**Graduate Student in Cattle and Environmental Stress**

*Project Description*

Stressful maternal events during pregnancy can modulate the development of fetal tissues, with potential long-term effects on the offspring, perhaps due to the involvement of the hypothalamic-pituitary-adrenal (HPA) axis and increased cortisol production. Thermal stress during various stages of pregnancy can alter fetal development with potential long-term damaging effects on fertility in replacement heifers. Most reports about thermal stress are focused on high temperatures in dairy cattle (heat stress), with few reports on beef cattle. Moreover, there is a scarcity of studies on the consequences of low temperatures in either dairy or beef cattle. Irrespective of the cause of stress, deviation from ‘normal’ physiological conditions during early stages of development has the potential to modulate offspring survival and growth, with direct impacts on long-term productive and reproductive consequences. In this project we aim to explore the effects of maternal thermal stress (heat and cold) on neonatal survival, growth and reproductive parameters in cattle using two approaches:

* Systematic review (and meta-analysis) of literature on maternal thermal stress (high and low temperatures) in dairy and beef cattle on growth and fertility.
* Database analysis approach using dairy cattle production and Canadian climate databases spanning from 2000 to 2020 to identify periods of thermal stress during the 1st, 2nd, and 3rd trimesters of pregnancy to evaluate the effects of thermal stress on replacement heifers.

*Graduate student position*

Applicants with a degree in veterinary, animal science, biostatistics or related areas will be considered and should have an interest in analytical methods, epidemiology and/or animal reproduction. They should have good communication skills (spoken and written) and the ability to work independently. Previous experience working with large datasets or statistical methodologies would be an asset. The successful applicant will receive training on systematic reviews and meta-analysis, advanced statistics, epidemiology and reproductive physiology that will equip them with practical, analytical and knowledge-synthesis skills. Also, they will be joining a vibrant veterinary research community that will provide support and opportunities for further professional development. This project will provide an annual stipend of CAD 24,000 and the student will be supported to apply for further funding to supplement this.

UCVM is a dynamic veterinary faculty in Western Canada committed to strengthening the connections between animal health, public health, and the environment. UCVM faculty is focused on fostering collaborative research, teaching and service. For detailed information please check [www.vet.ucalgary.ca](http://www.vet.ucalgary.ca). Calgary is a vibrant, multicultural city located near the Rocky Mountains, Banff National Park and Lake Louise and offers an enormous opportunity for outdoor activities both in winter and summer.

The position will remain open until filled but early application is suggested. Please contact **Dr Juan Hernandez Medrano** ([juan.hernandezmedran@ucalgary.ca](mailto:juan.hernandezmedran@ucalgary.ca)) for any additional information or informal enquiries.