

12. SUGAR BEET

The intense sensation is now long gone but in the middle part of the last century, when the sugar beet factory was in full flow, residents of Cupar and visitors to the town, would recognise the sweet warm smell of sugar being distilled.

Cupar lies in a bowl and when I was a school boy coming down into town on winter mornings there was often a low lying shroud of fog, pierced only by the steeples of the kirks and the Corn Exchange. On such mornings, you could be sure that as soon as you descended into the mist, you would pick up the all pervading but not unpleasant smell from the factory one mile to the East of the town.

Even in those 1960s days, when road transport was only a fraction of today's levels, the school bus would often be held up by lorries and tractors and trailers as they headed for the only sugar beet factory in Scotland.

Before we look at how the factory came to Scotland and how it closed down less than fifty years later, we should examine the importance of sugar in the western world. Although today fingers are pointed at sugar as one of the underlying reasons why we have so many diabetics and generally obese people, a century ago sugar was called, 'white gold.' It was a valuable commodity. The importance of the Caribbean sugar cane growing industry had been one of the main reasons behind the slave trade from Africa. As an alternative to sugar from cane, a German, Andreas Marggraf, found out that it could also be extracted from a root crop, and thus sugar beet originated as a crop.

The trigger for the United Kingdom growing more sugar beet at home was undoubtedly the 1st World War. Not only was shipping from the sugar cane growing colonies under fire from enemy guns but the main sugar beet growing area on the Continent - on the French/Belgian border - was being turned into a sea of mud and carnage as the two sides threw millions of men and tons of ammunition into trying to win the conflict. The resulting scarcity of sugar pushed the price upwards and breathed life into the home bred refining industry. To encourage this young industry, the Government of the day pushed through the Sugar Act of 1925, allowing subsidies for new factory building.

The scale of Government support to this new industry was evident in a 1931 House of Commons answer which showed a total of almost half a million pounds going to the company in financial guarantees. This subsidy which helped set up the Cupar sugar beet factory came into being as part of the Anglo-Scottish Sugar Beet Corporation. Although a small sugar beet factory was built in Greenock, it only had a short life, going into liquidation in 1928 leaving Cupar as the only beet refining factory north of the Tyne.

In 1935, following a major Government review, the ownership of all sugar beet factories in the United Kingdom was rationalised and for the rest of its life the Cupar factory came under the ownership of the British Sugar Corporation.

The early years of the Cupar factory were difficult. Not only were farmers learning to grow a new crop but the science used to extract the sugar from the beet was known to only a few experts. In 1924, the year before the factory came into operation, trial plots of the new crop were sown both in Fife and in Aberdeenshire. The results in Fife showed that crops of around seven tons per acre could be achieved but further North, the trials produced only around a ton and a half of crop - a yield far from producing any profit for farmer or processor. Following these trials, Cupar NFU members were addressed on the intention to build a refining factory that could cope with up to 400 tons of roots per day. The potential growers were promised that beet would be paid for at 44/-, or £2.20, per

ton with a 2/6d, or 12 pence, bonus for every degree over 15% sugar content and a similar level of deduction below that par.

On Christmas day 1925, the first sod was cut on the Prestonhall site outside Cupar, a location favoured by the Town Council as they had promised a water supply to the new venture. Less than twelve months later, on 8th November 1926, the first beet was sliced. The factory had been built at a cost of £300,000 and some 2,718 acres of sugar beet were contracted that first year. The factory had also been built with access to the main East coast railway line and in the early days more than half of the delivered tonnage came in by railway wagons. This method of delivery was favoured by beet growers in the Borders and in Perth and Angus, although it was also popular in the pre Second War years when fuel rationing curtailed transport. In 1927, recognising that motor transport was also important in the delivery of sugar beet to the factory, Cupar NFU approached the factory management asking if they would be prepared to purchase a number of lorries, then hire them out to farmers. This request may have been politely received but no action was taken and right up to the closure of the factory, farmers either delivered their own beet by tractor or lorry, or employed haulage contractors to do so.

The factory normally worked on a three month 'campaign' as it was called as the beet had to be processed soon after it was lifted in the autumn. To cope with this seasonality in production, the factory owners often augmented local employees with men from the Western Isles of Scotland. For example, in 1951 one hundred men from the isle of Lewis were recruited. Among them were 30 members of the McLeod clan-seven with the forename of Malcolm, five called Donald and three named John. There were also 12 McKenzies and a number of MacDonalds. To ease identification, the factory owners provided the Lewismen with army style numbers. The local paper reported that only 99 arrived as one had fallen asleep on the boat and missed the landing on the mainland at Kyle of Lochalsh. These temporary workers lived in special hostels on the factory site and worked eight hour shifts, seven days per week with one day off every three weeks. If they broke the contract they had to pay their own fare home.

In the 1960s, at the peak of operations, some 200 people were employed at the factory during the 90 day campaign. Those working on the 'campaign' would often start in mid October and continue right up to and occasionally beyond the New Year. During the campaign period, the factory sent out delivery permits to growers so that they controlled the input of beet. Complaints were often made that certain farmers were favoured by this system, finishing their harvest early thus avoiding lifting beet in early December when the fields were muddy and lifting was difficult.

The other major problem area for farmers was the sampling system. Beet was paid for by its sugar content which was established from a sample of beets drawn from the delivery vehicle. However, the same sample also established the level of deductions for earth, or tare. Some samples recorded more than half the weight as earth or badly topped beet. The level of tare had a massive effect on the final pay cheque. The percentage of sugar in the beet was also important in the final payment. Normally, sugar beet contained about 16% of sugar but payment was on a sliding scale. Some samples went up over 20% but others, possibly with 'shot' beet in them were down in the lower teens.

In its natural state, sugar beet is an annual plant, throwing its seed head in the season in which it is planted. When it does this the sugar content of the beet itself falls dramatically. It was essential that only beet that had not produced a seed head fell into the sample bucket.

Once through the sampling process, the lorry was emptied by a water cannon of a type that nowadays is sometimes seen in quelling human rioters. However this method of emptying vehicles did not come along until the late 1940s. Prior to that, all the beet, whether from lorry, trailer or railway wagon was emptied by men with hand graips. These graips had metal buttons on the tips of the tines as beet could 'bleed' and lose some of its inherent goodness.

In order to keep the workforce busy over a longer period than just the slicing campaign and also to supply the Scottish and North of England demand for sugar the Cupar factory also packed the refined sugar. In the early days, the owners tried to provide year round employment by importing cane sugar. This was shipped to Dundee and then transferred by rail to Cupar. In the first decade of the factory's operation some 68 cargoes of cane sugar were landed at Dundee. Thereafter, economics appear to have ruled out this operation.

Initially the refined sugar went into large 1 or 2 cwt (50 or 100 kilo) jute sacks, which would be stored 20 to 30 sacks high in a massive store before going away in lorries to jam making factories and catering outlets. Latterly, a large amount went into 2lb (0.8 kilo) retail packs following a major investment in special packaging machinery in 1965. The handling of heavy jute sacks full of sugar came to an end in that same decade with bulk tanker lorries taking over the delivery role to major commercial customers. These bulk vehicles were filled from the large concrete silo, which still dominates the skyline over the bare bones of the former factory. The silo could hold some 12,000 tonnes of refined sugar and it was built in 1964 less than ten years before the factory closed its gates. Today it is still in use as a grain silo.

In another attempt to keep the factory wheels turning, in 1929, around 1,000 tons of surplus potatoes were delivered for drying into animal feed. The experiment, supported by Cupar branch of the NFU, was not a success as it took more than six tons of potatoes to make one ton of stock feed.

Throughout its lifetime and right up to the closing of the factory doors in December 1971 the relationship between factory and farmer was fraught. In the early days, there were always discussions between the two over prices and conditions. Soon the factory employed a Farm Liaison Officer to deal with the issues. Beyond these local concerns, there was also a constant sniping and comparison with conditions in the other sugar beet factories in the East of England.

In 1933 when Scottish growers did not grow as much beet as was required by the factory, the secretary of the Norfolk branch of the NFU suggested that the Cupar factory should be dismantled and brought down to Norfolk where it would be fully utilised. Similar comments were made the following year, when once again there was a threat of closure at Cupar because the factory had not been working at full capacity and was running at a loss.

Then one year later in 1935, a proposal to close it was met with a Union organised protest meeting in the Corn Exchange Cupar, supported by a whole range of interested parties such as hauliers, agricultural suppliers and tradesmen. Addressing the meeting, local MP, J Henderson Stewart, said that the loss of the sugar beet crop to the arable areas of Scotland would be immense.

A further wrangle came just before the 2nd World war when it was discovered that out of the £63 million poured into the UK sugar industry in the period between 1925 and 1939, only £1 million had been used to support the Scottish sector. Indeed, throughout its short lifetime, with the possible exception of the war years, the Cupar beet factory was never far away from the threat of closure.

The acreage needed to ensure it operated at full capacity was close to 15,000 acres and that area of good beet growing ground did not exist within economic distance of Cupar. Throughout the second half of the 1960s, the acreage needed by the factory was never met and warning shots were fired over the heads of beet growers by the company indicating that unless more acres were grown the factory would close. The threats became more substantial as the decade came to a close and even if by then the acreage had risen, the company claimed the Cupar factory-one of the smallest in their ownership-was losing money. Frantic meetings were held with politicians both local and national and yet the dye was cast and the last load went into the factory at 4.30pm on Thursday the 23rd of December 1971.

This was all a far cry from the early days in the war when a local resident offered to grow a few rows of beet in her garden in Cupar if it helped with the overall tonnage going into the factory. A tactful response came with the Liaison Officer asking that she co-operated with a few neighbours in order to get the area up to at least half an acre at which point they could be considered a registered grower.

Cropping

Sugar beet singling has been called the 'worst of jobs'. The word 'singling' is distinct from thinning turnips. It entails not only the removal of all weeds from around the small plants as happens in thinning but it also requires the separation of a number of shoots that emerged from the multigerm seed.

Skill was needed to separate the often tangled clump of shoots, first of all flicking them apart and then cutting out the surplus ones. Failure to select and leave one shoot would ensure a harvest of intertwined spindly roots that would slip through any harvesting webs.

In England, the singling was often a two phase operation with workers going down the rows, 'gapping' the crop leaving the more precise work to be carried out by a follower. Again unlike the practice in Scotland where a long handled hoe was used, the singling in England and throughout Europe was carried out with a short hoe that required the operator to stoop when working.

The tradition on Scottish arable farms was for the singling operation to be carried out by all the farm staff. Even the shepherd could not escape this duty as it was carried out in a quiet period in the sheep management year. While other parts of the sugar beet growing world allocated breaks of rows to each employee, the Scottish tradition was to work in a line with each employee taking the next row.

At the head of the line, came the foreman, followed by first horseman, or tractorman, then the second horseman or tractorman, right down the line. After the main workers came the orramen, followed in turn by the bothy loons, halflins and students. Next to come were the women on the farm. Finally the farm grieve completed the line up.

The grieve's position was important as he could monitor the quality of the work and where necessary bark a reprimand to anyone doing less than a top class job. The delivery of the reprimand was done loudly if a loon was the target, more discreetly if a tractor man or horseman was concerned and only in private if the foreman was not up to scratch. Some farms operated a piece work system for singling outwith normal working hours. Piece work rates were generally agreed on each farm.

The skills of thinning sugar beet were recognised and supported by the owners of the sugar beet factory. Competitions were held. Men would come across from Angus to Fife to compete in such competitions which were often held

in the evenings. Competition fields would be laid out so that each competitor would have to thin approximately 300 yards within a two hour period. Judges would inspect plant populations and freedom from weeds and as the competitors took a well earned bottle of beer they would pick their champion.

Some of the skill in singling was removed with the arrival of weedkillers. These could selectively kill off some of the more difficult weeds such as knotgrass and mayweed which would tangle around the hoe blade. This advancement in husbandry came late in the day for Scottish growers. Less than half the 1967 crop was estimated to have been sprayed with a selective weedkiller.

The biggest step forward in husbandry also came in the 1960s with the arrival of monogerm seed. These seeds only threw one shoot. They could be sown to a stand thus making the art and skill of the singler redundant.

Unlike turnips and beetroot that grow largely above the earth, sugar beet has long tap roots similar to most varieties of carrots. Harvesting is therefore more difficult and one of the first aids to lifting sugar beet came with the introduction of ploughs that eased the crop out of the ground.

In the early days, most of the hand harvesting was carried out by Irishmen who were lured by the cash on offer. The heavy back-breaking work was left to these seasonal workers, to lift and then 'dad' together two beet to get rid of excess soil clinging to the beet.

Most of this harvesting was done on piece work rates. For example, in 1937, Cupar NFU suggested that farmers pay rates of sixpence, or 2.5 pence, per hundred yards for blanky, or irregular, crops, and, where the land was heavy, 'perhaps a little more.'

Then the beet were laid neatly in rows; neatly so that they could be easily and accurately topped with a long handled blade or heuk. Next in the laborious process was hand loading onto carts. All of this work was carried out in the increasingly cold and muddy months of October, November, and December; the campaign period.

As the black humour of the day went, the colder the day, the faster you worked. All because you did not want to hold onto beet that were glistening white with frost any longer than you needed to.

But again mechanisation came along. First there were the machines that removed the tops and then others that lifted the beet into rows. Soon this double operation was combined into one with the added bonus of the beet being elevated directly into the trailers running alongside the harvesters. Back at the farm base, the trailers would be tipped up. In the early days, the beet then had to be hand graiped onto either bigger trailers or lorries delivering to the factory. Later, elevators were used. Often these would have a rotating drum or webs so that some of the soil could be knocked off before the beet left the farm.

One problem that mechanisation could not solve was the season of the year when harvesting took place. The sugar beet crop could be taken too early. If this happened, the percentage of sugar in the beet was lower than it might have been.

There was also the problem of mud on the public highways. Harvesting a root crop in November and December inevitably involves mud and lots of it, and so the roads running between the fields and the farm steadings would often resemble muddy tracks by nightfall. Motorists who may have spent time the previous weekend washing and polishing their cars did not appreciate this hazard on the carriageway. It was then that the orraman or the farm student became a roadman and spent his day scraping mud off the roads.

There were also problems at the sowing end of the sugar beet season. If the seed went into the ground too early then a proportion of the crop would bolt with the consequence of reduced sugar content as described above. It was also a

crop that required far more lime than any other one on the traditional East of Scotland farm rotation. Farmers were wary of applying too much lime to their ground as the next potato crop might react to this by producing samples full of skin scab. However, the first husbandry problem faced by growers starting to grow sugar beet was the width of the rows. The practice on the continent where beet was grown was for the rows to be only 14 inches (34cms) apart.

The horses used in the 1920s could not cope with these narrow lines. Other row crops such as potatoes and turnips were planted or sown on much wider rows between which the large feet of the horse could plod. Soon the preferred row width was moved out to 24 inches (60cms).

The next issue was whether to sow the crop on the flat or more traditionally on a ridge. The latter was preferred as it provided more scope for scraping away weeds as the crop grew. Against that was the problem that in a dry year, there was less moisture in a ridge thus preventing the young seedlings from maximum growth.

Initially the seeding was carried out with a horse drawn seeder that covered two rows. But as soon as tractors came onto the scene, most mechanical seeders covered four rows. The first machines were just refinements of the turnip seeder with seed being driven out of a small hole by a revolving brush. This type of sowing inevitably left a veritable hedge of young plants in the row and these would require singling.

Soon the manufacturers came up with the idea of separating the seed. One type used holes on a belt that would only hold one seed. Another popular type had a wheel with indentations in the circumference. Again each hole held a seed that was propelled into the ground at the required distance from its neighbour. This helped the singling operation. After the crop emerged, scarifiers went down the rows, trimming the weeds from the sides of the ridge. The narrow row or band that was left also made the singling easier.

For many involved in the fifty or so years of growing sugar beet in Scotland life was a constant learning and improving process. One observer who had seen the majority of these years commented on the closure of the factory: "We had a problem with multi germ seed and now it is solved. We had a problem with weed control and now we have weed killers. We used to have to do every job by hand and now it is mechanised. The only problem we have now is that we do not have a factory."