



## WG1 Speaker Profiles & Abstracts

**Michael Judas** – Max Rubner-Institute, Department of Safety and Quality of Meat, Kulmbach, Germany



### ■ PROFILE

Michael Judas studied Biology with emphasis on soil ecology and multi-varied statistics, and received a PhD in Biology in 1989 at the Institute of Zoology at the University of Göttingen, Germany.

He worked as a lecturer in Zoology at the University of Göttingen from 1991–1997 and received a habilitation for Zoology in 2003.

Since 2004, he has been a senior research scientist at the Max Rubner-Institute, Department of Safety and Quality of Meat in Kulmbach, Germany. His focus is on biostatistics, CT operation and analysis, and he is designated as the national expert for pig carcass classification in Germany.

### ■ ABSTRACT (WG01T08)

#### *Hounsfield distributions from different CT protocols*

The possibilities and limitations of quantitative analysis of CT images for carcass tissue composition are currently under debate in the EU. Since different CT models and various analytic protocols are applied, an objective measure is required that allows to quantify differences between the separate approaches.

An ideal object for comparative studies is an artificial phantom that mimics densities and anatomic properties of the true study objects, namely pig carcasses. A close model was found with the 3D Torso phantom Model 602, produced by CIRS, Norfolk VA, USA. This phantom was newly acquired by the AVS at Easter Bush, Midlothian, UK, and kindly provided by Prof. Lutz Bünger and colleagues for a quantitative comparison of CT protocols. The MRI at Kulmbach recently switched from an outdated Siemens Somatom Plus 4 to a Siemens Scope. Since it was not self-evident to what extent parameter settings would allow comparable results between the two CTs, a

range of CT protocols was devised with varying kV, mA, slice thickness, and reconstruction algorithm. The entire torso was scanned and the overall distribution of volume by Hounsfield value determined.

The presentation will illustrate the high variation both between protocols within scanner, and between scanners within protocol. A quantification of differences is outlined. In particular, a recently proposed volume regression approach (Daumas et al. 2014) is used to quantify the effect of varying CT protocols.

The results suggest some robustness of protocols, but scanners need a thorough quantification of their differences.

#### Relevant publication:

Daumas G, Donko T, Monziols M, Kongsro J, Čandek-Potokar M, Allen P, Scholz A, Bünger L (2014) A pragmatic short-term approach to establish a Computed Tomography (CT) based reference method for the measurement of lean meat percentage (LMP) in pig carcasses. In: C. Maltin, C. Craigie and L. Bünger (Eds), *Farm Animal Imaging Copenhagen 2014*, pp52-57. Edinburgh, West Mains Road, Edinburgh, EH9 3JT, UK.