

Improving dairy cow health and productivity with a digital dental check up



The challenge

Most of us are aware that many animals get regular dental checks, but how many of us have spared a thought about dairy and beef cows? If cows can't chew properly, they waste food and loose nutrients.

In high-performance dairy cows in particular, there is growing evidence that teeth issues impact negatively on milk production, fertility, and weight. These dental issues are of consequence to the individual as well as the entire farming system, as overall animal health will be low, and welfare and financial losses could be significant.

To date, cow dental health is not monitored in the UK. This is not due to malice, but a lack of technology and understanding. While vets routinely carry out dental inspections on horses and family pets, there is no safe and easy way to check inside a cow's mouth.

The solution

Three key opportunities exist for improving dental health in cows:

- Developing tools for capturing information about teeth and gum health
- Creating a method for prioritising treatments
- Providing training

Ovation Agriculture is seizing these opportunities by developing tools for safely examining and treating cow mouths, as well as a digital platform to identify and prioritise necessary treatments.

Working with CENSIS

The Milk Round Technology Accelerator is supporting Ovation Agriculture to develop a demonstrator of the examination tools, in particular, a tool that will enable safe access to a cow's mouth. This is not the same as used for a horse as they have different shaped heads and where horses have top and bottom teeth, cows have no upper front teeth, and the front teeth they do have are fragile.

We are also exploring a low-cost method for a single person, such as a farmer, to very quickly capture the condition inside the mouth. This is where digital technology plays an important role, making use of the most recent imaging and software tools to create interrogatable dental records for each individual animal.

Following on from the work with CENSIS, Ovation Agriculture is hoping to run research trials to test the dental tools they have designed and quantify the benefit they provide to cattle and the wider production sector.

“Cattle chew their food then regurgitate and chew it again before they start digesting it. If they develop abscesses or infections, they're not able to get the nutrition they need, leading to decreased production, and health and welfare concerns. By ensuring their dental health is managed, we're able to give them a longer, more comfortable life and improve their productivity.”

Jillian Gordon, Founder, Ovation Agriculture

Benefits of cow dental health

Regular inspections would check for decay, gum health and mouth infections that can spread bacteria throughout the body.

- Ease discomfort
- Ensure an efficient use of feed
- Lower antibiotic use
- Increase longevity of the cow
- Protect yield

Awards

As well as founder Jillian Gordon winning Scottish Edge Young Edge in 2022, Ovation Agriculture were runners up in the KickStart category of the Converge Awards for academic innovation, winning a £7,500 prize. Converge executive director Adam Kosterka said Ovation Agriculture demonstrated the "forward-thinking, industry-specific innovation" that the organisation aimed to support.

He added: "By addressing an overlooked aspect of livestock health with cutting-edge technology, the company has the potential to make a significant impact on animal welfare and farm productivity across Scotland and beyond."

The Milk Round accelerator is hosted by CENSIS to assist individuals and SMEs to fast track innovative technologies from proof of concept to demonstration and testing. Accelerator winners receive a tailored support package to deliver products, processes or services to build digital capability and meet net zero targets. The programme is part of the UK Research and Innovation Strength in Places 'Digital Dairy Chain' project that aims to establish Cumbria and South West Scotland as a leader in advanced, sustainable and high-value dairy manufacturing.

