

final report

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Prepared by: David Pethick
Murdoch University
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International (in particular Europe) collaboration on beef and lamb carcass grading to underpin consumer satisfaction

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Abstract

The aim of this project was to organize and run a 2 day workshop titled “International meeting on Beef and Lamb carcass grading to underpin consumer satisfaction”. The meeting was held at the INRA headquarters in Paris on 20/21 August 2015 and was hosted by Meat & Livestock Australia and INRA. This workshop was run immediately before the International Congress of Meat Science & Technology, Clermont-Ferrand, France and invitees included scientists, processors and retailers.

The 2 day meeting consisted of 19 presentations centered on the theme that modern beef and lamb products must meet the expectations of consumers who purchase red meat to cook it as a meal solution. The focus was based around the Meat Standards Australia (MSA) grading platform which is designed as a sensory or eating quality grading system for underpinning a cooked meal performance that is matched to the occasion and requires no specialist knowledge by the consumer.

The aims of the meeting were to:

- encourage consumer focused sensory research for beef and lamb with key collaborating international partners using common protocols.
- facilitate where appropriate MSA like systems that focus on consumer satisfaction.
- work towards a global model for sharing sensory data using the MSA protocols that can be used for scientific and for commercial purposes.
- explore models for funding future research collaboration.

This workshop unanimously supported the need for evidence based systems to underpin eating quality for lamb and beef in order to keep consumers purchasing products that are higher in price than the white meat competitors. Registrations were received from 80 people covering 17 countries (Australia, Brazil, Canada, China, Czech Republic, Denmark, France, Italy, Japan, Republic of Ireland, Poland, Portugal, South Africa, Spain, Thailand, United Kingdom, United States of America) creating a dynamic workshop atmosphere.

The conference proceedings can be found at:

<http://www.viandesetproduitscarnes.com> - then go to 6th November release.

Executive Summary

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1 Project objectives

The high level aims of this project are to:

- Ensure that the Australian industry gains maximum advantage from International developments by leveraging existing knowledge and guiding research activity to ensure that the Australian MSA system(s) becomes a de-facto global standard.
- The project will also facilitate further International collaboration on both sensory evaluation and industry systems underpinning both lamb/sheep and beef.

Project objectives:

By 30th September 2015, the following will be completed:

- An international workshop (20th – 21st August, 2015) on carcass grading for palatability of beef, lamb and sheepmeat be held at the INRA headquarters in Paris on 20/21 August 2015. This workshop would be run immediately before the International Congress of Meat Science & Technology, Clermont-Ferrand, France and include invitation to scientists, processors and retailers.
- A final report is to be provided to MLA outlining the outcomes of the workshop, a clear description of the current status of eating quality programs currently underway in Europe and other countries and recommendations on the next steps for international collaborations that will benefit the Australian red meat industry
- Opportunities identified to engage with the MSA pathways committee to develop a strategic approach to the globalisation of MSA as the international standard for eating quality

Milestones

Achievement Criteria		Due Date
1	Conference program finalized and submitted to MLA	30-June-2015
2	Achievement of objectives and final report on those objectives submitted to and accepted by MLA	30-Sept-2015

2 Results and discussion

The 2 day meeting consisted of 19 presentations (see Appendix I for conference program) centered on the theme that modern beef and lamb products must meet the expectations of consumers who purchase red meat to cook it as a meal solution. The focus was based around the Meat Standards Australia (MSA) grading platform which is designed as a sensory or eating quality grading system for underpinning a cooked meal performance that is matched to the occasion and requires no specialist knowledge by the consumer. This workshop unanimously supported the need for evidence based systems to underpin eating quality for lamb and beef in order to keep consumers purchasing products that are higher in

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A key feature of the MSA system is that the sensory response, or final eating quality assessment, is estimated as a weighted score of tenderness, juiciness, liking of flavour and overall liking using untrained consumers. In other words the MSA system is focused on predicting the eating quality response of the population who purchase meat. Australia has a large data set of consumer responses to beef that has allowed the development and commercial application of the MSA muscle x cook prediction tool. Data sets using common protocols have now been developed in several collaborating countries and regions (Japan, France, South Korea, Poland, Republic of Ireland, New Zealand, Northern Ireland, South Africa, United States of America) and most of this has occurred due to simple 'organic' collaboration between like-minded scientists with some commercial input. Across the countries the data has clearly showed enormous commonality in how consumers respond to beef in particular. Furthermore much of the data has been converted into peer reviewed journal papers meaning there is little if any residual intellectual property to protect. Finally speakers from France, Poland, Republic of Ireland and Northern Ireland (and published work from South Korea and South Africa) agreed that the base MSA model is an adequate tool for predicting the eating quality of beef for 'their' consumers. However extra precision would be possible if some adjustments were made for issues like (i) alternate production systems that are not included in the MSA prediction model (e.g. beef and dairy bulls, dairy cows) (ii) subtle consumer differences between countries and (iii) new cooking methods (e.g. hot pot, degree of doneness).

It was recognized that the value of a combined global database and cooperative development of eating quality standards and prediction routines far outweighed the sum of individual isolated databases due to the largely complementary nature of existing data and the benefit of cross linkage at animal and consumer level. Further benefits of collaborating in research work and merging data under a data cooperative function were greatly improved efficiency and reduced cost for individual partners and the benefit of access to multiple research facilities and direct involvement of a larger pool of scientific expertise.

With this background the following recommendations have evolved:

1. The palatability web site be housed and managed by MSA (<http://palatability.une.edu.au/drupal/user>) with research partners encouraged to add content and stimulate dialogue.
2. The existing Australian MSA dataset format be adopted as a base for development of a more contemporary cloud based database structure (or content management system) with appropriate organisation, standardized ontology conversion and administration to provide a secure environment and facilitate merging of data from multiple partners within a data cooperative.
3. The MSA consumer testing and trial design software routines linked to the current database structure be utilized as a base for an open code software package that can be integrated with the new database structure. This should be developed to facilitate trial design, and automate file and label creation for product collection, fabrication to consumer samples and allocation of muscles/meat portions/labels to consumer sessions by collaborating researchers.
4. That a consultant (Rod Polkinghorne) in collaboration with Meat & Livestock Australia coordinate and manage the data base development and trial design software routines. This is to include the transfer of existing data to individual country versions, and associated software routine development on behalf of the collaborating countries to ensure that existing data remains compatible and, where desired and approved by individual data contributors, be readily merged within a data cooperative. Cost recovery for this work to be negotiated.
5. That collaborating countries be offered the opportunity to upload 'like' consumer and related animal, carcass and objective data into the data cooperative with a negotiated position on the use of both the uploaded and other cooperative data developed by the working group.
6. That the working group develop operational guidelines for research use of the data and extend this to a commercial model for the development of commercial 'MSA' like sensory prediction models.
7. The concept of Global Guaranteed Grading (3G), which has been presented in Milan, be embraced where shared Australian and international data sets be combined within a data cooperative to produce in the first instance country specific eating quality prediction models.
8. Meat & Livestock are open to the MSA prediction model being released by negotiation to collaborating countries using the 3G principal described above.
9. International collaboration on lamb eating quality using the MSA protocols is welcomed in a similar manner to beef.
10. Objective carcass grading for predictors of eating quality is a high priority, especially for lamb.
11. Ultimately systems need to evolve so producers are paid on the basis of eating quality of a muscle x yield of that muscle as planned in the Eurobeef network submission.
12. Of great importance is the development of smart tools for simple reporting across the value chain, especially to include producers.

In order to drive and focus the proposed recommendations it was agreed to establish a working group of current collaborating countries that would be open with respect to new partners. Suggested initial members are (in alphabetical order by country):

Name^a	Country	Affiliation
David Pethick (chair)	Australia	Murdoch Uni
Rod Polkinghorne	Australia	MSA pathways chair
Michael Crowley	Australia	Manager, MSA
Hailing Luo	China	China Agric. Uni (Lamb)
Qingxiang Meng	China	China Agric. Uni (Beef)
Jean-François Hocquette (Deputy chair)	France	INRA
Paul Allen	Ireland	Teagasc
Takanori Nishimura	Japan	Hokkaido Uni
Jerzy Wierzbicki	Poland	Polish Beef Association
Soo-Hyun Cho	South Korea	RDA
Phillip Strydom	South Africa	ARC
Jason Coutts	New Zealand	Silverfern Farms
Linda Farmer	United Kingdom, Nth Ireland	Agri-Food and Biosciences Institute
Nigel Scollan	United Kingdom, Wales	Aberystwyth University
Mark Miller	USA	Texas Tech University

^aSuggested representative or delegate

The working group will meet 1-2 times yearly via teleconference or alike and strive to arrange the next workshop in association with the ICoMST 2017 conference in Cork, Ireland.

APPENDIX I – Conference Program

International meeting on Beef and Lamb carcass grading to underpin consumer satisfaction

Invitation

Meat & Livestock Australia and Meat Standards Australia in collaboration with INRA invite you to an International meeting on Beef and Lamb carcass grading to underpin consumer satisfaction.

Objective

To facilitate further International collaboration on sensory evaluation and industry systems underpinning carcass grading for consumer satisfaction of cooked beef and lamb.

When: Thursday 20th – Friday 21st August, 2015

Where: INRA headquarters, Paris, 147 rue de l'Université 75338 Paris 07

Invitees

This workshop is being run before the 2015 ICoMST and is a follow up to a similar workshop held at Jeju Island, Republic of Korea associated with the 56th ICoMST, 2010. The 61st ICoMST meeting will be held at Clermont-Ferrand (Sunday 23rd – Friday 28th August, 2015) and is an ideal opportunity to bring together those researchers with an interest in beef and lamb grading for eating quality. Accordingly the invitation to attend the 2 day workshop is based on the assumption invitees can arrange their own transportation and accommodation. The conference is open to any scientist and meat professional interested by the prediction of eating quality of beef and lamb at the consumer level, however numbers will be limited to approximately 80.

Contact details

Please contact Janice Stigwood at Murdoch University, Western Australia (J.Stigwood@murdoch.edu.au) for further information.

Organisers

David Pethick: d.pethick@murdoch.edu.au

Jean-François Hocquette: jean-francois.hocquette@clermont.inra.fr

Program

Thursday 20th August

CHAIR: Linda Farmer

1.00-1.10pm (10min) Welcome: Jean-François Hocquette, INRA, France

1.10-1.40pm (30min) Meat Standards Australia cuts based beef grading – an overview of use in Australia: (John Thompson, MSA pathways, Australia)

1.40-2.10pm (30min) A vision for International work utilizing common sensory protocols with untrained consumers (Rod Polkinghorne, MSA pathways chair, Australia)

2.10-2.35pm (25min) Overview of outcomes from analysis of the combined European consumer data set (Sarah Bonny, Murdoch University, Australia & Jean-François Hocquette, INRA, France)

2.35-2.55pm (20min) Modeling and prediction versus statistics with reference to MSA (Garth Tarr, Newcastle University)

2.55-3.25pm (30min) Coffee break

CHAIR: Isabelle Legrand

3.25-3.45pm (20min) An opportunity too good to miss – experience from the Australian Industry. Peter Trefort (Meat & Livestock Australia board member, Australia)

3.45-4.15pm (30min) UK retail perspective - The need to move beyond carcass classification (Duncan Sinclair Waitrose, UK)

4.15-4.45pm (30min) French Industry perspective on beef and lamb eating quality grading (François Frette, FNICGV, French Meat Industry and Wholesalers Organisation,)

4.45-5.15pm (30min) The Polish Industry perspective on beef quality grading (Jerzy Wierzbicki, Polish Beef Association, Poland)

5.15pm-5.45pm (30min) Global trading of beef using Meat Standards Australia – an Australian supplychain perspective of brand management underpinned by MSA (Michael Crowley, Meat & Livestock Australia, Australia)

5.45pm-6.00pm (15min) – Summing up day 1 (Michael Crowley, Eating & Carcass Quality Integration, Meat & Livestock Australia)

7.00pm Cocktail dinner for all participants – INRA head quarters, top level

Friday 21st August

CHAIR: Jerzy Wierzbicki

9.00-9.30am: (30min) The prospects for grading lamb cuts based on eating quality (Dave Pethick, Sheep CRC, Murdoch Uni, Australia)

9.30-10.00am: (30min) Objective carcass grading for yield and eating quality in Australia (Graham Gardner, Sheep CRC, Murdoch Uni, Australia)

10.00-10.30am: (30min) Eating quality grading - perspective from Ireland and an update on objective carcass grading in Europe (Paul Allen, TEAGASC, Ireland)

10.30-11.00am: (30min) Morning coffee

CHAIR: Carlos Sañudo

11.00-11.30am: (30min) Eating quality grading - perspective from Japan – scientific and industry views. (Takanori Nishimura, Hokkaido University, Japan)

11.30-12.00pm: (30min) The Meat Standards Australia beef eating quality index and the role of genetics (Peter McGilchrist, Murdoch Uni, Australia)

12.00pm-12.30pm: (30min) Incorporating flavour research into carcass grading for eating quality (Linda Farmer, Agri-Food & Biosciences Institute, Nth Ireland)

12.30-12.45pm: (15min) Perspectives from French Industry – paddock to plate (François Gartier, Charal Cholet, France)

12.45-2.00pm: (75min) Lunch

CHAIR: Paul Allen

2.00-2.30pm: (30min) International beef eating quality language. (Rod Polkinghorne, MSA pathways, Australia and Jerzy Wierzbicki, Polish Beef Association, Poland)

2.30-3.30pm: New collaborations (20min each):

(i) China - Qingxiang Meng & Hailing Luo (China Agricultural University)

(ii) UK/Wales - Nigel Scollan (Aberystwyth University, Wales)

(iii) New European initiative(s) – Koenraad Duhem (French Livestock Institute, France)

3.30-4.00pm: General discussion, future directions (Facilitator: Nigel Scollan, Aberystwyth University, Wales)

4.00-4.30pm: Summing up (Dave Pethick & Jean-François Hocquette)

APPENDIX II – Conference proceedings

The conference proceedings can be found at:

http://www.viandesetproduitscarnes.com/index.php?option=com_content&view=article&id=681:prediction-de-la-qualite-de-la-viande-de-ruminants&catid=97:derniers-articles-parus&Itemid=435&lang=fr

or

<http://www.viandesetproduitscarnes.com> - then go to 6th November release.

A pdf copy of the proceedings is also attached

APPENDIX III – Delegates

Surname	First name	title	Institution	Country	email
Al Jammal	Marwa		INRA Centre de Clermont Ferrand Theix	France	marwa.al-jammal@clermont.inra.fr
Allen	Paul	Dr	Teagasc	Ireland	Paul.Allen@teagasc.ie
Andersen	Henrik	Mr	Carometec, Denmark	Denmark	hea@carometec.com
Andrés Llorente	Sonia	Dr	Instituto de Ganadería de Montaña, CSIC-Universidad de León	Spain	sonia.andres@eae.csic.es
Barton	Ludek	Dr	Institute of Animal Science, Prague, Czech Republic	Czech Republic	barton.ludek@vuzv.cz
Bessa	Rui	Mr		Portugal	rjbbessa@fmv.ulisboa.pt
Bonny	Sarah	Ms	Murdoch University, Blaise Pascal University, PhD student, Australia & France	Australia	S.Bonny@murdoch.edu.au
Contreras-Castillo	Carmen	Dr	Luiz de Queiroz College of Agriculture	Brazil	ccastill@usp.br
Corbett	Sandra	Ms	Murdoch University, PhD student, Australia	Australia	S.Corbett@murdoch.edu.au
Costa	Paulo	Mr		Portugal	paulocosta@fmv.ulisboa.pt
Crowley	Michael	Mr	Meat and Livestock Australia	Australia	mcrowley@mla.com.au
Daly	Clyde	Dr	Carne Technologies, Cambridge, New Zealand	New Zealand	Clyde.daly@carnetech.co.nz
da Luz e Silva	Saulo	Prof	São Paulo University, Brazil	Brazil	sauloluz@usp.br
de Carvalho Balieiro	Júlio César	Prof	São Paulo University, Brazil	Brazil	balieiro@usp.br
de P. P. Fernandes	Rafaella	Ms	Médica Veterinária FZEA/USP	Brazil	rafaella_paseto@ig.com.br

Surname	First name	title	Institution	Country	email
Dikeman	Michael	Prof	Kansas State University	US	mdikeman@ksu.edu
Duhem	Koenraad	Dr	Institut de l'Élevage, France	France	Koenraad.Duhem@idele.fr
Evrat-Georgel	Caroline	Ms	French Livestock Institute	France	caroline.evrat-georgel@idele.fr
Farmer	Linda	Dr	Agri-Food and Biosciences Institute (AFBI) Northern Ireland	Northern Ireland	Linda.Farmer@afbini.gov.uk
Fielding	Mike	Mr	Managing Editor of Technical Content, Meatingplace	US	mfielding@meatingplace.com
Flattard	Chloé	Ms	French Livestock Institute	France	chloe.flattard@idele.fr
Frette	François	Mr	French Speaker, French Meat Industry & wholesaler Organisation, FNICGV	France	francois.frette@fnicgv.com
García	F. Javier Giráldez		National Research Council, Center of Mountain Livestock Institute León, Spain.	Spain	-
Gardner	Graham	Dr	Murdoch University Australia	Australia	G.Gardner@murdoch.edu.au
Garmyn	Andrea	Dr	Research Assistant Professor, Dept Animal & Food Sc, Texas Tech University	US	andrea.garmyn@ttu.edu
Gautier	François	Mr	Ingénieur Innovation, Charal Cholet, France	France	f.gautier@charal.fr
Gobert	Christel		Quality NPD Director ELIVIA	France	cgobert@elivia.fr
Gunner	David	Mr	Dovecote Park, UK	UK	-
Hadley	Phil	Dr	Head of Supply Chain Development EBLEX	UK	phil.hadley@ahdb.org.uk
Hocking Edwards	Janelle	Dr	Senior Research Scientist, Livestock & Farming Systems, SARDI, South Australia	Australia	Janelle.Edwards@sa.gov.au
Hocquette	Jean-Francois	Dr	INRA, Conference organiser, France	France	Jean-francois.hocquette@clermont.inra.fr

Surname	First name	title	Institution	Country	email
Hu	Honghai	Dr	Institute of Food Science and Technology, Chinese Academy of Ag Sciences	China	-
Huang	Hsin	Mr	Secretary General of the International Meat Secretariat, Paris	France	hsin.huang@meat-ims.org
Huang	Yayu	Mr	Chinese scientist working in France, from China Agriculture University, China	China	yayu.huang.fr@gmail.com
Hughes	Joanne	Ms	PhD student. Research Projects Officer CSIRO Food & Nutrition.	Australia	joanne.hughes@csiro.au
Ibbotson	Laurie	Mr	Dovecote Park, UK	UK	-
Jakielski	Leszek	Mr	SOKOLOW	Poland	leszek.jakielski@sokolow.pl
Jenkins	Heather	Ms	Head of Meat, Dairy, Fish Waitrose, UK	UK	
Jose	Cameron	Dr	Murdoch University, Post Doc, Australia	Australia	C.Jose@murdoch.edu.au
Kelman	Khama	Dr	Department of Agriculture & Food Western Australia	Australia	K.Kelman@murdoch.edu.au
Kerdpi boon	Soraya	Dr	Faculty of Agro-Industry, King Mongkut's Institute of Technology, Bangkok	Thailand	kksoraya@kmitl.ac.th
Legrand	Isabelle	Dr	Institut de l'Élevage, France	France	Isabelle.Legrand@idele.fr
Li	Xin	Dr	Institute of Food Science and Technology, Chinese Academy of Ag Sciences	China	xinli.caas@gmail.com
Limsupavanich	Rutcharin	Dr	Faculty of Agricultural technology, Thailand	Thailand	rlimsupa@gmail.com
Luo	Hailing	Prof	China Agriculture University, China	China	luohailing@cau.edu.cn
Mahmood	Shahid	Dr	University of Alberta	Canada	Shahid3@ualberta.ca
McCarron	Paula	Ms	ABP Food Group Ireland	Ireland	paula.mccarron@abpfoodgroup.com
McDonnell	Declan	Mr	ABP Food Group Ireland	Ireland	-

Surname	First name	title	Institution	Country	email
McGilchrist	Peter	Dr	Murdoch University, Australia	Australia	P.McGilchrist@murdoch.edu.au
Meng	Qingxiang	Prof	China Agriculture University, China	China	qxmeng@cau.edu.cn
Moradiannejad	Hesam	Mr	University of Nottingham, PhD student, UK	UK	stxhm17@nottingham.ac.uk
Nishimura	Takanori	Prof	Hokkaido University	Japan	nishi@anim.agr.hokudai.ac.jp
Oliver	Maria Angels	Dr	IRTA, Catellano	Spain	mariaangels.oliver@irta.cat
Pannier	Liselotte	Dr	Murdoch University, Australia	Australia	L.Pannier@murdoch.edu.au
Pethick	David	Prof	Murdoch University & Workshop organiser, Australia	Australia	D.Pethick@murdoch.edu.au
Phillpot	Judy	Ms	Polkinghorne Pty Ltd	Australia	judith.philpott@gmail.com
Piasentier	Edi	Prof	Dipartimento di Scienze Agrarie e Ambientali, Università degli Studi di Udine	Italy	edi.piasentier@uniud.it
Polkinghorne	Rod	Mr	Meat Standards Australia, pathways Chair, Australia	Australia	rod.polkinghorne@gmail.com
Price	Eleri	Ms	IBERS, Aberystwyth University	Wales	-
Rosa	Allesandra Fernandes	Dr	São Paulo University, Brazil (Postdoc)	Brazil	afrosa@usp.br
Rowe	James	Prof	Sheep CRC, Armidale, UNE	Australia	jrowe@une.edu.au
Saunders	Andrew	Mr	Dalehead UK	UK	-
Scollan	Nigel	Prof	IBERS, Aberystwyth University, Wales	Wales	ngs@aber.ac.uk
Sibille	Valerie	Dr	Sealed Air Corporation	USA	valerie.sibille@sealedair.com
Sinclair	Duncan	Mr	Waitrose UK	UK	duncan.sinclair@waitrose.co.uk
Stewart	Sarah	Ms	Murdoch University, PhD student, Australia	Australia	S.Stewart@murdoch.edu.au

Surname	First name	title	Institution	Country	email
Strydom	Phillip	Dr	ARC, South Africa	South Africa	P.Strydom@arc.agric.za
Sun	Baozhong	Prof	Chinese Academy of Agricultural Sciences.	China	
Sañudo	Carlos	Mr	Departamento de Producción Animal, Facultad de Veterinaria, Zaragoza	Spain	csanudo@unizar.es
Tarr	Garth	Dr	Newcastle University	Australia	garth.tarr@gmail.com
Thompson	John	Prof	Prof Emertius, University New England, Australia	Australia	jmthommo@gmail.com
Touzanne	Nicolas	Mr		France	n.touzanne@interbev.fr
Trefort	Peter	Dr	Meat & Livestock Australia, Board Member	Australia	pjtrefort@westnet.com.au
Troy	Declan	Mr	Teagasc	Ireland	Declan.Troy@teagasc.ie
Vernet	Jean	Mr	INRA, de Recherches sur les Herbivores, France	France	jean.vernet@clermont.inra.fr
Vitale	Mauro	Dr	IRTA, Catellano	Spain	Mauro.vitale@irta.cat
Warner	Robyn	Prof	Faculty of Veterinary & Agricultural Science, Melbourne Uni.	Australia	robyn.warner@unimelb.edu.au
Wierzbicka	Agnieszka	Prof	Warsaw University	Poland	agnieszka_wierzbicka@sggw.pl
Wierzbicki	Jerzy	Mr	Polish Beef Association, Poland	Poland	jerzy.wierzbicki@pzpbm.pl
Zhang	Dequan	Prof	Institute of Food Science and Technology, Chinese Academy of Ag Sciences	China	Dequan.zhang.caas@gmail.com
Zhang	Chunhui	Dr	Institute of Food Science and Technology, Chinese Academy of Ag Sciences	China	-
Zhang	Chunjiang	Dr	Institute of Food Science and Technology, Chinese Academy of Ag Sciences	China	-