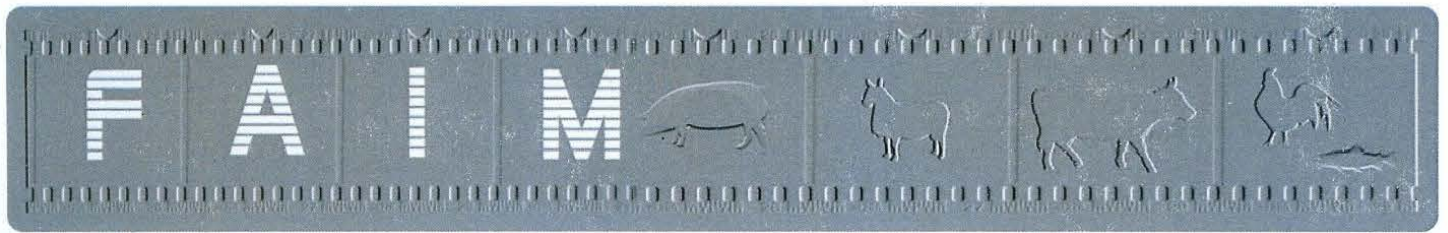COST ACTION FA 1102: Farm Animal Imaging (FAIM)

FAIM

FAIM I: First Annual Conference on Body and Carcass Evaluation, Meat Quality, Software and Traceability

Teagasc Food Research Centre,
Ashtown, Dublin, Ireland
24th - 26th September 2012

Action FA1102
Food and Agriculture

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Severiano R. Silva - CECAV, UTAD, Portugal

• PROFILE

Severiano Rocha e Silva was born in Baltar, Oporto, Portugal and went to the University of Trás-os-Montes e Alto Douro (UTAD), at Vila Real, where he studied Zootechnical Engineering, obtained his degree in 1987. After doing his military service, in 1989 he became Assistant at UTAD and obtained his PhD degree in 2001 in Animal Science. After, he became assistant Professor and a member of the research group of Veterinary and Animal Research Centre (CECAV-UTAD), where he has been working in ever since. He is mainly interested in techniques to predict animal composition. Publications: Edition of a book, 12 book chapter, 27 articles (14 ISI full paper and 3 proceeding paper), over 70 communications (presentations, seminars and posters). Teaching and Supervision: 1 Postdoc; 1 PhD Student; 18 master students. Scientific membership of the International Goat Association from 1996 to 2002 and American Society of Animal Science from 2005 to 2012. Other activities: 2009-now: Course Vice-Director, of Animal Science Engineering Master Program.

• WG1 - POSTER 4

Sheep whole body composition predicted by in vivo real time ultrasound measurements

Accurate measurement of changes in body composition and in the energy content of live animals is crucial to understand the responses to the intake of nutrients. Despite the accuracy of the serial slaughter technique in determining body composition, it is very expensive and comparisons within an animal became impossible thus the need for an accurate method to predict body composition in the live animal is obvious for the biological efficiency studies. This work aimed to establish equations to estimate in vivo whole empty body chemical composition of sheep using real time ultrasound (RTU) measurements. The experimental group consisted of 49 non pregnant and non lactating ewes of two breeds with a body weight of 48 ± 12 kg. Just before slaughter, the animals were scanned with an Aloka SSD 500V equipped with a linear probe of 7.5 MHz. Ultrasound images were captured at thoracic, lumbar and thoracic cage regions. The RTU images were analysed with ImageJ software and fat, muscle and tissue depth measurements were calculated. Chemical body composition was determined on fat, water, protein and ash components. It was also determined body energy value. Multiple regression analyses were performed to determine which combinations of in vivo RTU measurements and body weight best predicted empty body chemical composition and energy value. Results from the best fit models showed that body weight and RTU measurements explained 66 to 85 % and up to 89 % ($P<0.01$) of the variation of the proportion and the amount, respectively, of water, fat, protein and energy value of the whole body. The results of this study suggest that body weight and some ultrasound measurements combined with image analysis, particularly subcutaneous fat depth over lumbar and thoracic vertebra, allow accurate prediction of empty body chemical composition in sheep.

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31

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