



University of
Lethbridge

News Release

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Research partnership spurs progress in study that sees seaweed added to cow diets

A partnership between the University of Lethbridge and [Agriculture and Agri-Food Canada](#) (AAFC) provides exceptional opportunities for students to conduct interdisciplinary research in state-of-the-art labs and deliver significant results that can impact the entire agricultural sector.

“Our two institutions possess complementary research expertise,” says Dr. Trushar Patel, biochemistry professor and associate dean in the Faculty of Arts & Science. “Together, they not only foster the development of novel research programs but also provide unique training opportunities for both undergraduate and graduate students.”



“AAFC and the University of Lethbridge are aligned on agricultural research themes, which provides students and researchers with local access to cutting-edge research facilities,” says

Dr. Wade Abbott, an AAFC research scientist and adjunct professor at ULethbridge.

“Collaborating with the Patel lab over the years has provided a training environment that allows ideas to grow.”

Feeding cows seaweed to lower methane emissions

That was certainly the case for newly minted PhD Jeffrey Tingley (BSc '16, MSc '20, PhD '26). He was curious about how cattle and other ruminants digest seaweed, which has different cell walls than land-grown plants. While you won't often see many cows in Alberta eating seaweed, research has shown that adding it to their diet as a supplement can help lower methane emissions and provide some health benefits.

“While the majority of my research was based at AAFC, the partnership with ULethbridge played a key role in my academic development by offering mentorship, access to equipment and travel opportunities,” says Tingley. “These projects were a team effort. My co-supervisor, Dr. Trushar Patel, provided valuable guidance on project and manuscript design and support for attending international conferences, including the International Gut Microbiology Symposium.”

Working with Abbott, his co-supervisor at AAFC, Tingley partnered with Queensland University of Technology, Norwegian University of Life Science and industry partners, Beaver Meadows Farm and Cascadia Seaweed Corporation. He explored how the ruminant microbiome responded to unique seaweed cell wall polysaccharides in two research projects.

“In both studies, we were able to identify microorganisms that could digest these seaweeds and the enzymes they used for this process,” says Tingley, who is currently engaged in postdoctoral studies with Dr. Phil Pope at the [Queensland University of Technology](#) (QUT) in Brisbane. “These studies demonstrate that the ability to digest seaweed is widely dispersed as a latent trait.”

Tingley’s work resulted in two research articles in the prestigious journal Nature Communications titled: [Distribution of microbial carrageenan foraging pathways reveals a widespread latent trait within the ruminant intestinal microbiome](#) and [Alginate foraging is conserved in geographically and taxonomically distinct ruminant microbiomes](#).

The results show that an underlying ability to digest seaweed is present across geographically diverse animal and human gastrointestinal microbiomes, suggesting the potential of locally sourced, sustainable feed options to help address challenges associated with raising livestock in a changing climate.

To view online: <https://www.ulethbridge.ca/unews/article/research-partnership-spurs-progress-study-sees-seaweed-added-cow-diets>

Attached Photo: Jeffrey Tingley

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Our University’s Blackfoot name is Iniskim, meaning Sacred Buffalo Stone. The University is located in traditional Blackfoot Confederacy territory. We honour the Blackfoot people and their traditional ways of knowing in caring for this land, as well as all Indigenous Peoples who have helped shape and continue to strengthen our University community.