Milk, Cheese and Yogurt

Australia now produces more than 100 varieties of cheese. The following table outlines the Australian categories of cheese.

<table>
<thead>
<tr>
<th>Cheese Category</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh unripened cheese (or soft white cheese)</td>
<td>Delicate milk flavour. Soft, moist, spongy body. Short shelf life.</td>
<td>Feta, Ricotta, Quark, Cream Cheese, Neufchatel, Cottage Cheese, Mascarpone</td>
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<tr>
<td>Stretched curd cheese</td>
<td>Close texture semi-soft cheese. Stretches when cooked. Fresh types are moist and delicate in flavour.</td>
<td>Monzanello, Rocconino, Haloumi, Provolone</td>
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<tr>
<td>White mould cheese (surface ripened or white rind cheese)</td>
<td>Surface ripened. Velvety white rind with creamy golden interior. Develops buttery, ‘flowing’ centre and mushroomy aroma with age.</td>
<td>Brie, Camembert, Triple Cream</td>
</tr>
<tr>
<td>Washed rind cheese</td>
<td>Surface ripened, soft cheese that has been washed during aging to develop flavour. Brown sticky rind with golden yellow interior which softens with age. Pungent aroma. Sweet tasting.</td>
<td>Semi-soft Washed Rind, Wine Washed Rind, Reblochon</td>
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<tr>
<td>Semi-hard cheese (Cheddar and Cheddar style)</td>
<td>Semi-hard cheese with a flavour that varies from bland and buttery (mild) to the sharp bite of Vintage. Texture becomes firmer and more crumbly with age.</td>
<td>Cheddar (mild, tasty, vintage or processed), Cheshire, Club cheese, Colby, Red Leicester, Lancashire, Gloucester</td>
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<tr>
<td>Eye Cheese</td>
<td>Has ‘eyes’ or holes produced by carbon dioxide during maturation. Slightly sweet, subtle piquant flavour. Firm but moist body with open texture. Buttery, golden yellow colour.</td>
<td>Edam, Emmental, Fontina, Goeda, Gruyere, Havarti, Swiss-style, Raclette, Tilsit</td>
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<tr>
<td>Blue Cheese</td>
<td>Soft cheese with veins of green, grey or blue mould. Strong, tangy flavour with salty finish.</td>
<td>Georgonzola, Danish Blue, Blue Brie</td>
</tr>
<tr>
<td>Hard Cheese</td>
<td>Mostly used for grating but also excellent table cheese. Pale to golden yellow with a sharp, robust flavour and grainy texture.</td>
<td>Parmesan, Pecorino, Romano, Pecorino</td>
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</tbody>
</table>

The fat content of cheese varies considerably. For example, cottage cheese and ricotta contain less than 10% fat whereas harder cheeses contain approximately 35% fat. Many types of cheese are available in both regular-fat and reduced-fat varieties (containing around 25% fat). Check the nutrition information panel to compare the fat content of individual cheeses.

Cheese, like milk and yogurt contains many nutrients. Cheese also has some unique properties. Research has shown that cheese can help prevent the formation of dental caries. This is because it contains anti-decay components such as casein (milk protein which is concentrated in cheese), calcium and phosphorus. The Australian Dental Association recommends eating cheese after a sugary food to help neutralise the acid produced by plaque bacteria. As cheese contains negligible lactose (as it is removed with the whey during processing) cheese is a great dairy choice for people who are lactose intolerant.

Enjoy dairy every day

We hope this information has inspired you to explore the wonderful variety of naturally nutritious Australian dairy foods for all their delicious tastes and flavours.

Milk

Milk is considered one of the most nutritionally ‘complete’ foods and the richest source of calcium in the Australian diet. Milk is enjoyed both on its own and as an ingredient.

The process of moving milk from the cow to the carton is a high tech one. These days, rather than milking by hand, cows are milked mechanically using suction cups which are secured to the cow’s teats. The milk is cooled soon after milking by passing it through a series of stainless steel pipes to large refrigerated vats where it is stored at around 4ºC. From here, sterile refrigerated tankers take the milk to the milk factory where it is pasteurised and homogenised.

Pasteurisation is the process whereby milk is partially sterilised to destroy harmful bacteria and extend its shelf life. Milk is generally heated to 72ºC for no less than 15 seconds and cooled immediately. In Australia, cows’ milk is required by law to be pasteurised before it is sold.

For most Australians, milk and other dairy foods have been enjoyed as a staple part of our diets since early childhood. As one of the five core food groups, dairy foods play a key role in a balanced diet. Dairy foods are convenient and tasty products that naturally contain over ten essential nutrients including calcium, vitamins A and B12, riboflavin, carbohydrate, protein, potassium, phosphorus, magnesium and zinc. Three serves of dairy every day will provide most people with their daily calcium requirement plus significant amounts of the other essential nutrients. Three serves can include a glass of milk (250ml), a tub of yoghurt (200g) or two slices of cheese (40g).

The Australian dairy industry produces a huge variety of dairy products – there is something to suit every lifestyle, palate and occasion. Here is some information on the range of dairy products available and how they are delivered to us, all the way from the pasture to our plates.

In the days of milk bottles and aluminium tops, cream would separate and rise to the top of the milk. Today, most milk is homogenised by passing it through very fine nozzles under pressure, evenly dispersing the fat globules to create a smooth, creamy texture and taste.

The milk is now set to be transformed into a wide variety of dairy products including cheese, yoghurt, cream, butter, ice cream and various types of milk (outlined below).

Reduced-fat, low-fat and skim milk

Some or all of the cream in regular-fat pasteurised milk is removed to produce reduced-fat and skim milk. Regular-fat milk contains on average 3.8% fat. Reduced-fat milk must contain 25% less fat than regular-fat milk, while low-fat milks must contain less than 1.5% fat. Skim milk has no more than 0.15% fat. The percentage fat (grams of fat per 100mL) will be listed in the nutrition information panel on the milk label.

<table>
<thead>
<tr>
<th>Type of milk</th>
<th>Fat content</th>
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</thead>
<tbody>
<tr>
<td>Regular-fat milk</td>
<td>Approx. 3.8% fat</td>
</tr>
<tr>
<td>Reduced-fat milk</td>
<td>25% less than regular-fat milk (therefore &lt;2.85% fat)</td>
</tr>
<tr>
<td>Low-fat milk</td>
<td>&lt;1.5% fat</td>
</tr>
<tr>
<td>Skim milk</td>
<td>&lt;0.15% fat</td>
</tr>
</tbody>
</table>

Fat-modified milks are generally slightly higher in calcium than regular-fat milk. This is because removing the fat increases the levels of the remaining nutrients. Some fat-modified milks may also have further calcium added.

Longlife milk

Longlife milk is milk (regular-fat, reduced-fat or skim) that has undergone a short heat treatment (ultra heat treatment – UHT) which ensures that all harmful bacteria are destroyed. Longlife milk can be stored unopened out of the refrigerator for extended periods but must be refrigerated once opened.

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Powdered milk
The water in regular-fat or fat-modified milk is evaporated to produce dried milk particles. A natural substance called lecithin is added to prevent the powdered milk clumping together. Powdered milk can be reconstituted with the addition of water. Milk powder can be stored out of the refrigerator until it has been reconstituted. From then on it should treated the same way as fresh milk and stored in the fridge.

Flavoured milk
A variety of popular flavours such as chocolate, strawberry and banana are added to regular-fat or reduced-fat milk (fresh or longlife). They may be sweetened with sugar or artificial sweeteners.

Buttermilk or cultured milk
Buttermilk has a tangy flavour and is excellent for baking. Buttermilk is made by adding a special starter culture to pasteurised milk to develop the flavour and acidity.

Evaporated milk
Evaporated milk is made by gentle evaporation of water which increases the proportion of milk solids. After concentration, the milk is canned and sterilised to destroy bacteria and enzymes to ensure long shelf life. Evaporated milk is also available in regular-fat and low-fat varieties.

Sweetened condensed milk
Sweetened condensed milk is made by the addition of sugar to the milk prior to evaporation. This sweetened milk then undergoes a gentle heating and evaporation process. This concentrates the milk solids and caramalises the sugars to produce the sweet caramel flavour. After concentration, the milk is canned and sterilised to destroy bacteria and enzymes to ensure long shelf life.

Specialty milks
For people with lactose intolerance who may be limited in the amount of milk they can consume, there is also a range of milks that are lactose-reduced or lactose-free. Lactose-reduced or lactose-free milks are available as fresh or longlife products. There are also a number of milks fortified with nutrients like vitamins and minerals (eg iron, folate, vitamin D) or omega-3 nutrients for additional health benefits.

Yogurt
Regarded as the world’s first ‘health food’, yogurt has been made for centuries. Originally, it was made in order to preserve milk and for its health benefits. Yogurt, a type of fermented dairy food, is made by the addition of live bacterial cultures to milk. There are five steps in the yogurt process:
1. Skim milk powder is added to milk. This increases the protein content and helps produce the smooth texture and characteristics of yogurt.
2. The milk is then homogenised and pasteurised.
3. Bacterial starter cultures are added. These convert the milk sugar (lactose) into lactic acid which aids the setting of the yogurt.
4. The yogurt is stored in controlled temperatures (42°C to 43°C) for an incubation period of between four and six hours.
5. Sometimes, fruit or flavourings are added to enhance the taste and provide a wider range of products for consumers.

In addition to the bacterial starter cultures, other bacterial cultures, known as probiotics, may be added to yogurt for their health benefits. Probiotic bacteria are special ‘friendly’ bacteria that can prevent the powdered milk clumping together. This is fermented in bulk with the fruit or flavouring and emulsifiers is frozen to make a smooth textured ice dessert.

Modified fat yogurts
Yogurts, like milk, are available with a range of fat contents. Reduced-fat yogurts must contain at least 25% less fat than regular yogurts while low-fat yogurt contains less than 3g of fat per 100g of yogurt. ‘No-fat’ or ‘fat-free’ yogurts must contain less than 0.15g fat per 100g. The nutrition information panel on the label is useful for comparing products.

Dairy desserts
There is also a range of chilled dairy desserts which are not based on yogurt. For example, fromage frais is a cheese based dessert, and there are custard type desserts that are packaged in a similar way to yogurt.

Cheese
Cheese is fermented milk that is heated to kill all but the most heat resistant bacteria. This is then cooled and cultures are added to encourage specific bacterial growth. These cultures mature the cheese and develop its unique characteristics.

1. Standardisation
The ratio of proteins and fats in milk are standardised to ensure that the composition of the final cheese is uniform.

2. Pasteurisation
The overwhelming majority of cheese made in Australia is made from pasteurised milk. However, certain low moisture, hard cheeses which are matured for at least six months may be made from unpasteurised milk, provided a legally approved process is strictly followed.

3. Cheese starter cultures
Most cheeses are begun by adding an acidifying starter culture to milk. This produces lactic acid from the milk sugar (lactose) and assists in developing the texture and flavour of the cheese. The type and quantity of starter culture varies for each style of cheese and helps give the cheese its unique characteristics.

4. Coagulation of the milk
Coagulation of the milk is the first step to converting the liquid milk to a solid cheese. Milk for fresh cheese is coagulated by the lactic acid from the starter cultures. For matured cheese, an enzyme called rennet is added to the milk used to form the curd. Rennet is produced naturally in the stomachs of calves or can be made from non-animal sources such as plants and particular bacteria.

5. Cutting and stirring the curd
The curd is cut into cubes and stirred to release moisture called whey. In addition to water, whey also contains lactose and some protein.

6. Heating
The curds are cooked by a gentle heating process to help remove more whey. Drier, mature cheeses are cooked, while most fresh cheeses are not.

7. Salting
Salt is added to enhance the flavour and preserve the cheese. It also helps reduce the moisture level and can restrict the growth of undesirable bacteria.

8. Hooping
Once the curds have achieved the correct firmness and acidity, they are placed into hoops or moulds to form the shape of the cheese.

9. Pressing
Most semi-hard to hard cheeses are pressed in mechanical presses. This helps the curd to fuse together and helps to remove more of the whey. Most soft cheeses are not pressed.

10. Maturing
Cheese is matured cool rooms where the temperature and humidity are tightly controlled. The temperature, humidity and period of maturation vary with the style of cheese.

11. Wrapping
The style of cheese dictates how and when the cheese is wrapped.