Remote Monitoring of Cattle Performance: A Path Forward to Long Term Sustainability

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Background: Feed intake, growth, carcass yield and fatness, methane production and cattle behaviour can be measured by a range of technologies to identify the best animals for breeding or production, or to identify those animals which are sick and require treatment. Currently this requires specialist equipment that are relatively invasive and require significant handling and labour. A new generation of monitoring technologies are based on imaging. Imaging systems offer a number of potential advantages: reduced labour, increased accuracy of measurement or prediction, new phenotypes, and improved animal welfare. Some of these advantages are achieved by collecting data on the animals remotely, or without contact or handling. Other advantages come from bio-identification and the collection of large amounts of data on each animal (potentially 24/7 and over the lifetime of the animal) and comparing each record with the historical records available on the animal.

Goal: to improve monitoring and measurement of performance traits in both drylot and extensively managed cattle herds

Objectives: to validate the remote monitoring of cattle using multispectral cameras to determine health, growth and production efficiency. Short term objectives include:

1) Test the performance of multispectral cameras in drylots (in winter) for cattle identification and real-time assessment of growth and health, and abnormal behaviours
2) Test the use of multispectral cameras with Unmanned Aerial Vehicles (UAVs) to provide remote identification and real-time assessment of growth and health
3) Integrate data collection from other remote sensors (e.g., pedometers, rumen bolus and/or intelligent tags)

Benefit: The data collected by this method of remote monitoring could be used to interpret behaviour in relation to health or feed efficiency, and to generate models to predict weight, carcass composition and ultimately the value of the animal. Such a system will support improved competitiveness and sustainability and the development of precision beef production in Alberta.

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