

Hot technology cools milk fast

An innovative snap milk chilling system that improves milk quality, saves energy and lowers power bills, is achieving widespread acceptance in the dairy industry.

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OVERVIEW

Designed by Hamilton-based refrigeration specialist, Coolsense, three installations of the Vari-COOL chilling system were part-funded by the Energy Efficiency and Conservation Authority (EECA) through its technology demonstration programme.

The demonstration farms were chosen in different regions – South and North Canterbury and Waitoa, near Morrinsville – to showcase the technology to local farmers. Meddo Farm owner Hans Geessink was faced with having to find a new water supply for his farm in Waitoa. However, when Geessink put down a new bore, the temperature of the water he found there was 26°C, six degrees higher than his previous supply. At the same time impending stricter milk chilling regulations were signalled for all dairy farms in New Zealand.

He had to find a snap milk chilling system that could cope with the increased demand without the power bill going through the roof.

After investigating several options, Geessink decided to install the Vari-COOL system. Immediately there was a marked difference in his milk temperature at time of pick-up, dropping from 8°C to 4°C.

While the higher bore water temperature was expected to increase the milk cooling requirement by 30 per cent, energy consumption on Meddo Farm after installation of the Vari-COOL system has remained the same as the previous years.

Within a couple of years, 80 dairy farms had taken up the Vari-COOL technology, many encouraged by seeing the technology in action. Plenty more are in the pipeline.

The Vari-COOL system also produces hot water through waste heat recovery for use in the milking shed. Energy savings vary from farm to farm depending on season, location, herd size and milking pattern. For the three farms in the EECA demonstration programme initial figures show electricity savings of up to 30 per cent with ongoing testing underway to accurately quantify these figures.

For a 1200-cow farm with a 60-bale rotary milking plant, additional investment of around \$15,000 is required for a Vari-COOL over conventional milk chilling equipment. However, savings of around \$800 per month on electricity costs put the payback at around 18 months and the equipment has a 20-year life, giving a net gain of over \$100,000.

WHY IT QUALIFIED

The Vari-Cool system qualified for funding under the technology demonstration programme because it

- would reduce energy intensity or greenhouse gas emissions
- would lead to quantifiable energy and carbon emissions savings
- was financially viable, with a reasonable payback period
- demonstrated technology that was innovative and under-used in New Zealand
- could be replicated by other businesses so benefits go beyond the early adopter.

Funding for both capital and showcasing the technology can cover up to 40 per cent of a project cost to a maximum of \$100,000.

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