



## **2021-092: Benchmarking imaging and sensor technologies for capturing novel phenotypes to improve sustainability of the beef industry**

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**A major impediment to implementing phenotyping in the beef industry is the cost and difficulty of capturing the phenotypic info, especially regarding fertility, feed efficiency, disease susceptibility, welfare related traits, environmental footprint, and carcass/beef quality. Many are multi-variate and have unknown heritability. Current methods are inefficient and labour intensive as they require animal handling and multiple trips through the shoot.**

**This project will examine technologies to monitor cattle performance remotely by validating the information using the current "gold standard" measurements. This includes activity monitors, feed bunk and water proximity sensors, GIS/GPS data, 3D imaging, and other tech to describe animal behavior, puberty/breeding predictions, disease predilection, resilience, and other physical attributes over the course of three years. The study will include an initial study at the Livestock and Forage Center of Excellence using 75-100 yearling heifers, 100 pregnant heifers, 200 multiparous cows, and 15-20 bulls. Similar work will be verified on 700 cow/calf pairs at the University of Alberta in a tandem study.**

**The researchers will also note the cost of purchasing and operating the necessary equipment for this work, to complete an economic analysis.**