Number 4

FOCUS on New projects

Meeting green standards are now within reach

Dairy farmers are being forced to reduce carbon emissions and nitrogen as well as eliminate antibiotics while significantly improving animal welfare. These many sudden expectations for improvement are raising concerns for the industry's future. Many fear a significant forced reduction in both acres of land to be used for farming and the number of cows that can be managed on their farm.

Europe is pushing the European Green Deal and the Farm to Fork agenda. In the US similar expectations are being forced on dairy farmers as labour becomes less available and water resources become less as drought persists in large sections of the country.

The dairy industry has previously enjoyed a business environment that permitted growth and success through technologies that allowed for greater efficiencies.

Improvements in forage provided better nutrition, sexed semen yielded a greater supply of heifer calves and automation reduced labour while also providing volumes of data to better manage the herd.

Regardless of the many industry advances in the past few decades, dairy farmers now face unprecedented challenges. These new challenges threaten the continued success for many as the industry is not easily able to address the demands of activists.

This unparalleled situation calls for technology advancements that will enable dairy farmers to sustain production with significantly fewer, healthier animals that require less land and water.

Innovative technologies

Several years ago LR Gehm LLC recognised the trends and actively developed a number of innovative technologies while evaluating, refining and proving them on dairy farms.

It was recognised that the core technology used to milk a cow had to change to enable dairy farms to halve replacement rates, reduce labour/milking time by 20%, while ensuring the highest quality milk with more reliable milking equipment.

This effort required developing and testing new technology on numerous dairies of different sizes while making adjustments and optimising designs based on results. The industry focus to date has been on automation that consisted of existing milking equipment products simply updated to reduce labour without a focus on milking action performance. Automation has indeed eliminated some manual labour efforts but has not improved milking efficiencies.

More importantly it has done nothing to address the current green initiative demands leaving dairy farmers desperate for solutions.

Improving the milking process

The research efforts that produced the TridentPulsation milking system were specifically intended to change the machine to cow interface to significantly improve the milking process. The intention was to reduce the time a machine is on the cow by achieving higher peak and average flow rates thereby improving udder/teat heath with a less stressful milking process.

An additional focus was a milking system with greater reliability capable of self-monitoring performance to ensure continual optimised milking action with less maintenance costs and greater inflation life.

The early test farms have now been in operation for over two years with data proving the success of the new technology in meeting green initiatives.

Replacement rates have been lowered to below 25% of the milking cows per year with average flow rates 20% higher resulting in 70% of milk yielded in the first two minutes based on data for the 400 cow Krijnen herd in Ontario Canada.

Average milking time per cow is under four minutes. Similar results are reported for the 1,100 cow Roest dairy in Modesto California.

European experiences

A 2x12 parlour has been in operation in the Netherlands at the Johan Philipsen dairy since early 2021. The herd has a 9,940kg production with 4.35% fat and 3.5% protein and is milked 2x in 1.25 hours with two workers.

The average milking time per cow is again just under four minutes. Johan notes that his antibiotics use is only for drying off as new infections are not a motivation for antibiotics.

Johan realised that real changes were required to prepare for the new demands of dairy farms. He commented that the cows are nice and tightly attached to the ground while milking and that when a cow is ruminating while milking everything is correct.

Johan noted the long life and reliability of the TridentPulsation pulsator as another good outcome.

A milking equipment expert from a large dairy equipment company evaluated another TridentPulsation dairy in Europe and commented on the very good teat condition, smooth teat ends and low signs of congestion. The teats were dry, with no negative pressure gradients and 4:1 pulsation gave a perfect vacuum progress under the teat. They also commented on the higher vacuum while opening the liner and lower vacuum while collapsing, which aids in restarting milk flow after rest and reduces stress during rest. These are all factors, along with other new technologies, that change the way cows are milked.

The combination of pulsation rate/ratio, integrated positive pressure fresh air, a patented feature to hold the liner fully open on attach/detach ensure a consistent proper liner action from start to finish regardless of vacuum level and age of liners.

This optimised design achieves the desired milking action improvements observed by those using it. The continuous real-time integrated functional monitor verifies that every action of the pulsator is as expected providing a warning if failed.

The demands of the green deal are presenting an unprecedented challenge. TridentPulsation is the only industry advancement providing dairy farmers with a real means of achieving the expected improvements supported by proven results.

TridentPulsation is more than a pulsator, it is a true milking system manager that manages the milking action. It optimises attach and liner action to achieve average and peak flow rates significantly higher than any other product on the market resulting in efficiencies that reduce stress on the teats/udders, while reducing labour. Meeting green standards are no longer impossible but within practical reach. ■

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