

Morpho 3D: a new device to register and analyze 3D shapes of animals

A. Caillot, C Allain, P Faverdin, JM Delouard, L Delattre, Y Le Cozler

Abstract

Monitoring both growth and body condition is one of most essential tool in modern dairy farms for optimal management, but it is rarely used in most commercial farms. Monitoring is generally performed thanks to body weight, body condition score (BCS) and conformation measurements. However, because of the difficulties to implement and use them in the farms, they are not very common. Modern technologies based on 3 dimensions image analysis may be a solution for such problems. The aim of the present work was to test and to validate tools that offer the possibility to register and analyze 3D shapes of animals. Manual measurements of 30 dairy Holstein cows were performed and included: withers height (WH), heart girth (HG), chest depth (CD), hip widths (HW), backside width (BW) and ischial width (IW). They were then compared to those measured with a device allowing recording of complete 3D shape of cows (Morpho3D). Correlations between Morpho3D and manual measurements were high: 0.89 for CD, 0.82 for HW, 0.78 for HG, 0,76 for BW, 0,63 for IW and 0,62 for WH. Reproducibility variation coefficients were around 2.8 % for Morpho3D. New coming development open new opportunities for dairy herd management, thanks to the possible determination of animal body volume and surface.