

Sabine Sampels (b. 1975) successfully defended her PhD-thesis in the field of Meat Science on 22 of April 2005 at the Department of Food Science, Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden. Her thesis entitled



Fatty Acids and Antioxidants in Reindeer and Red Deer *Emphasis on Animal Nutrition and Consequent Meat Quality* was based on four papers.

Professor Stefaan De Smet Ghent University, Ghent, Belgium, was the opponent and the evaluation board consisted of Professor Anders Kiessling, NLH, Ås, Norway, Dr. Päivi Soppela, Arctic Center, University of Lapland, Rovaniemi, Finland and Associate Professor Birgitta Åhman, SLU, Uppsala, Sweden. Supervisors have been Associate Professor Jana Pickova, SLU, Uppsala, Sweden and Associate Professor Eva Wiklund, University of Alaska Fairbanks, USA together with assistant supervisor Associate Professor Paresh Dutta, SLU, Uppsala, Sweden.

Sampels studied Food Chemistry at the University of Bonn, Germany before she came to SLU as an ERASMUS student for one year from August 1998. During this time she also worked on a pilot study on fatty acid composition in reindeer meat from animals grazing and fed pellets. When she completed her Staatsexamen in Food Chemistry in 2000 in Bonn and started her PhD work at SLU in 2001, the results of this pilot study were the basis for the PhD-project.

The PhD-studies were done in collaboration with Swedish reindeer herders and reindeer meat processing facilities and with the research institute AgResearch in New Zealand. The work was financed by the Sami Fund in Sweden, FORMAS, C.F. Lundströms Stiftelse, Svenska Lantmännen, SLU and by the New Zealand Foundation for Research, Science and Technology.

Articles in the thesis are:

- I. **Sampels, S., Pickova, J. & Wiklund, E.** 2004. Fatty acids, antioxidants and oxidation stability of processed reindeer meat. *Meat Science*: 67, 523-532.
- II. **Wiklund, E., Sampels, S., Manley, T. R., Pickova, J. & Littlejohn, R. P.** Effects of feeding regimen and chilled storage on water holding capacity, colour stability, pigment content and oxidation in red deer (*Cervus elaphus*) meat. *Journal of the Science of Food and Agriculture*, in press.
- III. **Sampels, S., Pickova, J. & Wiklund, E.** Fatty acid composition and vitamin E and A content of *M. longissimus dorsi* from reindeer of different age and sex grazing on natural pasture and fed two different diets. Submitted.
- IV. **Sampels, S., Pickova, J., & Wiklund, E.** Influence of production system, age and sex on carcass parameters and some biochemical meat quality characteristics of reindeer (*Rangifer tarandus tarandus* L.). Submitted.

Abstract: The aim of this thesis was to investigate importance of dietary fatty acids (FA) and animal age and sex on FA metabolism. In addition, relations between FA and antioxidants on the consequent nutritional and technological quality of reindeer and red deer meat were addressed. A diet rich in polyunsaturated FA (PUFA) especially long chained n-3 FA ($\geq C20$) has beneficial effects on human health, e.g. in prevention of arteriosclerosis. Game meat is a potential food source that is both lean and rich in n-3 PUFA, however different animal production systems can affect its natural FA composition. In the present studies on reindeer and red deer, that were either grazing or fed pellets. **Meat from grazing animals had higher amounts of n-3 PUFA and lower n-6/n-3 ratio.** Our results from feeding studies indicate that reindeer are unable to sufficiently elongate and desaturate towards 22:5n-3 and 22:6n-3, and suggest that dietary intake of C 22 PUFA is necessary for reindeer. The differences in FA composition between grazing reindeer of different sex and age were ascribed mainly to fatness. FA composition of the meat influences not only its nutritional quality but also other quality aspects such as shelf life and processing stability. **The higher the degree of unsaturation of FA is, the more prone to oxidation they are. Therefore the antioxidant status in the animals is important for the protection of the meat against oxidation.** The studies on processed and stored meat showed that changes in FA composition and antioxidant content influenced its processing stability and shelf life. α -Tocopherol status

had a greater impact on lipid oxidation and colour stability than did changes in FA composition. **In contrast** to lipid oxidation, decreasing colour stability and increasing amounts of free FA were found to be the first indicators of quality deterioration. The knowledge from the present thesis adds valuable information on lipid metabolism of ruminants, demonstrated in reindeer.

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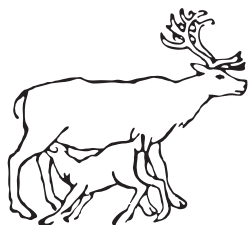
12th Arctic Ungulate Conference (AUC) – Yakutsk, August 2007

The two previous conferences were organized in Norway 1999 and Finland 2003. At the last AUC in Saariselkä the Arctic Ungulate Society (AUS) appointed Russia for the next meeting in 2007 after an offer from the Republic of Sakha in eastern Russia.

We are glad to announce that the 12th AUC will be held in Sakha in August 2007.

The organizers will inform in special web pages in a few weeks.

More information will be available also in NOR's web pages www.rangifer.no.



NOR - grants 2007

Grants are allocated to researchers and students who study reindeer or reindeer husbandry. Applicants should belong to Nordic institutions or they should be students abroad having direct co-operation with Nordic institutions.

The NOR grants for 2007 will primarily be allocated for participation and presentation at the AUC arranged in Russia in 2007 (see above information). The applications will also be considered for participation in other congresses, symposia, scientific meetings about reindeer and reindeer husbandry or topics of relevance for the studies of reindeer and reindeer husbandry, and contact meetings for planning Nordic projects.

NOR's working committee will decide upon further priorities as required.

The closing date for applications will be 1st March, 2007. Applications for events before 1st March 2007 will be dealt with continuously.

Full announcement will be found in web pages <http://www.rangifer.no/eng/grants.html> from December 2006.