



Update on a European beef eating quality model

Jean-François J.-F. Hocquette, Sarah Bonny, Rod Polkinghorne, Linda Farmer, I. Legrand, Paul Allen, Jerzy Wierzbicki, Graham Gardner, David Pethick

► To cite this version:

Jean-François J.-F. Hocquette, Sarah Bonny, Rod Polkinghorne, Linda Farmer, I. Legrand, et al.. Update on a European beef eating quality model. Sustainable beef quality for Europe - II - A Workshop for Industry and Scientists, Feb 2017, Milan, Italy. hal-01603160

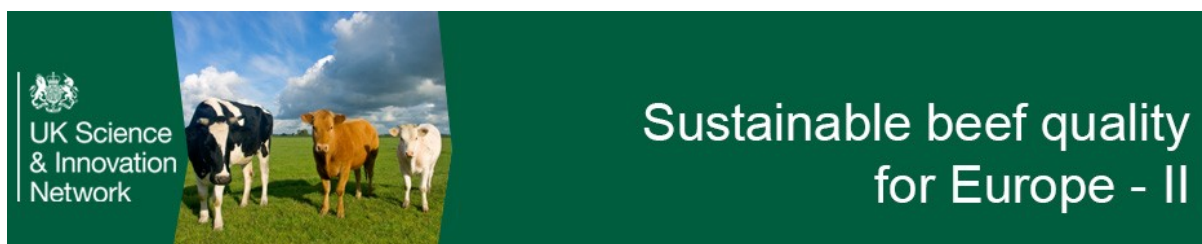
HAL Id: hal-01603160

<https://hal.science/hal-01603160>

Submitted on 2 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



SUSTAINABLE BEEF QUALITY FOR EUROPE - II

A Workshop for Industry and Scientists

Wed 1 February – Thurs 2 February 2017

Sala Convegni - Touring Club Italiano

Corso Italia 10, Milan



**SUSTAINABLE BEEF
QUALITY
FOR
EUROPE - II**
**A Workshop
for Industry and Scientists**

Event Sponsor

UK Science & Innovation Network

Organisers

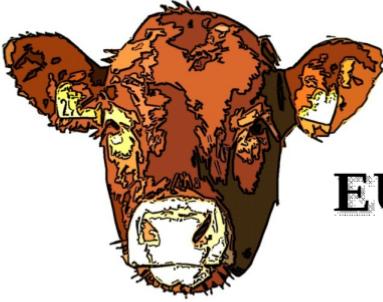
Dr Linda Farmer, Agri-Food and Biosciences Institute, UK

Professor Antonella Baldi, University of Milan, Italy

Dr Laura Nuccilli, British Embassy, Rome



**SUSTAINABLE BEEF
QUALITY
FOR
EUROPE - II**

A stylized illustration of a brown cow's head, facing forward. The cow has large, expressive yellow eyes and a white muzzle. Its ears are pointed outwards. The illustration is rendered in a simple, graphic style with bold outlines and flat colors.

**A Workshop
for Industry and Scientists**

Programme

Programme

Day 1	<i>Wednesday, 1 February</i>	
1300-1400	Registration and Light lunch	
1400-1415	Welcome Purpose of Meeting	
1415-1540	Session A. Beef and Human Health	Chair: Antonella Baldi, University of Milan, Italy
<i>20 mins</i>	A1. WHO view of red meat and human health – what are the risks?	<u>Kurt Straif</u> , WHO International Agency for Research on Cancer, France
<i>15 mins</i>	A2. Meat consumption and colorectal cancer – mechanisms and mitigation	<u>Stefaan De Smet</u> , Ghent University, Belgium
<i>15 mins</i>	A3. How much meat do we eat?	Vincenzo Russo & <u>Leonardo Nanni Costa</u> , University of Bologna and Dario Rossi & Erminio Trevisi, UCSC of Piacenza, Italy
<i>15 mins</i>	A4. Genetics and nutritional quality of beef	<u>Rainer Roehe</u> , Scotland's Rural College, UK
<i>15 mins</i>	A5. On-farm influences on the nutritional quality of beef	<u>Aidan Maloney</u> , Teagasc, Ireland
1540-1640 (with tea/ coffee)	Workshop 1. How can the industry help to ensure that beef has a positive nutritional impact?	
1630-1730	Session B. Update on Eating Quality	Chair: Declan Troy, Teagasc, Ireland
<i>15 mins</i>	B1. Update on a European beef eating quality model	<u>Jean-Francois Hocquette</u> , INRA, France
<i>15 mins</i>	B2. Beef quality measurement and prediction	<u>David Farrell</u> & Linda Farmer, Agri-Food And Biosciences Institute, NI, UK
<i>15 mins</i>	B3. Value based marketing	<u>Rod Polkinghorne</u> , Birkenwood, Australia
<i>10 mins</i>	B4. A common language for beef – an update	<u>Jerzy Wierzbicki</u> , Polish Beef Association, Poland
1740-1800	Further Discussion	
	<i>Conference dinner</i>	<i>Limited numbers - pre-booking required</i>

Day 2	<i>Thursday, 2 February</i>	
0900-1015	Session C. Beef, environment and welfare	Chair: Jonathan Birnie, Dunbia, UK
<i>20 mins</i>	C1. Beef, land use, climate change and food security	<u>Tim Searchinger</u> , Princeton University, USA
<i>20 mins</i>	C2. Making the most of beef co-products	<u>Dequan Zhang</u> , Chinese Academy of Agricultural Sciences, China
<i>15 mins</i>	C3. Italian sustainable platform for beef	<u>Ettore Capri</u> , Università Cattolica del Sacro Cuore, Italy
<i>15 mins</i>	C4. Enhancing the welfare of cattle	<u>Paolo Ferrari</u> , CRPA, Italy
1015-1115 (with tea/ coffee)		Workshop 2. How should the industry manage the environmental impact of beef??
1115-1215	Session D. Adding value throughout the supply chain	Chair: Jean-Francois Hocquette, INRA, France
<i>15 mins</i>	D1. Supply chain innovations for better beef	<u>Jonathan Birnie</u> , Dunbia, Northern Ireland
<i>15 mins</i>	D2. Packaging developments for the meat industry	<u>Valeria Viganò</u> , Sealed Air Food Packaging, Milan, Italy
<i>15 mins</i>	D3. New methods for adding value to beef	<u>Ciara McDonnell and Paul Allen</u> , Teagasc, Ireland
<i>15 mins</i>	D4. Putting research into practice	<u>Phil Hadley</u> , AHDB, UK
1225-1300	Session E. Workshop Findings and Future	
<i>5+5 mins</i>	E1. Overview of workshop findings	<u>David Farrell and Terence Hagan</u>
<i>5 mins</i>	E2. Beef2Compete – a Thematic Network for the Beef Industry	<u>Linda Farmer</u> , Agri-Food And Biosciences Institute, UK
<i>5 mins</i>	E4. Summary and close	<u>Declan Troy</u> , Teagasc, Ireland
1300-1400	Light Lunch	

Abstracts

Session B. Update on Eating Quality

B1. Update on a European beef eating quality model

Jean-François Hocquette¹, Sarah Bonny^{1,2}, Rod Polkingorne³, Linda Farmer⁴, Isabelle Legrand⁵, Paul Allen⁶, Jerzy Wierzbicki⁷, Graham Gardner², David Pethick²

¹ INRA, VetAgro Sup, UMRH 1213, Unité de Recherches sur les Herbivores, Theix, 63122 Saint Genès Champanelle, France, ² Murdoch University, Perth, Australia, ³ 431 Timor Road, Murrurundi, NSW 2338, Australia, ⁴ Agri-Food and Biosciences Institute, 18a Newforge Lane, Belfast BT9 5PX, Northern Ireland, ⁵ Institut de l'Elevage, MRAL, Boulevard des Arcades, 87060 Limoges Cedex 2, France, ⁶ Teagasc Food Research Centre, Ashtown, Dublin 15, Ireland, ⁷ Polish Beef Association Ul. Smulikowskiego 4, 00-389 Warszawa, Poland;

The current assessment of beef is far from real consumers' expectations, and no strong relationship is observed between eating quality and price. The aim of this consortium is to create a reliable and consumer-driven prediction model of beef eating quality for Europe, based on the same principles as the Meat Standards Australia (MSA) grading scheme. However, the MSA system needs some adaptations to suit the European beef chain.

Beef carcasses are currently traded based on the compulsory SEUROP grid, which uses visual and/or instrumental assessments to give scores for both muscling and fatness. We found that there was no substantial relationship between the SEUROP system and eating quality. Therefore, the SEUROP grid would have to operate in parallel with an eating quality based grading system (Bonny *et al.*, 2016a).

Additionally, carcasses from entire males and from dairy breeds are important in the European beef industry. These carcass types are under-represented in the MSA model and it is therefore unable to completely explain the differences in eating quality between breeds (dairy, beef, crossbred) and genders (entire males, steers, females). Consequently, a separate adjustment for entire males and dairy breeds is required to accurately predict eating quality for these groups (Bonny *et al.*, 2016b).

It is well established that, as an animal matures, beef quality decreases. In Australia, this is estimated through an assessment of bone maturity called 'ossification' whereas the European beef industry has accurate age records available to it. Ossification score is more appropriate for young animals but as animals approach the maximum ossification scores, animal age becomes more appropriate in an eating quality prediction model (Bonny *et al.*, 2016c). This implies that both measures are required to optimise accuracy, an approach that needs to be weighed against the additional cost of assessing ossification whether this is done manually or by some automated vision system.

We also focused on European consumers and their ability to quantify beef eating quality. We observed that there were no major demographic effects on consumer evaluation of eating quality and willingness to pay (Bonny *et al.*, 2017).

These results demonstrate that a beef eating quality grading system, similar in design to the Australian MSA system, is highly applicable to both the European beef industry and the European consumers, despite the need for some adjustments. Further work is needed to determine the optimum statistical model for such a system.

References

- Bonny S.P.F. et al. (2016a). *Animal* 10, 996–1006.
- Bonny S.P.F. et al. (2016b). *Animal*, 10, 987–995.
- Bonny S.P.F. et al. (2016c). *Animal*, 10, 718-728.
- Bonny S.P.F. et al. (2017). *Animal*, accepted on 13 Dec 2016.