

Translation from Danish Journal Minkavleren
Original author: Mick Madsen

X-ray technology will revolutionize the sorting of furs

In a short while specifically developed X-ray technology will be a part of the production line of Copenhagen Fur. This technology will become a revolution in sorting of fur, first and foremost as a quality control.

It is a more than 100 years old technology that shortly will be an established part of the sorting of fur in Copenhagen Fur. The expectations for the X-ray technology, which is incorporated to the production line of Kopenhagen Fur via eight X-ray systems, are nonetheless extremely high.

- It is the biggest thing we have made so far. We are going to have a technology, that no other auction house has, says production director, Jesper Lauge Christensen. At first, the X-ray technology can add measurement of skin length and hair length directly to one automated process. In that alone there is of course an immediate gain of rationalization. Furthermore the X-ray systems are able to measure the density of wool in the skins and these automated processes means, that the trademark of Copenhagen Fur – sorting in big, uniformed lots of mink-skins – will be much improved.

– The technology increases the stability in the measurements. We get an objective assessment of the sorting, which means that we are more capable of controlling the quality over time, states Jesper Lauge Christensen.

REVOLUTION IN QUALITY CONTROL

The real revolution will however especially appear, when further development of software for the technology enables that the X-ray systems can reveal flaws, defects and deposits of fat in the skins. To quality director Bjarne Rasmussen this would for example mean that poorly scraped skins can be removed from the sorting before they are sold and maybe returned with complaints because of fallen off hairs.

The X-ray images also provide the quality-department with the opportunity to track and analyze flaws in large quantities of skin in the chain of production. This way it will be easy to establish, if a certain type of flaw recurs in one particular breeder or pelting center. The X-ray images will furthermore be capable of revealing skins that have been stretched unnaturally much.

– We can optimize our quality because we can go back in the system and see if there are any problems. This also means that we will be able to prevent some things by analyzing what we can see on the X-ray images. We get a technology that we will most likely receive some profit from in the long run, because quality is what we have to beat the others with, claims Bjarne Rasmussen.

And the X-ray technology seems to be very adequate for quality control. The technology in question is a highly developed X-ray technology – the so called low-energy X-ray imaging – that uses less energy than the X-ray systems in hospitals to take a picture, which does not with much less power to penetrate. Instead, the low-energy X-ray system creates complete images of the skins, where the structure including possible flaws is obvious.

X-RAY HAS GREAT POTENTIAL

Once you have software that understands how to “read” the X-ray images, there is phenomenal potential in X-ray as quality control. The technology takes for instance pictures in Spain to ensure that champagne corks are of sufficient quality.

– Cork is a natural material like fur, and potentially has many flaws. If the cork cannot be pressed together due to an area of material of harder density, it won't be of use as cork in a bottle, says Joergen Rheinlaender, director of the high-technological company, Innospexion, which is Kopenhagen Fur's collaborator. Low-energy X-ray is also used to find production errors in the pharmaceutical industry among others, but according to Joergen Rheinlaender, the way Kopenhagen Fur is going to use the technology is much more clever, compared to how other industries use X-ray:

– Kopenhagen Fur's use of the technology is unique because they don't use it as you normally would – that is to discard. Unfortunately most companies use it to reject defect units in stead of using it as process control, states Joergen Rheinlaender, who thinks that the market of using low-energy X-ray to improve productions will grow big – especially within the food industry.

For the moment Innospexion is working on an X-ray system, which can point out boneless areas of a fish. Fillets without fishbones can reach a much higher price, so it is simply a matter of adding products more value. Low-energy X-ray has also proved to be effective in controlling how far along the aging process certain types of cheese have reached. This way the cheese manufacturer gets a unique basis to determine whether each individual cheese shall be released for sale, or if it will rise in value if aged longer.

To the Danish mink farmers the gain of X-ray technology is found in the opportunities, the technology gives to analyze their own production. How a system like this should come to function is too early to specify, but the thought of all fur farmers getting access to X-ray images of their own skins, has in any case been mentioned.

– The mink farmers will have something to relate to quantitatively. It won't be something subjective, and that is of course advantageous, says Joergen Rheinlaender.

The work with integrating the low-energy X-ray technology in Kopenhagen Fur's sorting is well under way. It is expected that the systems are included in the sorting with measurement of skin length from the month of April. After this the development-department in Kopenhagen Fur will focus on characteristics of the skin and the software that is to process the X-ray images. Jesper Lauge Christensen estimates that the majority of next season will be passed away with analyses. Therefore it will most likely be 1½ to 2 years before areas such as density of wool and defects in leather will become an automatic part of the production.

Facts about InnospeXion

- Is housed in Bjernede east of Sorø, with >10 employees.
- Won the Innovation Award 2007 of Messecenter Herning for the work of making low-energy X-ray useful.
- Won the Innovation Award for the second time in 2016 of Messecenter Herning for the work of significantly improving the detectability of glass splinters in glass packaged food products.
- Delivered the first automatic X-ray system to the pharmaceutical industry in 2002.
- Has since then delivered more than 160 advanced X-ray systems, e.g. to USA, China, and Japan.
- Has experienced annual increases of 50 pct. a year because of the new low-energy X-ray systems, which are unique in the World.



Fig. 1. X-ray systems for fur quality sorting during initial testing

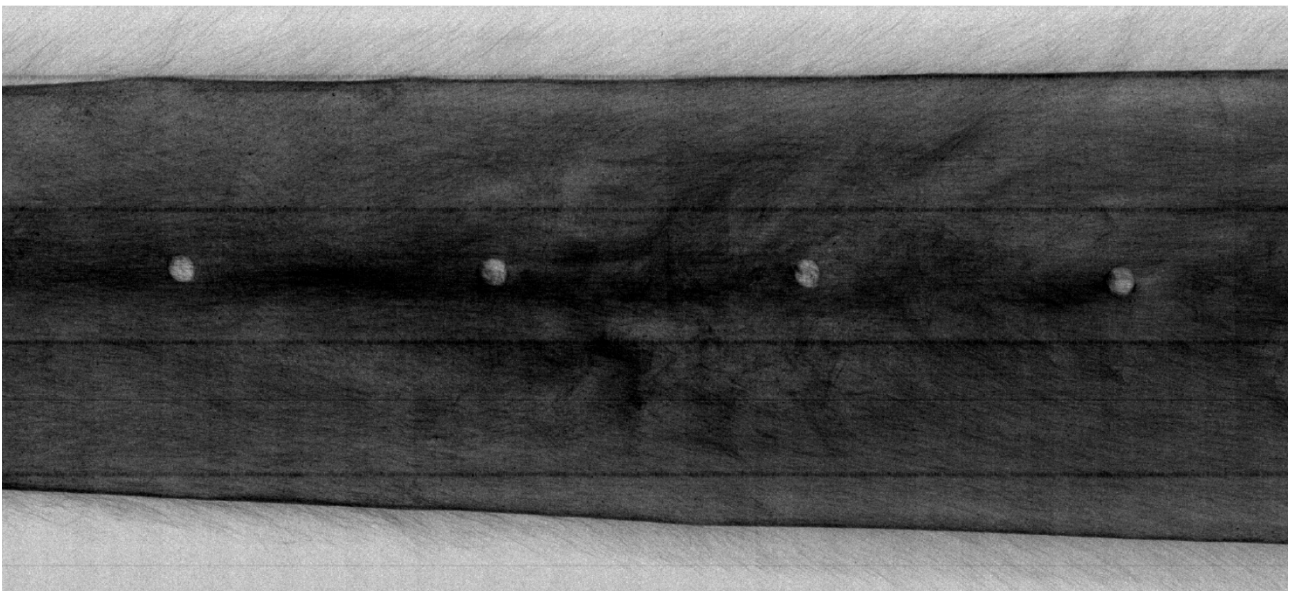


Fig. 2. X-ray image of a section of a fur showing intended skin defects (holes) and the ability to image the hair structure, density, length and angle at the sides of the fur.

Translated by: KWR

Edited 2018 by JRh