

# Niche products and lean manufacturing

As James Hendrie followed a log lorry into the BSW Timber sawmill at Boat of Garten, Invernessshire, he was struck by the sheer compactness of the site. Meeting up with Dave Mills, mill manager, in the office building, Dave confirmed that the sawmill was operating on a 12-acre site, explaining how this compared to the Fort William mill, part of the same group and which covers 100 acres.

**B**OAT of Garten is a 'medium-sized producer sawmill' within the BSW Timber group, which operates seven sawmills in the United Kingdom and one in Latvia. The sawmill directly employs 65 staff and indirectly around 150 others, who supply it with timber. Located within the Cairngorm National Park, a stunning rural location, the mill converts the wood supplied into construction timber, fencing, landscaping, decking, pallets, and packing. Dave explained that one of the key strengths of the mill is that they can be very flexible about the wood that they accept for processing. Boat of Garten sawmill processes many more different species aside from the plentifully available Sitka spruce. "We are located in an area where other species, such as Lawson cypress, Noble fir, Douglas fir, Scots pine and others are also available and we are happy to work with forest owners of these species to process their wood."

Sixty % of the wood processed by the mill comes from the Forestry Commission and the remaining 40% from private forest owners, though Dave said that the mix was changing, with more coming from private sources. BSW's subsidiary, Tilhill Forestry, is responsible for log supply to the sawmill, sourcing from the Forestry Commission, Scottish Woodlands, Euroforest and a number of local estates. To have Forest Stewardship Council (FSC) wood is important, with the aim to process a minimum of 70% FSC wood through the mill.

They have worked hard to develop niche market products; one of these new areas has been the production of round fencing, for which there is a growing demand in this northern area of Scotland, for farming, forestry, and deer fencing use. "We invested in a Morbark round fencing line towards the end of 2016 and we have seen increasing sales from these products. It's a good example of what we have been working hard to do - adding value to the products we produce."

Dave is striving to get a balance between end products such as these, where there is a higher end value to be achieved, compared to the low-value, high-volume pallet and packaging products. Dave has been associated with the mill for the past seventeen years and as well as flexibility and adding value, another aim in his management of the mill has been the development of the workforce. "I am extremely proud of the fact that nearly all of my management team have been 'grown' from within the sawmill. Most have been operators in various parts of the sawmill in the past and we have, through coaching, development, and up-skilling,

equipped them with the knowledge, skills and attitudes to be able to become key members of the mill's management. This has been a fundamental part of our overall success. They understand the business, they have a pride in it, and there is a real team ethos as a result."

In effect, what Dave has done is to add value to the management

Dave Mills



team. He is a firm believer, through using the same processes, in the development of all the sawmill's workforce. Outwith work, Dave has been a rugby coach for a number of years and he has been able to transfer some of the ideas and values associated with sports coaching into the work environment. The site achieved the Investors in People award in 2005 and has used that recognition to continue to build upon people skills and to develop resilience amongst the whole team.

He himself is the product of a BSW Timber management training scheme, having joined the business in 1994, with some experience in forestry and a BSc Hons Forestry and Wood Science degree. This saw him working across the business to gain experience in all areas of the company's operations, including at Sengenydd sawmill in South Wales. "It was my first involvement in production management, but I was there to learn the ropes as it were, shadowing and covering for the production manager who was in post." He then moved on to become assistant manager at Fort William sawmill in the west of Scotland. He moved to Strathspey in 2000, originally as a production manager but, following some management reorganisation, became mill manager in 2005.

Married to Rebecca, a police detective, and with two children, Jake and Elizabeth, he and his family soon became settled into the lifestyle that living within a National Park offers to those that are keen on all forms of outdoor pursuits, which he and his family are.

Dave explained some of the history of the sawmill at Boat of Garten. The site was built in 1940 and was associated with the Canadian Forestry Corps who operated it during the Second World War. Like many other mills

and forestry logging camps across the north of Scotland, it was engaged in producing mining timbers to support the production of coal, vital to the war effort. In 1965, the site was purchased by A&R Brownlie. A new mill was built on the site in 1985, by the then site director Bob Shiells, and the mill was set up as a 'Super Saver' line. This involved setting up a chipper canter, single edger and two sorting lines, one for boards and the other for centre core, a process involving each piece of timber making two passes through the line. This was a development from the previous Stenner sawmill but other, newer techniques for sawmilling have seen the more modern mills evolving with a single-pass line.

Today, after passing over the weighbridge logs are taken to the log yard; from there they proceed to the 'green mill' for processing. Sawn timber from the centre cuts then moves into one of the three kilns that are on site. The heat used in the kilns to dry the timber is generated from the integrated biomass boiler, an investment in 2016 that sees the lowest-grade wood co-products burned as an alternative to oil. From the kilns, timber is transferred to the grading line where it is sorted by quality and strength, aiming for an end product being C16-grade timber with a moisture content of 20%.

The timber is checked for strength by load testing to assess the stiffness of the board, and visual checks are carried out for knots and internal defects in the wood. This overall grading is important to get a marketable end product required for the mill's customers. As part of the objective of striving to add value to the product, there is a second processing area in the mill where various machines



including bandsaws, a moulder and crosscut saws produce finished material that cannot be otherwise produced in the main sawline.

The final part of the process for 70% of the wood is to go for timber treatment. High-pressure treatment is applied to products that come into contact with the ground, to prevent rotting. Low-pressure treatment is applied for wood less likely to come into contact with water such as internal timbers for house-building - a growing market in the UK. From this part of the process, wood is then moved to storage yards to await dispatch to customers.

There has been significant investment at the Boat of Garten site over the last ten years, which has helped to deliver a more

Top: Timber arrives at Boat of Garten sawmill from across the north of Scotland.

Middle: Logs passing through the log scanner before being sorted for processing through the mill.

Bottom: Logs being stacked in the log yard.

# SAWMILLING

sustainable and robust business at the site, as well as helping to drive the site towards its goal of achieving a £10 million turnover. The investment programme has been spread across the last five to ten years and has been focussed largely on improved efficiency.

A Weiss boiler, installed in 2016, supplies hot water to the kiln-drying operation. Three Hildebrand 180-cubic-metre kilns are used to produce kiln-dried timber for the building market, and the biomass investment has helped make the site more cost-effective in this key market area. It takes four days in these kilns to get timber down to the magical 20% moisture content that Dave is seeking.

Dave and his team have been working hard looking at both business costs and sawmill processes to see not just where reductions in costs could be achieved, but also where changes could be made to processes, or where they could be re-engineered, to make the process more efficient and productive. Dave's office wall has many charts on display showing analysis of all parts of the various processes that take place at the mill.

Downtime is something that is analysed very carefully, to understand what caused it and what can be done to improve and reduce it in the future. Dave is very happy with what has been achieved by this focus; in the last twelve months productivity had improved by 10%. Effectively, lean production techniques have been used to examine and question all parts of the sawmill operations.

"In the last fifteen years we have invested a lot of time into making the mill more efficient. We have automated machinery, updated control and optimisation systems using the latest state-of-the-art technology, meaning that what is effectively an old mill is as modern as many of the new sawmills in the UK. We have really focussed on attention to detail, trying to get the teams that work the machinery at the mill to understand how to get the best from it and to make the workplace a place that they are proud to work in."

One area where efficiency has been improved is in the log yard, with an MPM 3D scanning system being used to scan over bark to measure bark thickness to then allow the logs to be sorted accurately by diameter grade. Because of the varied species that are processed it was important to have this type of technology in use at the mill. Further scanning takes place in the mill to optimise the output from each log. MPM also supply the optimiser



Above: The Weiss boiler supplies hot water to the kiln-drying operation.

Below: A lot of the investment made at the Boat of Garten sawmill has been in updated control and optimisation systems using state-of-the-art technology.



Log passing through the automated canter quad machine.

technology on the edger at the mill. For Dave, working with key suppliers such as MPM has been an important part of his drive to improve productivity.

Involving the workforce in the sawmill's success is important to Dave and he works hard on communications. The whole team are involved in a daily communications process called 'Morning Prayers' – each department within the sawmill reports on their Key Performance Indicators (KPIs) and everyone gets to know how they are doing overall. "We have found that this way of communicating gets the team working together as well as placing the responsibility on the individuals and departments to have to generate the information required to be discussed.

"Our team like this level of involvement. It helps to keep our labour turnover low and therefore the need to bring on board agency staff to a minimum."

Health and safety is also an important part of the culture that Dave and his team have

developed at Boat of Garten. At the time of my visit, they had operated for the past 100 days without an incident. "We have fostered a real health and safety culture within the team and have engineered risk out of our processes and machinery as much as we can. Health and safety today is more about the behaviour of the workforce, trying to understand when accidents or incidents occur, why people do what they do to cause the incident, learning from that, and coaching new behaviours."

I couldn't leave without asking Dave about his involvement at this year's Carve Carrbridge. The mill supplied the logs used by the carvers and he took part in the competition as a judge. "It was a real honour to be involved. Having been a spectator in previous years, I especially enjoyed the judging part and learned a lot from the other judges. Carve is another way of us being involved in the community around the sawmill."

This involvement also sees the donation of planter boxes to local primary schools to encourage their horticultural skills. They also supply sporting kit to these schools, bird boxes to the local RSPB sites, as well as any wood requirements of the local Community Council. For Dave, such support is more than just fulfilling corporate responsibly, it is about being fully immersed in the local community that he lives and works in.