

Concurrent Session 9A: Diet Intervention Studies/Obesity

National survey of nutrient composition of Australian retail pork 2006

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Background – Feeding, rearing and breeding practices in the pork industry are changing to achieve more uniform production of larger, leaner pigs across Australia.

Objectives – To provide updated information on the nutrient composition of fresh pork over the previous decade.

Design – Sampling design for fresh pork cuts from the capital cities of three states, representative of supply to major cities took into account socioeconomic class, butchers and supermarkets, and produced duplicate analytical samples from each state. Analytical composites (fat and lean, raw and cooked) were freighted chilled to the University of New South Wales for folate analysis; and chilled or frozen to the National Measurement Institute for remaining nutrient analyses. Loin chop was studied separately across the three states for all nutrients in order to ascertain variability in nutrient composition, and 12 other cuts were analyzed nationwide for nutrients demonstrated to be present in loin chop.

Outcomes – New information produced included data for vitamins B₁₂, B₆, folate, pantothenic acid and fatty acids including EPA, DHA and CLA. All fat samples contained water-soluble B vitamins contrary to expectations. Significant levels of folate were found in both fat and lean of all cuts. Variations in composition of some minerals suggested a need to review pig feed formulations and practices.

Conclusions – Findings confirmed that Australian pork is much leaner than in previous decades. Re-analysis at least every 10 years for major commodities is needed in order to monitor changes affecting food supply nutrient composition.

Study funded by Australian Pork Limited

Greenhouse gas emissions from alternative Australian diets

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Background – The main causes of global warming are thought to be the burning of fossil fuels to meet increasing energy demand, and the spread of intensive agriculture with deforestation to meet increasing food demand. Mitigating climate through reducing greenhouse gas emissions (GHG) from food is becoming an important element in nutrition science that may guide dietary recommendations and choices.

Objective – We modelled the life cycle GHG of four different dietary patterns using input-output analysis. The diets were a lacto-ovo-vegetarian diet (LVD), a high carbohydrate diet modelled on the Australian Guide to Healthy Eating (AGHE) a high protein diet modelled on the CSIRO Total Wellbeing Diet (TWD) and the average Australian diet (AAD) as assessed from the 1995 National Nutrition Survey.

Design – The dietary patterns were 8MJ except TWD which was modelled as an energy restricted pattern of 6MJ. Information was categorised according to major food groups and matched to food production sectors data from the input-output model. Where relevant, food group data such as meat were disaggregated into individual types of meats. Where red meat was included, 50% was assigned to beef and 50% to lamb. Quantities of food eaten in restaurants, taken from the ABS household expenditure data for 2004 and takeaway food, were added for the three other diets. GHG expressed as kg CO₂ per kg of food were converted to kg CO₂ per dietary pattern per person per annum.

Outcomes – Beef was associated with the highest production of GHG contributing 27% of AGHE, 37% of TWD and 25% of AAD GHG emissions. In contrast lamb provided 7%, 9% and 6% respectively. On LVD Dairy products were the main source of GHG at 27%. Cumulative greenhouse gas emissions expressed as kg CO₂ per annum were lowest on LVD at 2337 followed by AGHE at 3799, TWD at 5034 kg CO₂ per annum and AAD at 5425.

Conclusion – Although beef is the single highest GHG emitter, the total dietary pattern needs to be considered in managing net GHG emissions.