



NORWEGIAN
WOOL™



The Journey of
Norwegian Wool
From Sheep to Chair





Returning to local resources

The story of the Norwegian Wool project is about returning to our local resources and bringing the advantages and potential of Norwegian wool back to life. It is about origin, about appreciating the value of an important resource and making sure it is being used to its full potential.

Norwegian Wool is also a story about collaboration. This is a joint effort between industries sharing their knowledge of all the processes involved; shearing, sorting, scouring, carding, spinning, twisting, weaving, dyeing, finishing and upholstering. By not taking anything for granted and seeking to share and understand how it all fits together, we have been able to reintroduce truly Norwegian woollen fabrics.



Wool of exceptional quality

Norway has a strong tradition in sheep farming and wool manufacturing – a tradition that dates back to long before the Viking era. The first sheep, known as the Old Norwegian sheep, came to Norway around 6000 years ago. All the traditional Norwegian short-tailed spæl-sheep stem from this breed. They have a two-layer coat consisting of an inner layer of short, fine wool fibres, and an outer layer of long coarse wool.

The long-tailed breeds also stem from the Old Norwegian sheep crossed with various breeds of mainly British sheep, imported between 1700 and early 1900. These are the Crossbred types and they have more uniform wool of moderately fine fibres.

The spæl-sheep breed account for 15% and the Crossbred for 85% of the total amount of sheep in Norway. The total annual amount of wool is about 4.5 million kilograms.

Sheep farms in Norway are mostly small-scale and spread all over the country in diverse agricultural landscapes. In a changing and harsh climate, our sheep roam freely in Norwegian hills and mountains during the grazing season. They drink the purest water and eat the most nutritious food nature can offer. This creates healthy and strong animals with wool of exceptional durability, resilience and brilliant lustre.



Olav T. Bø, a dedicated sheep farmer in Rennesøy, an island just outside Stavanger.



The shearing and sorting process

Sheep shearing requires a lot of training. It can only be learned from a skilled shearer and through dedicated practice. The shearing movement is called “strokes”, and the shearing is done with a rhythm of natural and sliding movements.

It is important that the woollen fleece is sheared in one piece, as it’s the most valuable part of the sheep. The woollen fleece constitutes of 70-80% of the total amount of wool on the sheep. Wool from the belly, thighs and tail are kept away from the woollen fleece during shearing and are sorted separately.





Børge Høyland from Helleland in Norway gained, in October 2014, the title Norwegian Champion in wool shearing and -handling for the fourth time. In the competition he used less than one minute shearing and handling per sheep.





The shearer's indispensable tools: Shearing moccasins and electric shears. The shears are regularly cleaned and taken well care of in order to function optimally for sheep and wool. The moccasins are soft and gentle for both the shearer and the sheep.





Sorting and wool classing

Wool sorting and classing is an important profession. There are about 50 certified wool classers in Norway. They are in close contact with the wool and their hands are their most important tool besides their experience. The wool is classified after quality criteria set by the Norwegian wool standard. There are many properties that count; time of the year, hair thickness, fibre length, ripple, content of marrow and dead hair, grip, gloss, colour and how clean the wool is.

The wool is sorted in big wooden boxes, with 16 different quality classes. C1 stands for wool of the best class, from Crossbred sheep. C1 wool is shorn in the autumn and the woollen fleece must have grown in an outdoor setting for approximately half a year. The wool has to be soft and rippled, with good resilience and low fat and dirt content.





Arne Stangeland, works at Forus wool station in Rogaland.
A highly qualified master wool classer, with 40 years
experience. He is still highly passionate about his work
and fulfils it with great professional pride.







The refinement process

The refinement process with its different steps are important for the final quality of the yarn and therefore also for the woven fabric.

Firstly, the wool is scoured, a process of cleaning and then dried in a huge drum. Next step is the carding process, where the wool is combed into fine sheer. It is then turned into rovings and prepared for spinning.

In order to be spun fibres must have good spin characteristics such as length, strength, fineness, smoothness and stretch ability. Woollen yarn is spun by narrow strips of carded wool and contains wool of varied lengths that are only partially parallelised - unlike in worsted yarn, where the fibres are parallel. Woollen yarn is characterised as a soft, rich and porous yarn that is very suitable for knits, outerwear and upholstery fabrics.



Scouring

Sandnes Garn is the only yarn manufacturer in Norway still having their own facilities for scouring wool. This process is normally outsourced to England.

During the scouring process, 1/3 of the wool's initial weight disappears. The largest part being the wool grease; lanolin. Additionally, the dirt, urine and other irregularities are removed. A degreasing soap and soda is added.

Scouring is a very important and balanced process, to ensure the wool is not damaged in any way. The water has to be clean, PH neutral and without any dissolved metals. It has to be kept at no more than 40 degrees Centigrade to avoid removal of all the wool's lanolin. Because so much of the grease is removed one has to add more fat (spin oil) before spinning.









The weaving process

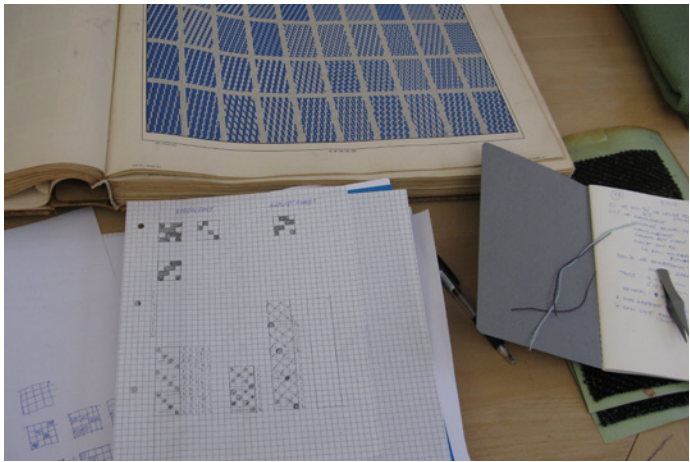
At Gudbrandsdalens Uldvarefabrik the yarn is twisted to achieve the right thickness for the warp and weft as well as to give the fabric its characteristic sheen and texture.

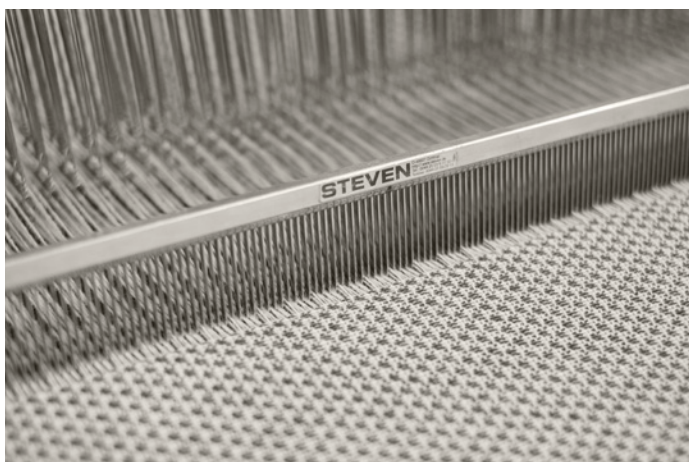
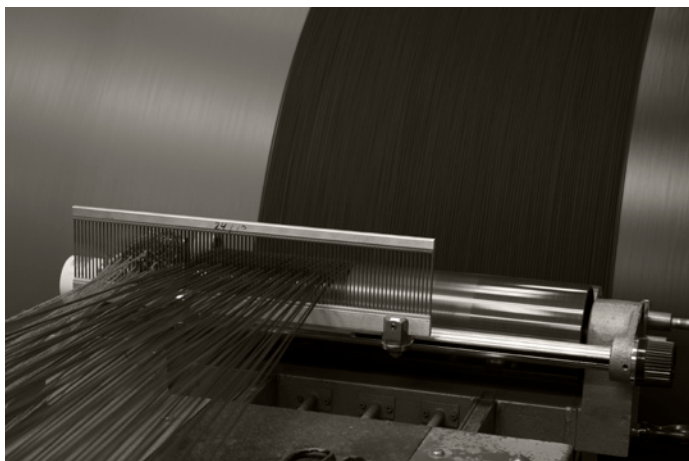
During the warping process the yarn is wound around a large drum and the 960 threads lie parallel and of the required length before they are transferred onto the warp beam.

The weaving process is carried out on modern looms controlled by skilled technicians. The weft yarn is carried in through the warp by a yarn feeder, one weft at a time. The sequence is decided by the pattern programmed into the loom.

The raw fabric is sent through inspection and every little flaw or knot is mended by hand. The fabric is then dyed in large machines taking up to 400 meters at a time. After dyeing the fabric is dried to give it the right width and the fibers on the surface are shorn to give a soft, smooth surface.

Afterwards the fabric undergoes the decatizing process on a silicon clad drum. Through the application of vapour and pressure the fabric undergoes a process similar to steam ironing and this enhances the lustre in the wool, and gives the fabric a smoother surface and the extra strength required for upholstery fabrics.





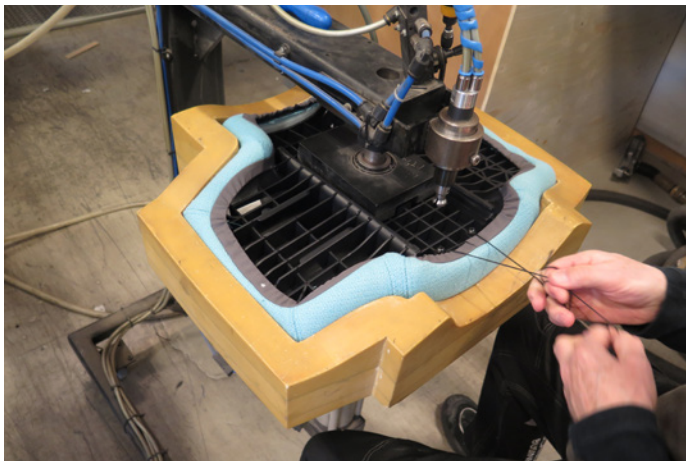


The upholstery process

At Scandinavian Business Seatings facilities in Røros the fabrics are cut in pattern parts, sewn and upholstered. It's a thorough procedure with a lot of testing and adjustments to get the best final result. The fabric is accurately fit to the shape of the chair.

In the first step the fabric is positioned and the upholstery parts are cut on a special cutting machine. Skilled upholsterers make patterns that perfectly fit the foam and the shape of the chairs. The upholstery is thoroughly tested on chair parts to customised shapes. It is of great importance that the textile is tight enough.

The following images show the experienced upholsterer John Skårdalsmo fitting a newly made upholstery on a HÅG Capisco seat.











The Norwegian wool project is a collaboration between Gudbrandsdalens Uldvarefabrik and Scandinavian Business Seating

This book has been made with the help of:
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No sheep were harmed in the making of this book





Scandinavian
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