

Popular Science Resume

Feed efficiency is a measure for how much an animal grows in relation to feed intake. It is of vital importance in pig production, as over half of the costs of production are associated with feed. Feed efficiency is a complex trait, as many factors can affect it, including behavior, metabolism, dietary efficiency and more. In Denmark, the yearly pig production is close to 30 million pigs, which means that there have been longstanding efforts to improve feed efficiency in pigs through breeding. While this has been successful, it has not added much knowledge to the biological background of feed efficiency.

This thesis analyzed the biological background of Feed Efficiency. The work was done based on blood sampling and tissue sampling from pigs that had accurate weight and feed intake measurements. Based on the biological sampling and bioinformatics techniques, we were able to associate genes, metabolites and genetic variation with Feed efficiency. Furthermore, we were able to identify overall pathways underlying the genes and metabolites we identified.

The work here has revealed many new gene and metabolite associations to Feed Efficiency, and thus developed candidate biomarkers for the identification of highly efficient pigs. Beyond this, we also have developed novel strategies for analyzing complex traits such as feed efficiency.