

# A European 3G beef quality system?



Jean-François Hocquette<sup>1</sup>, Jerzy Wierzbicki<sup>2</sup>, Rod Polkingorne<sup>3</sup>, Isabelle Legrand<sup>4</sup>,  
Koenraad Duhem<sup>4</sup>, Linda Farmer<sup>5</sup>, Sarah Bonny<sup>1,6</sup> and David Pethick<sup>6</sup>  
and the Eurobeef consortium

<sup>1</sup> INRA, VetAgro Sup, UMRH 1213, Unité de Recherches sur les Herbivores, Theix, 63122 Saint Genès Champanelle, France,

<sup>2</sup> Polish Beef Association Ul. Kruczkowskiego 3, 00-380 Warszawa, Poland, <sup>3</sup> 431 Timor Road, Murrurundi, NSW 2338, Australia,

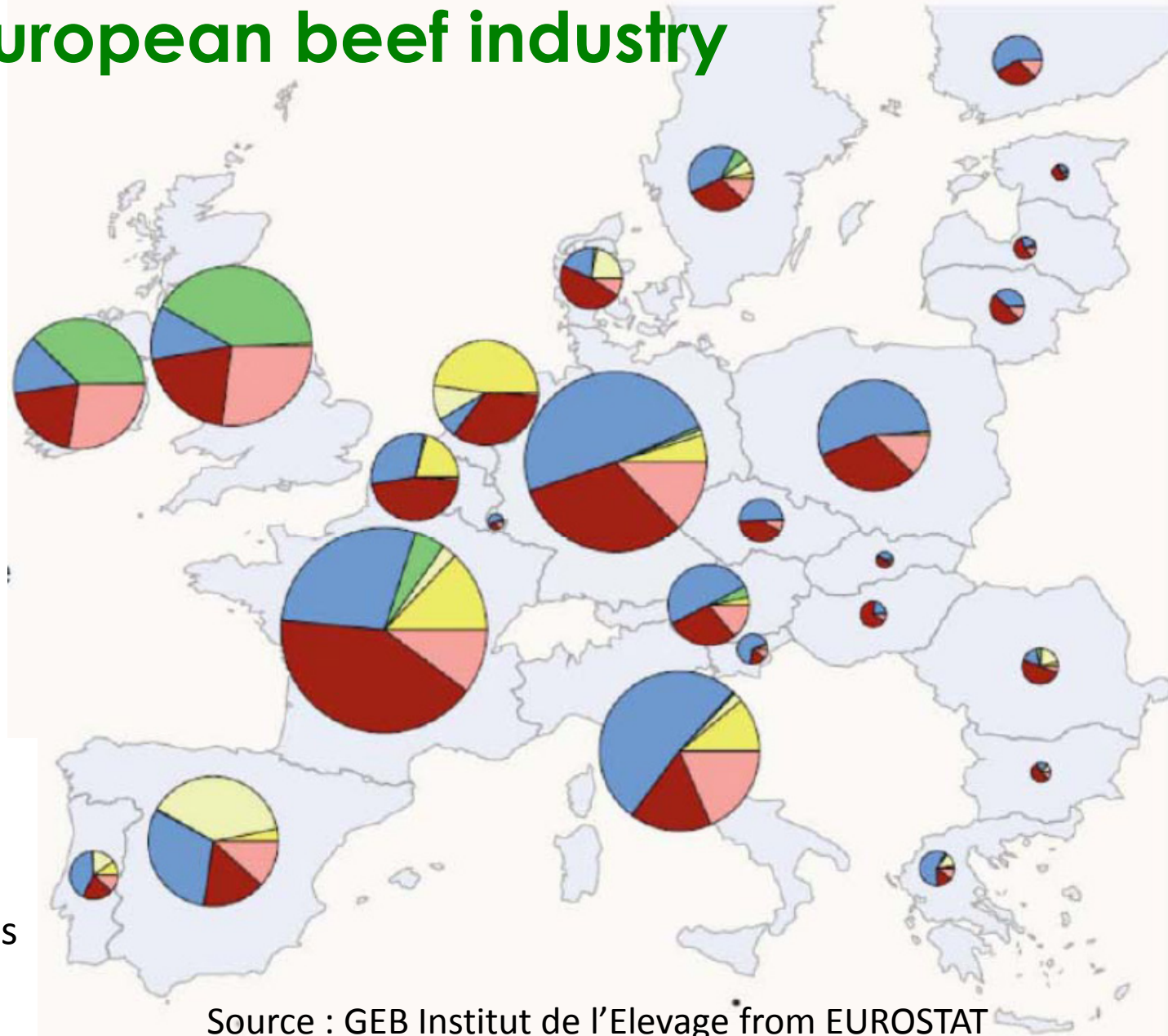
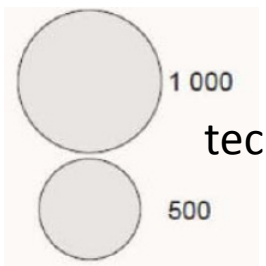
<sup>4</sup> Institut de l'Elevage, 149 rue de Bercy, 75595 Paris Cedex 12, France,

<sup>5</sup> Agri-Food and Biosciences Institute, 18a Newforge Lane, Belfast BT9 5PX, Northern Ireland.

<sup>6</sup> Murdoch University, Murdoch, Western Australia, 6150



# The diversity and complexity of the European beef industry

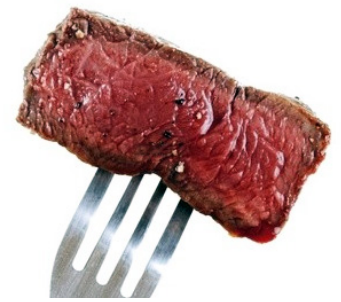


Source : GEB Institut de l'Elevage from EUROSTAT

# The challenges for the European beef industry

- No clear relationship exists between the selling price of beef at the consumer end and its eating quality.
- This may explain, at least in part, why beef doesn't meet consumers' expectations and why the EU beef consumption is regularly declining.
- An assessment of beef eating quality through standardized methods would allow the identification and development of the most sustainable strategies (United Nations Economic Commission for Europe, 2015).

# The definition of quality

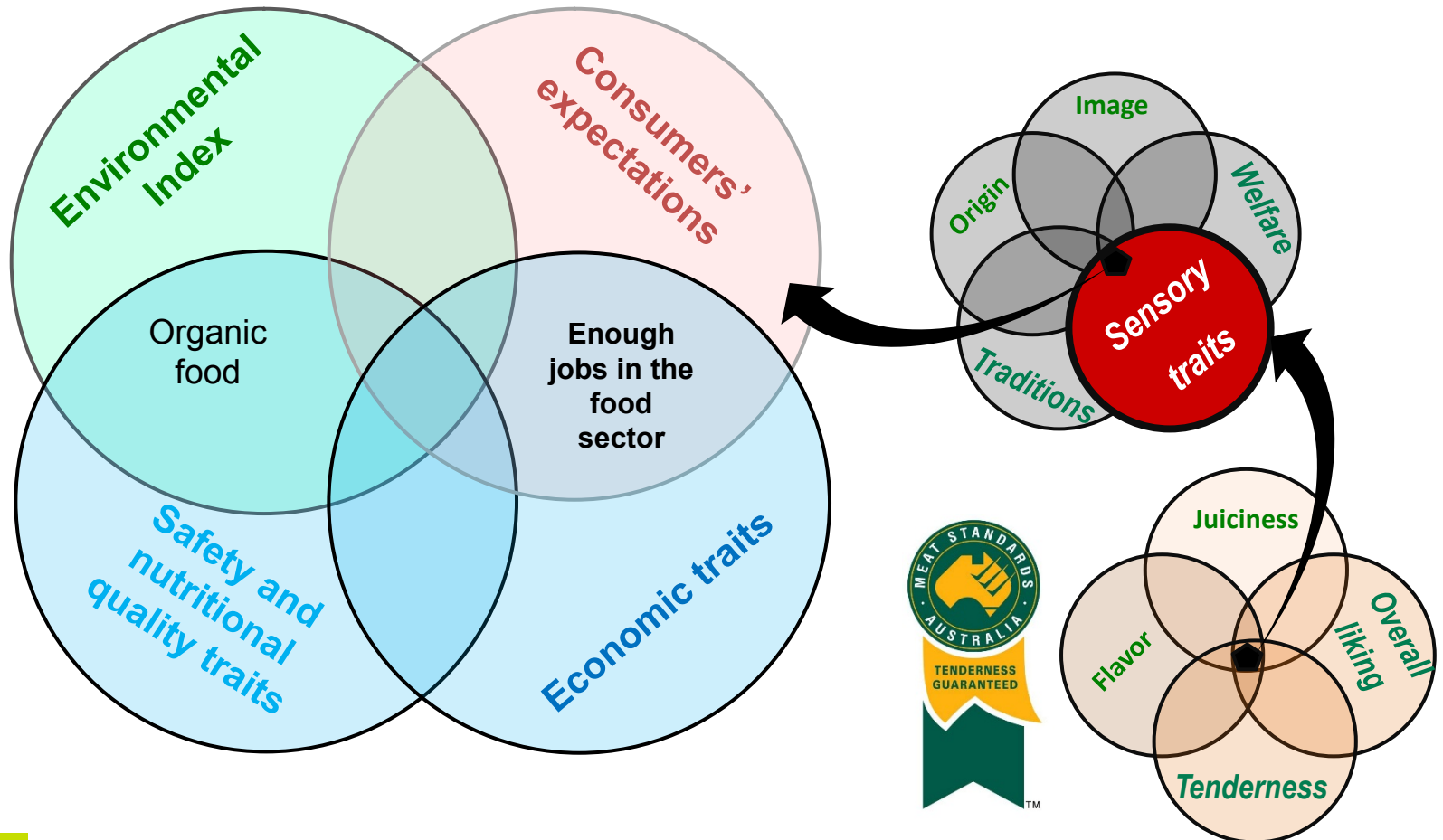


***Intrinsic* quality refers to the characteristics of the product** itself and includes **sensory traits** (e.g. tenderness, flavor, juiciness, overall liking), **safety, healthiness**, etc.

***Extrinsic* quality refers to traits which are associated with the product**, namely (i) **production system characteristics** (from the animal to the processing stages including for example animal welfare and carbon footprint), and (ii) **marketing variables** (including price, brand name, distribution, origin, packaging, labelling, and traceability)

**The relative importance of extrinsic traits is increasing**

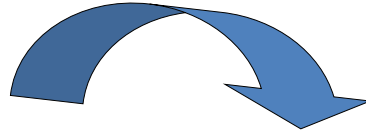
# Towards a sustainable production of food?



Adapted from Fouquery-Mérel, Paré, Fosse, DGAL, 2014  
and Botreau, INRA, 2014

# Prediction of beef quality in Australia the Meat Standards Australia system

Prediction



## MSA2000model®

Hang (AT/TC/TS/TX)	AT
Sex (M, F)	m
Est.% Bos Indicus	0
Hump Height cms	0
Hot Std Carc Weight	200
USDA Ossification	100
Milk Fed Vealer Y/N	N
USDA Marbling	130
Days Aged (min 5)	5
Quarter Point Ribfat	5
Ultimate pH	5.40
AUSMEAT Meat Col.	2
Saleyard? (Y, N)	n
Wght/App.Maturity	1.32

Cut Description	Muscle Reference	Days Aged	Grilled Steak	Roast Beef	Stir Fry	Thin Slice	Cass-erole	Corne d Beef
Tenderloin	TDR062		5	4	5			
Cube Roll	CUB045		3	3	3	4		
Striploin	STR045		3	3	3	3		
Oyster Blade	OYS036		4	3	4	4		
Bolar Blade	BLD096		3	3	3	3	3	
Chuck Tender	CTR085			3	3	3	3	
Rump	RMP131		3	3	3	3		
Point End Rump	RMP231		3	3	3	4		
Knuckle	KNU099		x	3	3	3	3	
Outside Flat	OUT005			x	x	3	3	3
Eye Round	EYE075		x	3	3	3	3	x
Topside	TOP073		x	3	x	3	3	
Chuck	CHK078			3	3	3	3	
Thin Flank	TFL051				3		3	
Rib Blade	RIB041				3			
Brisket	BRI056				x	3	3	x
Shin	FQshin						3	

# Towards a 3G system in Europe ?

**3G means Global Guaranteed Grading**

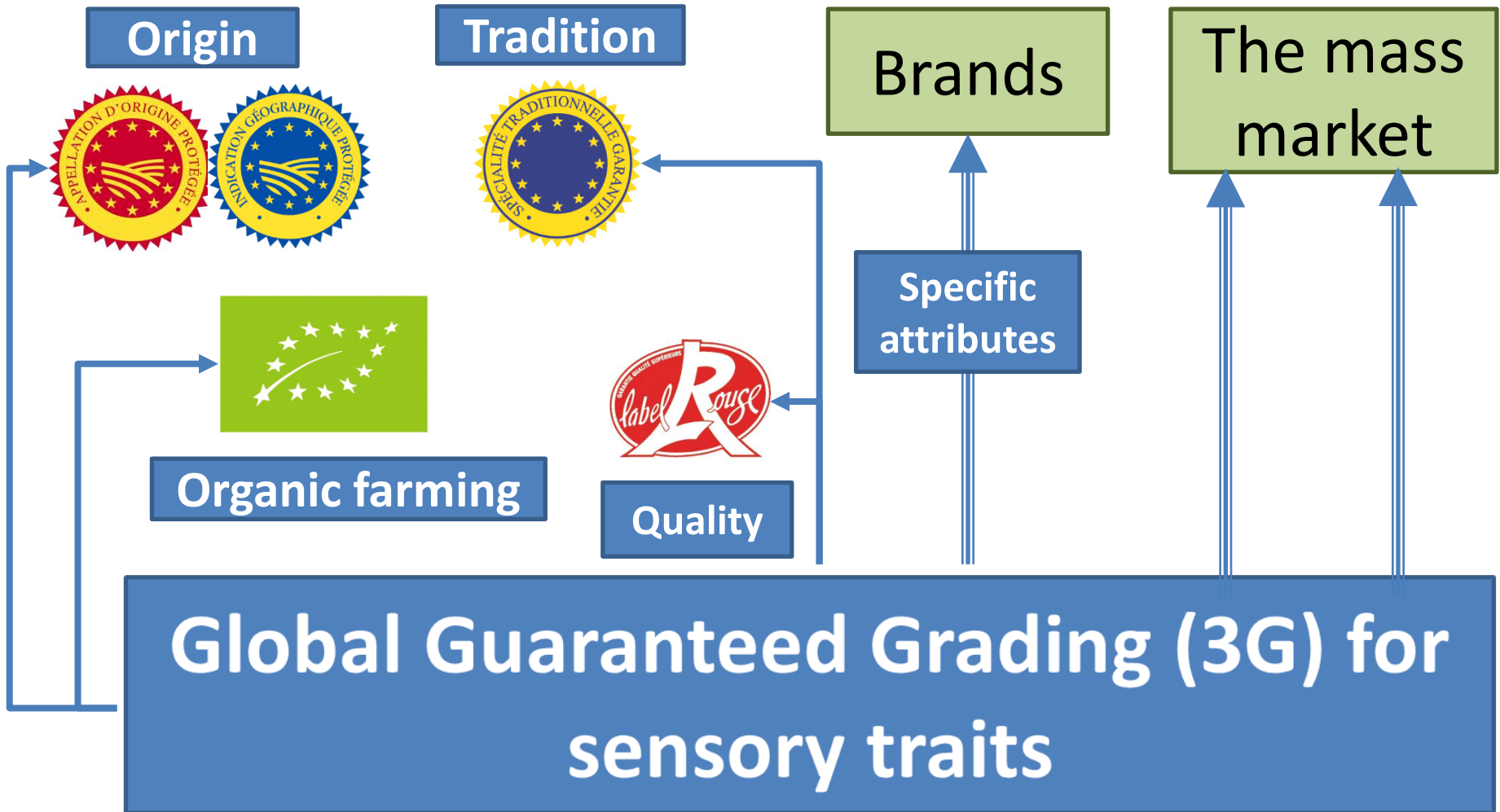
**This may be a beef quality system adapted to the European market and similar to MSA.  
Its is based on a European data base under construction to establish the model.**



	Nth Ireland	France	Ireland	Poland	Total
Carcasses	463	48	114	> 108	> 733
Consumers	9000	1500	1360	> 2280	> 14160
Samples	15000	2500	4000	> 3800	> 24400

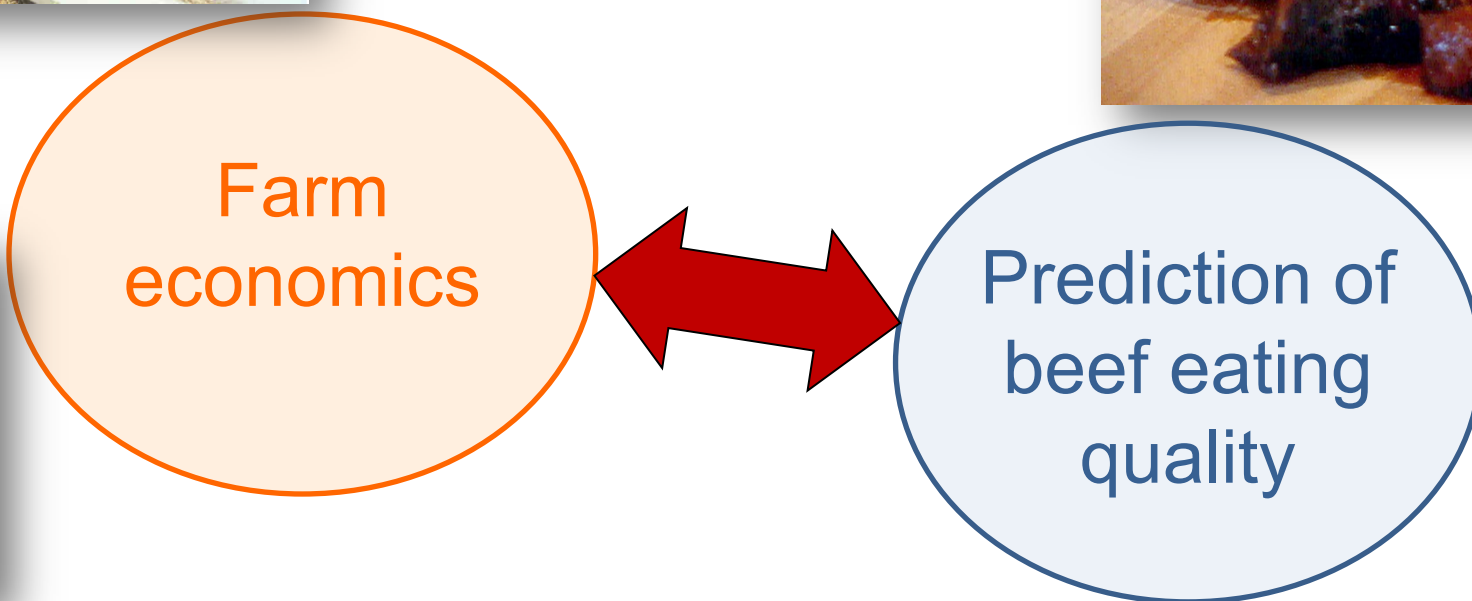
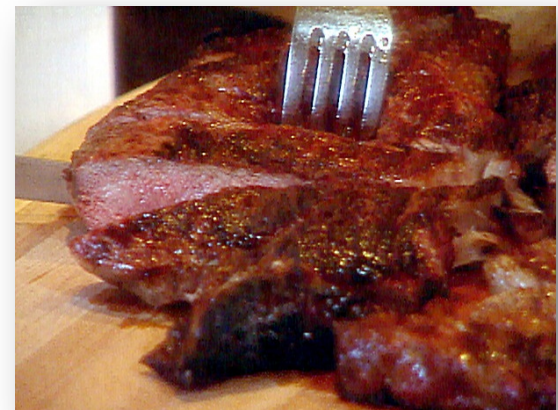


# The goal of MSA and 3G systems is to underpin existing labels and brands






# Towards a new payment system based on quality

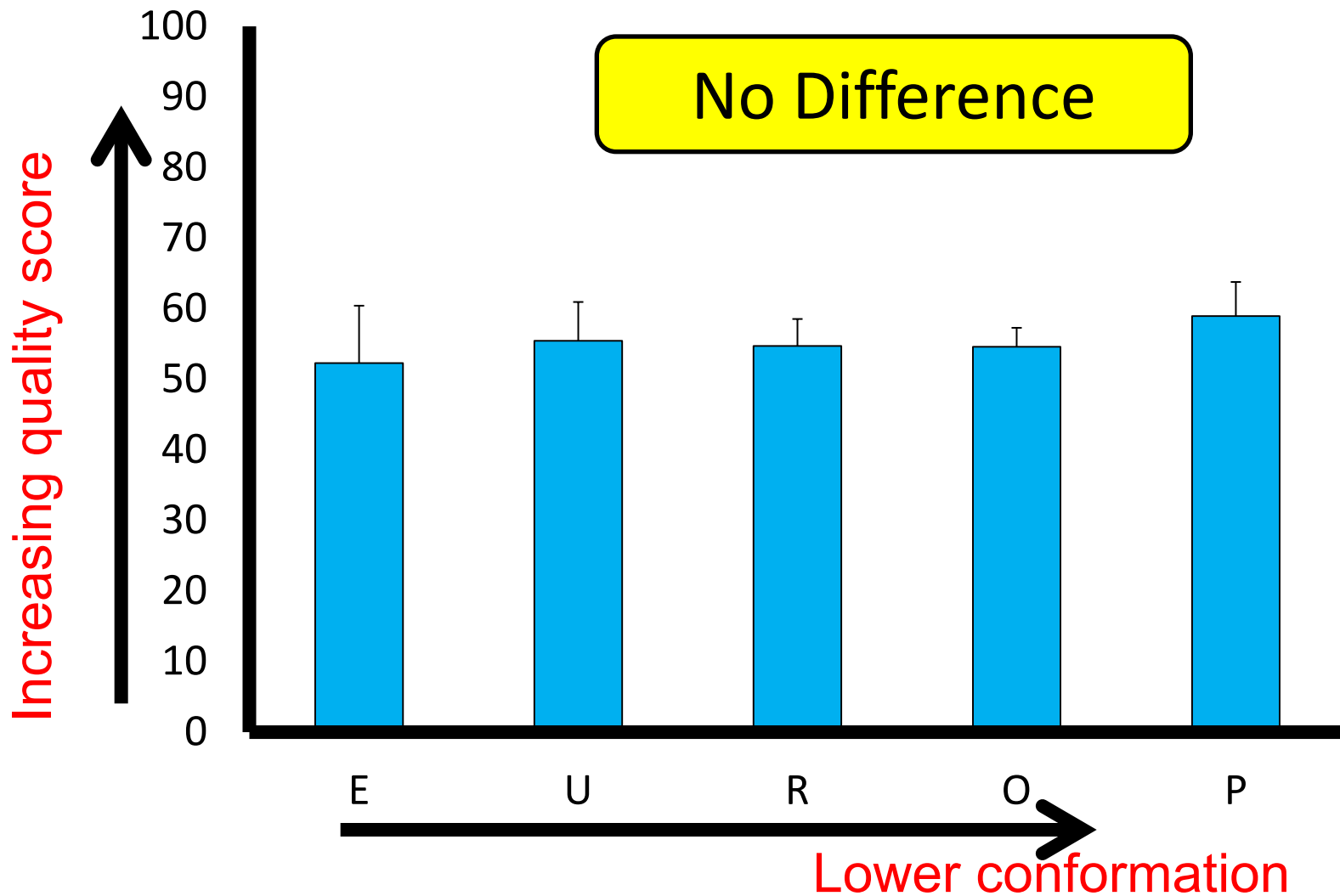


# European Carcass Classification

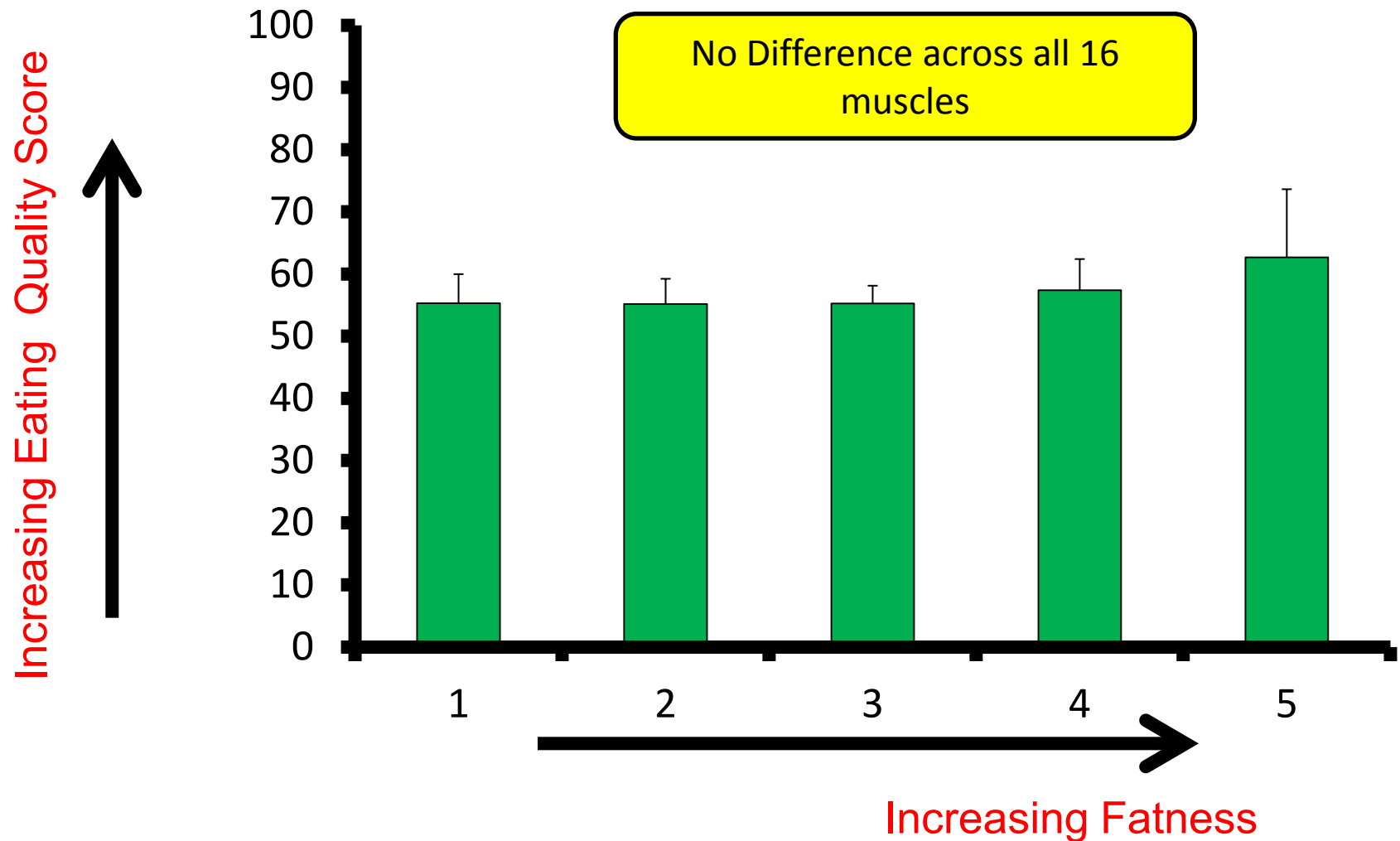
		Fatness score						
		I	2	3	4L	4H	5L	5H
Conformation score	E							
	U+							
	U							
	R							
	O+							
	b							
	P+							
	-P							

**But consumers do not eat carcasses**

# Eating quality and carcass conformation



# Eating quality and carcass fatness



## 3G is part of EUROBEEF which has the following objectives (if funded)

- Be the reference Thematic Network for knowledge exchange and innovation in the beef sector in Europe.
- Better Identify costumers demand for eating quality and consistency (**emphasise customers' satisfaction**)
- Identify tools and mechanisms for optimising beef eating quality (and propagate MSA-like systems)
- Identify and share tools for sustainable production

# Conclusions

- Methodologies do exist to predict eating quality of beef at the consumer level thanks to the development of MSA by Meat Livestock Australia (MLA) and Australian scientists.
- MLA and international collaborators are open to move forward and to disseminate the MSA principles.
- This might be the Global Guaranteed Grading (3G) system.
- This opens the door for revisiting economic mechanisms for instance for fair payment of producers (one of Eurobeef goals).
- This is likely to encourage a **sustainable production of beef in the long term future.**