

# PEER REVIEWED RESEARCH OF THE VYTELLE SENSE™ IN-PEN WEIGHING POSITIONS

## INTRODUCTION

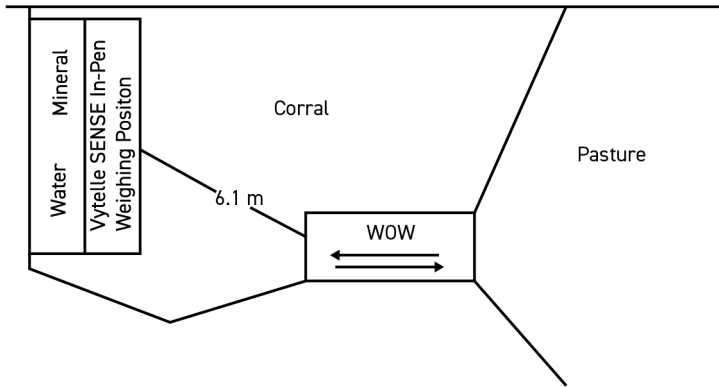
Traditional methods of body weight collection for management or research purposes are collected using consecutive day chute weights or 16-hour shrunk chute weights to account for biological differences in individual animal rumen and gut fill. Neither method is ideal in a practical production setting due to the labor intensiveness, stress, danger of injury and disruption to normal animal behavior. Vytelle's In-Pen Weighing Positions, part of the Vytelle SENSE™ system, continuously collect partial body weights of cattle as they visit the water trough. Using the In-Pen Weighing Positions to continuously collect individual animal body weights reduces animal stress and labor requirements, while maintaining normal animal behavior and increasing the number of body weight observations. The purpose of the study completed by the Wells et al. (2021), was to understand the accuracy of the In-Pen Weighing Positions to determine whether they are valuable for use in production management and, or research settings.

## METHODS AND MATERIALS

Wells et al. (2021) conducted their study in 2020 in Ardmore, Oklahoma at the Noble Research Institute Headquarters farm. Weights were collected from 88 English-cross steers across 8 different paddocks. The initial analysis compared stationary chute weights and walk-over-weighing system weights to determine whether the walk-over-weighing system could be used as a proxy for the chute weights. The walk-over-weighing system was developed by Noble Research Institute staff by mounting Tru-Test scales under a regular chute scale. The second part of the analysis utilized the standardized weighing method set forth by the initial analysis to compare the walk-over-weighing system to In-Pen Weighing Positions. All steers, included in both analyses, ranged in body weight from 99 to 506 kg (218 lb. to 1116 lb.) and were split into eight different body weight groups, with 11 animals in each group. The groups were maintained on eight different bermudagrass paddocks. The initial analysis was conducted over a 30-day period to compare weights from the walk-over-weighing system and the conventional static chute (Wells et al. 2021). The second part of the analysis was also conducted over 30 days, following a 14-day acclimation period.

Following validation of the walk-over-weighing system, each of the eight paddocks was equipped with a walk-over-weighing system and In-Pen Weighing Positions in front of a water and mineral attractant. To access the In-Pen Weighing Positions, animals had to first cross the walk-over-weighing platform to ensure that data points were collected from each at similar times. The paddock layout is shown in Figure 1. Observations were paired on 2-minute intervals, and valid individual animal body weights from each system were compared daily. On average, each animal had 1.7 paired weights included in the analysis on each day, for a total of 3,129 data points (Wells et al. 2021).

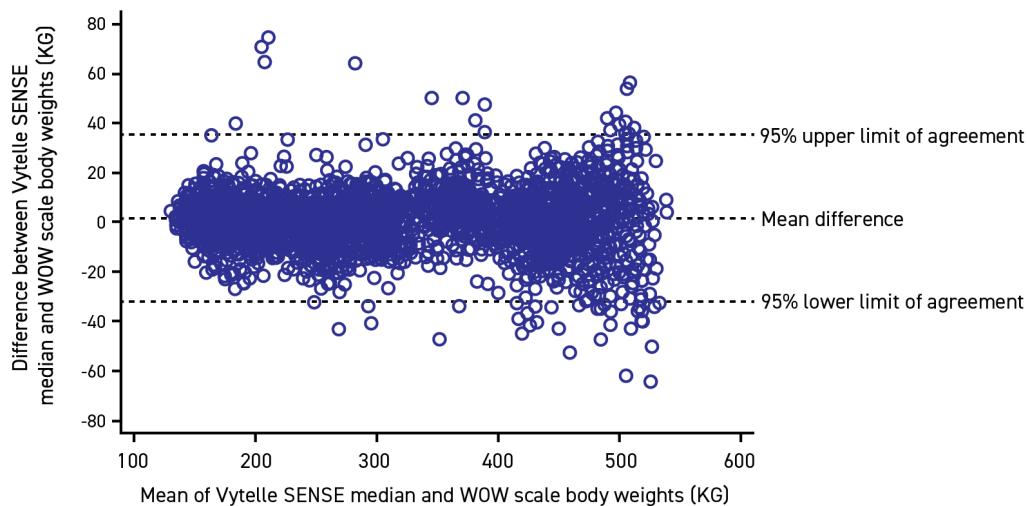
**WELLS ET AL. (2021) CONCLUDED THAT IN-PEN WEIGHING POSITIONS ARE AN EFFICIENT WAY TO COLLECT BODY WEIGHTS FROM CATTLE WITHOUT THE TIME, ANIMAL STRESS, LABOR AND RISK ASSOCIATED WITH COLLECTING CONVENTIONAL CHUTE WEIGHTS.**



**Figure 1.** Paddock layout and location of the Vytelle SENSE system's In-Pen Weighing Positions and the walk-over-weighing system (Tru-Test Ltd.) (Wells et al. 2021).

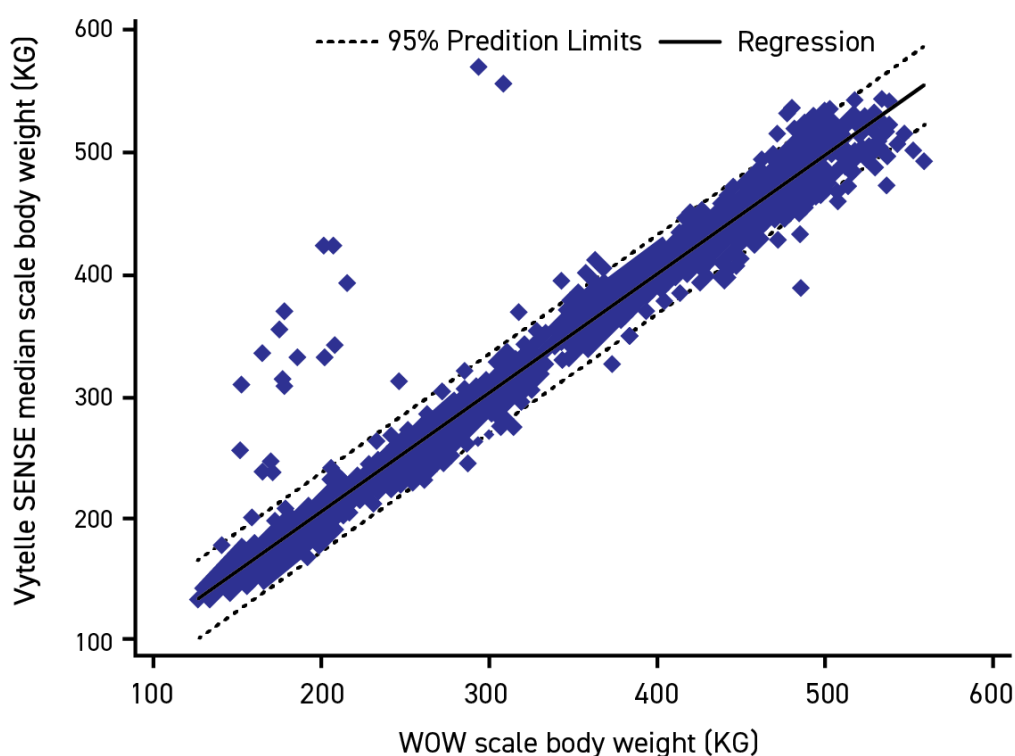
## RESULTS AND DISCUSSION

There was a significant positive linear relationship between the walk-over-weighing weights and the conventional chute weights, with nearly perfect agreement in the weights between the two systems; indicating that the walk-over-weighing system was suitable for use as a proxy for chute weights. Analysis of paired walk-over-weighing and In-Pen Weighing Position weights also demonstrated significant positive linear relationships. Wells et al. (2021) conducted a Bland-Altman plot to demonstrate the difference between In-Pen Weighing Position weights and walk-over-weighing weights, Figure 2 shows the results. The results indicate that 1.2% of In-Pen Weighing Position weights were outside the 95% limit of agreement, for an absolute difference of 35 kg (77.16 lb) and -32 kg (-70.55 lb) between the two weights. This indicates strong agreement between the two weights.



**Figure 2.** Bland-Altman plot showing the difference between mean In-Pen Weighing Position median weights and walk-over-weighing weights (Wells et al. 2021).

Furthermore, Wells et al. (2021) demonstrated that there is a significant linear relationship ( $R^2 = 0.9775$ ,  $P < 0.0001$ ) between the In-Pen Weighing Position weights and walk-over-weighing weights, which is shown in Figure 3.



**Figure 3.** Regression analysis of In-Pen Weighing Position weights and walk-over-weighing weights ( $R^2 = 0.9975$ ,  $P < 0.0001$ ) (Wells et al. 2021).

## CONCLUSION

The strong alignment among the static chute weights and the walk-over-weighing weights allowed the walk-over weighing weights to confidently be used as a proxy for chute weights to be compared with In-Pen Weighing Position weights. Furthermore, the strong association among paired In-Pen Weighing Position weights and walk-over-weighing weights indicates the ability to use In-Pen Weighing Positions in place of chute weights. Wells et al. (2021) concluded that In-Pen Weighing Positions are an efficient way to collect body weights from cattle without the time, animal stress, labor and risk associated with collecting conventional chute weights. Wells et al. (2021) also indicated that the accuracy of the In-Pen Weighing Position weights could allow them to be used to monitor cattle daily, to collect body weights for management decisions, and to make animal marketing decisions. Vytelle's Beef Marketing and Beef Genetics Programs are supported by the findings of Wells et al. (2021), as the In-Pen Weighing Positions can be used to collect body weights of cattle during a feed efficiency trial and to monitor body weights of cattle in the feedlot.

## REFERENCES

Wells, R. S., S. M. Interante, S. S. Sakkuma, R. S. Walker and T. J. Butler. 2021. Accuracy of the Vytelle SENSE In-Pen Weighing Positions. *Appl. Anim. Sci.* 37:626-634.



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Vytelle is a precision livestock company reshaping how cattle producers worldwide optimize their herds. Through Vytelle's integrated technology platform, generations of genetic gains can be made in just a few years. This allows producers to sustainably deliver more protein with fewer inputs, helping to ensure meat and milk are viable, competitive food choices for future generations.

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