

MASTITIS DETECTION IN AMS

At every milking, FutureDairy's automatic milking units measure a number of indicators of mastitis such as milk yield, milk conductivity and blood concentration in milk (all for individual quarters). More recent models also have somatic cell count sensors.

An automatic electronic alert is generated when the unit detects milk that is deemed 'abnormal' according to various settings which can be defined for individual cows or at a herd level.

'Abnormal' milk can be automatically diverted so it does not enter the vat. The AMS can also be set to draft cows to a holding yard for examination and/or treatment if abnormal milk is detected.

FutureDairy's Dr Kendra Davis says the critical issue is to determine which measures reliably identify all clinical cases of mastitis while minimising the number of false positives. False positives may be cows with sub-clinical mastitis, some of which may self-cure while others will progress on to a clinical case. False positives can also be generated as a result of an incomplete milking.

"It's important to minimise false positives so operators have confidence in the system, to avoid diverting milk unnecessarily and also to avoid unnecessary physical examinations of cows," said Dr Davis.

The FutureDairy team conducted a study to determine which measures provided the most accurate alerts for clinical mastitis. No single measure accurately indicated all clinical cases without too many false positives. However accurate detection was achieved using a combination of alerts and a monitoring function in the DeLaval software.

The most reliable alert was based on the following measures over three consecutive milkings:

- milk conductivity (relative and absolute)
- blood concentration in milk
- milk yield (expressed as a proportion of expected milk yield)

Combined, these measures picked up all but one clinical case of mastitis with an acceptable level of false positives (some which were sub-clinical cases). The undetected cow was treated immediately after calving, prior to her first milking.

"Using these three measures would mean that for every clinical cow detected, no more than four cows would have to be looked at physically. In our experience this was not too intrusive on the daily work routine," said Dr Davis.

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