

Combining New Feed Raw Materials to Mimic Natural FA Feed Composition and Fulfil Animals FA Requirements

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Game meat is often lean and rich in n-3 polyunsaturated fatty acids (PUFA), but the animal production systems of today can affect this natural fatty acid (FA) composition.

In Sweden in recent years, feeding pellets to reindeer has been necessary mainly to reduce levels of radioactive caesium in the meat. Due to the high proportion of cereals in pellets, feeding pellets has resulted in higher levels of n-6 FA and a higher n-6/n-3 ratio in the meat. In an earlier study feeding reindeer pellets enriched with linseed cake, a source rich in 18:3 n-3 resulted in an increase of 18:3 n-3 and 20:5 n-3 but no significant increase of 22:5 n-3 and 22:6 n-3 in the meat. These results suggest that reindeer have a capacity to elongate and desaturate towards 20:5 n-3 but are not able to elongate and desaturate towards 22-carbon PUFA in significant amounts. We concluded that the animals have to be supplemented with these long chain (LC) PUFA when they do not have access to natural pasture. Therefore in this new study reindeer were fed linseed cake containing pellets enriched with micro-algae rich in 20:5 n-3. The intentions were to investigate if the addition of n-3 LC PUFA in addition to 18:3 n-3 in the feed would increase these also in the meat. We observed that reindeer prefer the pellets containing the micro-algae compared to the conventional produced pellets. This could be an indication, that this feed also resembles more the need of the animals. Earlier studies showed a difference of taste between meat from pasturing animals and linseed containing pellets and conventional pellet fed reindeer, with the meat from grazing reindeer having a stronger game flavour. A higher content of n-3 PUFA is expected to lead to a stronger game flavour of the meat.

The meat produced feeding pellets including new raw materials mimicking the natural feed composition to a much higher degree than the conventional pellets will plausibly fulfil the requirements for sound and ethical production system for reindeer. In addition, higher proportion of n-3 PUFA in the meat will result in a higher nutritional value.