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About the project:

The project is a KESS funded MPhil which collaborates with Hybu Cig Cymru, our penultimate aim is to reduce the saturated fatty acid (SFA) content of red meat through manipulation of the microbial community that exists in the bovine rumen.

The rumen is an essential part of the bovine digestive system and contains a diverse microbial community which breaks down forage ingested by the animal. During the break down, rumen bacteria use enzymes known as lipases, which process fats, allowing them to be saturated.

In recent times, red meat has suffered negative stigma regarding its fat content, despite the many beneficial and essential nutrients it provides. The link between increased SFA intake and chronic diseases, such as Coronary heart disease, are well established and thus it is important that we limit our SFA intake whilst maintaining consumption of important nutrients.

As such, it is our aim at IBERs, Aberystwyth University, to enhance the beneficial polyunsaturated fatty acid (PUFA) content of meat and to decrease the amount of SFAs available for absorption in to meat and milk. We plan to do this using lipases and PUFAs themselves to inhibit the processes leading to saturation of fats (in this instance, lipolysis and biohydrogenation).

Thus far we have made great progress establishing that it is feasible to inhibit biohydrogenation using PUFA, and while these levels cannot be appropriately mimicked using enhanced forage, they may be achieved using enzyme supplements. The next step is to screen enzymes to find one suitable for use in the bovine rumen.