How can mastitis control be incorporated in a farm quality assurance program?

Quality assurance programs increase consumer confidence in the quality and safety of dairy products. A common approach is to identify critical points during milk production on dairy farms that (1) may impact on milk quality and (2) can be controlled by farmers. Identification and control of key points during product manufacture is known as Hazard Analysis Critical Control Point (HACCP).

Dairy farmers who choose to participate in quality assurance programs must:
- identify relevant control points for milk production on their farms;
- design a flow diagram linking the critical activities that affect milk production;
- specify what they will do at each point;
- describe how their actions and results will be monitored;
- establish what will happen if a result falls outside the acceptable limit; and
- maintain records of key activities in sufficient detail to satisfy auditors.

Examples of activities identified as critical to the production of good quality raw milk are: animal identification systems, livestock sales and purchases, livestock transport, animal health and treatment, drug and chemical registers, mastitis control, water quality, stock feeds purchases, milking practices, milk cooling and storage, milking machine maintenance, staff training, cleaning and sanitation programs, environment and waste management, and record keeping.

For each activity the farmer states:
- the objective;
- what procedures will be implemented to ensure compliance; and
- what 'quality tests' will be used to demonstrate compliance.

Rather than have everyone start from scratch, in 1995 the Australian dairy industry developed a food safety and quality management program for farms known as Dairy First (Darmody 1998). Following a pilot trial of 80 dairy farms in Victoria and South Australia in 1997, a variety of these programs using components of Dairy First to varying degrees began to emerge. In May 1998 the Australian Dairy Industry Council, concerned by the plethora of programs, developed a nationally agreed set of required elements that were considered essential for any on-farm quality assurance program to demonstrate that appropriate care had been taken in the production of safe milk.

Examples of industry programs:

- Bonlac Farm+ (Bonlac Foods Ltd)
- Dairy Farm Assurance (Western Australia dairy industry)
- MilkCare (Murray Goulburn Co-op Company Ltd)
- Proven Perfect (Dairy Farmers Group Ltd)
- QDAIRY (Queensland Dairy Authority)
- Quality First (Norco Ltd)
- Quality Plus (New South Wales Dairy Corporation, a Division of Safe Food Production NSW)
- Simply the Best (National Foods Ltd)
- True Quality (Victorian Dairy Industry Authority)

The programs have a good level of voluntary adoption by dairy farmers.

Some dairy companies pay incentives (e.g. an extra 0.5 cents/L) to accredited suppliers. In the future it is possible that farms will be required to have a quality assurance program in place for milk pick-up, payment of quality premiums, or access to vat rebate schemes. It is likely that quality assurance programs will become a benchmark.

Mastitis control quality assurance

The following is an example of a mastitis control component of a quality assurance program for dairy farms. It follows 'best practice' for mastitis control as recommended by Countdown Downunder.

This example assumes other elements essential to effective mastitis control (such as animal identification, good treatment records, staff training as described above) are covered in the relevant sections of the quality assurance program.

The Countdown Downunder Farm Guidelines for Mastitis Control is a detailed and comprehensive toolkit for farmers interested in milk quality relating to mastitis. For this reason, the action advised when mastitis control activities do not comply with the standard is to "seek professional advice".

Information in the Farm Guidelines can also be used to identify the standards necessary for mastitis control for other schedules, such as milking machine maintenance, milking hygiene etc.

Key papers

Darmody WM. Quality assurance in Australia's cattle industries. In: Proceedings of the XX Congress of the World Association for Buiatrics, Sydney, 1998:55-58.

Example of a mastitis control schedule for a farm quality assurance program

Objective
All milk supplied to factory to have bulk milk cell counts less than 400,000 cells/mL.
Farm procedures
Follow the Countdown Downunder Farm Guidelines for Mastitis Control. Seek technical advice on milk quality and mastitis.

Schedule of control activities

Critical control activity	Action required (Farm Guideline)	When to take action	Person responsible	Minimum standard	What to do if a problem occurs (non-compliance)	Records
Detect and treat cows with clinical mastitis	1, 4, 8, 10, 18, 19, Fact sheets A, B, E	Lactating and dry periods.	Milkers	Heifers: < 3 cases in the last 50 calvings. First month of lactation: < 5 cases/100 cows milking. Subsequent months: <2 cases/100 cows milking.	Seek professional advice.	Stock treatment record and clinical case records.
Manage teat cracks and sores	9	In lactating cows.	Milkers	Improvement of teat condition within 3 weeks of observing problems.	Seek professional advice.	Teat scoring chart.
Management at drying-off to protect milk quality	16	Two weeks either side of drying-off	Manager	Do not milk cows yielding < 5L per day.	Seek professional advice.	Herd recording data.
Implement Dry Cow Treatment strategy	14, 17, Fact sheets B, C	At drying-off	Manager	First month of lactation: < 5 cases/100 cows milking. 70% of cows infected during lactation are cured by the following lactation.	Seek professional advice.	Stock treatment record.
Cull cows with persistent infection	15	At least annually.	Owner	No cows on the farm have been infected for more than two consecutive lactations despite receiving Dry Cow Treatment.	Seek professional advice.	Clinical case records and herd recording data.
Minimize spread from cows with mastitis	4, 5, 8, 11, 12 (if applicable)	Throughout lacation.	Milkers	No more than 1% of additional heifers should have a peak ICCC >250,000 cells/mL each months. (In herds that do not herd record – an average BMCC during the past 6 months of <250,000 cells/mL, and <2 clinical cases/100 cows from day 30 to the end of lactation.)	Seek professional advice.	Reports from specialist ICCC analysis.
Monitor BMCC	11, (12 if applicable)	Each time results are received from the dairy company.	Manager	Average BMCC for the past 6 months of <250,000 cells/mL.	Seek professional advice.	Company reports (filed). Graph of BMCC in herd book.
Practice biosecurity when purchasing stock	21	Whenever stock are purchased.	Manager	No purchased cows with ICCC > 250,000 cells/mL. No purchased from herds where average BMCC in the past 6 months exceeds 200,000 cells/mL.	Seek professional advice.	Written information from vendors (filed).

This example assumes other schedules cover animal identification systems, animal health and treatment, drug and chemical registers, water quality, milking practices, milk cooling and storage, milking machine maintenance, staff training, cleaning and sanitation programs, environment and waste management, and record keeping.