

Efficient Dairy Genome Project

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This large genomics research project is targeting two novel traits in dairy cattle, feed efficiency and methane emissions. These two traits are not currently selected for in the industry. The traits are expensive and difficult to measure accurately but this project is addressing this issue by collecting data from three locations in Canada, including SunAlta Farms in Ponoka, AB. The Canadian data is being combined with similar measurements from our international partners to create a very large database. This secure database, housed at CDN, will be used to develop and implement a routine genomic evaluation service for feed efficiency and methane emissions that will be available to producers and the AI industry.

The project is also generating whole-genome sequences for 50 Holstein bulls which will be combined with existing sequence data on another 451 Holstein animals from previous projects. This information will be used to find variations in the genome that may be contributing to or affecting these traits. Such variants will help us understand the underlying biology of these traits and/or serve as genetic markers to select desired animals.

In addition, research is being conducted to assess the public's views on genomic technology and whether they would be willing to pay more for dairy products from animals that are more feed efficient or produce less methane.

The most recent updates and current research results will be presented for this 4-year research project.

Implications: *Increasing* feed efficiency and *decreasing* methane emissions in dairy cattle while maintaining current milk production will help to address the increasing demand for high quality milk while reducing feed costs for producers and reducing the overall environmental impact of the dairy industry.