Working visit to Sweden and Italy

Alder Timber

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I arrived in Gothenburg via Amsterdam bang on schedule. The fact that I had to run to make my connection led me to doubt that me luggage had been so fortunate. Being the last person at the luggage carousel is a particularly lonely place. The good news was that they were expecting me at the lost luggage counter and that my bags were due in on the next flight from Amsterdam.

My first challenge upon my arrival was to hire a car and drive approximately 200km to Nässjo. Now this may not sound like a big deal, but most noticeable thing on our descent into Landverter airport was the colour – it was very white. However, despite the freezing conditions, despite the fact that Swedes drive on the right hand side and despite Swedish being a very different language to English, this proved much easier than I had anticipated. Unlike Ireland, Sweden is used to snow and so the main roads were completely clear. The other great thing about Sweden from my perspective is that practically everyone speaks English. The final thing that made driving an easy task was that they actually have sign posts in Sweden that you can use to guide you to you destination. Now that is a different driving experience!

En route to Nässjo I couldn't but notice the amount of forestry. Sweden has approximately 55% forest cover. This is the equivalent of some 23 million hectares. Similar to Ireland however is the softwood/hardwood ratio which is 85:15. The output from forestry annually is between 80 and 90 million cubic meters. The main softwoods are Scots Pine and Norway Spruce. The hardwood mix comprises oak, ash, elm, alder (*allnus glutinosa* and *incana*), birch (*betula pendulla*), maple, willow, aspen, cherry, mountain ash and hornbeam.

Upon arrival at Nässjo I did a couple of circuits before finding Träcentrum (The Wood Centre). Wood has historically been Sweden's greatest export industry and has for many years been focussed on the softwood sector. Träcentrum was set up in order to promote the use and potential of quality native hardwoods by:

- Aiming at new markets
- Developing new products
- Developing improved production methods

Träcentrum encompasses a support body for the hardwood sector, a training college for students of furniture, joinery and related skills and a number of enterprise units. For the industry

--- Route in Sweden

Träcentrum

Susanne Johansson, Managing Director

Wall light in common alder

they set up networking opportunities, provide support for improving marketing and product development and promote company-adapted skills development for employees. All activities carried out there are conducted in close cooperation with companies, branch institutes, universities, authorities and interested organisations.

On the day of my arrival a furniture exhibition was opening to promote the use of native hardwoods. The promotion of hardwoods is seen as key to the development of an effective hardwood industry. Träcentrum is not a government agency but is supported by industry. The area around Nässjo has traditionally been the heart of the furniture industry in Sweden.

I had made contact with the Träcentrum's managing director, Susanne Johansson, with a view to gaining an insight into how alder is utilised in Sweden and the potential end uses and markets for common alder. Susanne had organised visits for me to see, amongst other things, some stands of alder, a saw mill specialising in the processing of alder and to a company producing alder chips for the smoking of fish and meat.

March 28,

I had an early start as I had arranged to meet Bengt Ellis (Marketing Manager at Träcentrum) at 8.50 at Sävsjö which is approximately 40km south of Nässjo. It's impossible not to notice the tall orange barked Scots Pine along the way. It's raining again but not as bad as the previous day. We go in Bengt's car from Sävsjö as we are going to a hardwood saw mill in Värnamo. This is a typical sawmill in Sweden and is run by Bengt Parsson (a third generation owner/manager). This mill processes approximately 10,000m^3 annually, employs 6 people and is small in Swedish terms. Approximately 40% of this is alder, with the remainder being mostly birch, oak and ash. The alder is sourced locally (within a 40-60mile radius) and is generally sold on to local markets. There are a couple of large companies that specialise in felling timber and Bengt Parsson negotiates a price directly with them. All the alder is at least 18cm in diameter (mostly more than 20cm though). Alder generally takes approximately 50 – 60 years to reach this size. Depending upon the grade, the miller will pay between 300 and 600SEK (€31.5 - €63) per m^3 for alder. The measurement is taken with the bark on and is reduced by 0.6% to take account of this.

Surprisingly, this mill doesn't dry timber. Air dried timber will get to approximately 18-20% moisture content (mc) and timber is

Table in willow

Wardrobe in alder

Bengt Parsson – mill owner

Logs of alder

otherwise kiln dried to between 8 and 10% mc when used for indoor furniture. The stability of alder does however reduce the need for extended periods of air drying. Alder also goes a deeper red colour when put directly into a kiln after conversion and some manufacturers prefer this. The conversion of the alder is through and through and generally left with waney edge. Grading is done by the miller and is specific to each individual mill. Bengt Parsson prefers it this way because he understands his customers' requirements but it is obvious that it prevents a certain amount of competition and clarity from the customers' point of view, and when I suggest this out to him he seems to acknowledge the point. The lowest grades (C) and odd sizes are used for the manufacture of clogs. This is a local industry while the market for clogs is both national and international (mostly for the Danish market). The optimum mc for the manufacture of clogs is between 60 and 80%. The higher grades of alder (A and B) are sold for kitchen manufacturers and furniture companies. The selling price for this grade is approximately 4 - 5,000SEK (€421 – 526) per m3.

Alder planks (A&B)

More alder planks

Interestingly we come across a consignment of birch for an Irish customer. This is low quality birch and will be used for the construction of frames for soft furnishings. Birch holds a nail and a staple better than alder and so is the preferred choice of furniture manufacturers. This appears to be one of the problems Bengt Parsson faces – trying to find markets for the medium to low quality alder. The smaller logs (thinnings etc.) can go to the pulp industry but are not as sough after for firewood. The rating used for firewood is based on standard of birch. Birch is given a 100% firewood rating, while oak is 120% and alder is 70%. Alder firewood costs approximately 100SEK (€10.5) per m^3 compared to 250SEK for birch. The chippings from the mill are sold to the local power generator (each town has a power generator for heating water).

Cabinet in alder KÄLLEMO

Generally the demand for alder has dropped over the past couple of years. This is due in part to a drop in demand from the European markets especially Denmark. Whether this is due to a drop in demand for alder generally or due to cheaper alder being available from eastern European markets is not known.

Chair detail in KÄLLEMO

In the afternoon we have a look around the town of Värnamo. This to my surprise is the home town of a number of famous furniture designers and manufacturers. First we pay a visit to KÄLLEMO, a design house, busy preparing for the Milan show the following week. They have a very nice exhibition of their work spanning back some 50 years. They have worked with the

likes of John Kandell, Mats Theselius, Jonas Bohlin and more recently developed a product (rubber chair) for production by Komplot Design which has won several prestigious international design awards. There are an array of materials employed in the furniture on display such as wood (including alder) steel, metal, glass, fabrics and rubber.

The next stop was at the house of Bruno Mathsson. For anyone interested in furniture this is a fascinating location and a real designers 'Mecca'. The house is quite discrete but contains a whole plethora of products designed by this Mathsson. Many of his design classics such as the Miranda chair (1942) and the Mi 901 collapsible table (1935) are still in production today. Mathsson frequently used alder as a substrate for more expensive and decorative veneers. The stability of alder made it an obvious choice and Mathsson often displays the alder substrate quite openly. The house also contains his studio and office which hold many more creative and inspiring designs.

On the way back to Sävsjö Bengt shows me his 'curly birch' stand. These are a genetically engineered species and produce a birch that has a burr-like grain pattern. They will be processed as veneer for which there is much demand in Germany and Bengt will pass it on to his children at some stage in the future.
On the way home I finally got an adaptor that allows me use Irish plugs in Swedish sockets. My phone and laptop were very happy to see it!

March 29

Another early start. Checked out of the hotel Högland this morning and headed for Länghem about 35km south of Ulricehamn. I moved off the motorway and headed onto some very minor roads covered in snow and ice. Progress became very slow but I managed to arrive on time to meet with Andreas Graden, a forestry consultant and researcher. He is based at the Rädde Foundation which is a forestry research centre and is a member of the Swedish Rural Economy and Agricultural Society. This society is entirely independent of all commercial and political interests and is involved with farmers, fisheries, animal welfare groups amongst others. In Rädde they carry out research on forestry. We walk through (knee high in snow) stands of mixed forestry including alder/birch, Norway spruce/oak aswell as some pure stands of alder, poplar, larch and lime.

I learned from Andreas that the history of hardwoods in Sweden is an interesting and at times controversial one. In the 1970s and

Mathsson's Miranda Chair

Mathsson's Mina Chair

TV and Turntable on display

Table top with alder core curly birch veneer

1980s there was a policy of eradication of hardwoods in an effort to improve the performance of softwood plantations and rid them of hardwood 'pests'. Since then the hardwood sector has fought to regain the lost ground and the damaged public confidence in hardwood species. There is now a system of grants for the establishment of hardwood plantations which is not available for growing softwoods. This covers 80% of the costs of planting oak, ash, beech, cherry, elm, maple and lime. It does not cover the establishment of birch and alder or any softwood plantations. There are no premium payments like in the Irish grant structure. The state dictates that the main species chosen for forestry must have a yield that is at least 60% that of Norway spruce.
The average forest area is 27ha. Between 80 and 90% of forests are certified by either FSC or PEFC. Certification dictates that at least 5% of forests must be conserved. PEFC tends to be used by smaller land owners while FSC is the preferred choice of the larger holdings as it has more international recognition.

12 year old plantation at Rädde

The rate of growth of trees in Sweden is much slower than in Ireland especially for softwoods. Norway spruce typically follows a 60-70 year rotation while for Scots pine it's between 80 and 100 years (sometimes up to 120 years!). Hardwoods also tend to take a little longer to mature - approximately 90 years for oak, 60 for birch and alder. The use of Swedish hardwoods is not unlike the situation in Ireland. The growth of hardwoods has begun in earnest over the past 30 years, however, the dependence on imported hardwoods is as high as 85%. These are typically imported from Poland, Germany, USA and the Balkan states. There has been a marketing campaign in Sweden over the last number of years for Swedish people to support home grown agri-food produce, disappointingly, Andreas points out, this was not extended to hardwood timbers.

40 year old unmanaged stand

Most of the alder in Sweden are naturally generated forests. One of the main problems associated with this is the lack of management that is carried out resulting in poor stem volumes and low quality form. According to Andreas there is little need for tending the alder as the lower branches tend to die off naturally (apart from the outermost stems). The fact that there is no support for funding the establishment of alder plantations means that many people neglect plots where alder is growing. Thinning, according to Andreas, should take place every 8-10 years with the removal of approximately 30-35% at a time. This encourages the formation of a good canopy and allows for development of the lower stem. The optimum form for alder is to have approximately 50% green canopy and 50% clear stem.

Common alder with poor form

During the day we visit three stands. The first is stand of 14 year old common alder. This is a research plot on the Rädde grounds. It has been managed well and demonstrates good form. The height is approximately 10 meters and average stem diameter of 10cm.

The next plot we go to is more typical of the stands of alder in Sweden. This is a stand that has developed naturally on old pasture land and is approximately 40 years old. It is predominantly alder with some birch and some lime scattered amongst it. There has been no thinning or tending done at all. The alder have poor form and have very small diameter stems (approx 15cm) with the crown very high on most stems. The stand is a good example of what results when there is no thinning carried out.

The final stand we visit that day is more impressive. It is also a site where alders thrive – wet and with a river running through (this was hard at first to locate with all the snow). This stand was 35 years old and thinning had been carried out at certain stages. The standards here showed better from, improved crown formation and had larger diameters than the previous stand (up to 26cm)

35 year old stand showing improved form

And increased stem volume as a result of thinning

March 30

I settled into a small hotel in Falköping en route to Svöde. This is an interesting medieval town and I found a nice restaurant for dinner last night. Today I travel to Svöde and meet with Susanne Johansson and a colleague of hers, Lars Nyberg, who is staring up a hardwood mill and is going to produce bee hives using alder.

We have lunch in Svöde University, the site of an ex-military barracks. Sweden is currently downsizing its army and many old army barracks are now being given over to new purposes. Lars Nyberg is starting up a hardwood mill and kin. Lars is very passionate about hardwoods and we discuss some of the problems facing both Swedish and Irish suppliers of hardwoods. It is amazing how similar the situation is in Sweden with Ireland, especially when you consider the importance of timber, not just to their economy, but to their way of life. Lars too believes that, starting with local markets, manufacturers need to be convinced of the quality of hardwoods. There is no incentive for wood

Alder stand

processing companies to change, therefore native hardwoods must be able to compete on price, quality and supply. Implementing a coherent and transparent grading system is also necessary so that manufacturers can compete with the likes of American hardwoods that are carefully graded under the National Harwood Lumber Association (NHLA) of America guidelines.

Lars is also designing bee hives that are built by joining together insulated blocks of common alder. The alder is jointed into sections and routed to incorporate a core of polystyrene insulation. The blocks are then simply screwed and glued together to form the hive. This is something that he hopes to put into production in the near future and which could be quite relevant to the Irish market considering the growth in interest in beekeeping over the past number of years.. This is typical of the diverse uses for which I have found common alder employed in Sweden. If we are to be serious in Ireland about using common alder we need this type of entrepreneurial initiative as well as convincing the market of the potential of alder. This may require some form of marketing campaign of Irish hardwoods in general if we are to get optimum prices for hardwoods in the future.

Later that afternoon we travelled into the hills surrounding Svöde where we saw some more alder, this time grey alder which is also native to Sweden. Typically, for alder it seems, they were naturally generated stands and unmanaged. Along the route were, however, some stacks of alder drying for firewood. We also saw some willow which was being grown for fuel. This is generally done on a five year rotation and increasingly popular in Sweden. Sweden has an energy policy that envisages their economy being be oil independent by 2020. This makes a bit of a mockery of our own energy policy back in Ireland. Certainly the last budget may have opened the door for the establishment of a renewable energy market but at this stage it all seems half hearted and very uninspiring. The potential importance of forestry and land owners in this regards is still very much an un-tapped resource.

Susanne Johansson and Lars Nyberg

Alder 'blocs' for bee hive construction

Grey alder

Alder shavings on snow

March 31

Friday already. The final visit before heading back to Gothenburg is to a company that manufactures alder wood chips for the smoking industry. Smoking fish and meat is popular in Sweden and in the rest of Scandinavia. We drive 30km north of a Svöde to a small area called Töreboda and are greeted by Anders Jacobsson, the owner of Töreboda Filis AB, one of the market leaders for the supply of wood chips and sawdust for smoking. Smoke conserves food, giving it a distinct taste and (sometimes) colour. Anders explains that the quality of smoked foods is as dependent upon the quality of the wood chips as it is on the quality of the food itself. Two species are generally used in Scandinavia – alder and beech. Alder is actually the fuel of choice because of its ability to colour the smoked produce quickly and uniformly. Also a lower temperature can be used than for instance when using beech or oak. This reduces the amount of polycyclic hydrocarbons (PAH's), such as benzene, released during the smoking process.

Töreboda Filis select and sort only choice local alder for their chips. Alder costs approximately 300SEK per m^3 and is kept on site in log form for at least two summers before it's used brought into the factory which is made up of a chipper, an oven and a grading line. Most of the machinery is custom made for the company. They have about 5,000 m^3 in the yard all the time. After chipping, the chips are dried to a moisture content of 10%. The chips are then passed over a series of grates that sort them into 3 different sizes (0-2mm, 2-4mm am 8mm). Finally the chips are bagged in 100 litre bags and sealed. The selling price for a 100 litre bag is 50SEK which would allow you to smoke between 400 and 500Kg of food.

Töreboda Filis AB are the main producer of chips for the domestic market, while Denmark is their main export market. They produce somewhere in the region of 70,000 bags of chips annually and apart from the owner the company employs just one other person! (This really is a credit to the innovativeness of the machinery employed)

Willow for fuel

Grey alder with spruce on higher ground

Anders Jacobsson and Dermot O'Donovan

Filling bags of chips at Töreboda Filis

The finish product – all ready for smoking

Conclusion

My time in Sweden was extremely interesting. To be able to get a look at the entire process chain form forest to factory has been of huge benefit to my research. My host at Träcentrum could not have been more helpful and welcoming. I think also there were impressed with initiatives that are happening in Ireland to promote the development of hardwoods. I gave Susanne the Timber and forestry Year Book to peruse as well as some gifts from the GMIT Letterfrack made from native beech and cherry

When considering the potential for alder the situation is not entirely straight forward. Alder is on the decline in Sweden at present. The crux of the problem is that manufacturing companies are very happy with the status quo. They can get good quality, competitively priced hardwoods on the international market. What is their incentive?

The key to the success of the use of alder, birch and in effect any home-grown species is possibly to work with local industries, manufacturers and processors and convince them of the quality that is available. What's amazing is that anyone you speak to who uses alder has nothing but positive things to say about. It may be that alder just needs to get more exposure before it's fully appreciated. Alder is also known as the 'mahogany' of the northern hemisphere but for some reason it enjoys none of the stature of its tropical namesake. Perhaps alder was not always associated with timber production in the same way as oak and ash and that is the reason for it never attaining its full potential. The fact is that alder has many distinct advantages as a choice of forest crop and timber raw material:

- Naturally suited to wetlands
- Short rotation
- Easy to process
- Easy to establish
- Very stable timber
- Very light (for transportation)
- Growth rate of alder doesn't affect its density
- Not as susceptible to damage by deer (or grey squirrel in Ireland)
- Tending not as critical
- Dries fast (for firewood)
- Suitable as short pulp fibre

The promotion of alder as a viable alternative to other imported timbers relies, as always however, on a quality product being offered to the Irish market at a keen price.

Alder stacked for use for firewood

Hazardous driving in Sävsjö

Scots pine en route to Sävsjö

Hayaga – the old town in Gothenburg

Venezia (Venice) April, 2006

The purpose of this trip was to visit a company called Due Rose spa in Pasionne de Pordenone situated approximately 40 kilometres north-east of the famous city of Venice. Established in 1966, Due Rose produce kitchen cabinet doors and components in both solid and veneered form using a variety of substrates (MDF, chipboard, solid wood) and a large variety of timber species. Over the years the company has adopted its technologies and products to establish itself as one the European leaders in cabinet doors. Their products are sold in both Europe and America and in recent years they have entered the Irish market using Springhill Woodcrafts in Carlow as their Irish distributor. My interest in visiting this company was to find out the current trends in materials and to get a better understanding of the primary factors affecting the demand for common alder.

Pisionne de Pordenone

Due Rose spa produce approximately 500 units per day. The production manager Georgio Sut and the purchasing manager's personal assistant, Federica Contedardo, brought me for a walk around the factory to see how things are run. Most of the timber ordered for Due Rose is in component form. It is either planed to its final thickness or left slightly oversize and finished in the factory while being machined for joints. This delivery of the raw materials in this form has significantly reduced the company's waste but also increased the quality of material arriving on the factory floor because more thorough grading is now happening at source. Of course the understanding of grades is a critical factor in the success of the relationships Due Rose has with its suppliers.

Dermot O'Donovan at the Due Rose Factory

Federica Contedardo in the Due Rose Showroom

Due Rose use predominantly European timbers. Large stocks of quality timber from eastern European countries have made European timber much more competitive in recent years. Yugoslavian oak, Estonian birch, Romanian lime and Polish alder are typical of the materials used. Veneers to match theses species are also more readily available now which is very important to Due Rose as approximately 60% of their products use veneers to some degree. The company also uses American red alder, Canadian Maple and a variety of tropical hardwoods.

Common alder in stock yard

Due Rose achieved ISO 9001 in 2000 and the company is now moving in the direction of certification. As of March of this year all timber purchased by the company must have FSC certification. This, according to Federica, is being demanded by their customers. Despite the increased costs of certification Due Rose will have all their products certified by the end of the year. This is also an important factor for Irish suppliers and reflects a wider trend in the wood products industries across Europe.

Assembly area

The Irish market accounts for approximately 5% of the sales of Due Rose, while the UK market accounts for as much as 30%. The Irish market is growing however at a steady rate. Due Rose produce a range of components for both the Irish and UK markets in alder. Of interest to my research is that the UK and Irish markets are the only ones where there is a demand for alder. There are some significant points of interest with regard to the use of alder.

FSC Certified products

- Sales of alder components have dropped in recent years. This appears to be mainly due to the lack of availability of quality red alder from America. The quality of red alder is better compared to its European equivalent. This has pushed the price of red alder up significantly (up to €900 - €1000 per m^3) and makes it now more expensive that top quality European oak (€800 per m^3) and European ash (€600 per m^3). This has resulted in a significant drop in the demand for alder from Due Rose. There are approximately 5-6% of components made from alder going to the Irish market at present. This has led Due Rose to source red alder from China (this has been imported from the US by Chinese timber merchants and is sold on to the European market). The drop in supply, the carriage costs and the extra link in the supply chain have contributed to the increase in the final cost of the timber.

Assembled doors

- Although European alder is available (approx €500 per m3 from Poland) the quality is poor in comparison to red alder.

- Alder is used in a variety of ways by the company.

    - Solid alder doors with an alder panel are available as a finished component. These are predominantly superior quality red alder. They are often finished with a stain that makes them appear similar to (American) cherry.

    - A solid alder frame is sometimes mixed with a veneered cherry panel. This time the alder is always stained to match the colour of the cherry panel. This is again superior quality alder, but could be common or red alder.

    - Lower quality European alder is also used as a substrate for cherry veneer. Due to the stability of alder it is very suitable as a substrate for veneer (Lime is used also for this purpose). This time a stain is applied to the finished component to blend the colours of the two materials together. Both alder and lime take a stain very easily which facilitates the blending of the colour of the solid wood and the veneer.

Common alder / European cherry panel

Common alder / European cherry veneer

It was also interesting to note that, according to Mr. Sut, Irish customers are relatively fussy with regard to the final appearance of the finished product. When Due Rose switched their production of cherry components from American cherry to European cherry there were many complaints initially from Irish customers who preferred the more plain American species. By contrast when it comes to oak both the Irish and the UK customers tend to prefer oak with a bit more character. Small knots are quite acceptable (and even preferred) by Irish and UK customers while the Italians will not accept any knots on oak and want only straight grained oak. This is interesting form the perspective of alder. European alder has more character than is American counterpart and it could therefore be inferred that if the quality of alder from Europe could be improved then perhaps customers could also be persuaded of its value in furniture and kitchens.

Solid Lime / Cherry Veneer

For all the species used in the factory there is an equivalent test board which demonstrates the acceptable quality standards of the materials used. If there is a doubt regarding any aspect of quality of either a finished good or a component then this board can be referred to. This demonstrates the acceptable colour, grain patterns, natural defects (knots, sap etc.) and sap wood content. For alder the most common defects are small knots and pockets of sap. Interestingly the marks left by the bark fly in alder are not considered a defect.

Boards of common alder with cherry veneer

Despite the wide range of modern styles available, the majority of customers still prefer traditional styles. Shaker doors are of course very popular also. Oak is certainly one of the most popular materials and is the preferred choice by customers in Italy, England and Ireland. Maple and cherry are also popular in Ireland, while in the UK there is a large demand for birch products. Alder is not at all sought after in Italy.

Test board for alder

Conclusion

Quality is a constant feature at Due Rose. The factory was impeccably clean, there was minimum finished product on the floor, all work in progress is stacked neatly, all material that is UV sensitive (alder, cherry) is kept covered at all times. Grading is an issue for the purchasing manager and is problematic especially when establishing new suppliers and when dealing with mills based in countries as diverse as Estonia and Canada. However, once acceptable quality and grades are established, adherence to those grades and continuity of supply tends to ensure a good working relationship.

Birch door for UK market

The trend toward European timbers is however continuing and the fact that companies are taking the certified route should help guarantee a constant supply of material and also provide an incentive toward certification for foresters. The open nature of the timber market means that all the emerging eastern European countries are in direct competition with timer suppliers here in Ireland. To compete in this market, foresters need to be able to produce timber to the highest quality and also attempt to focus on a particular end use or market that will suit their chosen species. There certainly appears to be a market for alder products but it is dependent on the quality of the raw material available. This will also determine the price of that raw material and considering the differential between the price of common and red alder, quality should be at the forefront of timber producers' minds.