



cheesemaking

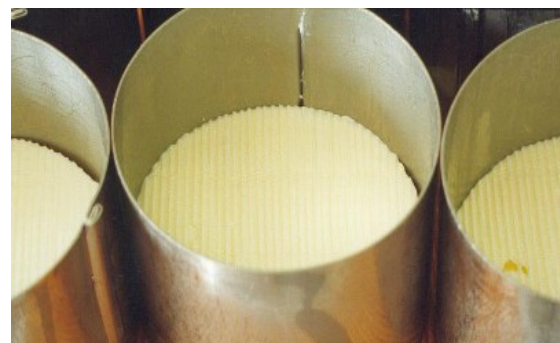


Turning farmhouse hard cheeses as they mature on the rind.

what is it?

It's using the protein and some of the fat and mineral salts from milk to make something that keeps better - a way of preserving milk by taking most of the moisture out. Cheese was the first 'convenience' food, and was probably first properly made c. 5000 years ago in the Middle East. We can't be 100% sure, but vessels from that era have been found that look like they were for draining curd. Certainly the ancient Greeks and Romans made sheep's cheese, there are a couple of mentions of cheese in the Bible, and draining vessels from pre-Roman Britain have been found. Cheese was a good way of storing milk protein for when there wasn't much milk around, and in the Middle Ages it was a source of protein in the winter. Until the 19th century, all cheese was 'farmhouse' - i.e. made on the farm; but then big factories started making large quantities of cheese. During World War II, a standard recipe was used to produce as much cheese as possible, and most farmhouse cheesemakers went out of business. Very little farmhouse cheese was made during the 50s and 60s, but since then, interest has increased and there are more farmhouse/artisan producers now. In all cultures where milk is part of the diet, cheese is also made. The type of cheese depends on the climate and the type of milking animal available. In India, vinegar or lemon juice is used to coagulate hot milk to make paneer cheese (a suitable process for a hot climate with no refrigeration). Mediterranean cheeses tend to be either hard (like Parmesan) or salty (like feta), because they keep better in a warm climate.

Curd is the solid produced either by heat & acidity or the addition of rennet. It contains milk protein, fat, salts and the remaining lactose. Whey is the liquid remaining when acid is used to coagulate the curd, or when renneted curd is cut. Cheese keeps because a) it's acid, b) it doesn't contain much moisture, and c) it has salt added. There are 3 basic types of cheese. The simplest is made by adding an acid (e.g. lemon juice) to hot milk - curd is formed immediately and whey is strained off. This type of curd cheese (e.g. paneer) doesn't keep well. The second is made using a starter and rennet (most cheeses are made this way). A lactic-acid-producing bacteria (starter) is added to warm milk, then adding rennet makes the milk go solid (rennet is a mix of enzymes from animals' stomachs, but there are plant-based rennets too). The solid milk is then spooned into moulds to make soft cheese, or cut with a knife (which releases whey), then stirred and heated gently to make hard (pressed) cheese. The third type of cheese is made using the whey produced from the second type to make ricotta cheeses. The whey is heated to near boiling, adding extra milk if required, then the soft, white solid that appears is skimmed off. Most soft and hard cheeses are variants of type 2. With soft cheeses, the curds and whey are spooned into moulds and the whey drains on its own. With hard cheeses, the curds are cut and the whey released, then the curds and whey are stirred and heated, then pressed. Moulds (penicillium) can be added to produce blue veins, or the white overcoat of brie-type cheeses. They are soft or semi-soft cheeses (Stilton isn't pressed), and the moulds are added purely for taste. Cottage cheese is also a variant of type 2, as it starts life with a starter and rennet. The curd is cut, and when the pieces of curd start to harden they are chilled in very cold water, which stops them from sticking together.



Drained soft cheese in moulds.



what are the benefits?

- cheese is an excellent source of protein, energy and calcium
- it's also an efficient way of keeping milk protein safe and storing it over time
- it's a versatile and useful food - all of it can be eaten, and it's called for in many recipes
- hard cheese is the only high-protein, ready-to-eat food that doesn't require refrigeration, thereby saving energy
- people who are lactose-intolerant (possibly the majority of the world's adults) are often fine with cheese, as most of the lactose has been converted to lactic acid
- whey is an acidic by-product that can be used as a raising agent when making scones etc.
- cheesemaking can be an interesting hobby, especially if you have your own milking animals; it can be a valuable food and income source for a smallholding, and if it all goes horribly wrong, it can be fed to a pig - they love it
- a hobby can develop into a small, local business, and hopefully cheeses can again become mainly farmhouse / artisan and unique

what can I do?

Start with something simple - just add lemon juice or vinegar to hot milk. Next have a go at soft cheese, and only then attempt hard cheese. Attend a course, to get a feel for it first. Use either unpasteurised or pasteurised (not sterilised) full-fat milk. Non-homogenised milk is best - i.e. from a small producer, as larger dairies (that supply supermarkets) tend to homogenise, so that there's no cream line. The milk and cream are separated, some of the cream is taken away (for cream or butter), and the rest is broken up into smaller globules and put back into the milk. A lot of small dairies are now selling bottled, non-homogenised milk. It's more difficult to make cheese if the milk is homogenised, unless it's goat or sheep's milk, which is naturally homogenised - and easier to obtain unpasteurised. Unpasteurised cow's milk is more regulated, needs frequent testing and is not allowed in areas where bovine TB is common.

To make cheese domestically all you need is a kitchen that's easy to keep clean and can be pet-free. Avoid making bread, beer or jam at the same time, because they contain moulds and yeasts that cheese doesn't like. To make cheese

commercially, contact your local environmental health department and seek their advice before you start. You'll need suitable (easy-clean) premises, and you'll need to keep records and be inspected. If you're making soft cheese, you've probably got all the kit already. For hard cheese you'll need to buy or improvise some moulds and a press. You can find recipes in books and online (see resources).

Storing hard cheeses may be a problem (other types should be eaten quickly). Fridge temperature is too low for hard cheeses to mature, and room temperature is too warm. You need a cool place to store them, where they will be safe. The cheese will need to be protected as it matures. You can get wax from smallholder suppliers, and then the cheese won't need turning. A lot of farmhouse hard cheeses are matured on the rind - i.e. the outer surface dries and goes hard. These need turning daily. Paint-on coating is also available from smallholder suppliers, and they need turning too. Or you can vacuum-pack the cheese. They won't need turning, and it's possibly the safest way to cover small cheeses.

resources

- see lowimpact.org/cheese for information, courses, suppliers and books, including:
- David Asher, *the Art of Natural Cheesemaking*
- Paul Thomas, *Home-made Cheese*
- Gianaclis Caldwell, *the Small-scale Cheese Business*
- specialistcheesemakers.co.uk, alliance of cheesemakers and cheese lovers
- cheeseboard.co.uk, promoting British cheeses; list of family cheesemakers, many organic



Cutting the curd in a stainless steel bucket to release the whey.

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