Effects of a separate offer of hay besides TMR on feeding and rumination behaviour in dairy cows
Using feed intake behavior and feed bunk attendance to detect dairy cow health issue at an early stage
Paolo Berzaghi, Giulio Cozzi, Flaviana Gottardo, Marta Brscic
Depeartment of Animal Medicine, Production and Health, Viale Università 16, 35020 Legnaro, Italy
paolo.berzaghi@unipd.it

Dairy cows eating habits are fairly constant and changes in normal behavior may reflect changes in their hormonal (heat) or health status. Twelve cows were fed a total mixed ration (TMR) once a day and feed intake and feed bunk attendance were monitored by an automatic system, with mangers placed on electronic scales (Biocontrol System A/S, Grimstad Gred, Norway). The number of mangers was equal to the number of cows and animals had free choice to visit any manger. Feed bunk attendance was recorded by an antenna placed in front of the mangers detecting the collar neck tag. During the trial, one cow developed displaced abomasum that was detected by the farm personnel only two days after its onset when milk production had dramatically dropped. The cow was then removed from the trial and properly treated. Data recorded for this cow for 9 days of trial were used in the current study. Normal daily intake and attendance pattern were observed on days 1, 2, 3, 4, 6, and 7 and these data were compared to those on days 5, 8, and 9 when the cow had an intake lowered of about 25%. Cumulative time of manger attendance and as fed TMR intake (TMRI) at each hour after feeding were modelled using an asymptotic first order exponential model (y=a+b(kt*t); y= attendance time or TMRI; t= time in hours). The model explained 86% and 92% of variability of intake and attendance, with a tendency to underestimate both intake and attendance during the first 6-7 hours after feeding, but fitted correctly for the remaining time of the day. By predicting the cow behavior based on the normal day it was possible to identify that attendance was below 95% confidential limits (C.L.) after 9 and 8 hours from feeding on day 8, and 9, but it was still classified as normal or within the limits on day 5. Cow TMRI was below confidential limits after 3, 4, and 1 hour after feeding on day 5, 8, and 9, respectively. Compared to mangers attendance, measurement of intake was more sensitive in detecting the problem at an early stage on all three days. However, a simple and cheaper system measuring the attendance at the manger could help farmers to better detect and manage health issues of individual cows at a much earlier stage than the farm personnel, reducing animal distress and costs related to late diagnosis

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