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Fact Sheet
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Egg Quality and Storage

Eggs in the shell store quite well for long periods of time in the refrigerator without spoiling. They have good natural defence systems. However, over a long period you will be able to detect quality and flavour changes. You can also freeze broken out eggs at home.

Egg quality – What to look for

If you look closely at a shell egg held against a bright light in a dark room you will be able to see an air gap, usually at the blunt end of the egg. In a fresh egg this air cell is quite small but as the egg ages, water is lost from the 17,000 pores in the egg and the air cell gets larger. Also you can see a large moving shadow in the egg which is the yolk floating about in the white. In fresh eggs the yolk is small and in the centre of the egg. If you hard boil an old egg, you can quite clearly see the air cell indentation in the top of the egg. When you cut along this hard boiled egg lengthways you will see that the yolk has moved off centre.

A quick test for freshness is to check if the raw egg in the shell sinks in a basin of water. Fresh eggs stay at the bottom of the bowl while stale eggs stand on end or float because of the large air cell.

Other factors such as a weak shell and fine cracks may also cause the egg to float.

Good quality, fresh eggs display certain characteristics when broken out. The yolk is small and rounded and stands high in a thick, gel-like egg white which tends to stay compact rather than spread out over a wide area. As eggs age, the yolk becomes larger and flatter, until it eventually breaks. The thick egg white becomes thin and runny. By this time the egg will also have developed a stale odour and flavour.

For long term storage life – control the temperature

The easiest way to maintain eggs at high quality is to store them in cartons in the refrigerator as soon as possible after they are laid. Clean eggs, free of visible defects of the shell and contents, will then remain at high quality for up to three months and will still be as 'fresh' as eggs stored for seven days at room temperature. They can be stored for longer periods but the quality will begin to deteriorate noticeably.

The cartons reduce water loss and help prevent flavours from other foods from being absorbed into the eggs.

Only clean, uncracked eggs should be stored. Dirty eggs should be used immediately or frozen as pulp (see method below). Under no circumstances should eggs for inshell storage be washed as this removes the surface bloom and makes the eggs more susceptible to attack by microbes. Keep clean and dirty or cracked eggs separate to avoid contamination of the clean eggs.

Oiling of eggs

Where it is difficult to refrigerate eggs a coating of oil may be applied to help preserve them. Although on its own this is not as effective as refrigeration, it does slow down the loss of quality of the egg and if the eggs are then stored in a cool place you should obtain about three weeks of high quality life in most parts of Australia (in the tropical regions you may only get about two weeks). Research has shown that if oiling is to have maximum benefit it should be carried out on the day the egg is laid.

One of the following oils may be used but other commercial mineral oils may be suitable:

- Paraffin oil
- Ampol technical white oil No. 3
- Caltex White Oil Pharma 15.

This should be applied with a manual pressure spray (similar to that used to mist plants) so that the egg is completely covered with a fine film of oil.

The eggs can then be put in clean cartons and stored until required. Once again only clean, sound eggs should be used.

Before boiling oiled eggs it is important to prick the shells to allow the air to escape otherwise the eggs will crack open.

Freezing of raw egg

Excess eggs, whose shells are free of cracks, can be frozen as whole egg pulp, egg yolks or egg whites. Raw egg whites freeze well but yolks undergo gelation and when thawed are thick and gluggy. Such yolks do not beat well and cakes and other products made are disappointing.

The problem can be overcome by lightly beating the egg yolks and whole eggs then adding a small amount of sugar or salt to the eggs before freezing.

Add one teaspoon of salt or one tablespoon of sugar to every six egg yolks or eggs. Freeze in small amounts of one to two eggs (about 55g to 100g). Use the salted yolks in savoury dishes and the sugared yolks for cakes, custards and desserts. Don't forget to label the packages as 'salty' or 'sweet'. These should keep in the freezer for up to 10 months.

Egg safety

Eggs, like other protein foods such as meat, fish and poultry, may be contaminated with microbes which can, if allowed to grow, cause food poisoning. There have been many documented outbreaks of salmonella food poisoning from poorly handled eggs.

Salmonella is easy to destroy in cooking. Any food cooked uniformly to a temperature of 72^{o}C will be free of salmonella. The problem is that we often eat eggs raw or only lightly cooked. Such foods, along with shell eggs, should be treated as though they were contaminated.

Safety Tips

A few simple steps will significantly reduce the risk of food poisoning from egg dishes.

- Buy your eggs from supermarkets or shops
- which store them in the refrigerator or at least in a cool area of the store. Refrigerate your eggs immediately on arriving home – treat them like you treat your milk.
- If you make dishes in which the eggs are only lightly cooked, such as some sauces, serve the food immediately or refrigerate. Don't let it stand around at room temperature.
- Any soufflés, egg nogs etc., containing raw eggs must be kept in the refrigerator until just before they are eaten. Avoid giving young children, the elderly and people with impaired immune systems foods containing raw or lightly cooked eggs.
- Observe good personal hygiene when preparing food; always thoroughly wash your hands before starting to prepare food and after handling raw foods.