

To improve efficiency, dairy farmers monitor the inputs and outputs of their cows based on data collected by sensors. Currently the main sources for this data are the given food and information about the milk (composition and volume). This data helps the farmer make better decisions regarding animal welfare and feeding practices. However, one of the outputs of the cow is currently not monitored, namely the manure.

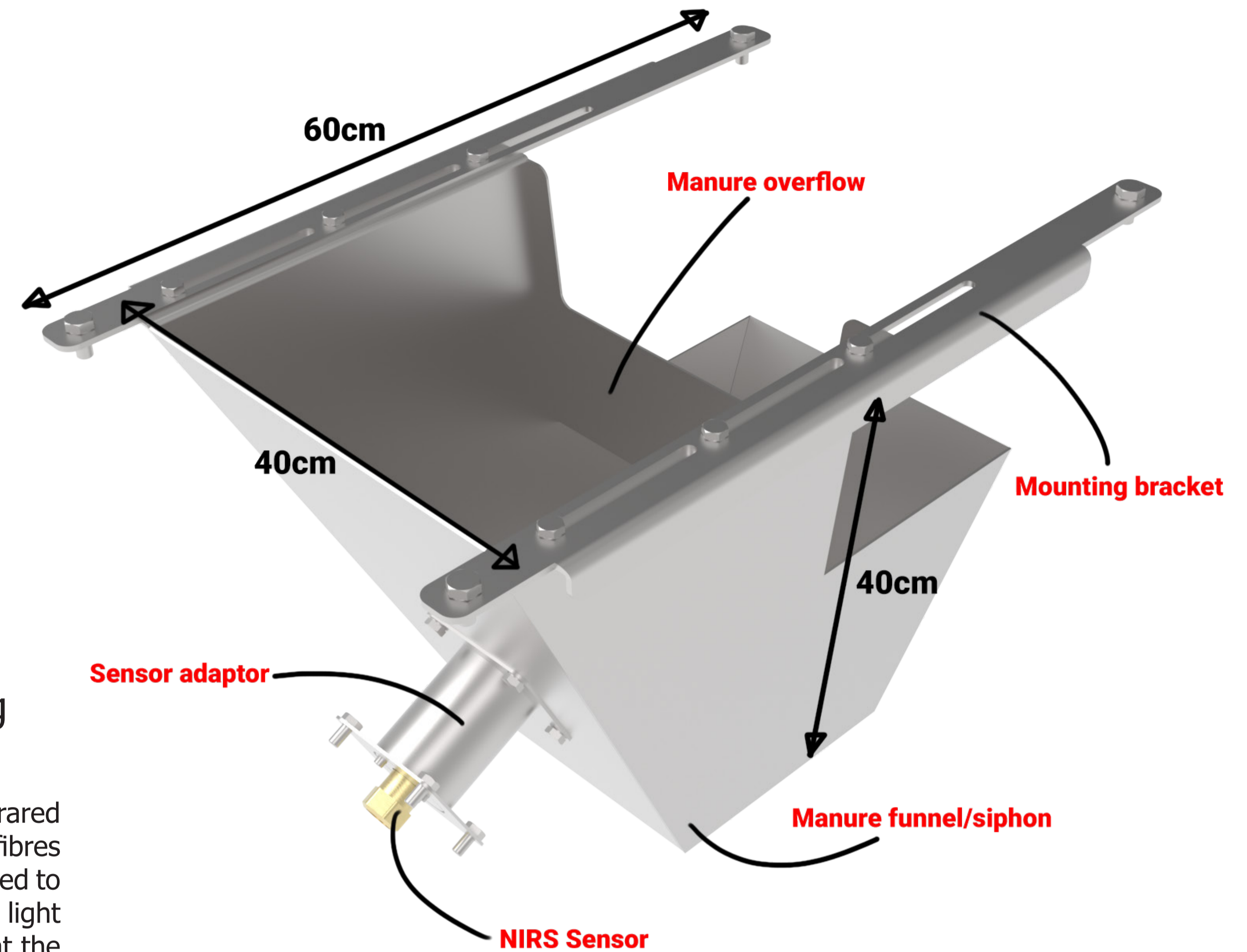
The manure of the cow can contain additional nutritional information. Dairy cattle have a nutrient excretion rate of around 50 – 90% which is influenced by overfeeding. By monitoring the manure of a herd, the farmer can reduce nutrient excretion by receiving better and new feedback regarding feed efficiency.

Lely Manure Check

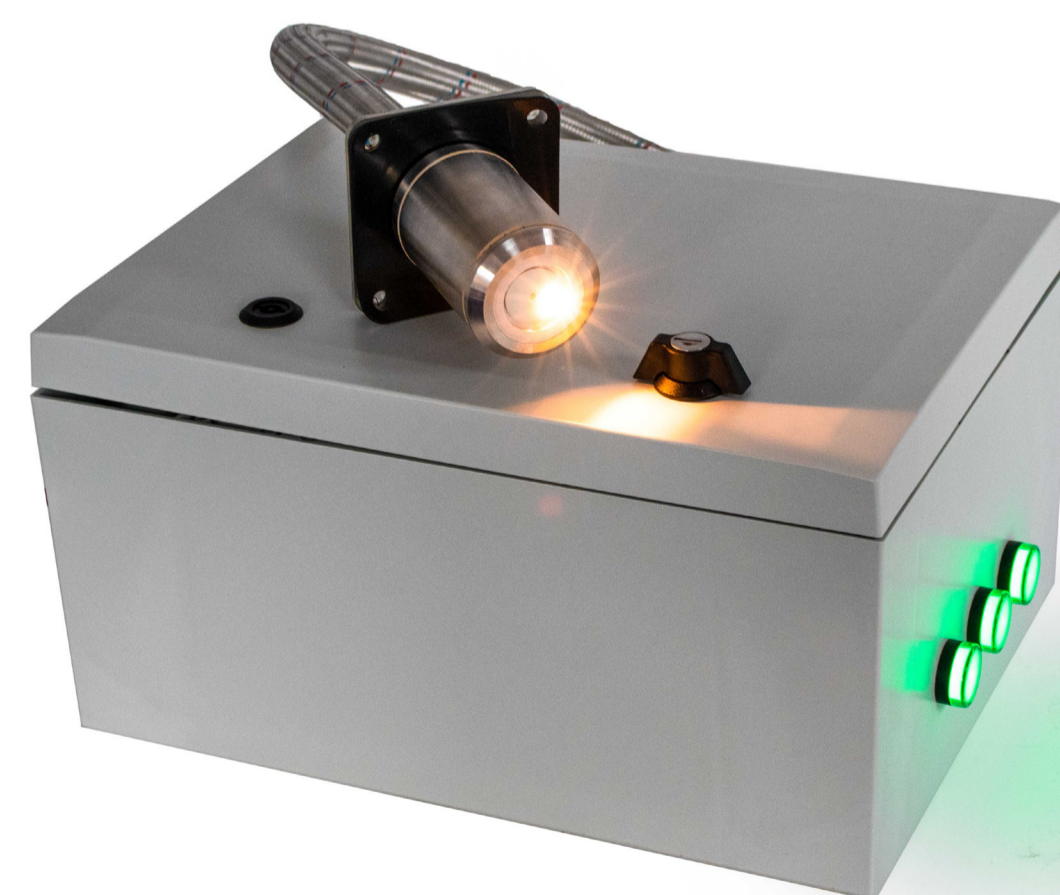
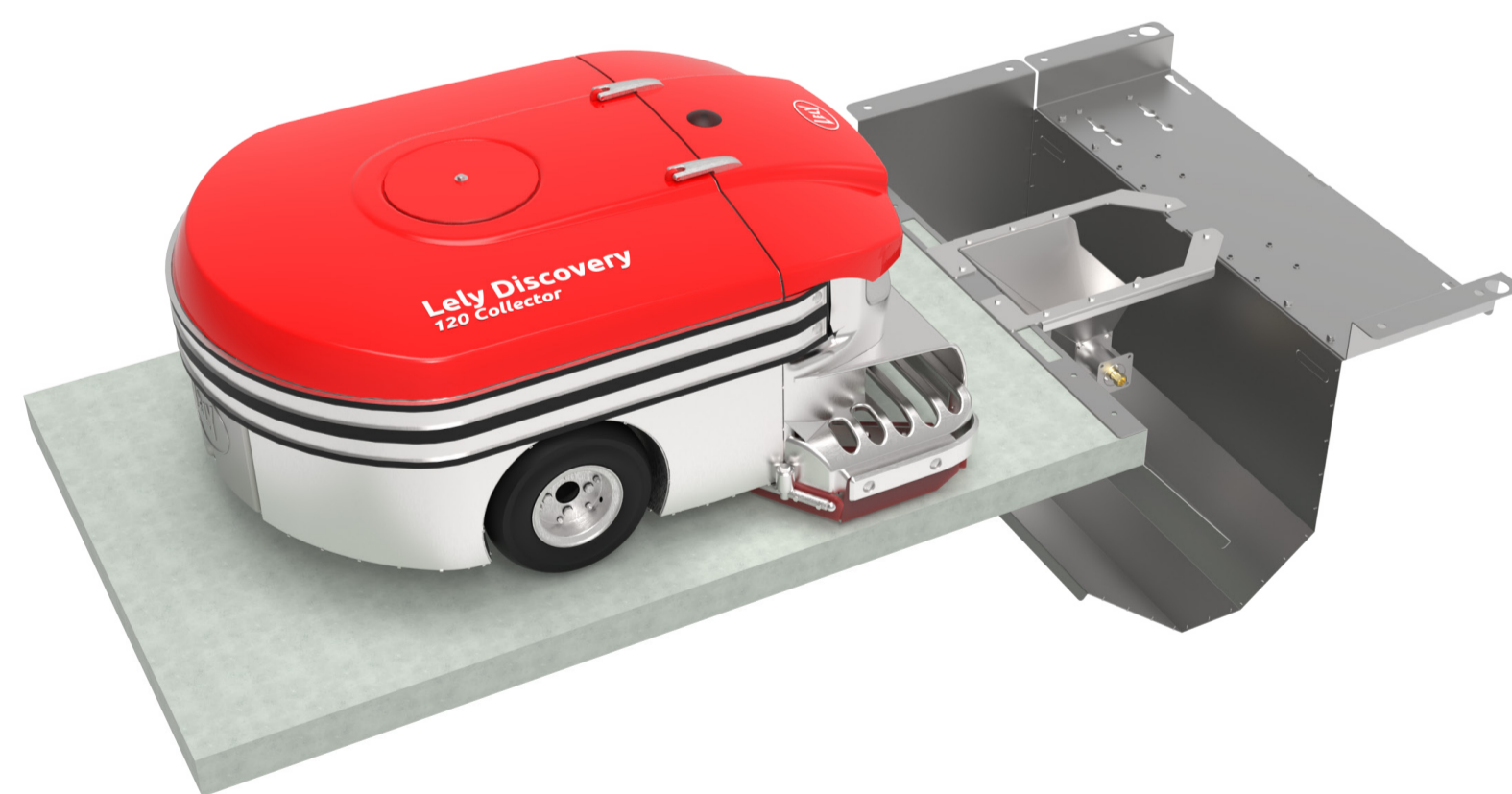
Optimizing feed for Dairy cattle with the help of Manure Monitoring

Lely already has a product that works with manure called the Discovery Collector. The Collector sucks up the manure while navigating through the barn and drops it in the dumping pit. The dumping pit is connected to a big tank that is situated under the barn. In this tank the manure is temporarily stored and from time to time this tank is emptied. In the case of the Lely Manure Check the manure is dumped inside a funnel where the measurements take place.

The Lely Manure Check makes use of a Near Infrared Spectroscopy sensor to measure protein, starch, fibres etc. inside the manure. A NIRS sensor can be used to determine the composition of a sample. Using a light source and a NIRS sensor, it is determined what the light reflection of a sample is for certain frequencies. The amount of light that is absorbed per frequency can be linked to what the distribution of components is in that sample.



All the manure that is cleaned from the barn will eventually end up in a storage tank. The collector will drive to the dumping pit and drop all its manure. By placing a funnel inside the dumping pit all the manure from a herd can be monitored.



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Manure Monitoring
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Integrated Product Design

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