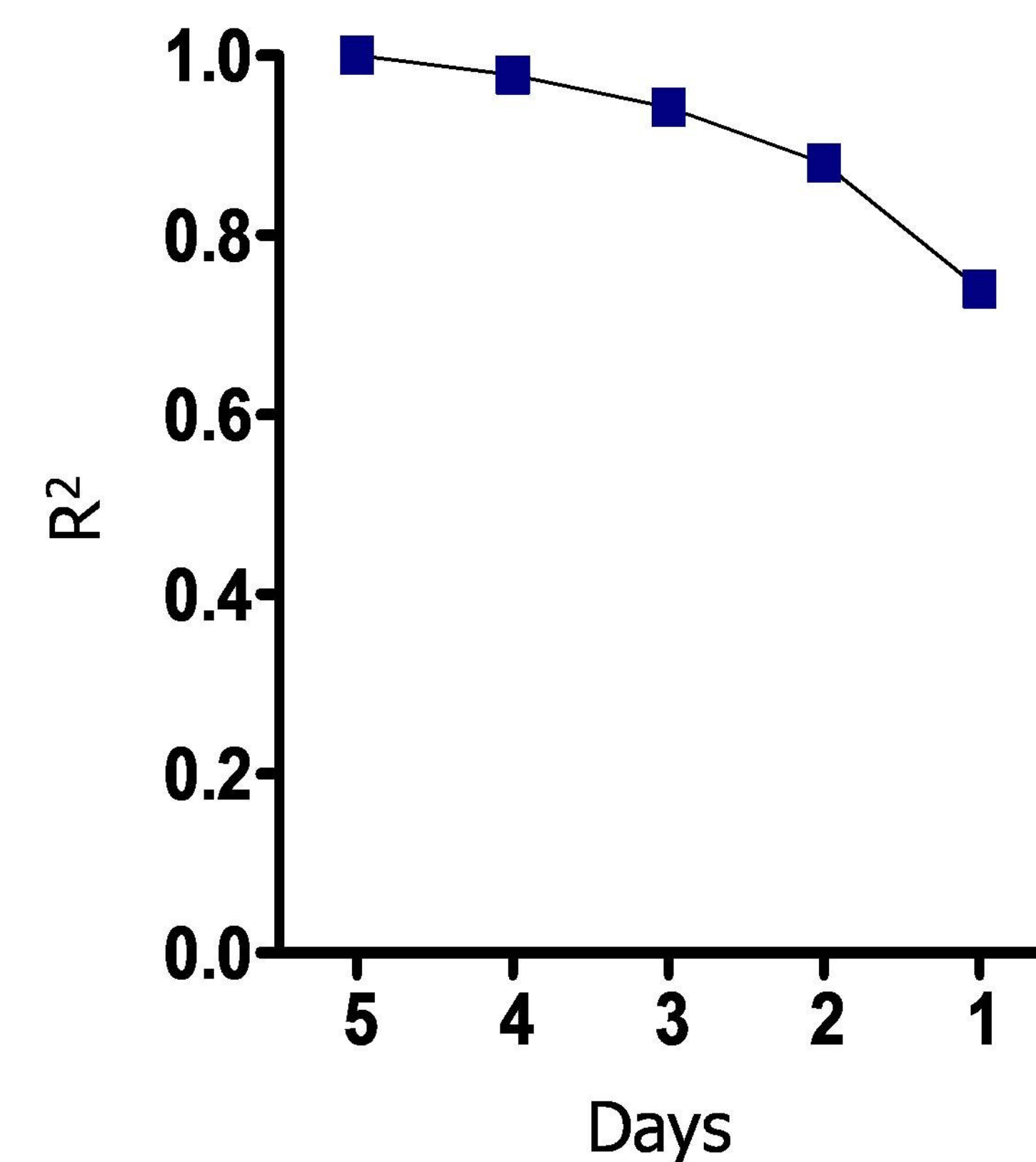
Cows spent 11.0 ± 2.1 h/d lying down, ranging from 9.5 to 12.9 h/d across farms, and from 4.2 to 19.5 h/d between individual cows



What is a good sample size?

Compared the overall daily lying time (5 d/cow and 44 cows/farm) to estimates generated from:

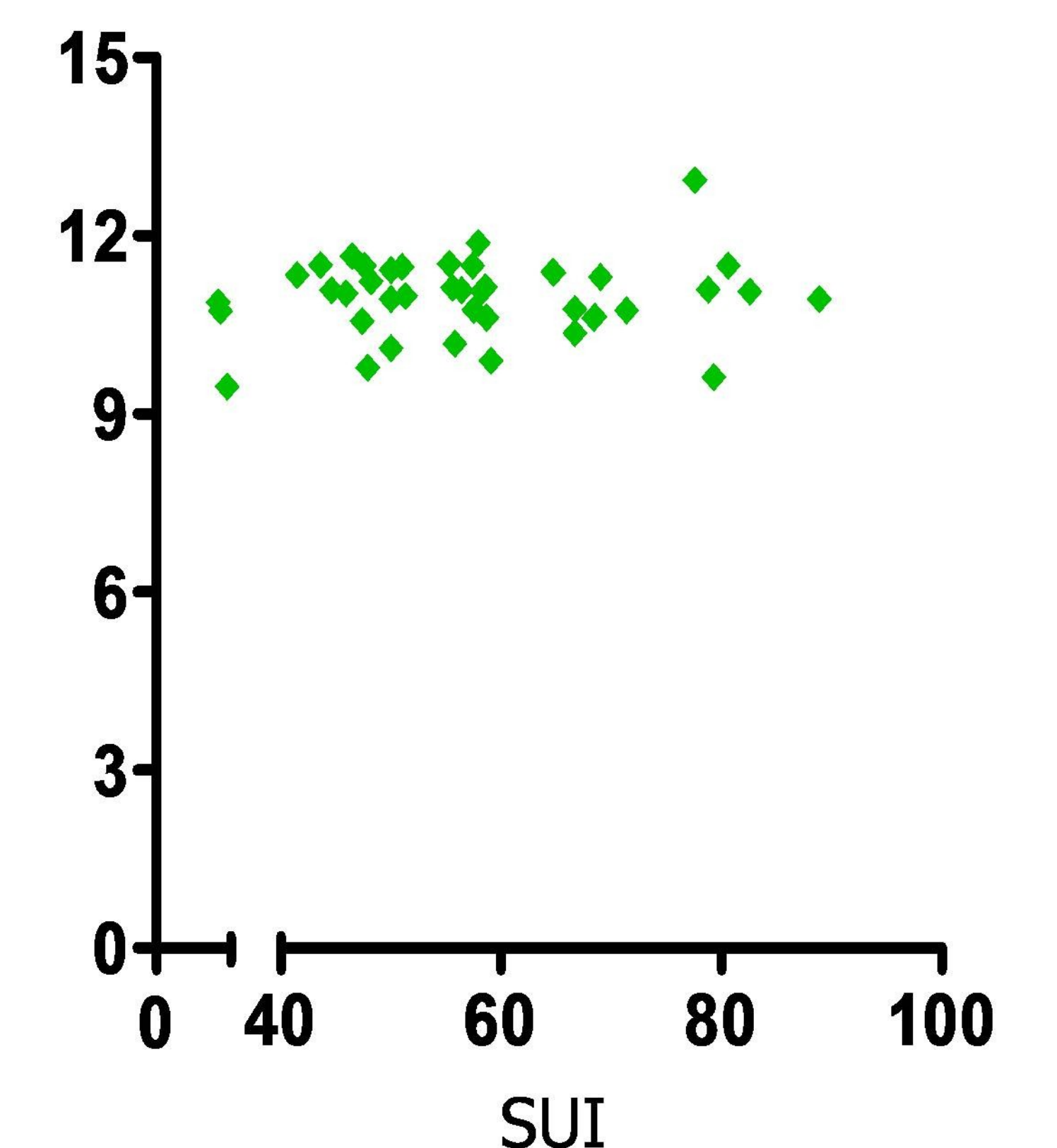
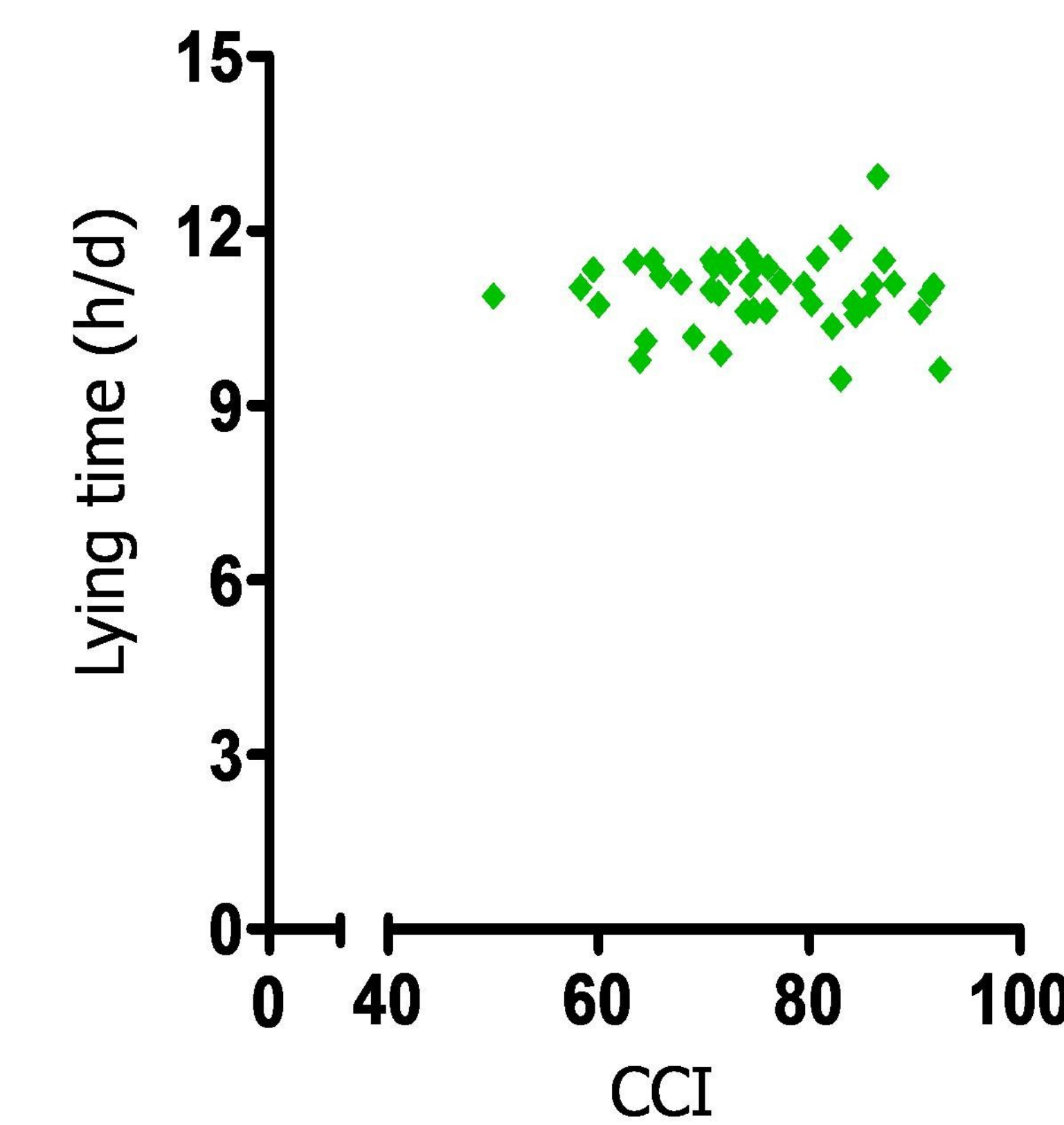
- 4, 3, 2, or 1 d/cow
- 40, 30, 20, 10, 5, or 1 cow/farm



Monitoring fewer days and fewer cows reduced the accuracy of estimates of lying time (h/d)

Are cow comfort indices reliable?

Compared daily lying time to CCI and SUI generated from a single scan observation at 2 hrs before milking



There was no association between lying time (h/d) and CCI ($R^2 = 0.00$, $P = 0.1$) or SUI ($R^2 = 0.01$, $P = 0.5$)

- Variation in the lying time of individual cows within farm was greater than differences across farms
- Reliable estimates of lying time on commercial dairy farms can be generated using 2 to 3 d of continuous recordings (1-min intervals) from 30 or more cows per farm
- The CCI and SUI derived from a single observation are not recommended as methods of assessing lying behavior