

Maintaining an efficient milk recording system during a national disease outbreak and a global pandemic

ICAR Milk Recording Workshop

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A national disease outbreak

A national disease outbreak

Background

- Mycoplasma bovis was first identified on a New Zealand dairy farm in July 2017
- It is difficult to diagnose in an individual animal as the bacteria can hide from the immune system within the body
- Often untreatable – in the majority of cases antibiotic treatment is unsuccessful, and symptomatic animals are culled.
- The New Zealand government has implemented a strategy to achieve nationwide eradication

A national disease outbreak

Impact on LICs herd testing business

- It is critical that LIC staff and services avoid spreading *Mycoplasma bovis*
- Avoid the risks of our field staff and herd-testing equipment being vectors of transmission between farms
- This lead to number of operational changes to our herd-testing business

A national disease outbreak

Business Changes

- Administration
 - Texting service (notify before arriving on farm)
 - Pre-call to confirm M.bovis status prior to the herd-test event
- Hygiene
 - Introduced disinfection procedures — arrival and departure from each farm and all equipment is disinfected
 - Changed of delivery mode to avoid mixing of gear
- Laboratory and equipment supply
 - Waste milk from herd-testing was disposed using managed waste procedures
 - Increase the equipment and inventory levels to buffer supply disruptions

A global pandemic

A global pandemic

Background

- LIC has been fortunate that the impact of Covid-19 to date has been relatively minor compared to the rest of the world
- Experience and systems we deployed for M. bovis we helped us prepare for operating in Covid environment
- As an essential business in New Zealand, LIC has had to make several significant operational changes to minimise the possible spread of the virus within our lab environments, and to avoid risks of our field staff contracting or spreading the disease

A global pandemic

Business Changes

- Pre-call to confirm health status of farm staff
- Issued masks and hand sanitiser and strict instruction to stay home if sick
- Paused the herd-test assist service at covid level 3 and 4
- Central laboratory sites introduced work from home for all those that were able to
- Central laboratory sites introduced masks, physical distancing and daily temperature checks
- Laboratory rosters were changed to provide 15 minute downtime between shifts so personal did not interact

Innovation

Innovation

Continual operational improvement

Extracting increased value from herd-test samples

- Even in an operationally challenging environments such as those caused by M bovis and Covid-19, it is more important than ever to keep innovating
- The major areas of innovation:
 - Maintaining future supply of milk recording equipment, improving the lab efficiency and improving the on-farm herd-testing process
 - Identifying new technologies that generate increased value from the milk recording samples

Innovation

Continual operational improvement

- Improving the lab efficiency
- Increased use of robotics for improved consistency
- The challenge was to automate a labour intensive operation, whilst improving quality parameters
- Overcome the difficulties of recruiting large numbers of seasonal staff

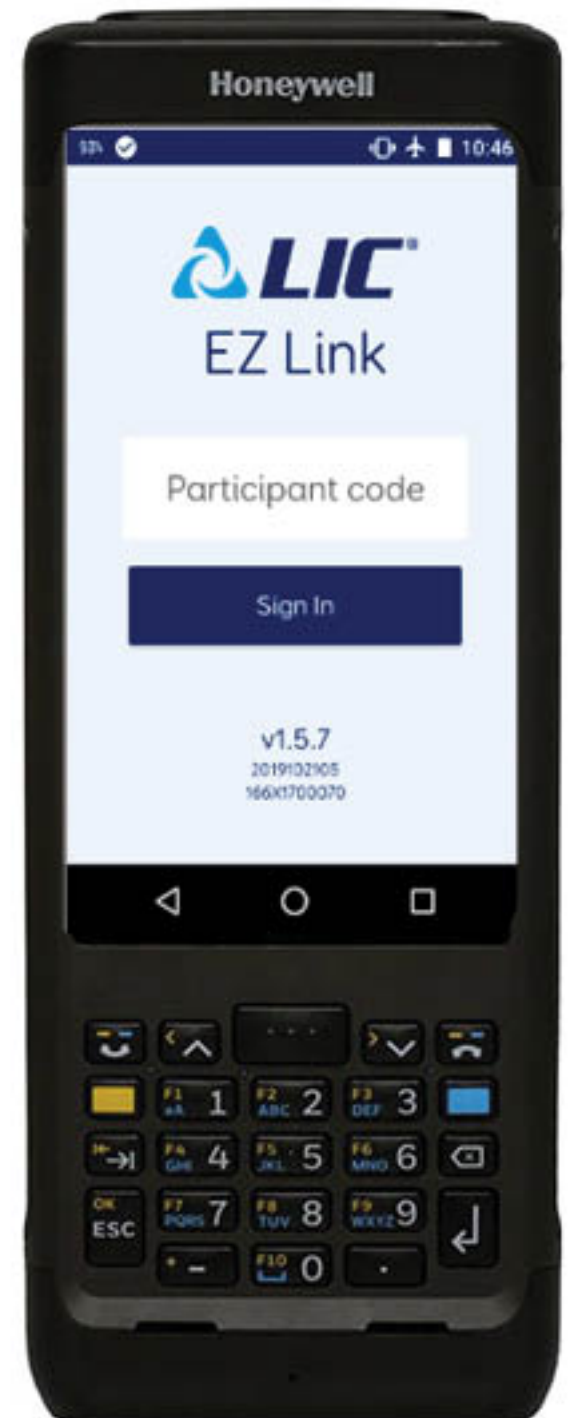
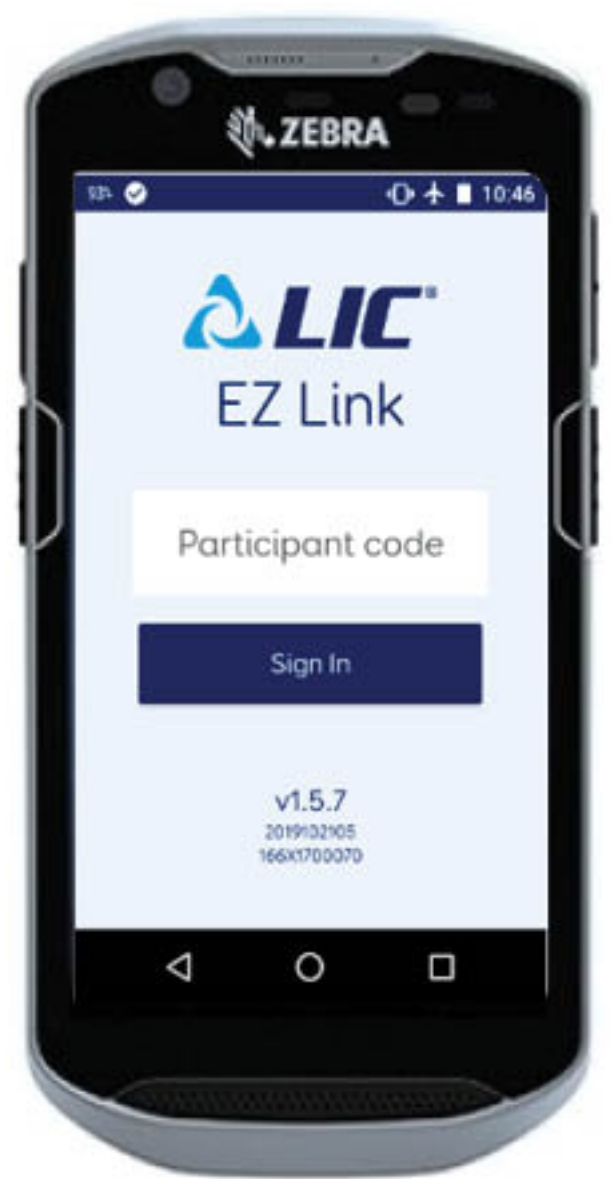
Herd test flasks are scanned to match weight to correct animal number (EZ Link); or create animal ID against flask barcode number (conventional)



Innovation

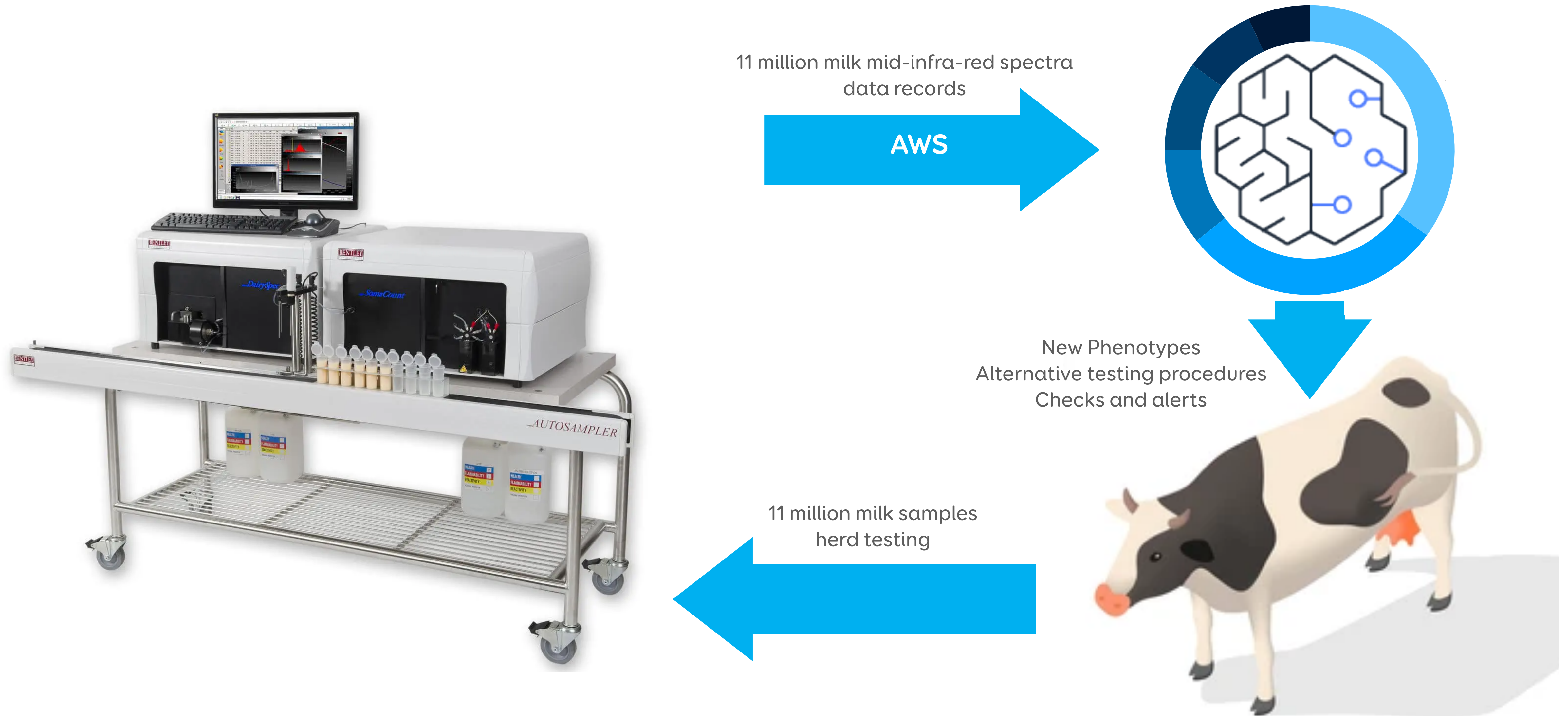
Continual operational improvement

- Sample collection
 - Continued investigation of alternative manufacturers, designs and technologies to remove risk of single supplier failure
- EZ Link (on farm device for capturing sample ID, cow ID and on-farm information)
 - Upgraded software
 - Upgrade of hardware underway



Innovation

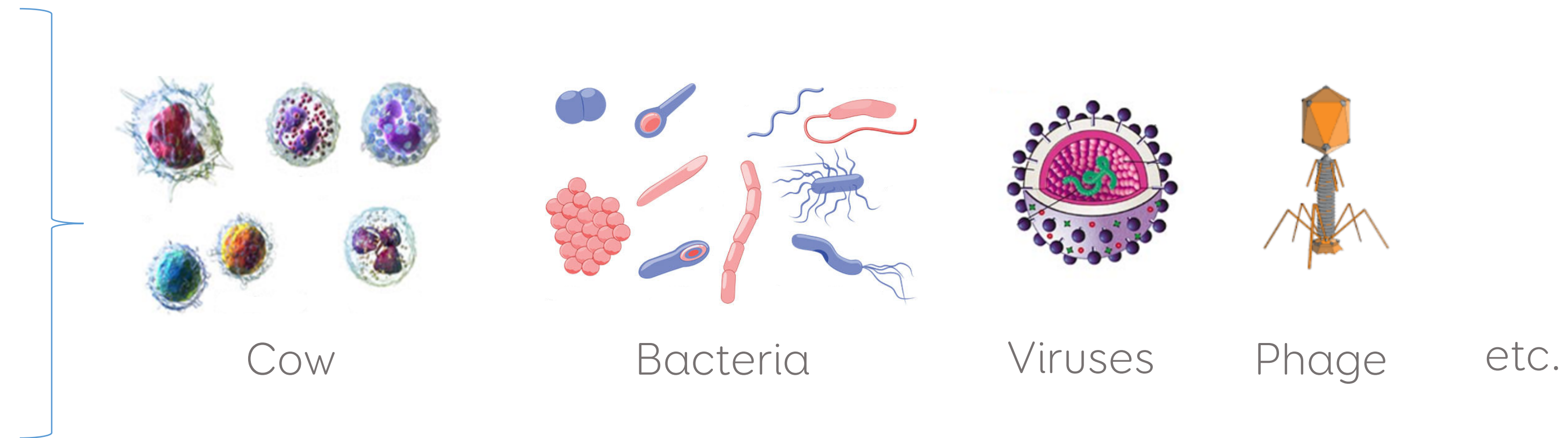
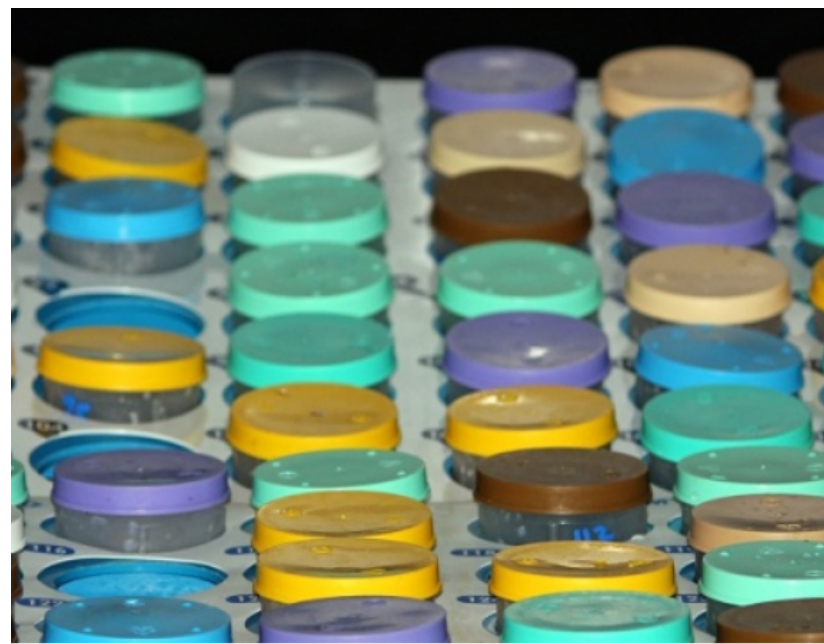
Extracting increased value from herd-test samples



Innovation

More animal information from herd test samples – Milk microbiome

Herd test samples contain many species:
DNA sequencing can interrogate all species simultaneously



Herd & Animal Health: Early disease detection of specific species, strains, and resistance to antibiotics

Farmer Health: Identification of human pathogens

Biosecurity: Identification of notifiable diseases and appearance of new diseases in NZ

Cow genotypes: Available for genomic selection

Traceability: Location of cows

Thank you for your attention