

THE UK BEET SUGAR INDUSTRY

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I would like to divide my talk into several parts - first, to give some history and background to British Sugar and the industry in general, then to review the present situation as a member of the EEC and, finally, to say something about the crop itself, how we have progressed as an industry and what we are currently doing.

Before World War One, there was no beet industry in Britain and of total imported sugar 81% was beet. During the war, however, continental supplies of beet sugar were restricted and cane imports increased so that by 1925 69% of all sugar imports were cane and this increased to 90% by the late 1920s. Most of this sugar was raw unrefined. In 1928 there was an alteration in customs duties imposing a penalty on imported fully refined sugar which reduced refined imports to a trickle.

Beet sugar in Europe started during the Napoleonic wars when Napoleon encouraged beet factories and French farmers were ordered to grow the new crop. With State assistance to them and the manufacturers France soon had several hundred small beet sugar factories and became the leading European sugar producer. Practically all other European countries quickly followed so that by the end of the 19th century the industry had spread throughout Europe and to the United States.

Attempts were made to start a beet sugar industry here in 1832, 1850 and 1868. These, however, were unsuccessful and it was the Dutch who first established sugar beet here in 1912 at Cantley in the eastern counties when they were looking for raw material for their own national industry.

Due to financial problems the factory closed but it was reopened in 1920 and between then and 1928 a total of 18 factories were opened, mostly in the eastern counties and one in Scotland. These factories were owned by 15 separate companies. Due to world over-production and low sugar prices the UK industry immediately ran into financial trouble which continued for several years and in 1934 the British Government set up a committee with terms of reference to look at the UK beet sugar industry and its sugar imports and to make recommendations for the future.

Following those investigations and despite differences of opinion within the committee it was decided to set up a

unified British industry, eventually called the British Sugar Corporation and this company was registered in June 1936. In 1937, the Government signed an International Sugar Agreement relating to imports and this was presumably the forerunner of various agreements until we joined the EEC in 1973.

In 1936 the UK sugar beet area was approximately 142,000 ha. and the number of farmers 40,300. The average yield of roots was very low, about 24 tonnes per ha. The area gradually increased and now stands at 204,000 ha but with only approximately 12,500 farmers. Yields have also increased and the five year average currently stands at between 36 and 37 tonnes per ha.

When the UK joined the EEC, like all other members of the Community we were given a sugar production quota. At present this is 1.144m. tonnes and during the last few years approximately that amount has been produced annually. National consumption is at present about 2.3m. tonnes so that total production here amounts to approximately 50% of national requirements. One of the conditions under which we joined the EEC was that sugar imports from ACP countries should continue and under the Lomé Convention 1.3m. tonnes of raw sugar were allowed into the EEC. The importation of this quantity continues at present and is likely to continue in the foreseeable future. Certainly we would wish this to go on.

Sugar beet is a biennial crop harvested at the end of its first year of growth. The root is then at its greatest weight and with maximum sugar content. In the second year the plant produces a seed stalk, the root shrivels up and the seeds mature ready to produce the next generation. In our temperate climate we sow the seed in early Spring at the end of March and the beginning of April. Seedlings emerge about 14 days later and by end May are well established plants. They continue to grow and mature during the next few months and harvest begins in late September continuing for about three months. Because of the cold wintry weather in December, January and February we aim to have all roots harvested and stored by mid-December.

Our 13 factories start the campaign usually during the last week of September and continue for between 110 and 120 days seven days a week and 24 hours a day. The crop is grown in rows, usually 50cm apart with spacing between plants of 15-17 cm, giving a plant population of approximately 75,000 per hectare, which experiments have shown to be the optimum for plant development. When British Sugar Corporation was formed in 1936 entire cultivation was by hand using traditional methods of sowing, hand thinning and hand harvesting. Machine harvesting was introduced during the

1940s and by 1950 about 16% was lifted by machine. This rapidly increased and has been 100% since 1969.

Crop sowing was the second activity to be mechanised and precision drills started to be used in 1951. These are planters which place individual seeds at pre-determined intervals along the row, the technical term is planting 'to a stand'. This technique also rapidly developed and reached 100% by 1969. Two other major developments took place in the 1960s. First, the discovery and introduction of monogerm seed which only produces a single plant. Prior to this the seed was 'multi-germ', a cluster of seeds producing a number of plants. By using monogerm seed in conjunction with precision drills, the need for hand thinning gradually disappeared.

However, in order to eliminate hand work altogether, there was need to control weeds and the second major development was the introduction of selective herbicides. These weed killers can be applied at the time of drilling and also after the crop has emerged and give effective season-long weed control. So with monogerm seed, precision drilling, chemical weed control and mechanical harvesting, the modern crop can be grown entirely without hand labour.

Our 13 factories have a total daily slicing capacity of just over 80,000 tonnes. They range in size from 3,000 tonnes per day to almost 12,000 tonnes. The crop we have just finished processing was an all time record amounting to about 10m tonnes of beet, from which we produced 1.42m tonnes of white sugar. Because of the very large quantity of beet, our processing period extended to over 130 days. With one or two differences, once the raw sugar is obtained, the beet process is very similar to that for cane. The beet is delivered to the plants entirely by road, arranged on a daily basis by means of delivery permits issued to the farmer before the campaign and based on an estimate of his crop tonnage and the capacity of his transport.

At the beginning of my talk I mentioned 18 factories, and more recently only 13. Since 1936 the Company has been continually improving and modernising its processing. In 1968 the only Scottish factory was closed because of its location involving long distances for transporting the beet, and low root yields in the colder northern climate. In the mid 1970s an intensive expansion programme was started involving modernisation and increased capacity of a number of factories the cost of which amounted to £150m over 5 years. After its completion four of the smaller, less efficient, plants were closed but due to the expansion total processing capacity was somewhat greater than when 17 factories were operating.

Finally I should perhaps mention the recent take-over of British Sugar. After 2<sup>1</sup>/<sub>2</sub> years resisting take-over bids, in August 1982 British Sugar became part of the S & W Berisford Group. However, it continues to operate very much as before and is one of the most efficient beet sugar industries in the world. Considerable amounts of capital and many man hours have been spent improving efficiency. Two major improvements have been saving energy in various parts of the process and the introduction of micro-processors and automation. We have our own research laboratories carrying out fundamental and applied research. Others carry out routine work on operating efficiency and sugar loss and examine process liquors and white sugar quality. We undertake extensive agricultural research and development. This includes wide ranging field experiments throughout beet growing areas. Every year about 20,000 samples are delivered to our laboratories for yield, sugar content and juice purity determination. Also considerable experimental work is carried out with the major sugar beet research organisations.

To end, I would like to quote one or two figures which I hope will put the industry into perspective. In 1982 there were 13,000 farmers growing sugar beet on approximately 204,000 ha. The total root tonnage was 10m tonnes from which British Sugar produced 1.42m tonnes of white sugar. Financial figures for this crop are still being finalised, but for the financial year ending September 1982 the turnover of the Company was £524m and the C.C.A. profit after tax approximately £45m. The average number of employees during the year was 5,250 so the industry is very capital intensive. For the farmer, the value of the beet crop was £1,000 per ha in 1982 and with the exception of horticulture it was one of the most profitable crops grown.

I hope I have given you the impression that the grower and we, the processor, are efficient in our operations. We work together as a team which has resulted in a viable healthy and responsible sugar beet industry.