

From the beet to sugar



Sugar production – step by step



How we extract sugar from beet

Sugar production – from the beet to the customer

The Nordzucker Group is one of the world's leading sugar producers with a sugar production of more than three million tons from beet and cane yearly. A total of 3,800 employees in 21 production and refining plants strive towards providing excellent products and services and thus form the basis for further growth.



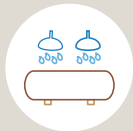
Sugar beet sowing and harvest

After the beet is sown in spring, it is harvested from September, having soaked up around 180 days of sunshine. The beet is usually stored at the edge of the field in beet clamps until it is collected.



Beet receiving and extraction

Lorries transport the beet to the sugar plant, unloading it in the plant's beet yard. The beet is then carried by conveyor belt to a washing facility.

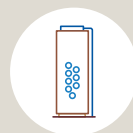
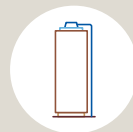


Slicer machines in the plant cut the beet into thin cossettes, from which hot water extracts the sugar in diffusion towers, creating a sugar solution: the raw juice. The spent beet pulp is used in the production of animal feed.



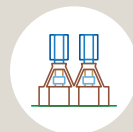
Juice purification and evaporation

The non-sugar substances in the raw juice are separated during juice purification with the help of calcium carbonate and carbon dioxide. After being filtered twice, there remains a clear, pale-yellow clarified juice. The evaporation plant extracts water from the clarified juice in several stages until the sugar content reaches about sixty-seven per cent in the form of a thick juice.



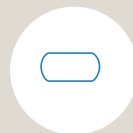
Crystallisation

This thick, golden-brown juice is then further concentrated in the boiling station. At a certain concentration, sugar crystals begin to form. A thick pulp, known as magma, forms a mixture of crystals and syrup. This massecuite is drained into mash tuns to cool.



Centrifugation

The massecuite flows from the mash tuns into the centrifuges, where the crystals are separated from the syrup by centrifugal force. The sugar is now white. If this sugar is now dissolved and allowed to crystallise again, a particularly pure and high-quality sugar is formed – refined sugar. The centrifugation leaves behind a thick syrup-like product – molasses. Molasses is used in the production of animal feed and as a raw material in the production of yeast and alcohol.

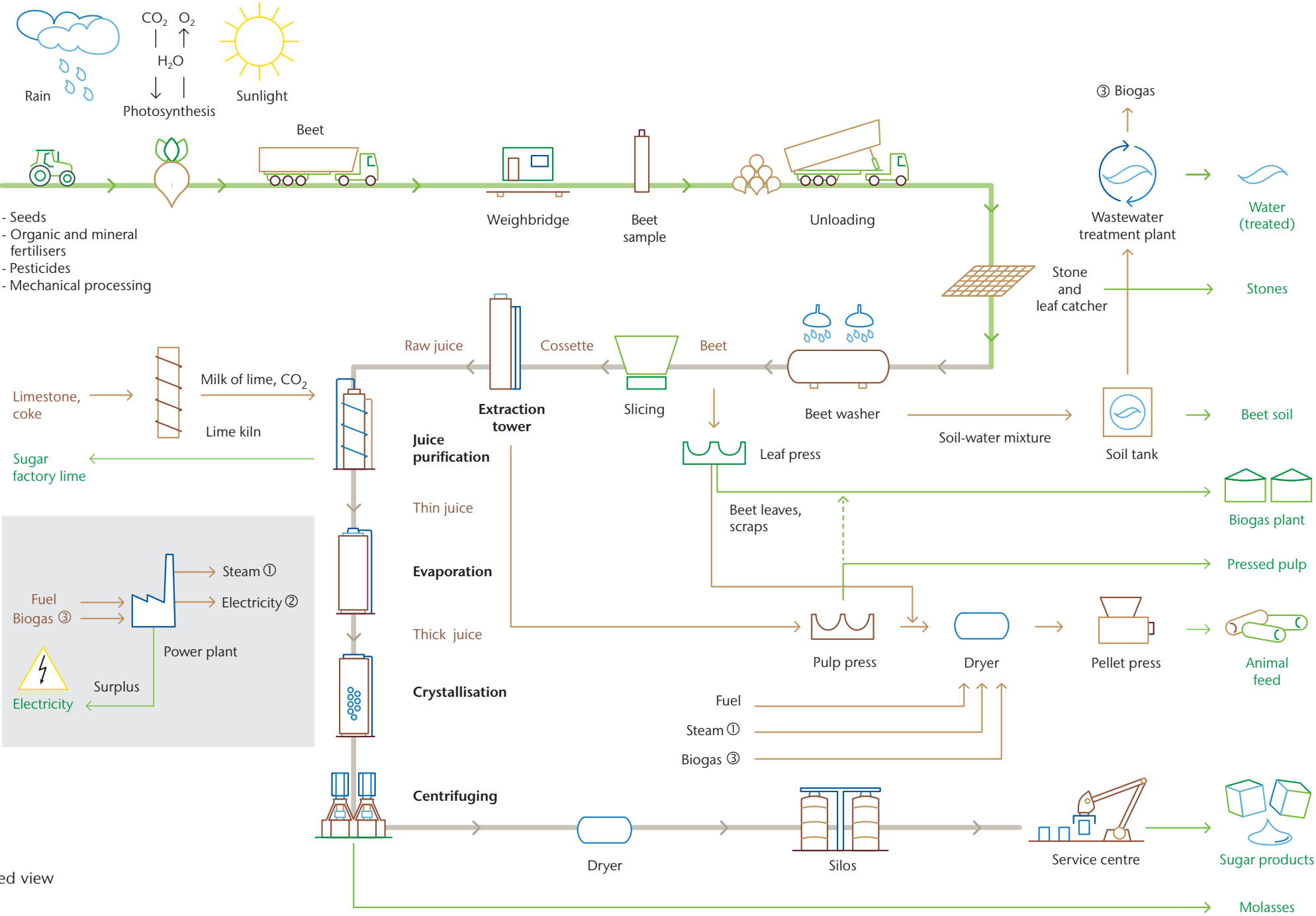


Storing and preparing varieties of sugar

The finished sugar is dried, cooled, and transported to silos where it is stored temporarily. To meet customer requirements, the sugar is sieved and then sold loose or as packaged goods.



Sugar production – step by step*



*simplified view

2.5 We produce about 2.5 million tonnes of sugar from beet each year at our eighteen production and refinery facilities in Europe.

80
20 Eighty per cent of our products reach our customers in the food industry. We distribute twenty per cent of our sugar as packaged goods via the retail industry.

? We manufacture more than 250 different sugar products.

CO₂
60 Since 1990 we have reduced our energy consumption by 45 per cent and our CO₂ emissions by around 60 per cent.

?
20 Sugar beet consists of up to seventy-five per cent water. We are able to cover some ninety per cent of our entire water requirement by reusing almost half of this water content. The water is reused approximately twenty times.

? You want to know more?
www.nordzucker.com



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