Accuracy Analysis of Scales Using 4 Load Cell Sensors on Coconut Grating Machine

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ABSTRACT

This study evaluates the accuracy of a coconut shredding machine scale using four load cell sensors by comparing the measurement results against standard loads (100 g to 500 g). From three experiments, the results show that the errors vary: load cell L1 has the largest error of 5.1558% at 400 g and the smallest 0.0047% at 500 g; L2 the largest error of 7.0947% at 500 g and the smallest 0.9900% at 100 g; L3 the largest error of 3.6233% at 300 g and the largest negative error of -5.6400% at 200 g; L4 the largest error of 4.7167% at 500 g and the largest negative error of -4.9511% at 300 g. In conclusion, the four load cell sensors are quite accurate with variations in error between sensors. In conclusion, the four load cell sensors are quite accurate with variations in error between sensors, and regular calibration, even load placement, sensor protection, data analysis with software, and further testing to improve accuracy are recommended.

Keywords: *weighing accuracy, coconut shredding machine, load cell sensor.*