

Sugar beet



Sugar has been grown by man for over 2,000 years. It was not until the increase in trade between Europe and the Orient in the 11th and 13th centuries that sugar became available, and only then to the wealthy. In the 17th and 18th centuries cane sugar was imported from the British colonies in the West Indies, which have ideal conditions for growing sugar cane.

The change to home production of sugar from sugar beet was a result of the restrictions to trade during the First World War and the reduction in sugar reserves. The UK's climate is unsuitable for growing sugar cane but excellent for growing sugar beet.

Government encouragement ensured that there was a rapid expansion in the hectareage grown in the first half of the 20th century, levelling out to around 200,000 hectares in the 1970s.

All beet grown in the UK is done so under contract to processors, meaning that farmers will be assured of a market and agreed price for their crop. Some 8,500 producers grow sugar beet exclusively for British Sugar. The main growing areas surround the factories in the East of England and in the West Midlands. The deep, free-draining, fertile soils which are found in these regions are essential for successful sugar beet production.

Although the yield was once of primary importance, farmers are now more concerned with the sugar content of the beet; the expected average being about 16%. Sugar beet seed is drilled in March and April and the crop is harvested at the end of September and on through to December. The crop will be very carefully stored on the farm throughout the winter in order to maintain its quality.

Around 150,000 hectares are being sown today, with a yield of 40 t/ha. Approximately 1.4 million tonnes of sugar is produced in the UK. This is only 55% of the sugar we consume each year.

The crop is transported from storage to the factory. Every load entering the factory is sampled, and the sugar content and percentage of dirt and vegetation (known as 'top') are assessed. The grower is paid according to these results and the weight of beet delivered.

The beet is washed and separated from stones and rubbish. It then enters the factory where it is sliced into strips called cossettes. Sugar is extracted from the cossettes by diffusion using water at around 70°C. The resulting sugar solution is purified by adding milk of lime. Impurities settle out with particles of lime leaving a clear sugar solution. This is concentrated by a series of evaporation stages before boiling to saturation point. 'Seeding' with very finely ground sugar crystals begins the crystallisation process, where each seedling grain grows a sugar crystal.

The mixture of syrup and sugar crystals is spun in a centrifuge to separate the sugar from the syrup. The white sugar crystals are dried and stored in silos, while the syrup is returned to the process. The final syrup that is left after two further crystallisations is called molasses.

Traditionally granulated sugar is sold in packets to the consumer. UK produced sugar is also supplied direct to the food manufacturing industry where it is used to make a wide range of foods.

Sugar beet by-products are also valuable fodder for farm livestock. When harvested the sugar beet leaves are cut off and either used as fodder or ploughed back into the land. The residues of processing beet pulp and beet molasses are mixed to make animal feed. Around 750,000 tonnes of molassed sugar beet feed is supplied each year to some 50,000 farms as a high energy animal feed.

Further information is available from: British Sugar Plc, Oundle Road, Peterborough PE2 9QU Tel: 01733 63171 Fax: 01733 63068, www.britishsugar.co.uk.

[last updated June 2002]