dairying

what is it?

It's the production of milk from livestock and the processing of milk into other products, including cream, ice-cream, butter, cheese, yogurt and soap. The most common dairy animals are cows, sheep and goats, but horses, buffaloes and camels are also milked. Harvesting milk from animals began c. 10,000 year ago with nomadic herders, then by settled agricultural communities. Today dairying takes place all over the world, from subsistence farming communities with a few goats to 'mega-dairies', involving zero-graze systems.

As dairy farming has become more intensive welfare problems have increased. The drive for higher yields has resulted in cows with a shorter productive life and lameness, mastitis and infertility problems. In commercial milk production the young are usually removed from their mothers straight after birth. Cow-calf dairying is becoming more common, but if we want to see more ethical milk in our shops we will have pay more for it. The only type of dairying we advocate is small-scale production with animals who have access to the outdoors and are allowed to raise their young.

what are the benefits?

In low-impact dairying, animals are allowed to roam outdoors, have a natural diet and are allowed to remain with their young. If you keep dairy animals this way, you will be an example of what can be done to produce dairy products in a more ethical and sustainable way. If we want this sort of production to become more widespread, and for its products to be more widely available, we need more people to show it can be done.

As well as the range of products you can obtain from milk, dairy animals can provide other things too: meat, fibre, hides, manure, land clearance, even harness and pack work. Dairy animals can make your smallholding more viable by providing vital additional income.

A milking cow with her calf still 'at foot'.

Milk / cream separator from the early 1900s.

what can I do?

Consider which animal best fits your resources (see Lowimpact.org for info on keeping animals).

Cows: yields described are for a low-impact system with little supplementary feed and once-a-day milking. If you have good grazing, c. 2 acres per cow-calf pair, and decent hay for winter, you can expect a cow to give c. 4 litres and raise her own calf without the need for bought-in feed. Once the calf is weaned you could get up to 8 litres on no supplementary feed. However, every cow is different. Cow's milk is excellent for making cream and butter as the large fat globules mean cream separates easily from the liquid.

Goats: there are dairy breeds and dual-purpose hybrids that will produce between 2-6 litres of milk a day. While a goat is also nursing a kid you can get around half that amount. Goat's milk is more easily digestible than cow's milk and contains less lactose; people who find cow's milk difficult to digest can often tolerate goat's milk. The smaller fat globules in goat's milk mean it's naturally homogenized but it's also more difficult and time-consuming to make cream and butter from.

Sheep: the best dairy breed might produce 3 litres per day and have a shorter lactation period of c. 8 months. Like goats, sheep's milk is easily digestible, though without the lower lactose content. It's higher in fat, protein and calcium than other milks. High fat content makes it ideal for cheese, and you get more cheese per litre.

When choosing animals, look for a deep body and a healthy udder, but she's not going to be in an intensive dairy system, so many of the 'rules' about shape of udder, length of back etc. are less important. You want a healthy, calm animal, with good-sized teats if you're hand-milking.

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Anglo Nubian is a goat breed whose milk makes good cheese due to its high butterfat content.

Breeding: you can usually breed cows and goats every second year to maintain a milk supply, sheep usually every year. Artificial insemination (AI) is often the most practical option, particularly for cows, which are more costly to transport. AI training is widely available and it's not complicated. The process is often less stressful for the animal, particularly when transport and meeting an unknown male are avoided. For goats and sheep, hiring a breeding male is often the better option, but bear in mind the paperwork associated with moving animals between holdings.

Milking and hygiene: when your animal has young at foot you can miss a day's milking and the offspring will take the extra milk. Once the young are weaned you need to milk every day without fail. Someone experienced can hand-milk a cow in 10 minutes, less for goats and sheep. Animals can be trained to milk in the field or to come to a shelter. Your hands and the udder must be clean. The bucket, bottles and any other kit should be sanitised with boiling water. The work involved in sterilising a milking machine can mean that, for a smallholder, milking by hand can be more efficient.

To sell your milk, you need to have one room for milking and one for processing, away from where your animal housing. These will need to meet hygiene regulations, and be inspected regularly.

Cream: leave milk to stand overnight in a large shallow container, heating gently then skimming the cream off. If you're producing a lot of cream you can buy separators that use centrifugal force to separate cream from milk. From cream you can make whipped or sour cream, ice-cream & butter.

Butter: churn your cream until it separates into buttermilk, which is drained off, and butterfat. There are various methods; the most low-tech is to place the cream in a bottle or jar with a marble and shake vigorously; it's time-consuming but fun. If you want to make butter regularly you may want an electric hand mixer or a hand-operated or electric butter churn. Once you've drained off the buttermilk you can press the butter into a block.

Ice-cream: made by heating and mixing milk, cream, sugar and other ingredients, then freezing. The mixture should be blended once or twice during the freezing process to prevent large ice crystals forming or the cream from separating. Electric domestic ice-cream makers are available.

Yogurt & cultured milk: made by adding specific strains of bacteria to milk, either from a previous batch of yogurt or from a purchased 'starter'. The milk is then heated and kept warm. This can be done in a thermos flask, an insulated box or a yogurt maker (essentially a large thermos flask).

Cheese: a great way to preserve milk. The simplest are soft cheeses, made by adding a starter and other ingredients to the milk, leaving to stand for 24 hours then draining off the liquid 'whey'. Hard cheeses are more complicated, involving heating, pressing and maturing.

To sell your produce, you'll need to be registered with Trading Standards as a food business. You will be inspected and licensed by the Food Standards Agency, and inspected and approved by your local Environmental Health Officer. Regular milk samples need to be sent for testing, for which there is a cost. You need to consider the latest food labeling requirements and send samples for shelf-life testing. First seek advice from your local Environmental Health Officer and the Food Standards Agency.

resources

- see lowimpact.org/dairying for more info, courses, links & books, including:
- G Caldwell, *The Small-scale Dairy*
- Ann Starbard, *The Dairy Goat Handbook*
- Ashley English, *Home Dairy*
- thecattlesite.com/breeds/dairy – listing of dairy cattle breeds
- omsco.co.uk – supply mik from organic dairies
- rodalesorganiclife.com/food/easy-homemade-butter – how to make butter