

# How is sugar made from sugar beet?

From the sweeties.net wiki

Sugar beet is a plant whose root is grown for its sugar. The root is about 75 per cent water, about 20 per cent sugar and 5 per cent pulp, although the sugar content varies between 12 and 21 per cent with the variety and the growing conditions.

## From field to factory

In the UK, sugar beet is sown in spring and harvested over the winter, from October through to March, according to the National Farmers' Union. Harvested beet waits in storage piles called clamps before it is taken to a factory, on average just 28 miles away. There are four, all run by British Sugar: Bury St Edmunds in Suffolk, Cantley and Wissington in Norfolk, and Newark in Nottinghamshire. The biggest of the four, Wissington, turns about 3 million tonnes of beet into over 400,000 tonnes of sugar a year.

## How the sugar comes out

British Sugar describes the process like this, and the general steps are the same in beet factories elsewhere:

1. **Wash.** The beet is washed as it arrives.
2. **Slice.** It is sliced into thin strips called cossettes.
3. **Extract.** The cossettes are mixed with hot water, which draws the sugar out into a raw juice and leaves the beet pulp behind.
4. **Clean.** A lime solution is added to the raw juice to remove impurities, and the syrup is filtered.
5. **Concentrate.** The juice is concentrated by evaporation into a thick juice of roughly 60 per cent sucrose by weight.
6. **Crystallise.** It is boiled under reduced pressure and seeded with tiny sugar crystals, which grow to the required size.
7. **Separate.** A centrifuge spins the white crystals out of the remaining liquor, and they are washed, dried and cooled.

The leftover liquor is boiled and spun again. That gives a lower grade sugar, which is dissolved and fed back into the process, and molasses. Seeding a strong syrup with tiny crystals is the same principle that grows rock candy on a string: see [how is rock candy made?](#)

## Nothing wasted

The beet pulp is processed on site into animal feed. British Sugar lists animal feed, topsoil, a soil conditioner called LimeX, electricity, bioethanol and horticulture among the things its factories produce alongside sugar, and the NFU says 99 per cent of the crop is used.

## A sugar born in a blockade

Sugar from beet is a European invention. In 1747 the Berlin scientist Andreas Sigismund Marggraf isolated sugar from beetroot and showed that it was identical to the sugar from cane. His successor, Franz Karl Achard, bred the white Silesian sugar beet, the ancestor of all modern sugar beet, and opened the world's first beet sugar factory in 1801 at Kunern in Silesia, now Konary in Poland. The industry then grew quickly in France, because the British blockade during the Napoleonic wars made cane sugar hard to import. By 1880, over half of the world's sugar came from beet.

## Just over half of the UK's sugar

Home grown sugar beet provides just over half of all the sugar eaten in the UK, according to the NFU, from nearly 2,500 growers farming about 100,000 hectares. British Sugar makes about 1 million tonnes of white sugar a year. For the other great source of sugar, see [how is sugar made from sugar cane?](#)

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