Dairy Australia

MILK QUALITY TESTING PROCEDURES

The farmer milk quality payment system is based on test results for composition and quality. Integrity of sampling, proper transport and accurate and independent testing by suitably qualified analysts are essential in building confidence that credible and robust systems operate in the dairy industry.

This fact sheet provides information on the system and procedures used for milk quality testing in Australia.

Sampling

Two sample collection methods – dip and drip – are routinely used by all dairy companies. Dip and drip samples are taken at milk collection by the companies for both quality and compositional (fat and protein) testing.

Where a dip method is used, the vat must be adequately agitated prior to sampling. For a drip sample (routinely used on farm pick-up tankers) agitation must occur from the commencement of pumping prior to taking a representative sample from the total consignment. The total consignment may include samples from different storage vats on one farm, but care must be taken between farms to ensure there is no cross contamination. Poor agitation can lead to variability in test results, particularly fat and protein composition because fat naturally will rise to the top of the vat if the milk is not adequately stirred.

Tanker drivers are trained to take both dip and drip samples, though the majority of tankers are equipped with automated samplers with flow meters ensuring that a representative sample is drawn.

Companies have individual sample identification systems but each sample is uniquely identified. The most commonly used system is bar-coding which also allows the sample to be traced to an individual farm.

Transport

As soon as the milk samples have been collected, they are cooled on ice and transported to the company where the milk is delivered.

Dairy companies frequently use external contractors to collect and transport milk from farm to factory. Even when companies use their own drivers, schedules are rotated to minimise the potential for sample tampering or interference. Samples are then transported to the laboratory, often by courier and within 24 hours of collection.

Analysis

One laboratory undertakes quality analyses for almost 80 per cent of Australia's total farm milk samples. This centralisation offers many advantages including national consistency, standardisation of test methods, independence of testing and personnel, cost effectiveness for the acquisition and use of contemporary instruments, and streamlined laboratory information systems, reporting of results and data analyses.

The centralised testing laboratory, DTS Food Assurance (DTS) located in Melbourne, is accredited to national (NATA) and international (IDF) standards. All samples received must be transported and stored below 4°C and

tested within 48 hours of collection. If they fail to meet these standards then they cannot undergo tests for some quality parameters such as thermodurics, bactoscan and inhibitory substances. However, they can still be tested for fat and protein composition as these results will be accurate. Testing does not occur if the integrity, traceability or security of any sample is seen to be compromised. In these cases, companies have internal policies and procedures for establishing the basis for farmer payments.

The laboratory has the latest equipment that is manufactured to international (IDF) standards.There are extensive internal and external quality assurance systems in place for the testing equipment and methods and the results of this testing are regularly reported to companies.

Instruments are calibrated using a set of Reference Milk Standards that are used to test for fat, protein (total and crude), lactose, non-fat solids (SNF) and total solids. These reference standards are traceable to a national standard through the use of Australian Standard (AS) test methods.

In addition, a standard reference sample is included with every batch of 45 milk samples during analysis. If this standard is not within specification, the system alerts the analyst so that corrective action and re-testing can occur.

Reference samples for Bulk Milk Cell Counts are prepared and supplied by the Department of Primary Industries Victoria (DPIV) Ellinbank laboratory on a quarterly basis.

DTS Food Assurance also participates in an independent and external inter-laboratory proficiency testing program that involves testing and reporting the results of samples of an unknown composition ("blind samples") to another accredited and independent company.

Testing can only be performed by qualified analysts. Staff must be independent analysts with expertise, competencies and qualifications to degree level. They are required to have regular training in the latest techniques and test methods.

National herd improvement organisations

There are many herd improvement organisations across Australia, some of which operate testing facilities for fat, protein, lactose and Bulk Milk Cell Counts.

The purpose of these testing facilities is advisory with results acquired from a range of individual cows and not a representative sample as used in laboratory analyses. Composition of milk from individual animals may vary from day to day and with changing weather conditions, feed sources and general health. Therefore it is difficult to make comparisons between the results from the Herd Improvement Organisations with laboratory results that are used as the basis for milk payments.

Reporting of results

All laboratory results are reported back to client companies electronically.

The company then provides their suppliers with results using various communication media –short message service, facsimile, print-out of period data as well as access to secure web-enabled results are available to farmers.

Companies also undertake extensive and regular trend analyses and review of individual, site and company wide data.

In the case of disputed results, all companies have vendor corrective action systems operating and dispute resolution mechanisms in place for farmers.

A concern for farmers is the daily variability that can occur in the results reported. This can be attributed to a number of factors impacting on the individual cows contributing to the vat including diet, frequency of milking and feeding, nutritional status and environmental factors such as heat stress. Physical factors such as cleaning-in-process systems and water residues in milk lines can also explain variability. However, it is difficult to relate the variability in results to a single factor.

Farmers should contact company Field Services staff to discuss any concerns.

FOR FURTHER INFORMATION

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