

# Primary Production and Processing Standard for Dairy Products

A guide to Standard 4.2.4 *Primary Production  
and Processing Standard for Dairy Products*

## Part 1: Dairy Primary Production Requirements

Chapter 4 of the Australia New Zealand Food Standards Code (Australia Only)  
January 2008



**FOOD** STANDARDS  
Australia New Zealand  
Te Mana Kounga Kai – Ahitereiria me Aotearoa

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# Introduction

## What is the purpose of the guide?

This guide to Standard 4.2.4 *Primary Production and Processing Standard for Dairy Products* has been developed by Food Standards Australia New Zealand (FSANZ) as one of its functions under section 7(1)(c) of the *Australia New Zealand Food Authority Act 1991*. It is intended to help with the interpretation of Standard 4.2.4 in Chapter 4 of the *Australia New Zealand Food Standards Code* (the Code). A copy of Standard 4.2.4 is included in this guide at pages 7 to 12.

## What is the scope of the guide?

This guide has been developed to help government agencies responsible for enforcing the requirements of Standard 4.2.4 to understand the general intent of individual clauses in the standard. It does this by providing an explanation of individual provisions and includes examples where appropriate. Enforcement officers seeking further clarification of definitions or requirements in the Code should approach the relevant agency in the state or territory.

The guide may also be useful to dairy businesses. It does not specify how dairy businesses must comply with the requirements of the standard but the explanations and examples provided may help them to comply.

## What is the legal status of the guide?

The guidance provided in the guide is not legally binding - only the clauses in the standard are legally binding. Persons who are uncertain about the meaning of a clause in Standard 4.2.4 can refer to the explanation in the guide for clarification.

The guide includes examples where these may be helpful in explaining the meaning of a clause. However, neither the explanations in the guide nor the examples are legal requirements for dairy businesses. The examples given in this guide are used to illustrate how the clause might apply

Dairy businesses seeking guidance on compliance with the standard should contact their local enforcement agency for advice. A list of contacts is provided at the end of the guide.

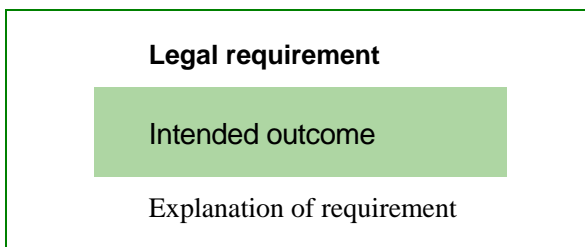
## How do I use the guide?

Standard 4.2.4 contains requirements for dairy primary production businesses (Division 2 of the standard), dairy transport businesses (Division 3 of the standard) and dairy processing businesses (Division 4 of the standard). The guide to the standard has been developed in three parts, Part 1: Dairy Primary Production Requirements covering on farm requirements.

Part 1 provides an explanation of each clause of the standard that applies to dairy primary production businesses (covering Divisions 1 and 2 of the standard). This interpretation, beginning with the definitions in Standard 4.2.4 begins on page 13. A copy of the complete standard is on pages 7 to 12.

The explanation of each clause of the standard is provided in the same order in which they appear in the standard. The legal requirements are provided in bold type followed by a description of the intended food safety outcome (or other outcome as appropriate) and an explanation of the requirement, as outlined below.

Terms in the standard the interpretation clauses where they are listing of defined applicable definitions Chapter 3, is in the Glossary.



are explained under clauses and the used. An alphabetical terms, including from Chapter 2 and

## Background

### The Australia New Zealand Food Standards Code

FSANZ is a statutory authority that works in partnership with the Australian government, state and territory governments, and the New Zealand government to set food standards. Food standards are contained in the Code, which is divided into chapters:

- Chapter 1 of the Code contains general food standards that apply to all foods (for example labelling).
- Chapter 2 contains compositional standards for particular classes of foods (for example meat and meat products).
- Chapters 3 and 4 contain food safety requirements for the production and processing of food, and requirements for premises and vehicles used for food production. Chapters 3 and 4 do not apply in New Zealand.<sup>1</sup>

The food standards in the Code are incorporated into state, territory and (with exceptions) New Zealand legislation, and are legal requirements on food businesses. Because food standards are given legal effect by state, territory and New Zealand legislation, the Code must be read in conjunction with the relevant legislation.

The Code, and information about the Code, are available on the FSANZ website at <[www.foodstandards.gov.au](http://www.foodstandards.gov.au)>. Information can also be obtained from the FSANZ Information Officer on (02) 6271 2241, or email <[info@foodstandards.gov.au](mailto:info@foodstandards.gov.au)>.

### Chapter 4 Primary Production and Processing Standards

In August 2002 the Australia and New Zealand Food Regulation Ministerial Council adopted a whole-of-chain approach to food safety in Australia. FSANZ was given responsibility for developing national food safety requirements for the primary production end of the supply chain—primary production and processing standards—for inclusion in the Code.

Chapter 4 is a new chapter in the Code and includes the standards for primary production and processing of food. FSANZ has developed primary production and processing standards for seafood and dairy products, and has started work on standards for poultry meat and eggs.

Primary production and processing standards are developed with regard to the Australia and New Zealand Food Regulation Ministerial Council's *Overarching Policy Guideline on Primary Production and Processing Standards*.<sup>2</sup> FSANZ develops primary production and processing

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1 Information about dairy regulation in New Zealand is available on the New Zealand Food Safety Authority's website at <[www.nzfsa.govt.nz](http://www.nzfsa.govt.nz)>.

2 The *Overarching Policy Guideline on Primary Production and Processing Standards* is available on the Food Standards Australia New Zealand website at <[www.foodstandards.gov.au/\\_srcfiles/Primary\\_Production%20](http://www.foodstandards.gov.au/_srcfiles/Primary_Production%20)



standards using scientific risk analysis and wide consultation with stakeholders. A standards development committee is established for each primary production and processing standard developed. The committee members are representatives from industry, consumer bodies, research organisations and governments.

### **Standard 4.2.4 Primary Production and Processing Standard for Dairy Products**

Standard 4.2.4 *Primary Production and Processing Standard for Dairy Products* was gazetted on 5 October 2006. There is a two-year implementation period for the standard, which means that dairy businesses will be required to comply with the standard by 5 October 2008.

Application dates may vary between states and territories as they enact legislation to apply the standard to dairy businesses.

Standard 4.2.4 sets out a number of food safety requirements for dairy primary production businesses (covering on-farm milk production activities), dairy transport businesses (covering the collection and bulk transport of milk and dairy products) and dairy processing businesses (covering activities up to, but not including, retail). Distribution of dairy products and retail sale activities are covered by the requirements of Chapter 3 of the Code (Standard 3.2.2 and Standard 3.2.3).

Under Standard 4.2.4, dairy businesses are required to control the potential food safety hazards associated with their business by implementing a documented food safety program. Particular measures that should be covered by the food safety program are also specified.

The requirements for dairy primary production businesses, dairy transport businesses and dairy processing businesses are set out in separate divisions of the standard:

- Division 1 — Preliminary
- Division 2 — Dairy primary production requirements
- Division 3 — Dairy collection and transport
- Division 4 — Dairy processing.

Part 1 of the guide covers the requirements for dairy primary production businesses.

## **Standard 4.2.4**

### ***Primary Production and Processing Standard for Dairy Products***





# Standard 4.2.4

## Primary Production and Processing

### Standard for Dairy Products

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**(Australia Only)**

To commence on 5 October 2008

#### Purpose and commentary

This Standard sets out a number of food safety requirements, including the implementation of documented food safety programs for dairy primary production, collection, transportation and processing. However, this Standard does not apply to retail sale activities. Chapter 3 of this Code covers retail sale activities.

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- 15 Processing of milk and dairy products
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## Clauses

### Division 1 — Preliminary

#### 1 Interpretation

(1) Unless the contrary intention appears, the definitions in Chapters 2 and 3 of this Code apply to this Standard.

(2) In this Standard –

**Authority** means the State, Territory or Commonwealth government agency or agencies having the legal authority to implement and enforce this Standard.

**control measure** means a measure that prevents, eliminates or reduces to an acceptable level, a food safety hazard.

**dairy primary production** means the production of milk or colostrum for further processing for human consumption and includes the keeping, grazing, feeding and milking of animals and the storage of milk on the premises at which the animals were milked.

**dairy primary production business** means a business, enterprise or activity that involves dairy primary production.

**dairy processing** includes the manufacture of dairy products.

**dairy processing business** means a business, enterprise or activity that involves dairy processing.

**dairy products** include –

- (a) milk; and
- (b) colostrum; and
- (c) liquid milk products; and
- (d) cream and thickened cream; and
- (e) butter, butter concentrate, buttermilk, concentrated buttermilk, dairy blend, ghee, and anhydrous milk fat (butter oil);
- (f) casein, caseinate, and cheese; and
- (g) whey, whey cream and concentrated whey cream; and
- (h) cultured milk and yoghurt; and
- (i) ice-cream and ice-cream mix; and
- (j) buttermilk powder, lactose powder, milk sugar, powdered milk, skim milk powder, whey powder, milk protein powder and other milk concentrates.



**dairy transport business** means a business, enterprise or activity involving the collection and transport of milk from the dairy primary production business to the processing business or the transport of bulk milk or dairy products between dairy processors.

**inputs** includes any feed, water and chemicals, including agricultural and veterinary chemicals, used in connection with the primary production of milk or colostrum.

## 2 Application

- (1) Subclause 1(2) of Standard 1.1.1 does not apply to this Standard.
- (2) This Standard does not apply in New Zealand.
- (3) This Standard does not apply to retail sale activities.

## Division 2 — Dairy primary production requirements

### 3 Controlling food safety hazards

A dairy primary production business must control its potential food safety hazards by implementing a documented food safety program.

### 4 Specific requirements

- (1) For clause 3, the control measures must manage the hazards arising from –
  - (a) inputs; and
  - (b) the design, construction, maintenance and operation of premises and equipment; and
  - (c) milking animals; and
  - (d) persons involved in milking; and
  - (e) milking practices.
- (2) For clause 3, the control measures must also –
  - (a) include support programs that ensure that premises and equipment are clean and sanitary and that pests are controlled; and
  - (b) ensure that milk is cooled and stored at a temperature that prevents or reduces the growth of microbiological hazards in the milk; and
  - (c) ensure that milk for human consumption is only sourced from healthy animals.

### 5 Tracing

As part of the documented food safety program in clause 3, a dairy primary production business must have a system that enables the tracing of –

- (a) inputs; and



- (b) animals to be milked; and
- (c) the milk produced.

## **6 Skills and knowledge**

A dairy primary production business must ensure that persons undertaking primary production activities have skills and knowledge of food safety and hygiene matters commensurate with their work activities.

# **Division 3 — Dairy collection and transportation**

## **7 Controlling food safety hazards**

A dairy transport business must control its potential food safety hazards by implementing a documented food safety program.

## **8 Specific requirements**

For clause 7, the control measures must manage hazards arising from –

- (a) transport vehicles, equipment and containers used in the collection and transport of the milk or dairy product; and
- (b) persons engaged in the dairy transport business.

and must include a support program that ensures that the food contact surfaces of transport vehicles, and equipment and containers used in collecting and transporting of the dairy products are clean and sanitary.

## **9 Product tracing**

As part of the documented food safety program in clause 7, a dairy transport business must have a system to identify the immediate supplier and immediate recipient of the dairy product.

## **10 Time and temperature controls**

A dairy transport business must transport dairy products using time and temperature controls that prevent or reduce the growth of microbiological hazards in the product.

## **11 Skills and knowledge**

A dairy transport business must ensure that persons undertaking milk or dairy product collection and transport activities have skills and knowledge of food safety and hygiene matters commensurate with their work activities.

# **Division 4 — Dairy processing**

## **12 Application**

To avoid doubt, Standards 3.2.2 and 3.2.3 apply to the processing of dairy products.



### 13 Controlling food safety hazards

A dairy processing business must control its potential food safety hazards by implementing a documented food safety program.

### 14 Product tracing

As part of the documented food safety program in clause 13, a dairy processing business must have a system to identify the immediate supplier of dairy products and ingredients and the immediate recipient of the dairy products.

### 15 Processing of milk and dairy products

- (1) Milk must be pasteurised by –
- (a) heating to a temperature of no less than 72°C and retaining at such temperature for no less than 15 seconds; or
  - (b) heating, using any other time and temperature combination of equivalent or greater lethal effect on any pathogenic micro-organisms in the milk; or
  - (c) using any other process that provides an equivalent or greater lethal effect on any pathogenic micro-organisms;

unless an applicable law of a State or Territory otherwise expressly provides.

**Editorial note:**

For paragraph 15(1)(c), any other process used would need to be validated by the business and verified by the Authority.

The provision concerning an applicable law of a State or Territory is a temporary one and will be reviewed by FSANZ under another proposal.

- (2) Milk processed under paragraph 15(1)(a) must be cooled immediately in a way that ensures that the growth of microbiological hazards in the milk is prevented or reduced.
- (3) Dairy products, other than cheese and cheese products, must be processed using –
- (a) a heat treatment that uses a combination of time and temperature of equal or greater lethal effect on any pathogenic micro-organisms in the milk product achieved by paragraphs 15(1)(a) or 15(1)(b); or
  - (b) using any other process that provides an equivalent or greater lethal effect on any pathogenic micro-organisms.

**Editorial note:**

For paragraph 14(3)(b), any other process used would need to be validated by the business and verified by the Authority.



- (4) Dairy products processed under paragraph 15(3)(a) must be cooled immediately in a way that ensures that the growth of microbiological hazards in the product is prevented or reduced.
- (5) To avoid doubt, subclause 15(3) does not apply to the processing of dairy products that have been made using milk already processed in accordance with subclause 15(1).

**Editorial note:**

Dairy products may have a greater fat and/or solids content compared to milk and therefore require a greater time and temperature treatment to achieve an equivalent level of bacterial reduction. Information on equivalent heat treatments to pasteurisation for these products is provided in the “Interpretive Guide” to this Standard.

## 16 Processing of dairy products to make cheese and cheese products

Milk or dairy products used to make cheese or cheese products must be processed –

- (a) in accordance with subclause 15(1); or
- (b) by being held at a temperature of no less than 62°C for a period of no less than 15 seconds, and the cheese or cheese product stored at a temperature of no less than 2°C for a period of 90 days from the date of processing; or
- (c) such that –
  - (i) the curd is heated to a temperature of no less than 48°C; and
  - (ii) the cheese or cheese product has a moisture content of less than 36%, after being stored at a temperature of no less than 10°C for a period of no less than 6 months from the date of processing; or
- (d) in accordance with clause 1 of Standard 4.2.4A.

**Editorial note:**

For dairy product distribution, refer to the requirements in Standards 3.2.2 and 3.2.3 on storage and transportation.

# Interpretation of Standard 4.2.4 *Primary Production and Processing Standard for Dairy Products*, Divisions 1 and 2

## Division 1 — Preliminary

### 1 Interpretation

This clause defines the terms used in Standard 4.2.4. In the absence of a definition in the *Australia New Zealand Food Standards Code*, the definition in *The Macquarie dictionary* (latest edition) should be used.

**1(1) Unless the contrary intention appears, the definitions in Chapters 2 and 3 of this Code apply to this Standard.**

Terms used in Standard 4.2.4 are generally defined within the Code. Definitions for milk and other dairy products are contained in Part 2.5 of Chapter 2. Terms used in relation to food safety requirements are contained in Chapter 3. Terms developed for use specifically in Standard 4.2.4 are defined in the standard.

#### Definitions in Chapter 2

Part 2.5 of the Code contains compositional standards for dairy products including a number of definitions. Of relevance to Standard 4.2.4 is the definition for milk in Standard 2.5.1:

**milk means the mammary secretion of milking animals, obtained from one or more milkings for consumption as liquid milk or for further processing but excludes colostrum.**

Milk is the primary commodity to which Standard 4.2.4 applies. This definition establishes that the production, transport and processing of milk for human consumption from all milking animals (for example cow, goat, sheep, buffalo, camel) is covered by the standard.

Milk excludes colostrum and so Standard 4.2.4 refers to colostrum as a separate commodity. No definition for colostrum is provided in the Code.

#### Definitions in Chapter 3

Definitions in Chapter 3 of the Code that are applicable to Standard 4.2.4 are presented below, along with a reference to where the terms are used in the standard and their intent.

**clean means clean to touch and free of extraneous visible matter and objectionable odour.**

The definition clarifies that ‘clean’ is not about the microbiological status of the surface, but

about what can be assessed by sight, touch and smell. The term 'clean' is used in paragraph 4(2)(a) and clause 8.

**equipment** means a machine, instrument, apparatus, utensil or appliance, other than a single-use item, used or intended to be used in or in connection with food handling and includes any equipment used or intended to be used to clean food premises or equipment.

The intention is to ensure that all equipment that is used in relation to milking, storage and transport activities and in cleaning procedures is covered by the requirements. Equipment is referenced in paragraph 4(1)(b) and subclause 8(a).

**food handling operation** means any activity involving the handling of food.

**Handling** of food includes the making, manufacturing, producing, collecting, extracting, processing, storing, transporting, delivering, preparing, treating, preserving, packing, cooking, thawing, serving or displaying of food.

The intention is that all activities involved in dairy primary production, dairy transport and dairy processing operations are covered by the standard. The definition of 'handling' is not restricted to the activities listed. This term is used in clause 5 of Standard 3.2.1, Content of food safety programs.

**food safety program** means a food safety program that satisfies the requirements of clause 5 of Standard 3.2.1.

Food safety programs are a requirement for dairy primary production businesses, dairy transport businesses and dairy processing businesses. The term is explained for each of these businesses under clauses 3, 7 and 13.

**hazard** means a biological, chemical or physical agent in, or condition of, food that has the potential to cause an adverse health effect in humans.

The intention is that biological, chemical and physical hazards are managed in the food safety program. Clauses 3, 7 and 13 refer to the control of potential food safety hazards. Subclause 4(1) and clause 8 refer to hazards arising at specific steps or processes.

**monitoring** includes checking, observing or supervising in order to maintain control.

Monitoring is conducted to determine that control is being maintained over identified hazards. The aim of monitoring is to assess whether the control measure(s) chosen to manage a hazard is occurring in practice. This term is used in clause 5 of Standard 3.2.1, Content of food safety programs.

**pests** includes but is not limited to birds, rodents, insects and arachnids.

The intention is to ensure that the requirements cover all animals that could contaminate food either directly or indirectly. It is not restricted to the animals listed. The term 'pest' is used in paragraph 4(2)(a).

**sanitise** means to apply heat or chemicals, heat and chemicals, or other processes, to a surface so that the number of micro-organisms on the surface is reduced to a level that –

- (a) does not compromise the safety of food with which it may come into contact; and
- (b) does not permit the transmission of infectious disease.

Sanitary is the condition of premises and equipment after being sanitised. The term ‘sanitary’ is used in Standard 4.2.4 in paragraph 4(2)(a) and clause 8.

### **1(2) In this Standard –**

Subclause 1(2) defines a number of terms specifically for use in Standard 4.2.4. These are presented below, along with a reference to where the terms are used in the standard and their intent.

**Authority means the State, Territory or Commonwealth government agency or agencies having the legal authority to implement and enforce this Standard.**

Each state and territory Food Act (or other Act) specifies the agency responsible for the enforcement of the Act and any regulations or standards referred to in it. The agencies having the legal authority to enforce Standard 4.2.4 will be the same agencies that enforced previous regulations relating to dairy food production and sale in the respective state or territory:

- New South Wales Food Authority
- Safe Food Production Queensland
- Dairy Authority of South Australia
- Dairy Food Safety Victoria
- Department of Human Services, Victoria
- Tasmanian Dairy Industry Authority
- Department of Health, Western Australia
- Northern Territory Health and Community Services
- ACT Department of Health.

**control measure means a measure that prevents, eliminates or reduces to an acceptable level, a food safety hazard.**

This clarifies that ‘managing the hazards’ involves implementing measures that prevent, eliminate or reduce the hazards that may arise. Control measures are required under subclauses 4(1) and 4(2) and clause 8 of Division 2.

**dairy primary production means the production of milk or colostrum for further processing for human consumption and includes the keeping, grazing, feeding and milking of animals and the storage of milk or colostrum on the premises at which the animals were milked.**

This clarifies the nature of a dairy primary production business and the activities covered by the operation of that business. The intent is that all activities involved in dairy primary production operations are covered by the standard. This covers farm management practices in relation to animal husbandry (keeping), pasture management (grazing) and stock feed supply (feeding), as well as all activities undertaken during the milk or colostrum collection and storage operations.

‘Further processing’ clarifies that these requirements have been developed specifically for milk that is to undergo further processing. Jurisdictions that permit the production and sale of raw goat milk may apply specific regulatory measures (for example pathogen testing and compliance with requirements) to raw milk producers under their own legislation.

**dairy primary production business means a business, enterprise or activity that involves**



**dairy primary production.**

Dairy primary production businesses include those that produce milk or colostrum for further processing. The production of milk and the production of colostrum are considered as distinct primary production operations. A business involved in either of these is covered by the requirements of the standard.

Division 2 of the standard specifies requirements for dairy primary production businesses. The definition of 'dairy primary production business' establishes the scope of the businesses that must comply with these requirements.

**dairy processing includes the manufacture of dairy products.**

This clarifies the nature of a dairy processing business. The definition of dairy processing establishes the scope in terms of the dairy products manufactured by a business rather than the milk processing activities undertaken.

**dairy processing business means a business, enterprise or activity that involves dairy processing.**

Division 4 of the standard specifies requirements for dairy processing businesses. The definition of 'dairy processing business' establishes the scope of the businesses that must comply with these requirements. Dairy processing businesses are defined in terms of the dairy products they manufacture.

**dairy products include –**

- (a) milk; and
- (b) colostrum; and
- (c) liquid milk products; and
- (d) cream and thickened cream; and
- (e) butter, butter concentrate, buttermilk, concentrated buttermilk, dairy blend, ghee, and anhydrous milk fat (butter oil);
- (f) casein, caseinate, and cheese; and
- (g) whey, whey cream and concentrated whey cream; and
- (h) cultured milk and yoghurt; and
- (i) ice-cream and ice-cream mix; and
- (j) buttermilk powder, lactose powder, milk sugar, powdered milk, skim milk powder, whey powder, milk protein powder and other milk concentrates.

The requirements of Division 4 of the standard apply to those businesses that are involved in the manufacture of the dairy products listed. The list is not exclusive and the intent is that the manufacture of all products derived from milk, including fat and protein derivatives, are covered by the requirements of the standard. This includes products that are normally considered dairy foods but are not specifically listed, such as custards and other dairy desserts (for example products of milk or cream) and dairy dips (for example products of cultured milk and yoghurt or cheese).

**dairy transport business means a business, enterprise or activity involving the collection and transport of milk from the dairy primary production business to the processing**

**business or the transport of bulk milk or dairy products between dairy processors.**

Division 3 of the standard specifies requirements for dairy processing businesses. The definition of ‘dairy transport business’ establishes the scope of the businesses that must comply with these requirements.

Dairy transport businesses include:

- businesses that collect and haul bulk milk from dairy farms to processing facilities or depots
- businesses that transport bulk milk or dairy products such as milk powders or concentrates between processing facilities.

The term ‘bulk’ clarifies that the product is not packaged or intended for direct sale (retail or wholesale) and is intended for further processing.

**inputs includes any feed, water and chemicals, including agricultural and veterinary chemicals, used in connection with the primary production of milk or colostrum.**

Inputs are referred to in paragraph 4(1)(a) and discussed under clause 4 Specific requirements.

## 2 Application

The application clause explains the starting date of the standard and specifies the businesses and business activities that are not required to comply.

**2(1) Subclause 1(2) of Standard 1.1.1 does not apply to this Standard.**

Subclause 2(1) clarifies that the usual 12-month lead-in period under subclause 1(2) of Standard 1.1.1 of the Code does not apply to this standard. Instead, Standard 4.2.4 commences two years from gazettal of the standard. Businesses must comply with Standard 4.2.4 from the starting date specified (5 October 2008).

**2(2) This Standard does not apply in New Zealand.**

Subclause 2(2) clarifies that the standard does not apply to food businesses in New Zealand. While there is an agreement between Australia and New Zealand to establish one joint food standard-setting system for the two countries, the agreement specifically excludes food safety provisions (Chapter 3 and Chapter 4 standards). New Zealand maintains and develops its own food safety regulatory measures. Primary production and processing requirements for the dairy industry in New Zealand are administered by the New Zealand Food Safety Authority. These requirements include the:

- Food Act 1981
- New Zealand (Milk and Milk Products Processing) Food Standards 2002
- Animal Products Act 1999
- Animal Products (Dairy) Regulations 2005
- Animal Products (Dairy Risk Management Programme Specifications) Notice 2005
- Animal Products (Dairy Processing Specifications) Notice 2006
- DPC1 Approved Criteria for General Dairy Processing 2006

- DPC2 Approved Criteria for Farm Dairies 2006
- DPC3 Approved Criteria for the Manufacturing of Dairy Material and Products 2006
- DPC4 Approved Criteria for Storage and Transportation of Dairy Material and Products 2006.

**2(3) This Standard does not apply to retail sale activities.**

Standard 4.2.4 applies to dairy primary production businesses, dairy transport businesses and dairy processing businesses as defined under clause 1. Subclause 2(3) clarifies that the requirements of the standard do not apply to food businesses undertaking retail sale activities in relation to dairy products. 'Retail sale' refers to direct sale to the public and does not include sale to wholesalers, caterers or to businesses that on-sell. Further clarification on retail sale activities is included in Part 3: Dairy processing.

## Division 2 — Dairy primary production requirements

### 3 Controlling food safety hazards

**A dairy primary production business must control its potential food safety hazards by implementing a documented food safety program.**

The safety of milk and colostrum is best ensured through the systematic identification and control of hazards throughout the production chain.

This clause requires dairy primary production businesses to ensure the safety of their product by developing and implementing a food safety program that controls the food safety hazards of the business. ‘Dairy primary production’ means the production of milk or colostrum for further processing for human consumption. It includes the keeping, grazing, feeding and milking of animals and the storage of milk or colostrum on the premises at which the animals were milked.

#### Food safety program

Standard 3.2.1 *Food Safety Programs*<sup>3</sup> defines a food safety program to mean one that satisfies clause 5 of that standard. Clause 5 states that a food safety program must:

- (a) systematically identify the potential hazards that may be reasonably expected to occur in all food handling operations of the food business
- (b) identify where, in a food handling operation, each hazard identified under paragraph (a) can be controlled, and the means of control
- (c) provide for the systematic monitoring of those controls
- (d) provide for appropriate corrective action when that hazard, or each of those hazards, is found not to be under control
- (e) provide for the regular review of the program by the food business to ensure its adequacy
- (f) provide for appropriate records to be made and kept by the food business demonstrating action taken in relation to, or in compliance with, the food safety program.

Clause 5 provides for the following elements to be included in a food safety program:

- food handling operations of the business
- potential food safety hazards
- control measures
- monitoring activities
- corrective actions
- review of the program

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3 FSANZ has developed *A guide to Standard 3.2.1 Food Safety Programs*, which provides an explanation of the intent of all clauses contained in Standard 3.2.1. This guide is available on the FSANZ website at <[www.foodstandards.gov.au/\\_srcfiles/Guide%20321%20FoodSafetyPrograms-WEB.pdf](http://www.foodstandards.gov.au/_srcfiles/Guide%20321%20FoodSafetyPrograms-WEB.pdf)>.



- record keeping.

These elements are discussed separately in the sections below.

A food safety program may be developed by the dairy primary production business, by an external consultant or by a dairy processing business through their particular quality assurance scheme developed for milk suppliers. The Australia New Zealand Dairy Authorities' Committee (ANZDAC) has also produced a guideline document for dairy primary production businesses (dairy farms) that provides an outline of the food safety outcomes that should be achieved through implementing a food safety program.<sup>4</sup>

### Food handling operations

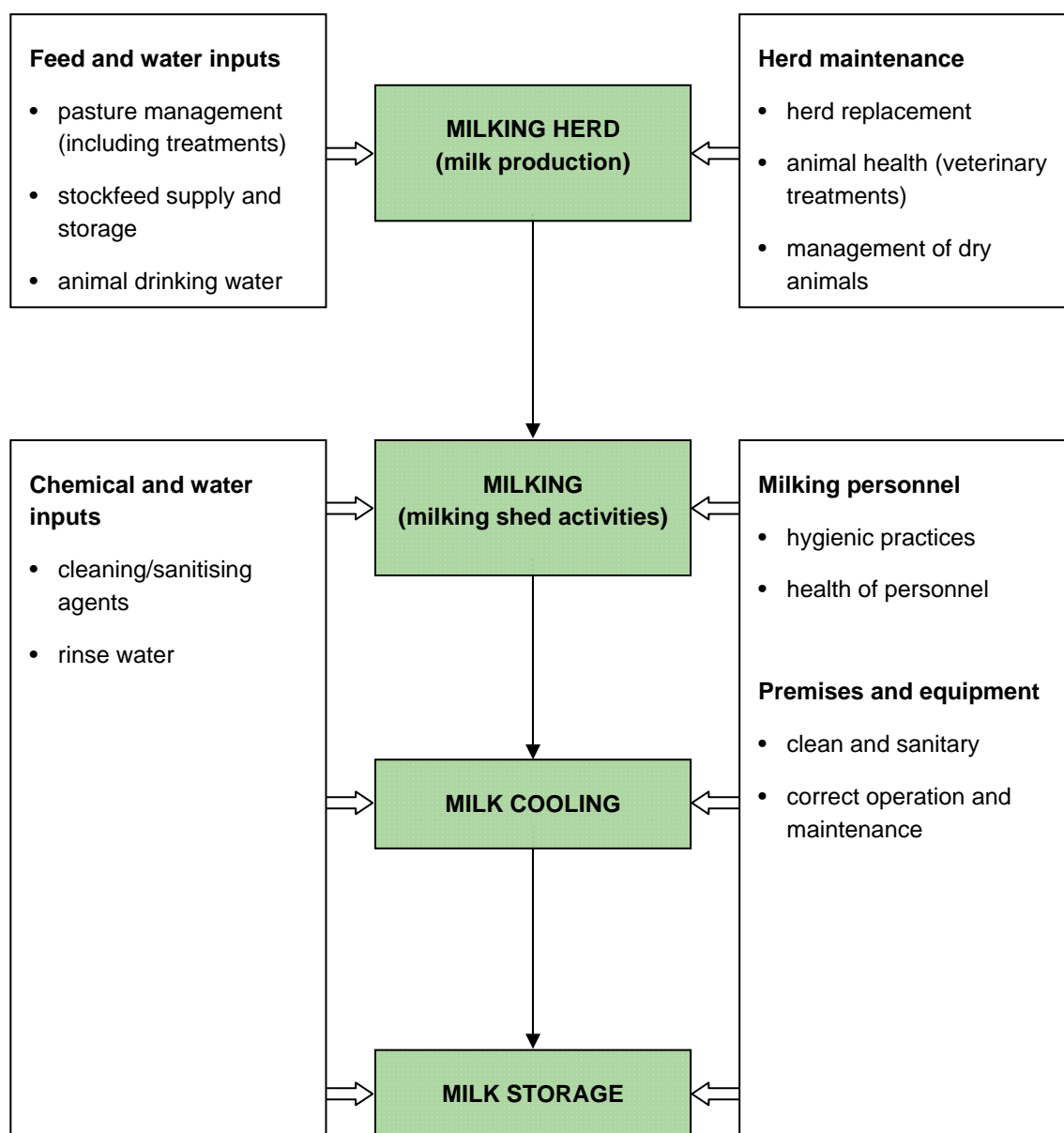
Clause 5(a) of Standard 3.2.1 requires that the food safety program must **systematically identify the potential hazards that may be reasonably expected to occur in all food handling operations of the business**. A systematic approach to identifying potential hazards can be illustrated through the use of a flow diagram that identifies the key steps and activities undertaken, in order of operation. A generic flow diagram outlining the key steps involved in milk production is illustrated in Figure 1.

At each step involved in milk production there are inputs and associated activities that need to be considered to identify potential hazards that may be 'reasonably expected to occur'. For example, the activities and inputs associated with the maintenance of the milking herd can include veterinary and other chemical treatments and the supply of feed and water. These may result in the contamination of milk with chemical residues or undesirable microorganisms if not managed appropriately. The management of hazards and the control measures required are discussed in more detail under clause 4.

For each step in the operation, the potential hazards that may arise must be identified in the food safety program.

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4 Australia New Zealand Dairy Authorities' Committee, 2006, *Guidelines for Food Safety – Dairy Farms*, ANZDAC.



**Figure 1: Key steps involved in milk production**

## Food safety hazards

A 'hazard' is defined in Standard 3.1.1 as 'a biological, chemical or physical agent in, or condition of, food that has the potential to cause an adverse health effect in humans'. Examples of these hazards are listed below.

### *Microbiological*

- Food poisoning bacteria such as *Salmonella* spp., *Campylobacter jejuni*, *Escherichia coli*, *Listeria monocytogenes*, *Staphylococcus aureus* and *Yersinia enterocolitica*
- Foodborne viruses such as hepatitis A and noroviruses
- Foodborne parasites such as *Cryptosporidium parvum* and *Giardia lamblia*
- Toxin-producing moulds such as *Aspergillus flavus*, which produces aflatoxin.

### *Chemical*

- Cleaning and sanitising agents
- Pesticides
- Veterinary chemicals
- Mycotoxins (for example aflatoxin).

### *Physical*

- Foreign matter such as glass, metal, plastic, insects, adhesive dressings, straw, rat droppings.

It is only necessary for potential hazards to be identified if they are 'reasonably expected to occur', that is, that the hazard is foreseeable, typical or likely to occur in association with milk production activities. The primary production business may use industry guidance material to help identify potential hazards.

Clause 4(1) Specific requirements specifies that the food safety program must manage the hazards arising along the production chain from inputs, people, premises, equipment and milking practices. Greater discussion of the hazards associated with particular steps along the production chain is provided below under clause 4.

## Control measures

Clause 5(b) of Standard 3.2.1 requires that the food safety program must **identify where, in a food handling operation, each hazard identified under paragraph (a) can be controlled and the means of control**. Hazards can be controlled by support programs (discussed below) or by a particular measure undertaken at a specific step in the production chain. The controls included in the food safety program (alone or collectively) must be effective in preventing, eliminating or reducing the hazard to a safe, acceptable level. For chemical hazards, an acceptable level may mean that any residues in the milk do not exceed the maximum residue limit or maximum permitted level.<sup>5</sup> For microbiological hazards the acceptable level may be specified by the dairy processor. Such levels

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5 Standard 1.4.2 of the Code lists the maximum permissible limits for agricultural and veterinary chemical residues in food. Standard 1.4.1 of the Code sets out the maximum levels for metal contaminants (such as lead) and non-metal contaminants (such as PCBs).

may include a total plate count (BactoScan Count) or bulk milk cell count, which may be calculated on a daily, weekly or monthly basis.

Clause 4 of Standard 4.2.4 specifically states where in the production chain control measures are required to manage hazards. Additionally, clause 4 specifies that cleaning and sanitising, and pest control support programs must be included and that temperature controls are required for milk cooling and storage. These measures are covered in more detail below under discussion of clause 4 Specific requirements.

### ***Controlling hazards through support programs***

Hazards that are common across milk production steps are normally controlled within support programs. For example, a cleaning and sanitation program may be applied across a number of steps (milking, cooling and storage) to minimise contamination by microbiological hazards from premises and equipment. Instead of repeating the controls for each of these steps, the controls can be set out in a cleaning and sanitising program. Examples of some support programs and the hazards they control are listed below in Table 1.

To ensure support programs are effective in controlling the hazards identified, they must be monitored and corrective action must be taken if the support program is not being followed. The monitoring and corrective actions for each support program can be described within the support program itself.

Clause 4(2)(a) specifically requires that a pest control program and a cleaning and sanitising program are included in the food safety program. These are discussed further under that clause.

**Table 1: Examples of support programs and the food safety hazards they address**

<b>Hazards</b>	<b>Support programs</b>	<b>Comment</b>
Microbiological, physical and chemical hazards that arise from milking personnel.	Staff health and hygiene	Contamination of milk with pathogens from sick personnel, contamination from hands of personnel and from jewellery, hair and clothing is controlled.
Microbiological and physical hazards arising from pest infestations.	Pest control	Infestations by pests are controlled and contamination by, for example, birds, insects and rodents (hair, faeces, urine) is prevented.
Microbiological, physical and chemical hazards arising from the premises and equipment.	Cleaning and sanitation	Contamination of milk from soil, faecal material, milk residues etc. is controlled through routine cleaning procedures.
	Maintenance	Routine maintenance and testing of premises and equipment control contamination (for example, cleaning is more effective if there are no damaged/perished surfaces) and prevent growth of microorganisms (for example, cooling equipment works effectively).

### *Controlling hazards at the production step*

Hazards specific to a production step are normally controlled at that step. For example, a cooling regime, such as cooling to 5°C or below within a specified time, is a control measure applied at a specific step (milk cooling). The food safety program should specify the temperature to be met within a given time as the method of control of the growth of microorganisms. Clause 4(2)(b) specifically requires milk cooling and temperature storage controls to prevent or reduce the growth of microbiological hazards.

### *Validation of controls*

Validation is the action taken by the business to confirm that the control measures in the food safety program are effective in controlling the hazards (that is, they prevent, eliminate or reduce a food safety hazard to an acceptable level).

Controls for food safety hazards may be specified in legislation. Additionally, controls may be provided within industry guides or templates on developing food safety programs. These are generally recognised by the relevant enforcement agency and validation by the business is not necessary. For example, the chilling of milk to 5°C or less within 3.5 hours from the start of milking is a long-held industry standard<sup>6</sup> for minimising the growth of any bacteria that may be present. A business that specifies this control at the milk chilling step would not need to have validated its effectiveness.

If the business puts in place its own procedures to meet a control measure (for example an alternative cooling regime), the procedures must be validated for their effectiveness in preventing, eliminating or reducing the identified hazard to a safe, acceptable level. Where a dairy primary production business is not using standard controls, it may need to work in conjunction with the processing company receiving its milk or contact the industry association for advice on an appropriate control and its validation.

## **Monitoring**

Clause 5(c) of Standard 3.2.1 requires that the food safety program must **provide for the systematic monitoring of those controls**. Monitoring is defined in Standard 3.2.1 as including ‘checking, observing or supervising in order to maintain control’. The aim of monitoring is to assess whether the control chosen to manage a hazard is occurring in practice.

The food safety program must indicate how each control measure will be monitored. This includes support programs. Examples of monitoring are:

- *inspecting* feed storage facilities for pest activity
- *measuring* with a thermometer the temperature of milk in the milk vat
- *checking* the condition of a milk filter
- *checking* animal treatment records
- *observing* whether milking personnel are following good personal hygiene practices.

For each monitoring action, the food safety program must indicate:

- *what* monitoring is to be done

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<sup>6</sup> This is the cooling regime specified in *Guidelines for Food Safety – Dairy Farms* (ANZDAC) at the milk chilling step.

- *who* will do the monitoring
- *when* the monitoring is to be done (for example every milking, daily, weekly).

## Corrective action

Clause 5(d) of Standard 3.2.1 requires that the food safety program must **provide for appropriate corrective action when that hazard, or each of those hazards, is found not to be under control.**

If monitoring finds that the control step in place to manage a hazard is either not working or is not being followed, corrective action must be taken. A corrective action generally consists of two stages.

First, immediate action needs to be taken for any product that may now be unsafe because the hazard is not under control. For example, if monitoring (through measuring temperature) shows that the milk cooling equipment is not operating effectively and the temperature of the milk in the vat is not 5°C after 3.5 hours after the start of milking, the business will need to follow the corrective action specified in the food safety program. The corrective actions may differ in different businesses but could include notifying the processor or transport company.

Second, there needs to be an investigation into the probable cause of the ‘loss of control’ of the hazard so that steps can be taken to make sure this incident does not happen again. For example, an investigation into why the cooling equipment is not working effectively needs to be undertaken to establish that the procedures in place are adequate and the equipment is fit for the purpose, to prevent a repeat incident. This may include adjusting the thermostat or, if necessary, having the unit serviced by an appropriate refrigeration technician. These actions should be documented in the food safety program.

## Review of the program

Clause 5(e) of Standard 3.2.1 requires that the food safety program must **provide for the regular review of the program by the food business to ensure its adequacy.** A review ensures that the food safety program is meeting its objective of controlling all potential food safety hazards that are reasonably likely to occur at each step of milk production activities. A review may be done by the individual farm or in conjunction with the milk processing company.

A review is necessary because activities of food businesses are not static; they change over time (for example, when new equipment is purchased). When changes take place that affect the food safety program, the food business must review the plan immediately, regardless of when the next review is scheduled.

Prompts to carrying out a review include:

### 1 Internal factors, for example:

- an internal audit (audit conducted by the business) finds non-conformances
- a new or different type of equipment is installed, initiating a need to validate the changed system
- changes are made to veterinary treatments or chemicals used for cleaning and sanitising
- change to a process or procedure

### 2 External factors, for example:

- audits by other parties (for example enforcement agencies, dairy processing business) find non-conformances

- information on new or emerging hazards or control measures
- changes to legislation, or new or amended codes of practice, templates or other food safety guidance material.

The food safety program must include information about the review of the program, such as:

- the person or persons in the business responsible for the review

The person should be someone familiar with the food safety program and the business's operations, and should have the authority to check records and act on the outcomes.

- when the review is to be carried out

A full review of the entire food safety program should be conducted routinely. The enforcement agency or dairy processing business may determine when a full review is to be conducted (for example, every year or two years). However, a more frequent review may be necessary, particularly where a loss of control is discovered (for example non-conformance) or there is a change in the business's operations. In this case the review need only be on the sections of the food safety program affected.

- the scope of the review

The scope should describe the food handling operations covered by the review, procedures and records to be checked, and whether any equipment is due for calibration checks.

- the records of the review to be kept

Subclause 5(f) of Standard 3.2.1 requires the food safety program to include appropriate record-keeping procedures. These records should include information on the review. For example, they should indicate who carried out the review, dates of reviews and their scope and outcomes, including action to correct any non-conformances.

There are two parts to a review: *validation* and *verification*.

### ***Validation***

As discussed under 'Control measures', validation is the action taken by the business to confirm that the controls in place are effective in controlling the hazards (that is, they prevent, eliminate or reduce a food safety hazard to an acceptable level).

The validation of a food safety program needs to occur before it is implemented as it confirms whether the control measures chosen will be effective. However, ongoing validation of the food safety program by the business must also be conducted as part of its review. This includes the following checks:

- all potential hazards that are reasonably expected to occur have been identified
- the controls in place are effective.

While controls may have been validated when the program was first developed, any changes to these controls or the introduction of new controls must be validated as part of the overall program.

### ***Verification***

Verification is the action taken by the business to confirm that the practices and procedures in the food safety program are in fact happening. Verification activities provide information to confirm that the program is working effectively.

Verification of a food safety program needs to occur after it has been implemented to check that it is operating as it should. The business must check that control measures (including support programs), monitoring activities, corrective actions and record keeping are actually happening in practice. The business must also check that all activities of the business are covered by the food safety program.

Examples of actions the business can take to verify its food safety program include:

- examining the records kept to ensure that milking personnel are completing them correctly, including the recording of any non-conformances and the corrective action taken
- confirming that temperatures are being checked and recorded in accordance with the food safety program
- observing that milking personnel are checking animals for treatment markings and identifying them according to farm practice
- testing of the milk for chemical residues or microorganisms, for example BactoScan (this is generally undertaken by the milk processor).

## Record keeping

Clause 5(f) of Standard 3.2.1 requires that the food safety program must **provide for appropriate records to be made and kept by the food business demonstrating action taken in relation to, or in compliance with, the food safety program.**

The food safety program must nominate what records will be kept and the business must keep these records. At a minimum, records must be kept for:

- monitoring actions
- corrective actions
- all reviews of the program.

These records must be 'appropriate', that is, they must provide sufficient information to show that the business is complying with the food safety program. Records must be legible and indicate:

- what the record relates to (for example, temperature of the milk vat)
- who made the record
- the date and, where relevant, the time the record was made
- the result of what is being recorded (for example the temperature)
- any action taken as a result of the recording (for example, the corrective action taken if monitoring found that the temperature was greater than 5°C).

All records will need to be kept at least until the food safety program has been externally audited, either by a second- or third-party auditor as required by the enforcement agency.

## Documenting the program

Clause 3 requires the food safety program to be documented. The food safety program must be a written document, in English, and be kept on the premises. The Commonwealth *Electronic Transactions Act 1999* also allows records and documents to be kept in an electronic form. An auditor or enforcement officer will need to see the food safety program, either in writing or on a computer system readily available on the premises, to satisfy himself or herself that this program contains the information required in clause 5 of Standard 3.2.1.



One way to document the requirements of a food safety program is to tabulate them. For each step in the business's food handling operations the potential hazards, corresponding controls, monitoring of those controls, corrective action and required records can be set out in columns. This is illustrated in the example below for the milk cooling step.

***Key step: Milk cooling***

Potential hazards	Control	Monitoring	Corrective action	Records
Microbiological (growth of pathogenic microorganisms or formation of toxins)	Milk cooled to below 5°C within 3.5 hours from start of milking	<b>What</b> Vat temperature Milking time  <b>Who</b> Operator  <b>When</b> 3.5hrs from the start of milking	If temperature > 5°C: • notify milk processor or transport company.  Investigate cause (for example: • thermostat setting • condition of plate cooler or water filter).  If necessary have unit serviced.	Milk collection docket  Record book or incident report  (Service report)
Microbiological, chemical and physical (contamination from equipment)	Cleaning and sanitation program  Maintenance program	(Details of monitoring activities covered in the support programs.)	(Corrective actions detailed in the support programs.)	Hygiene and maintenance checklists  Service report (or record book)

Matters that must be addressed in the food safety program are specified in clauses 4 and 5 and will be described under those clauses. In addition, the business may find it useful to include the following information in their food safety program.

***Details of the business***

- business name and licence or registration information where applicable
- name of proprietor(s) (this means the person(s) or company that owns the business)
- location of the property
- contact details of the business.

***Responsible persons***

- a list of all key personnel (for example managers or supervisors) and their roles and functions in terms of the food safety program. This includes the person responsible for the overall implementation of the food safety program.

Such a list ensures that all key roles and functions are covered and all staff understand their responsibilities, and gives an early indication of the need to review the list should staff leave the business or functions change.

### *Development of the food safety program*

- a brief description of how the food safety program was developed, for example whether the food business used a government-provided template, industry quality assurance program or external consultants, or developed the program in-house.

### *Auditing of the food safety program*

- information on how often the food safety program is required to be audited and who will be conducting the audit. This is based on information obtained from the relevant authority.

The business may also want to identify the relevant local government enforcement agency responsible for monitoring the activities of the business, and up-to-date contact details of this agency.

## **4 Specific requirements**

Food safety hazards are prevented, eliminated or reduced to a safe level through the implementation of control measures at each step of production

This clause specifies the control measures that must be included in the dairy primary production business's food safety program. Subclause 4(1) identifies where in the production chain control measures are required to manage hazards. Subclause 4(2) specifies certain control measures that must be included.

### **4(1) For clause 3, the control measures must manage the hazards arising from –**

#### **(a) inputs; and**

Inputs are defined as including any feed, water and chemicals, including agricultural and veterinary chemicals, used in connection with the primary production of milk or colostrum.

Primary production covers all on-farm activities, from farm management practices in relation to animal husbandry to those activities undertaken during the milk or colostrum collection and storage operations. Inputs need to be taken into account at each step in the production process.

### **Feed**

Chemical and microbiological hazards can indirectly be introduced into milk when lactating animals consume animal feeds, including pasture, that are contaminated with unacceptable levels of chemicals (for example agricultural chemicals or metal contaminants) or bacterial pathogens. The food safety program must include control measures that prevent, eliminate or reduce the introduction of these hazards into the milk from animal feeds. The control measures required may vary depending on whether the feed is purchased, pasture or silage.

### *Purchased stock feeds*

The dairy primary production business must ensure that purchased stock feed has been sourced, prepared, managed or treated in such a way that it does not result in unacceptable chemical or microbiological contamination of the milk supply. The business must obtain a vendor declaration to

this effect for stock feed purchased as part of the food safety program. Declarations must identify:

- name of supplier
- description of stock feed and date (or period) of supply
- chemical residue status
- any applicable withholding periods.

It is important that the declaration clearly states that all chemicals have been used according to their registered use pattern (for example rate of application and withholding period). A nationally recognised declaration for the grain and fodder industry is the Commodity Vendor Declaration (CVD)<sup>7</sup> form. Once purchased, stock feeds must be stored to prevent contamination from farm chemicals and in such a way that feed dust does not directly contaminate the milk.

Note that under state and territory legislation relating to stock feeds, any material derived from animals, with the exception of tallow, gelatine and dairy products, must not be fed to ruminants.

### ***Pasture***

Contamination of pasture by chemical or microbiological hazards may arise from:

- the use of agricultural chemicals or effluent on pasture
- previous use of pasture areas
- neighbouring properties.

Chemical pasture treatments must be in accordance with registered use patterns and observance of withholding periods (discussed below under 'Agricultural and veterinary chemicals'). Where the business has identified chemical contamination of pasture as a hazard, the food safety program should describe how treated pastures are identified to ensure that animals are not exposed to unacceptable chemical residues.

Contamination from effluent can introduce microbiological pathogens onto pasture so grazing areas should also be managed in order to minimise contamination from this source. For example, rotate stock away from sprayed paddocks or spray paddocks after the pasture has been grazed. Where such a hazard is identified, control measures must be identified in the food safety program.

If appropriate, consideration needs to be given to the previous use of grazing land and the potential for chemical contamination from this use, such as from polychlorinated biphenyls (PCBs—possible industrial contamination) or agricultural chemicals no longer permitted for use, for example organochlorines.

Where potential contamination from neighbouring properties has been identified, such as from spray drift or effluent, the food safety program must include the control measures put in place to manage any identified potential hazards (for example restricting stock movement).

### ***Conserved Fodder (Silage and Hay)***

Conserved fodder can be a source of chemical and microbiological hazards if the crops grown the fodder have been treated or, in the case of silage, is not stored and fermented appropriately.

Dairy primary production businesses that produce conserved fodder should identify in their food safety program the control measures that they have in place to manage chemical and microbiological

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<sup>7</sup> Available from the Meat & Livestock Australia website, refer to <[www.mla.com.au/TopicHierarchy/IndustryPrograms/LivestockQualitySystems/Livestock+Fodder+Declarations.htm](http://www.mla.com.au/TopicHierarchy/IndustryPrograms/LivestockQualitySystems/Livestock+Fodder+Declarations.htm)>.

risks arising from this feed, for example the observation of any withholding periods before cutting pasture or the effective sealing of bales.

## Chemicals

Chemicals used in dairy primary production include agricultural chemicals (pesticides, herbicides, fumigants), veterinary chemicals (antibiotics, endoparasiticides and ectoparasiticides), cleaning and sanitising agents, and water treatments. If not used, stored and disposed of correctly, unacceptable chemical residues can result in the milk or colostrum through indirect or direct contamination. The food safety program must include control measures that prevent, eliminate or reduce chemical hazards in the milk or colostrum resulting from chemical use on the farm.

### *Agricultural and veterinary chemicals*

All agricultural and veterinary chemicals must be registered (for example by the Australian Pesticides and Veterinary Medicines Authority), suitable for the intended use and used in accordance with the manufacturer's or a veterinarian's written instructions. Particular attention should be paid to the expiry date, dose or application rate, method of application or administration, and the frequency of the treatment.

Records for the use of agricultural and veterinary chemicals must be kept as part of the food safety program and should identify:

- the date of use
- who applied or administered the chemical
- the chemical used
- the rate of application or administration
- what was treated (for example paddock number, silo number, animal identification etc.)
- withholding period or clearance date.

All chemicals must be clearly labelled, in particular with information about their contents and directions for use, and stored in a secure manner in their original containers (where possible).

### *Cleaning and sanitising agents*

Cleaning and sanitising chemicals used on milking and storage equipment or for water treatment must be suitable for use in food premises and must be used in accordance with the manufacturer's instructions. The food safety program should include, as appropriate for each chemical, the dosing rate, volume of water, temperature and contact time to be used.

All cleaning and sanitising chemicals should be clearly labelled and stored in a secure manner in their original containers (where possible).

## Water

Water is an essential input on the farm as drinking water for stock, for the cleaning of premises, equipment and animals (for example, cleaning udder and teat surfaces), and for use in cooling systems. Water that is contaminated with unacceptable levels of chemical hazards or microorganisms may directly or indirectly contaminate milk if it is not managed and used appropriately. The food safety program must include control measures that prevent, eliminate or

reduce hazards in the milk or colostrum resulting from water use on the farm.<sup>8</sup> Traceability requirements in relation to water are discussed under clause 5.

### ***Milking shed water***

Water used at the dairy must be suitable for the purpose and not result in the direct or indirect contamination of milk, particularly by chemical or microbiological hazards. The food safety program should describe:

- the source of the water supplied
- any treatment of the water
- the uses for the water
- any applicable water management plan.

The suitability of the water may be periodically verified through testing (annually may be sufficient) and the water treated if necessary. This may include testing of turbidity or for bacterial indicators such as faecal coliforms or *Escherichia coli* as a measure of microbiological water quality.

### ***Stock water***

Milking animals must not consume or have access to contaminated water that is likely to result in the contamination of the milk with chemical or microbiological hazards. The source of drinking water for stock, either from groundwater or surface water (streams and dams) should be assessed for its suitability. This includes considering the potential for land use practices in the catchment area to affect water quality through contamination with pesticide residues, heavy metals, increased nutrients or pathogenic microorganisms. . Basic tests may include testing for bacterial indicators such as faecal coliforms or *Escherichia coli* while specialised tests for pesticide and herbicide residues or heavy metals may be appropriate for some stock water

Where a dairy primary production business has identified hazards in relation to stock water, the food safety program must identify the control measures in place to manage them. This could include:

- preventing livestock from accessing contaminated water sources
- managing effluent to prevent contamination
- sourcing alternative supplies.

## **4(1)(b) the design, construction, maintenance and operation of premises and equipment; and**

The premises and equipment used for milking and storage operations can be a source of contamination if they are not designed, constructed, operated and maintained appropriately.

The food safety program must include control measures that prevent, eliminate or reduce the introduction of hazards into the milk from the premises and equipment used in milk production activities, as appropriate.

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<sup>8</sup> Further information and guidelines on water use on the farm may be obtained from state and territory departments of primary industries and the environment, or the enforcement agency.

## Premises

Premises include any buildings or other structures where milking, chilling and storage activities occur, and adjacent animal holding areas. Premises must be designed and constructed such that they protect milk from contamination during milk production activities. Premises should:

- be appropriate for the dairy primary production operations that take place on the premises
- provide adequate space for the dairy primary production operations conducted
- allow for effective cleaning and, if necessary, sanitising
- to the extent that is practicable:
  - exclude dirt, dust, fumes, smoke and other contaminants
  - not permit the entry of pests or non-milking animals (for example poultry, pigs)
  - not provide harbourage for pests.

The siting and construction of premises, particularly in relation to water and waste management, should also be in accordance with any regulations or guidelines set by relevant local or state government agencies such as the state Environment Protection Authority.

The food safety program must address contamination from premises through the implementation of a cleaning and sanitising program (discussed under clause 4(2)(a)), and should include a maintenance program. The routine maintenance of premises should ensure a good state of repair and working order to:

- prevent contamination from flaking plaster, paint, timber, broken glass, leaking pipes etc.
- enable effective cleaning and, if necessary, sanitising
- ensure pests do not gain access from holes in ceilings, walls etc.

## Equipment

Equipment is defined in Standard 3.1.1 of the Code as ‘a machine, instrument, apparatus, utensil or appliance, other than a single-use item, used or intended to be used in or in connection with food handling and includes any equipment used or intended to be used to clean food premises or equipment’. The equipment used in dairy primary production includes:

- milking machines or units
- filters
- milk lines
- cooling units or heat exchangers
- cleaning equipment
- milk vats
- thermometers
- dipsticks
- any other utensil that comes into contact with milk used for further processing.

Equipment and utensils that are intended to come into contact with milk must be easy to clean and sanitise—the design should ensure there are no hidden crevices or recesses—and be corrosion resistant.

### ***Milking equipment***

The use of milking equipment can result in direct contamination of the milk if not adequately cleaned and sanitised. This equipment can also contribute to mastitis infections if not properly maintained and operated. Milking equipment should be installed and tested in accordance with the manufacturer's instructions and in accordance with any available technical standards. In Australia, nationally recognised testing procedures have been developed by the Australian Milking Machine Trade Association (AMMTA). Countdown Downunder<sup>9</sup> guidelines recommend that milking machines be fully tested and serviced to AMMTA standards at least once every year by a qualified technician.

The food safety program must address contamination from milking equipment through the implementation of a cleaning and sanitising program (discussed under clause 4(2)(a)) and should include a maintenance program. The maintenance program for milking machines should indicate how frequently milking machine performance tests are to be performed, and the reports of those tests should be retained by the business. Monitoring of the general operation and condition of the milking equipment should also be included, and corrective actions specified to ensure that the equipment is in good working condition.

### ***Milk cooling and storage equipment***

The equipment used in association with milk cooling and storage can be a source of contamination if not properly cleaned and sanitised. The equipment can also allow the growth of microorganisms if its cooling efficiency or refrigeration is not adequate. Milk cooling and storage equipment should be properly installed, maintained and tested in accordance with manufacturer's instructions or in accordance with any available technical standards, such as Australian Standard AS 1187—1996 Farm milk cooling and storage systems. Storage vats must not be used to store any substances that may subsequently contaminate the milk.

The food safety program must address contamination from milk cooling and storage equipment through the implementation of a cleaning and sanitising program (discussed under clause 4(2)(a)), and should include a maintenance program. The maintenance program for milk cooling and storage equipment should indicate how frequently cooling efficiency and refrigeration checks are to be made. The records or service reports of those checks should be retained by the business. Routine verification of milk cooling and storage is discussed under clause 4(2)(b).

The maintenance program should include monitoring of the general operation and condition of the milk cooling and storage equipment. Corrective actions should be specified to ensure that equipment is in good working condition. For example, the maintenance program may specify that the condition of milk hoses and seals are to be checked regularly and replaced if found to be perished or otherwise unsuitable for use. Thermometers used in milk vats or used to monitor milk cooling and storage should also be routinely checked for accuracy and calibrated accordingly (discussed further under clause 4(2)(b)).

### **4(1)(c) milking animals; and**

Milking animals can be a direct source of microbiological and chemical contamination of milk and colostrum if animal health and associated treatments are not managed appropriately. Milk for human consumption must only be sourced from animals that:

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<sup>9</sup> Information regarding the Countdown Downunder guidelines can be accessed from the website Countdown Downunder – The National Mastitis and Cell Count Control Program at <[www.countdown.org.au/](http://www.countdown.org.au/)>.

- do not show any evidence of infectious diseases transferable to humans through milk
- are in a good general state of health
- are clearly identifiable through stock identification procedures (covered under clause 5).

The food safety program must include control measures that prevent, eliminate or reduce the introduction of hazards into the milk from milking animals. These measures may include:

- stock introduction and culling procedures
- animal testing and treatment protocols.

Stock identification systems are generally an integral part of these measures (discussed in more detail under clause 5 Tracing).

## Animal health

Infectious diseases transferable to humans through milk generally include tuberculosis, brucellosis, listeriosis, salmonellosis and yersiniosis. Leptospirosis and Q Fever are other infectious diseases of dairy cattle which is also transmissible to humans, though generally through direct contact with the animal.<sup>10</sup> Programs in Australia have successfully eradicated bovine brucellosis and bovine tuberculosis.

Animals diagnosed with or showing clinical signs of these diseases must be identified and isolated from the milking herd. The food safety program must document the identification method used (discussed further under clause 5 Tracing) and procedures used for isolating:

- milk from animals showing evidence of infectious diseases to humans
- milk from animals treated with veterinary drugs within the withholding period

### 4(1)(d) persons involved in milking; and

Milking personnel can be a direct source of contamination if good hygienic practices are not employed during milking, or if personnel are suffering from a foodborne illness and are engaged in milk handling activities where there is a reasonable likelihood of contamination. The food safety program must include control measures for the health and hygiene requirements of persons involved in milking. These measures may be documented as the business's health and hygiene policy.

## Personal hygiene practices

Personal hygiene practices are measures that milking personnel take to avoid contaminating milk or equipment likely to be in contact with milk. Contamination could occur from foreign objects, microorganisms or chemicals that are transferred by personnel through direct contact with milk or as a result of contaminating surfaces that come into contact with milk (for example milking equipment, storage vessels).

The dairy primary production business should ensure that milking personnel carry out the personal hygiene practices that are necessary to prevent contamination of milk. The food safety program must document the personal hygiene practices that milking personnel are expected to follow. This could include, for example:

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<sup>10</sup> Vaccination programs are recommended to control leptospirosis and may be required by state authorities or the dairy processing business.



- a hand washing policy (for example, how and when hands are to be washed and dried)
- any rules regarding clothing requirements
- where on the premises eating is or is not permitted
- requirements for covering cuts and wounds.

### **Health of milking personnel**

Personnel that have symptoms of foodborne illness, or know that they are suffering from or are carriers of a foodborne disease, must not be involved in milking activities where there is a reasonable likelihood they could directly contaminate milk or equipment.

Symptoms of foodborne illness include diarrhoea, vomiting, sore throat with fever, fever or jaundice. These symptoms indicate that a person may be suffering from a disease and could be shedding pathogens that may contaminate the milk. Foodborne diseases that can be transmitted via food contaminated by infected handlers include gastroenteritis, hepatitis A, salmonellosis and campylobacter enteritis.

The food safety program must document the procedures to be followed when milking personnel have symptoms of or are suffering from a foodborne illness. This could cover, for example:

- what to do about personnel working if they report that they are unwell
- which illnesses or conditions mean a person is unable to undertake particular activities (for example milking).

#### **4(1)(e) milking practices.**

Milk can be contaminated with microbiological, chemical and physical hazards at the milking step directly from the animal, the equipment and milking personnel if good milking practices are not exercised. Additionally, if milking personnel do not operate milking equipment correctly there may be damage to the tissue of the teat of the animal, which can increase the risk of mastitis. Good milking practices include:

- ensuring that milking personnel maintain good personal hygiene
- ensuring that milking equipment is clean and sanitised, and in good working order
- ensuring that milking equipment is operated correctly
- minimising contamination from the animal (for example ensuring that teats are as clean and dry as possible).

The food safety program must include control measures that prevent, eliminate or reduce the introduction of hazards into the milk through the milking practices employed. These measures may be included in documentation in the business's support programs including:

- maintenance program (discussed above under 'Milking equipment')
- health and hygiene policy or related procedures (discussed above under 'Personal hygiene practices')
- cleaning and sanitising program (discussed below under the requirements for clause 4(2)(a)).

In relation to the correct operation of milking equipment, the dairy primary production business must ensure that milking personnel have the appropriate skills and knowledge to undertake milking activities (covered under clause 6 Skills and knowledge).

**4(2) For clause 3, the control measures must also—**

- (a) include support programs that ensure that premises and equipment are clean and sanitary and that pests are controlled; and**

As discussed under ‘Control measures’, support programs are systems that a business has in place to manage hazards that are common across steps in the production process. Clause 4(2)(a) specifically requires the primary production business to have a cleaning and sanitising program and a pest control program as controls within its food safety program.

**Cleaning and sanitising program**

A cleaning and sanitising program is a system that the business has in place to ensure that premises and equipment are effectively cleaned and sanitised (as appropriate) at the appropriate times and using the appropriate chemicals and cleaning equipment.

Cleaning is a process that removes visible contamination such as milk residues, animal manure, dirt and grease from a surface. For equipment, this process is usually achieved by the use of water and alkali- or acid-based detergents. Removal of manure from within the dairy and holding yards is generally achieved through washdown systems using hoses, hydrant systems or flood wash systems. It is important that there is a sufficient supply of water and hot water capacity to provide effective cleaning.

Sanitising is a process that destroys microorganisms, thereby reducing the numbers of microorganisms present on a surface. This is usually achieved by the use of sanitising chemicals or by heat and water. A surface needs to be thoroughly cleaned before it is sanitised because the effectiveness of sanitisers is reduced if residues are present.

The cleaning and sanitising system used may vary between individual dairy primary production businesses (for example flush cleaning, reverse flow cleaning, jetter cleaning) but must be effective in controlling contamination. Advice on cleaning and sanitising may be obtained from industry associations, the dairy processor or the enforcement agency.

The cleaning and sanitising program must be documented within the food safety program and should include:

- the cleaning and sanitising tasks for each area and piece of equipment
- frequency
- the personnel responsible for each task
- the cleaning equipment, chemicals (including concentrations) and methods to be used
- any records to indicate that cleaning was carried out (for example daily check list)
- who to report any problems to or corrective actions to be taken.

The cleaning and sanitising program must be written out and made available to all staff so that responsibilities are clear, no tasks are missed and correct cleaning procedures are followed. This may involve displaying cleaning procedures on the dairy wall near the area or equipment to be cleaned.

**Pest control program**

Pests include birds, rodents, insects, arachnids or any other animal that could contaminate milk

either directly or indirectly. Pests can carry pathogenic organisms that can contaminate the milk or equipment and may also cause physical contamination with hair, urine, faeces or their body, in whole or part.

A pest control program is a system that the business has in place to ensure that the milking premises are kept free from pests as much as practicable. This system should cover both preventative measures and eradication measures.

Preventative measures are those that prevent or minimise access of pests into the premises. Such measures may include:

- where appropriate, providing screens on windows and other openings and repairing screens when they become damaged
- removing potential harbourage sites (for example, removing clutter and maintaining a clean and tidy environment)
- ensuring there are no unnecessary holes or gaps in ceilings, walls and floors.

Eradication measures are those that repel pests from the premises or kill pests that enter the premises. Such measures may include:

- using chemicals (such as sprays or baits)
- using physical means (such as traps)
- using a professional pest controller (if pests cannot be controlled adequately by the business).

It is important that any pest control measures do not pose a risk of contamination to milk. As described above under clause 4(1)(a) for 'Chemicals', records should be kept in relation to any pesticide used.

The pest control program must be documented within the food safety program and include:

- the procedures describing the pest control measures and monitoring activities (for example inspecting for pest activity, checking of bait stations)
- the frequency of monitoring
- the personnel responsible for pest control or monitoring activities
- any records to show that pest control activities have been carried out (for example inspection reports, sighting reports)
- who to report any problems to or corrective actions to be taken.

Advice on creating and maintaining an effective pest control program may be sought from professional pest management services, the enforcement agency or dairy processor.

**4(2)(b) ensure that milk is cooled and stored at a temperature that prevents or reduces the growth of microbiological hazards in the milk; and**

Clause 4(2)(b) requires the primary production business to include a milk cooling regime and storage temperature as controls within the food safety program to prevent or minimise the growth of any microbiological hazards that may be present in the milk.

At milking, the temperature of milk leaving the animals is approximately 37°C. This temperature is optimum for the growth of many pathogenic and spoilage microorganisms. The temperature of the milk therefore needs to be reduced to, and kept at, a temperature that prevents or restricts bacterial growth.

Most foodborne pathogens do not grow at temperatures of 5°C or below. Cooling milk to or below this temperature will prevent or reduce bacterial growth and any bacterial toxin production. The faster milk is cooled to 5°C or below and stored at this temperature, the less opportunity there will be for pathogenic bacteria to grow.

The cooling of milk to 5°C or less within 3.5 hours from the start of milking has long been specified by dairy processors and dairy authorities as the cooling requirement for dairy primary production businesses. Commercial cooling and storage systems have been designed to achieve this cooling capacity.<sup>11</sup> However, an individual dairy farm's circumstances may affect its ability to comply with this specific cooling regime. For example, the time to milk larger herds (> 400 animals) may exceed 3.5 hours, depending on the milking system used, and therefore cooling to 5°C will take longer. Additionally, it may be the case that milk has not quite cooled to 5°C at the time of pick-up by the dairy transport business.

As discussed under 'Validation' (clause 3), the dairy primary production business needs to have the effectiveness of its cooling regime validated. Businesses that comply with the industry standard, that is, cool milk to 5°C or less within 3.5 hours, do not need to demonstrate the effectiveness of this time and temperature in preventing or reducing the growth of microbiological hazards. The business does need, however, to validate that the cooling equipment it uses does achieve this.

Where a dairy primary production business has in place an alternative cooling regime to meet its particular circumstances, the business may need to work in conjunction with the enforcement agency or processing company receiving its milk to demonstrate the effectiveness of its cooling and storage system.

The food safety program must include:

- how milk cooling capability is checked (for example monitoring of temperatures)
- the frequency of monitoring (for example when vat temperatures are checked)
- records to demonstrate conformance with the cooling and storage requirement (for example recording of vat temperatures in record book, service reports).

## Calibration

In order for dairy primary production businesses to monitor the cooling capacity of their equipment, the business needs to demonstrate that the thermometer used to measure the temperature of the milk is accurate. Thermometers, whether fixed as part of the equipment or handheld, must have been calibrated by the supplier when purchased. Documentation provided at purchase should refer to the accuracy limit of the thermometer supplied. The business needs to check, however, that the reading on the thermometer remains accurate over time.

The dairy primary production business may check the accuracy of a thermometer by comparing its reading against an already calibrated thermometer (supplied by, for example, a technician or the dairy processor). Routine servicing of cooling and storage equipment undertaken by trained technicians may also include checking the accuracy of thermometers. If the thermometer is not accurate, the business should record how far the instrument is out and the correction needed. Any adjustment to a thermometer should be performed by the supplier.

The food safety program should include:

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11 Australian Standard AS 1187—1996 Farm milk cooling and storage systems sets out minimum requirements for the design, construction and performance of bulk milk cooling and storage systems on farms.

- how thermometers are checked for accuracy
- how frequently checks occur
- any calibration records.

**4(2)(c) ensure that milk for human consumption is only sourced from healthy animals.**

Clause 4(2)(c) requires the primary production business to include controls within the food safety program that ensure that the milk collected is only from healthy animals. If the business cannot ensure the health status of its milking animals, the milk must not be used for human consumption. This requirement clarifies the obligation on the dairy primary production business to include control measures in its food safety program that manage the hazards arising from milking animals (clause 4(1)(c)). That is, controls must be in place to manage hazards in relation to animal health to ensure that milk is only sourced from healthy animals.

As described under clause 4(1)(c) above, milk for human consumption must only be sourced from animals that:

- do not show any evidence of infectious diseases transferable to humans through milk
- are in a good general state of health
- are clearly identifiable through stock identification procedures.

In order to ensure that milk is only sourced from healthy animals, the dairy primary production business also needs to have a system in place that enables the identification and isolation of any animals that either show evidence of disease or are undergoing veterinary treatment. Such a system should isolate unhealthy animals from the milking herd and prevent their milk entering the human food supply. The identification system used needs to be documented in the food safety program. Clause 5 Tracing specifically requires the dairy primary production business to include in the food safety program ‘a system that enables the tracing of animals to be milked’ and is discussed below.

## 5 Tracing

Product tracing contributes to the effectiveness and efficiency of control measures by enabling the source and distribution of the product to be identified at a specified stage in production.

This clause specifies that dairy primary production businesses must include a tracing or traceability system as part of their food safety program for the inputs used, the milking herd and the milk collected. The intent is to trace the movement one step backwards and one step forward.

**As part of the documented food safety program in clause 3, a dairy primary production business must have a system that enables the tracing of –**

**5(a) inputs; and**

As described under clause 4(1)(a), inputs include any feed, water and chemicals used in connection with the primary production of milk or colostrum. These inputs can be a source of microbiological and chemical hazards along the production chain if control measures are not implemented to prevent,

reduce or eliminate them. A system that enables the tracing of inputs should provide the dairy primary production business with the necessary information to support the control measures in place or carry out corrective actions if hazards arise.

## Feed

Purchased stock feed must be sourced, prepared or managed in such a way that it does not contain unacceptable chemical or microbiological contamination (discussed under clause 4(1)(a)). If a concern does arise with a batch of stock feed (for example an unacceptable chemical residue is detected and the supplier recalls the batch), the business needs to be able to identify if that batch was delivered to the farm and whether it has been used in order to take appropriate corrective action. To this effect, a system that enables the tracing of purchased stock feed would need to:

- identify each batch of stock feed purchased, including the supplier, the date of supply and quantity received
- identify when a particular batch of stock feed has been used.

The food safety program must include appropriate records of stock feed purchased, including vendor declarations (discussed under clause 4(1)(a)).

For pasture, the dairy primary production business should have a system that identifies when paddocks are unsuitable for grazing because of, for example, chemical treatments or effluent contamination. The food safety program must describe how paddocks are identified and include records of any chemical treatments, withholding periods or other hazards associated with a particular area.

## Chemicals

Chemical use on the farm must be appropriately managed so that unacceptable chemical residues do not result in the milk (discussed under clause 4(1)(a)). The tracing of chemical inputs on the farm must enable the business to account for all chemical use, clearly identifying when a chemical is used, what it has been used for and should include the quantity applied. A system that enables the tracing of chemicals should identify:

- the chemical used (name and batch number)
- the expiry date of the chemical
- the date of use
- what was treated
- the amount used (rate of application or administration)
- the withholding period or clearance date.

Records that detail the use of chemicals must be kept as part of the food safety program.

## Water

Depending on its intended use, water used by the dairy primary production business may be obtained from a number of sources including streams, dams, bores and tanks. The suitability of water as either stock drinking water or milking shed water is discussed under clause 4(1)(a). In relation to tracing, the business needs to be able to account for the source of the water used for each purpose. For example, water used in the milking shed in contact with milking equipment needs to be of greater

microbiological quality than water used for yard cleaning. A system that enables the tracing of water should identify:

- the source of the water supplied
- any treatment of the water
- the uses of the water.

The food safety program must describe the procedures in place to identify and manage water supplies.

#### **5(b) animals to be milked; and**

As discussed under clause 4(1)(c), stock identification systems are an integral part of control measures on farms to ensure that milk is only sourced from healthy animals to prevent contamination by microbiological and chemical hazards. In particular, such systems should enable tracing of:

- animals treated with veterinary drugs
- animals showing evidence of diseases infectious to humans.

Stock identification methods can include ear marking with tags (plastic, brass or electronic), ear tattooing and branding. This allows for individual animals to be permanently identified and provides a means of tracking them for stock introduction or movement and herd health management purposes. It may be a requirement of the relevant state or territory Department of Primary Industries that animals are identified with a National Livestock Identification Scheme (NLIS) device.<sup>12</sup> Whatever the identification system used, it must enable effective tracing of animals by the business.

As outlined in clause 4(2)(c) the dairy primary production business will also need a system to identify when an animal should not be milked for the bulk supply because, for example, it has been treated with a veterinary drug or is showing evidence of disease. The system used should:

- visually identify that the animal should not be milked
- be understood by all milking personnel.

The identification methods used by a dairy primary production business may vary and could include tags, paint, tape, leg bands etc. Such markings are generally temporary, but should be durable enough to last as long as necessary, such as the withholding period for a particular veterinary treatment.

The food safety program must document the stock identification methods, both permanent and temporary, used by the dairy primary production business, and include records of animal treatments.

#### **5(c) the milk produced.**

A system that enables the tracing of milk must identify when that milk left the primary production business. Depending on the size of the milking herd or location of the business, the milk collected may consist of a single milking or multiple milkings over one or two days. The food safety program should include records that identify:

- the date and time that milk leaves the dairy (alternatively these records may be retained by the transport company or dairy processor if the records are readily accessible)

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12 Information about the National Livestock Identification Scheme can be accessed from the Meat & Livestock Australia website at <[www.mla.com.au](http://www.mla.com.au)>.



- the volume of milk at collection
- the name and address of the milk recipient (dairy transport business).

This forward tracing works in combination with the tracing of animals to be milked to provide one step forward and one step back..

## 6 Skills and knowledge

Ensuring that personnel have the necessary skills and knowledge of food safety and hygiene matters relevant to the activities they carry out contributes to the control of hazards throughout the production chain.

**A dairy primary production business must ensure that persons undertaking primary production activities have skills and knowledge of food safety and hygiene matters commensurate with their work activities.**

This clause specifies that the dairy primary production business is responsible for ensuring that personnel undertaking primary production activities have the necessary skills and knowledge for the tasks they are engaged in.

### Skills and knowledge

A skill is the ability to carry out a task and in this case means that staff members have the ability to perform tasks or supervise tasks that are necessary to ensure the safety of milk being produced by the business. An example is having the skills necessary to operate and clean milking equipment.

Knowledge and understanding of the facts or principles associated with dairy food safety and hygiene. An example is having the knowledge that the correct storage temperature for milk is 5°C or below and that this prevents microbial growth.

The skills and knowledge must be commensurate with the work being undertaken. That is, staff need only have the necessary skills and knowledge for the work activities that they are responsible for. Staff who have responsibility for a number of duties would need more skills and knowledge of dairy food safety and hygiene to cover a variety of tasks.

### Obtaining skills and knowledge

The clause does not specify how the dairy primary production business must ensure that staff have the appropriate skills and knowledge and, therefore, the business may choose the approach that best suits their circumstances. Such approaches may include:

- on-the-job training
- formal training courses
- documented operating procedures or work instructions that explain the staff members' responsibilities.

It is important that competencies in dairy farm skills and knowledge are assessed, and maintained or improved over time.

### ***On-the-job training***

On-the-job training is likely to be the most common practice by which personnel obtain skills and knowledge on the farm. Many people learn best through observation and by repeating the task or behaviour themselves. In addition to observing tasks, it is helpful to explain the reasons for doing the task or observing certain behaviours because people are more likely to consistently use skills if they know they are necessary. It is also beneficial to provide documented work procedures or work instructions that explain the staff members' responsibilities.

The use of a staff duties sheet is a useful way to ensure that staff have the necessary skills and knowledge to undertake the activities they are responsible for. For example, a staff member may be given responsibility of a number of tasks:

- milking machine operation
- bulk milk vat operation
- mastitis treatment and detection
- cleaning of milking equipment and bulk milk vat.

To carry out these tasks effectively and ensure the food safety of the milk, the staff member may need to have skills and knowledge in a number of areas including:

- animal identification systems
- milking procedures
- preparation of animals for milking
- machine operation (milking equipment/heat exchanger/bulk milk vat)
- mastitis detection
- cleaning procedures (daily/weekly/monthly)
- farm chemical use.

The staff duties sheet can make clear that appropriate training has been provided for each duty the staff member is responsible for. This may include, where necessary, that formal or off-the-job training has been completed.

### ***Formal training***

In order to undertake or supervise certain tasks, formal training may be desirable. For example, it is a requirement under the *Agricultural and Veterinary Chemicals (Control of Use) Act 1992* that users of some specified chemicals (such as Schedule 7 chemicals) have an Agricultural Chemical Users Permit. This may require undertaking the Farm Chemicals Users Course or any other accredited chemical training course.<sup>13</sup>

It may also be appropriate for staff to gain basic skills during or before they undertake on-the-job training. Agricultural training packages have been developed nationally to provide formal training in many on-farm competencies in the dairy sector. Through completion of competency-based courses the successful participants have demonstrated their ability to apply skills and knowledge.

Dairy processing businesses may also provide formal training for various farm competencies.

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<sup>13</sup> ChemCert Australia is the national industry training organisation for farm chemical use, providing state-based training and accreditation. Information on ChemCert training can be found at <[www.chemcert.org.au](http://www.chemcert.org.au)>.

## Glossary

This glossary is an alphabetical listing of all the definitions and terms relevant to Standard 4.2.4 that are included in standards 2.5.1, 3.1.1, 3.2.1 and 4.2.4. The applicable standard or interpretive guide to a standard is referenced at the end of each definition.

### **Authority**

means the State, Territory or Commonwealth government agency or agencies having the legal authority to implement and enforce this Standard. (Standard 4.2.4)

### **Clean**

means clean to touch and free of extraneous visible matter and objectionable odour. (Standard 3.1.1)

### **Contaminant**

means any biological or chemical agent, foreign matter, or other substances that may compromise food safety or suitability. (Standard 3.1.1)

### **Contamination**

means the introduction or occurrence of a contaminant in food. (Standard 3.1.1)

### **Control measure**

means a measure that prevents, eliminates or reduces to an acceptable level, a food safety hazard. (Standard 4.2.4)

### **Dairy primary production**

means the production of milk or colostrum for further processing for human consumption and includes the keeping, grazing, feeding and milking of animals and the storage of milk on the premises at which the animals were milked. (Standard 4.2.4)

### **Dairy primary production business**

means a business, enterprise or activity that involves dairy primary production. (Standard 4.2.4)

### **Dairy processing**

includes the manufacture of dairy products. (Standard 4.2.4)

### **Dairy processing business**

means a business, enterprise or activity that involves dairy processing. (Standard 4.2.4)

### **Dairy products**

include –

- (a) milk; and
- (b) colostrum; and
- (c) liquid milk products; and
- (d) cream and thickened cream; and
- (e) butter, butter concentrate, buttermilk, concentrated buttermilk, dairy blend, ghee, and anhydrous milk fat (butter oil);
- (f) casein, caseinate, and cheese; and
- (g) whey, whey cream and concentrated whey cream; and

- (h) cultured milk and yoghurt; and
- (i) ice-cream and ice-cream mix; and
- (j) buttermilk powder, lactose powder, milk sugar, powdered milk, skim milk powder, whey powder, milk protein powder and other milk concentrates. (Standard 4.2.4)

**Dairy transport business**

means a business, enterprise or activity involving the collection and transport of milk from the dairy primary production business to the processing business or the transport of bulk milk or dairy products between dairy processors. (Standard 4.2.4)

**Equipment**

means a machine, instrument, apparatus, utensil or appliance, other than a single-use item, used or intended to be used in or in connection with food handling and includes any equipment used or intended to be used to clean food premises or equipment. (Standard 3.1.1)

**Food business**

means a business, enterprise or activity (other than primary food production) that involves –

- (a) the handling of food intended for sale; or
- (b) the sale of food;

regardless of whether the business, enterprise or activity concerned is of a commercial, charitable or community nature or whether it involves the handling or sale of food on one occasion only. (Standard 3.1.1)

**Food handling operation**

means any activity involving the handling of food. **Handling** of food includes the making, manufacturing, producing, collecting, extracting, processing, storing, transporting, delivering, preparing, treating, preserving, packing, cooking, thawing, serving or displaying of food. (Standard 3.1.1)

**Food safety program**

means a food safety program that satisfies the requirements of clause 5 of Standard 3.2.1. Clause 5 states that:

A food safety program must –

- (a) systematically identify the potential hazards that may be reasonably expected to occur in all food handling operations of the food business;
- (b) identify where, in a food handling operation, each hazard identified under paragraph (a) can be controlled and the means of control;
- (c) provide for the systematic monitoring of those controls;
- (d) provide for appropriate corrective action when that hazard, or each of those hazards, is found not to be under control;
- (e) provide for the regular review of the program by the food business to ensure its adequacy; and
- (f) provide for appropriate records to be made and kept by the food business demonstrating action taken in relation to, or in compliance with, the food safety program. (Standard 3.2.1)

**Hazard**

means a biological, chemical or physical agent in, or condition of, food that has the potential to cause an adverse health effect in humans. (Standard 3.1.1)

**Inputs**

includes any feed, water and chemicals, including agricultural and veterinary chemicals, used in connection with the primary production of milk or colostrum. (Standard 4.2.4)

**Milk**

means the mammary secretion of milking animals, obtained from one or more milkings for consumption as liquid milk or for further processing but excludes colostrum. (Standard 2.5.1)

**Milk pasteurisation**

- (a) heating to a temperature of no less than 72°C and retaining at such temperature for no less than 15 seconds; or
- (b) heating, using any other time and temperature combination of equivalent or greater lethal effect on any pathogenic micro-organisms in the milk; or
- (c) using any other process that provides an equivalent or greater lethal effect on any pathogenic micro-organisms. (Standard 4.2.4)

**Monitoring**

includes checking, observing or supervising in order to maintain control. (Standard 3.2.1)

**Pests**

includes birds, rodents, insects and arachnids. (Standard 3.1.1)

**Pesticide**

an agricultural chemical used in dairy primary production. (Clause 4(1)(a) of the Interpretive Guide to Standard 4.2.4)

**Premises**

include any buildings or other structures where milking, chilling and storage activities occur, and adjacent animal holding areas. Premises should be designed and constructed such that they protect milk from contamination during milk production activities. (Clause 4(1)(b) of the Interpretive Guide to Standard 4.2.4)

**Primary production**

covers all on-farm activities, from farm management practices in relation to animal husbandry to those activities undertaken during the milk or colostrum collection and storage operations. (Clause 4(1)(a) of the Interpretive Guide to Standard 4.2.4)

**Reasonably expected to occur**

means the hazard is foreseeable, typical or likely to occur due to the specific nature, storage, transportation, preparation or handling of the food. (Clause 3(a) of the Interpretive Guide to Standard 3.2.1)

**Sanitise**

means to apply heat or chemicals, heat and chemicals, or other processes, to a surface so that the number of micro-organisms on the surface is reduced to a level that –

- (a) does not compromise the safety of food with which it may come into contact; and
- (b) does not permit the transmission of infectious disease. (Standard 3.2.3)

## Contacts for advice and information

New South Wales Food Authority

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Silverwater NSW 1811

Phone: 1300 552 407 website: [www.foodauthority.nsw.gov.au](http://www.foodauthority.nsw.gov.au)

Safe Food Production Queensland

PO Box 440

SpringHill Qld 4004

Phone: 07 3253 9800 website: [www.safefood.qld.gov.au](http://www.safefood.qld.gov.au)

Dairy Authority of South Australia

33 Hutt Street

Adelaide SA 5000

Phone: 08 8223 2277

Dairy Food Safety Victoria

PO Box 840

Hawthorn Vic 3122

Phone: 03 9810 5900 website: [www.dairysafe.vic.gov.au](http://www.dairysafe.vic.gov.au)

Tasmanian Dairy Industry Authority

PO Box 303

Devenport Tas 7310

Phone: 03 6421 7689

Department of Western Australia, Department of Health

Environmental Health Services

Dairy Safety Branch

Phone: 08 9388 4999

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