Livestock3D

ACCURATE BODY CONDITION SCORING

EARLY LAMENESS DETECTION

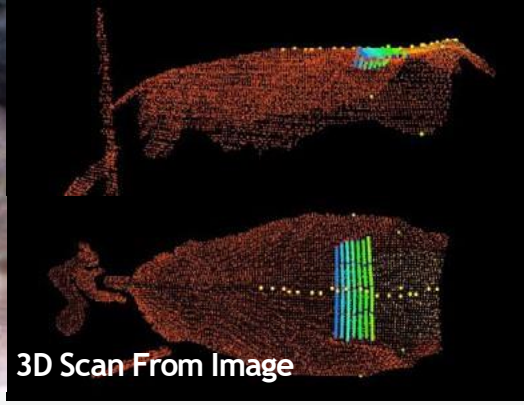
INCREASES FEED EFFICIENCY

ENHANCES PRODUCTION

MILK

Livestock3D

3D BIOMETRIC MONITORING SYSTEM



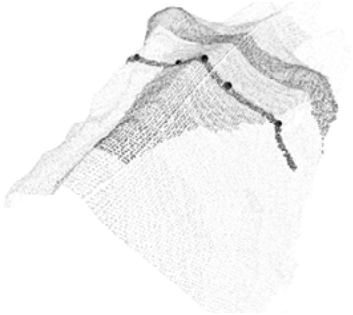
Livestock 3D

Early detection of lameness within your herd could save you hundreds of dollars in treatment costs and production loss. Lameness inflicts significant economic losses. A one-point rise in lameness score results in a 1.2-pound daily milk loss, translating to a $69.54 deficit per affected cow over the lactation. Additionally, lameness impairs reproductive performance, costing an estimated $90 to $300 per lame cow annually due to reduced conception rates and extended calving intervals.

Our Livestock 3D biometric monitoring system assists in detecting changes in your animals' health, allowing you to treat them in a timely manner and ultimately protect your bottom line. This non-intrusive camera system allows you to optimize nutrition, enhance animal well-being all while being environmentally sustainable and improving your farm profitability.

WHY IS BODY CONDITION CHANGE IMPORTANT?

Cows respond to changes in body condition, termed 'dynamic body condition', rather than a specific absolute condition. Hormones react to shifts in this condition, not at a fixed point. Continuously measuring Body Condition Score (BCS) is crucial for adjusting cow feed according to their metabolic changes.



Cattle metabolism responds to fluctuations in weight and condition rather than static values. Nutritionists need to make timely adjustments based on these changes to enhance decision-making impact. Utilizing 3D cameras enables the quantification of these variations, facilitating necessary dietary and management strategies modifications to achieve desired animal production and well-being goals.

- Alvaro Garcia, PhD. | Livestock Dairy Nutritionist

UNIVERSITY STUDY* HIGHLIGHTS:

- The advantage of BCS automation is that it provides objective, frequent, and accurate BCS with a higher degree of sensitivity compared with more sporadic and subjective manual BCS.
- Cows that lost BCS during the dry period had increased odds of developing sub-clinical ketosis, metritis, and transition diseases.
- Experimental results show that 3D imaging can serve as a new accurate method for non-contact body measurement of livestock.
- Studies found that the lameness of dairy cows can be correctly detected through analysis of the curvature features of dairy cows' backs.
- Using 3D imaging, a recent study tracked cows' body growth, across their first, second, and third or more lactations. Growth changes dominated most of the body weight gain irrespective of lactation. This study stressed ongoing cow growth even into their third lactation and the effectiveness of 3D imaging in monitoring it.

*Truman, C. M., Campler, M. R., & Costa, J. (2022). Body Condition Score Change throughout Lactation Utilizing an Automated BCS System: A Descriptive Study. Animals, 12(5), 601.

Ruchay, A., Kober, V., Dorofeev, K., Колпаков, В. И., & Мирошников, С. А. (2020). Accurate body measurement of live cattle using three depth cameras and non-rigid 3-D shape recovery. Computers and Electronics in Agriculture, 179, 105821.

Jiang, B., Song, H., Wang, H., & Li, C. (2022). Dairy cow lameness detection using a back curvature feature. Computers and Electronics in Agriculture, 194, 106729.

Daros, R. R., Eriksson, H. K., Weary, D. M., & Von Keyserlingk, M. (2020). The relationship between transition period diseases and lameness, feeding time, and body condition during the dry period. Journal of Dairy Science, 103(1), 649-665.

Xavier, C., Cozler, Y. L., Depuille, L., Caillot, A., Lebreton, A., Allain, C., Delouard, J., Delattre, L., Luginbühl, T., Faverdin, P., & Fischer, A. (2022). The use of 3-dimensional imaging of Holstein cows to estimate body weight and monitor the composition of body weight change throughout lactation. Journal of Dairy Science, 105(5), 4508-4519.

KNOW YOUR HERD

Livestock3D

The Livestock 3D cameras remotely monitor cows several times a day, capturing and analyzing real-time changes in body condition score, weight, height, and identifying signs of lameness. This comprehensive monitoring ensures attentive care and immediate attention to any variations in the animals' health and necessary changes to their feeding program.

FULL LOCOMOTION ANALYSIS

By detecting and recording all skeletal traits during movement, Livestock 3D enables the early identification of issues such as lameness. This precision facilitates timely interventions that reduce financial losses in dairy production.

TOP VIEW MEASUREMENTS

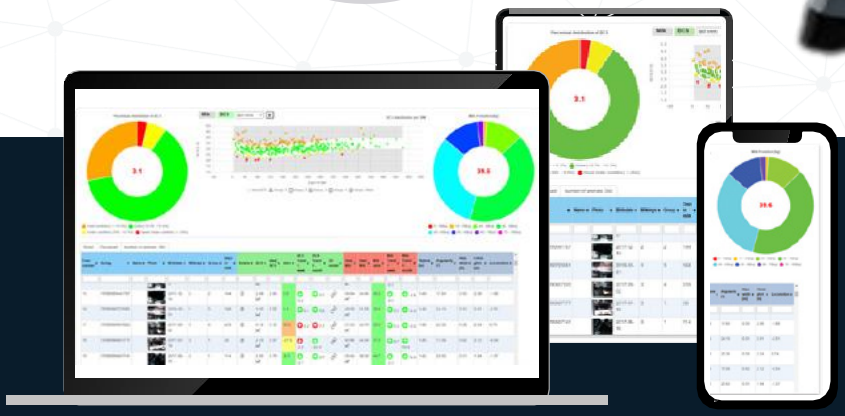
Is your heifer's target growth rate being met? Regular Livestock 3D measurements of linear traits, compared against breed standards, guarantee alignment with your intended breeding objectives for your herd.

BODY CONDITION

Livestock 3D assesses each cow's body condition score using a customized scale, allowing for frequent and unbiased reporting.

BODY WEIGHT

Livestock 3D accurately and stress-freely measures body weight for both animal comfort and operational ease.



EASY ACCESS

Our web based app allows you to access your herd data easily from wherever you are!
Simply log in from your computer, tablet, or phone and get real-time data on each cow!

BUILT TO LAST

With an IP68 protection rating and a patented cooling and dust/water protection system, Livestock 3D offers the highest level of robustness and operational continuity in any environment without sacrificing performance.

CPU	Intel Atom® x7-E3950
Neural Processor	3 x Intel® VPU 2485
System Memory	8GB LPDDR4
Storage Capacity	128GB
Connectivity	WiFi 802.11 AC 2t2R + Bluetooth 4.2 (BLE) Intel WGI211AT Gigabit Ethernet
Depth Sensor	30 Mio 3D Points per Second
RGB Sensor	1280 x768 pixel 32 bit, 30 fps
Thermal Sensor	Longwave IR (8-14µm), sensitivity <0.050° C, radiometric
Power Requirement	12VDC 5A

EASY INSTALLATION

The installation of the Livestock 3D camera system is quick and easy with only a few simple requirements. Our team is happy to assist in finding the perfect location for the system and help with installation.

SYSTEM REQUIREMENTS

In order to ensure accurate data collection of your herd, the following items are required:

- High speed internet connection
- Solid, flat surface for camera mounting
- Exit area where cows can walk through individually

Livestock3D

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