

# Using Computer Tomography (CT) to select against waste while improving taste

N. Clelland\*\*, L. Bungler, S.A. Knott\*, K.A. MacLean, N.R. Lambe

Animal and Veterinary Sciences, SRUC, Roslin Institute Building, Easter Bush, Midlothian, EH25 9RG

\*Institute of Evolutionary Biology, School of Biological Sciences, University of Edinburgh

\*\*neil.clelland@sruc.ac.uk

## The Problem

- One of the main drivers influencing consumers at point of purchase is the level of visible fat associated with lamb (often perceived as fatty)



Measuring backfat thickness



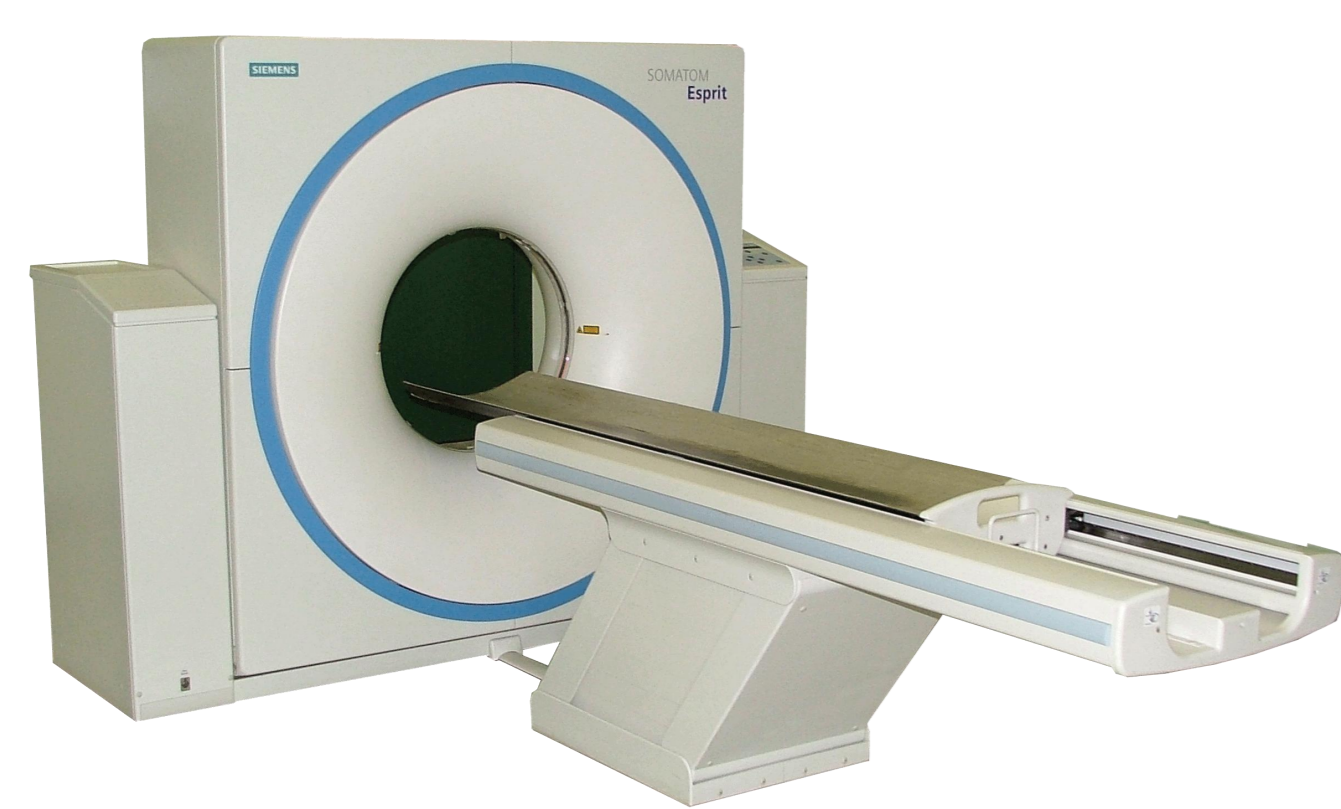
Sheep carcasses

- Meat eating quality (MEQ, e.g. tenderness, juiciness) is known to be linked to fat levels, and this is largely due to positive associations with intra-muscular fat (IMF)
- Intense selection for leaner carcasses in the pig industry resulted in extreme low values of IMF impacting meat eating quality in pork

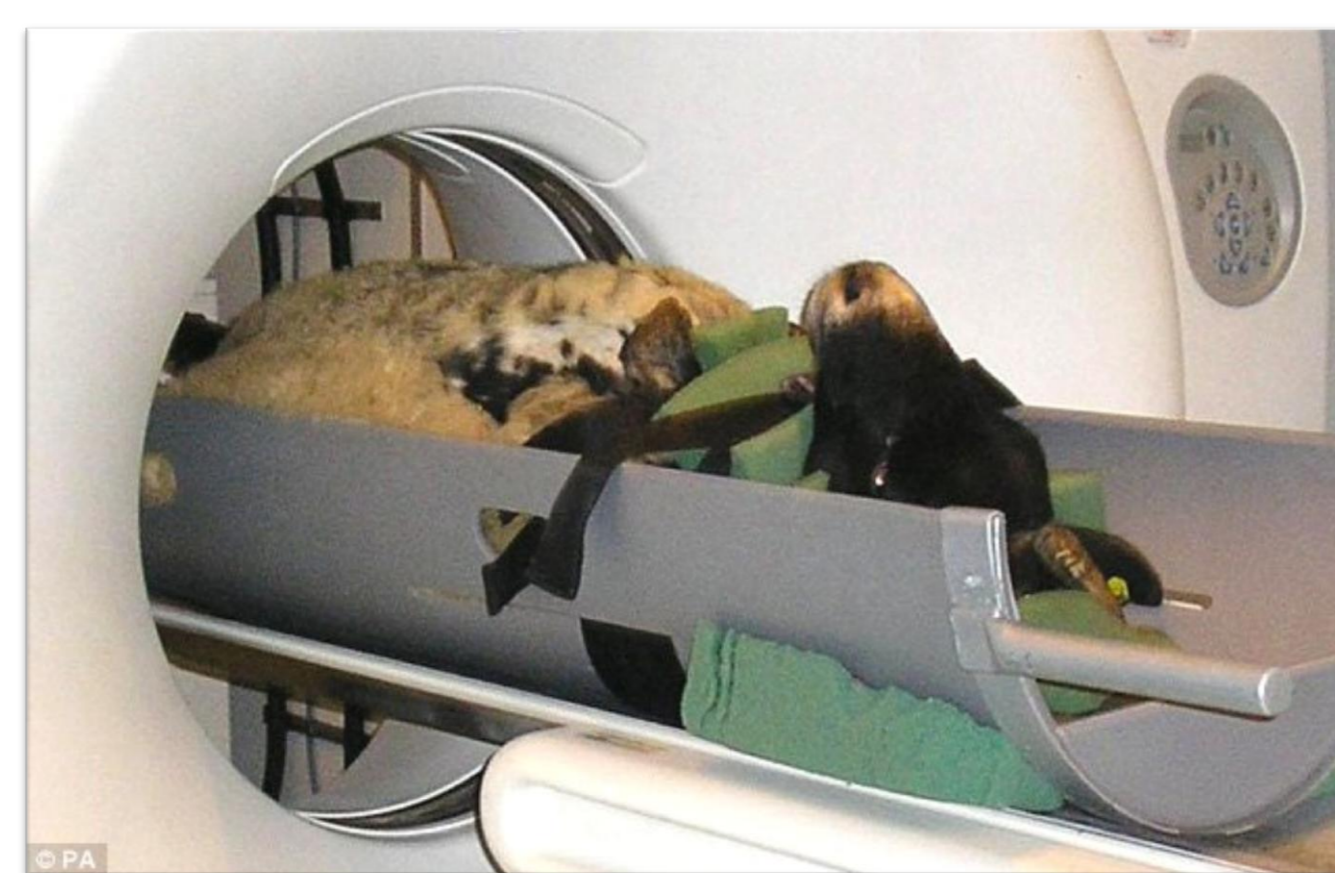
## Why work is needed

- Continued intense selection for leaner carcasses in the sheep industry will result in a reduction of IMF and in turn this will have an adverse impact on eating quality of lamb
- Combined improvement of Meat (eating) quality alongside fat reduction should be considered

## What is being done



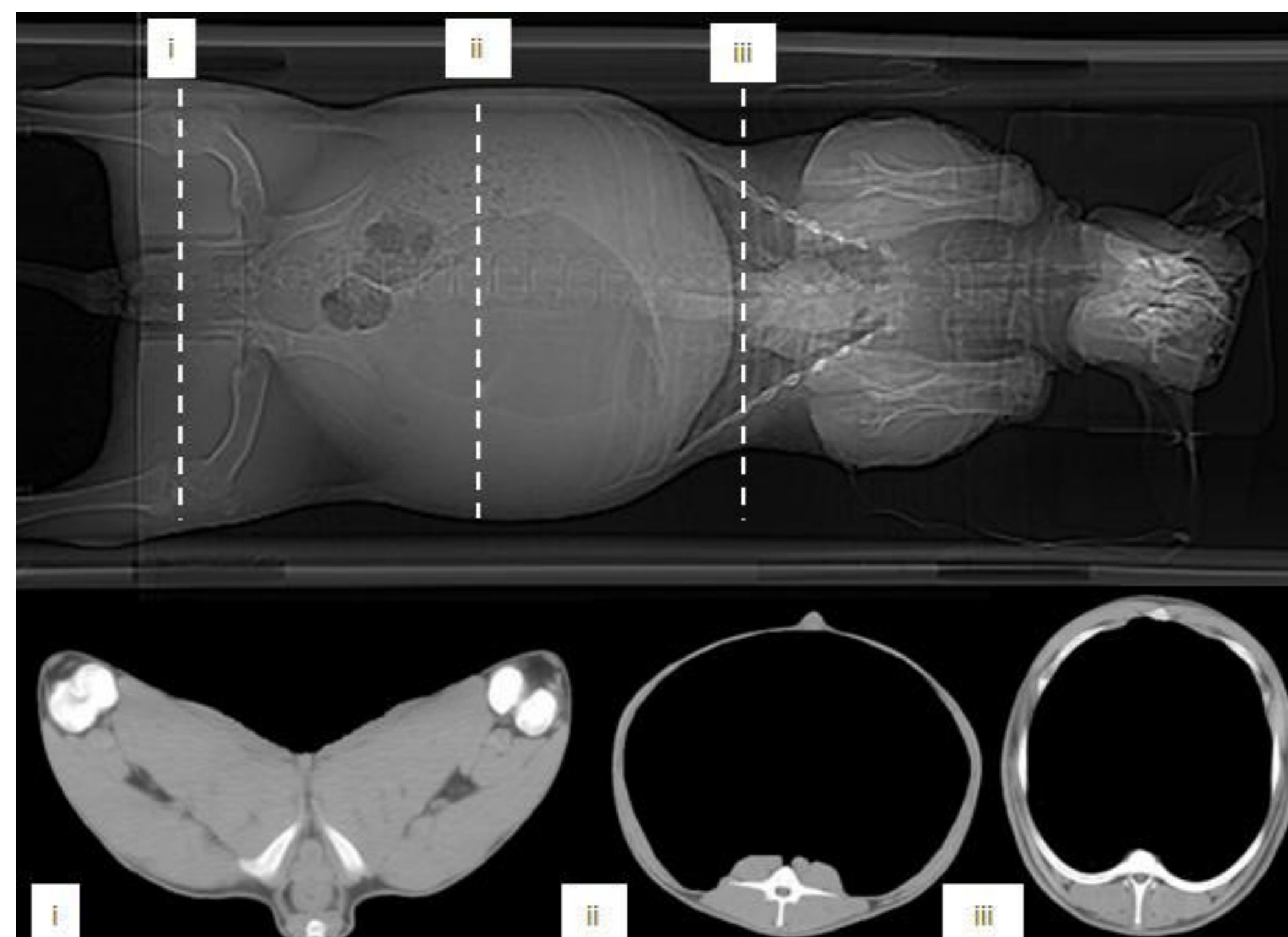
Somatom Esprit CT Scanner



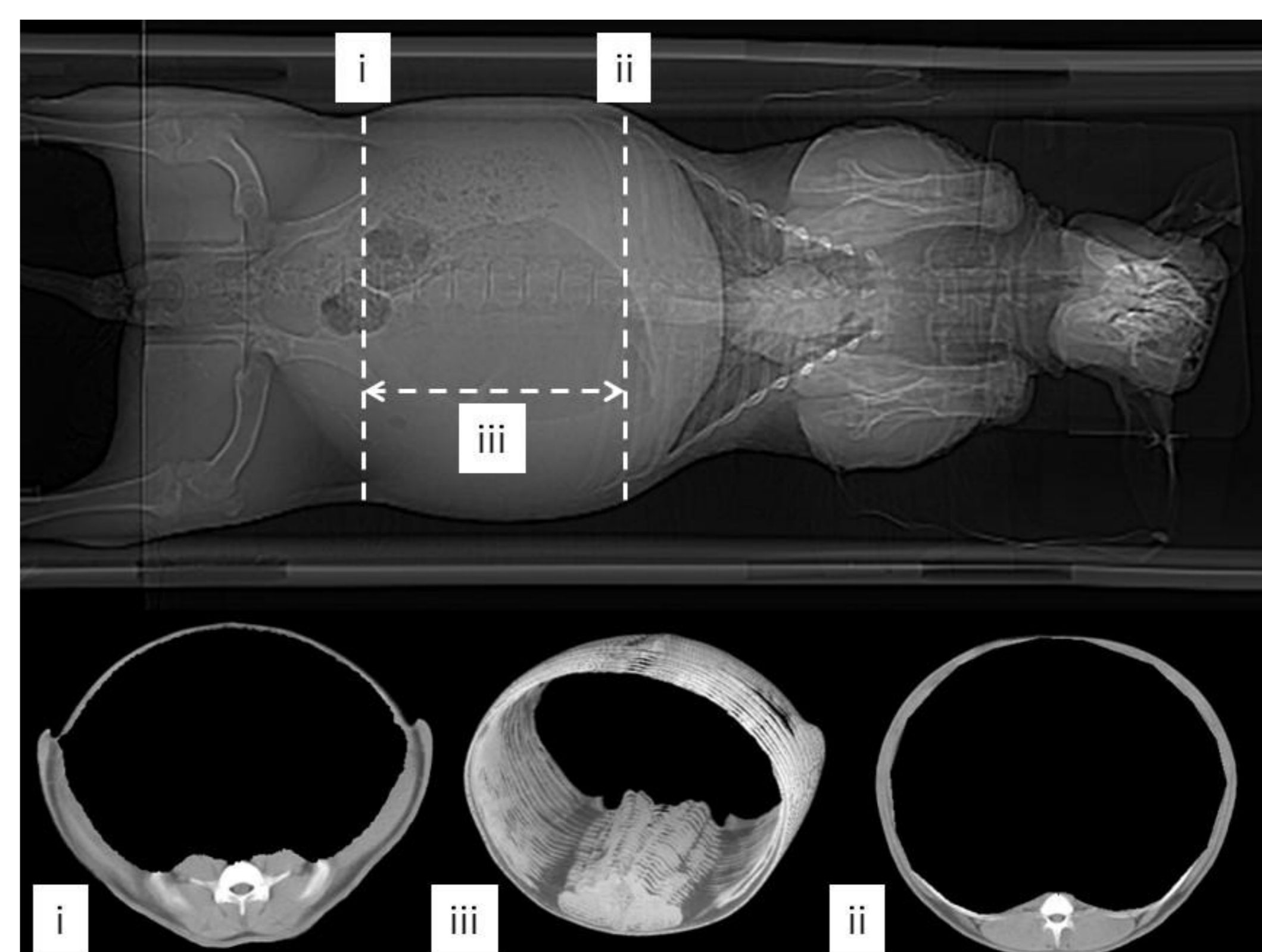
Sheep in CT Scanner

- Information from CT images is being used to investigate the ability to predict IMF levels (and potentially other MQ traits) in the live animal

- Investigate the combination of information from 2D (reference) and 3D (spiral) CT images as predictors of IMF% in the live animal



Combining information from reference scans



Combining information from reference scans and spiral scans

- **Prediction accuracies**
  - **65 – 71% accuracy predicting IMF in the loin of live Texel lambs**

## The benefit to industry

- **Estimated breeding values (EBV's) for meat quality can be derived**
- **New method to select for reduced carcass fat without corresponding decrease in IMF and MEQ**

**Research is funded by the joint levy bodies EBLEX, a Division of Agriculture and Horticulture Development Board, HCC and QMS**