Benefits of using freshly prepared meat in dry petfoods by utilising novel meat processing and extrusion technologies.

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* *Increase in nutrition and quality benefits*
* *Alternative manufacture*
* *Retention of quality indicators*
* *High meat inclusion levels*

The meat content used in most dried petfoods is supplied as dried meal.This talk demonstrates that it is possible to take high moisture meat and 5th quarter animal ingredients of known source and quality through pasteurisation, concentration and then thermal extrusion methods to result in dry petfood with benefits in nutrition and quality compared to meat meal products.

Nutritional quality can be impacted by many factors and can result in protein, vitamin and lipid deterioration. One measure of quality can be *in vitro* protein digestibility and 14 commercial samples were assessed for their digestibility. These samples had an average of 67% (SD=11%) digestibility (amino acid equivalent), while the samples utilising the fresh meat all showed digestibility greater than 90%.

Assessment of meat meals in comparison with high moisture fresh meat materials showed that it is possible to have the fresh meat samples with lower lipid oxidation values, lower biogenic amine markers, higher available lysine levels and equivalent or higher amounts of vitamins. It has also been shown that there are initial differences in the volatile profiles of meat materials depending on its prior treatment. Using model processing methods and formulations based on high animal protein content, thermo mechanical extrusions were performed using different moisture contents and specific mechanical energies. Results showed that the beneficial aspects of the starting materials were retained throughout the processing procedures.

An extruder developed to manage high moisture content material has allowed kibbled product to be made on a commercial scale. The products show the enhanced nutritional profile, reflecting the starting materials, and that the product could be made at similar hardness, water absorbance, solubility and density structures as the products made from the meat meals.

Freshly prepared meat use in a novel thermal process allows the benefits in nutrition key quality properties of the starting material to be sustained in the finished dry pet food.

*John Smith is a Research Associate at the University of Nottingham. He holds a BSc.Honours in Biochemistry and a PhD in Food Sciences and is currently supporting a knowledge transfer partnership between the University of Nottingham and GA Petfood Partners. John undertook his latest research duties with AB Vista, the feed division of AB Agri, trying to understand the mechanisms by which the xylanase Econase XT was improving nutrient digestibility. John is a board member of Cereals&Europe (the European section of the AACCI) and part of the organizing committee of the European Young Cereal Scientists and Technologists Workshop for the past 3 years.*