Processors and Foodservice Perspective

Mr Tim Rowe

Celtic Pride Director

and

Meat Technology Consultant

Castell Howell Foods

Celtic Pride

Brand originated and owned by The WLC / WMC

Launched in July 2003 , LTD company 2005

AIM: To supply premium cuts of Celtic Pride Premium Welsh Beef to the Foodservice & Retail Sector

Four Partners

- **Wynnstay PLC**
- **Celtic Pride Limited**
- **Castell Howell Foods Limited**
- **Welsh Livestock Company**

Creation of a “Food-Chain Initiative”

Control of product from “Gate to Plate”

Development
July 2003 to January 2019

- Approx 80 Farmers
- Cattle Numbers 70 - 100 per week
- Slaughterhouse
- Randall Parker Foods (Llanidloes)
- Maddock / Kembery (Maesteg)
- Cig Calon Cymru (Cross Hands)
- Processing – Celtica Foods, Cross Hands.
- Distributor – Castell Howell Foods, Direct Meats Ltd and Weddel Swift
- Customer – Retail Shop / Restaurant or Hotels
- Major Retailers (Ready Meals via Authentic Curry Ltd)

Castell Howell Foods Ltd

- Independent Food Wholesalers and Manufactures to Foodservice and Hospitality Sector
- Main depot Cross Hands, Llanelli with satellite depots in Merthyr, Avonmouth, Carmarthen, Blaenau and Chirk
- Catering Butchery, Pie Manufacture, Sandwiches Manufacture, Ready Meals
- Supplying hospital, schools, restaurants, hospitality groups, hotels, coffee shops etc
- >15,000 products to >4,000 customers
- Staff of >750
- Delivering approx 1000 pallets of products/day on 120 vehicles

Castell Howell

Premium Welsh Beef Celtic Pride Taste Value Promise

NFU CYMRU

Castell Howell's Brands

Castell Howell

Premium Welsh Pork Celtic Pride Taste Value Promise

Premium Welsh Beef Celtic Pride Taste Value Promise

Celtica

Mario's Luxury Welsh Dairy Ice Cream

Caffe Eto

The Celtic Pie Co.

Farmfresh

authentic curries & world foods

Customer Groups

Health, education & workplace

Pubs & Restaurants

Hotel, Conferencing & Banqueting

Delicatessen & Cafe's/Food to Go

Mobile Caterers

Celtica - Our Procurement

- Turnover £12.5 million
- 40-45% of meat, by value, from Welsh Origin
- Beef 60-80 cattle per week
- Lamb 30-50 carcases per week (20-24kg)
- Apprx 900 carcase equivalent of certain lamb cuts, sourced mainly from Dunbia
- Welsh Pork 20-35 carcases per week
- Prices dictated by Multiple Retailers
- Balance UK/Irish/EU

The Eating Out Experience

- Different rules apply when dining out
- All about the steaks! (around 750,000 of them via CHF/per annum)
- Benchmarked on Steak Quality (at a price!)
- Chefs requirements
- Carcase weight and primal selection is critical
- **Too much reliance on traditional steak cuts in the UK market?**

AHDB Foodservice Consumer Insights

AHDB SECTOR PERFORMANCE

Beef

Beef sales volumes in the eating-out market have decreased by -7.4% in the year to June 2018. This is a faster decline than seen in retail where volumes were down -0.2%.

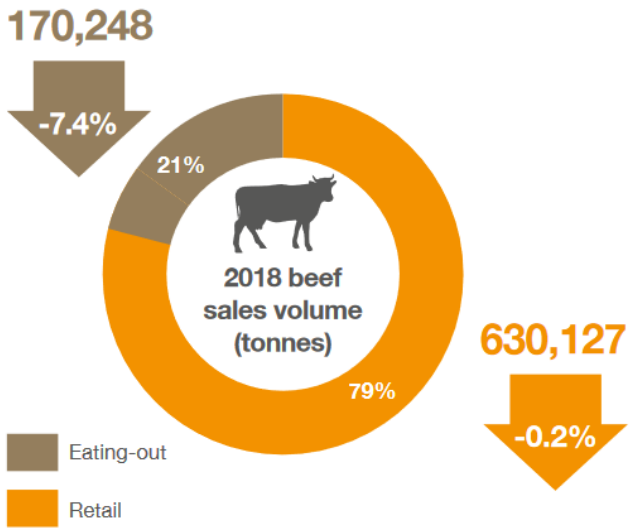
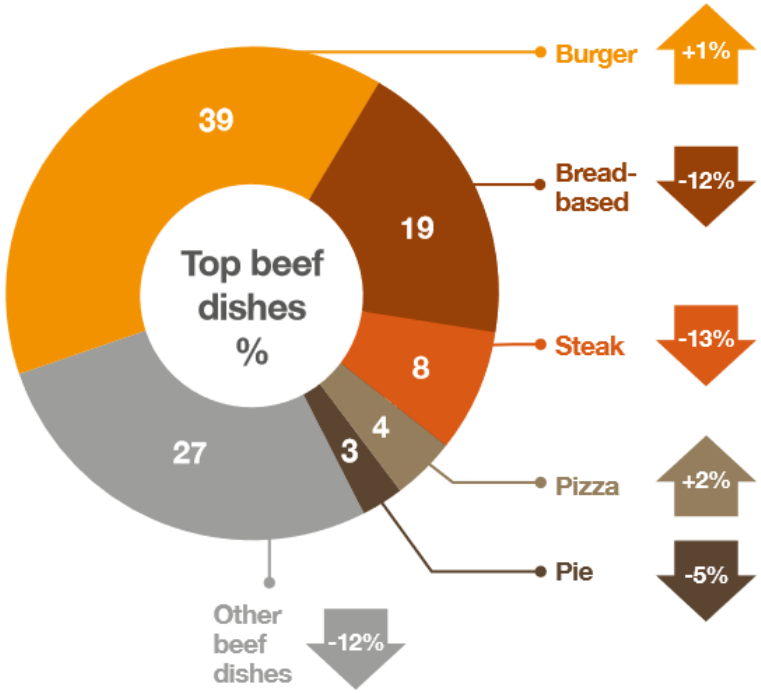


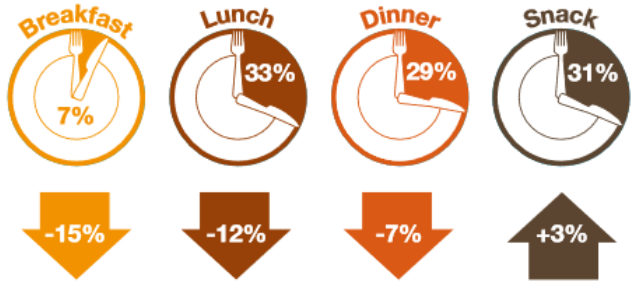
Figure 6. Retail and eating-out performance – beef

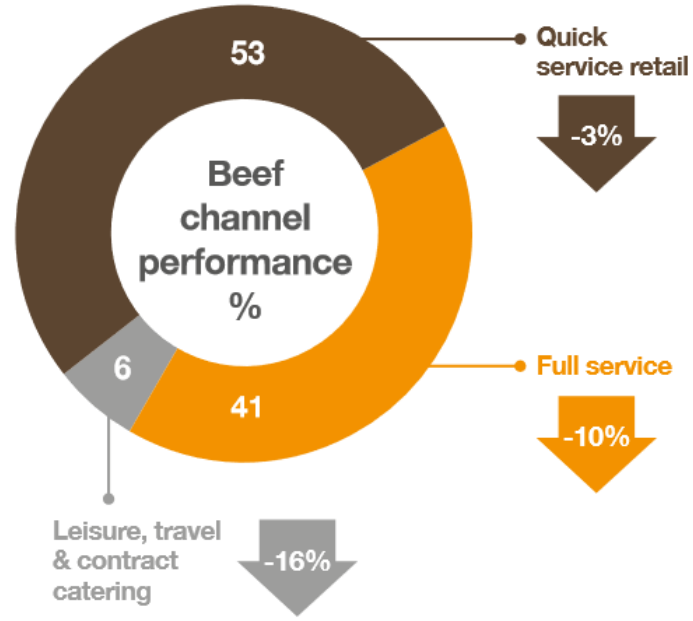
Source: Eating out – MCA Eating Out Report*; Retail – Kantar Worldpanel Y/E June 2018 vs previous year.

*Eating-out volumes are calculated estimates and not actuals, so the data should be best used as a guide and to observe trends over time.

29% of dishes that contain meat are beef based -6.6%

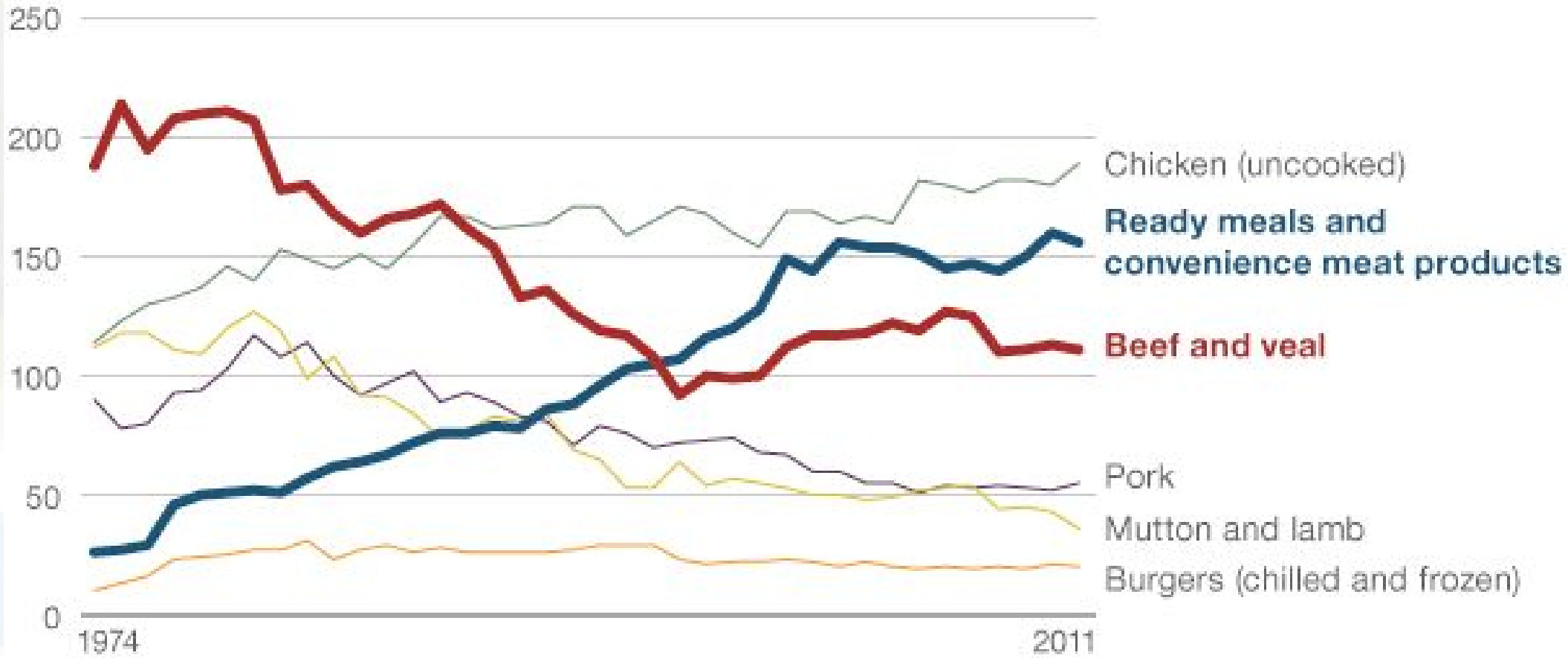






Meat purchased in the UK (1974-2011)

UK averages per person per week, in grams*



*Food brought into the household only

Source: Defra

DEFRA

Challenges

- Reports on sustainability
  - Environmental issues
  - Lancet '80% reduction on red meat'
- Brexit & Reform to CAP
- Foodservice is a traditional target market for imported meat (may be an opportunity or challenge!)
- Foodservice can be a 'grey area' with less protocols & audits than the multiple retail sector
- Ageing Farming Population
- High costs for new entrants to farming
- Challenge for menu space against other proteins and non meat proteins
  - Growth of chicken & fish
  - Vegetarian and Vegan Movement

Consumer confidence/guarantee of quality?

To consider

- What makes sustainable red meat?
  - Low inputs
  - Carbon neutral
  - Methane emissions
- Does the consumer care?
- Will the consumer pay?
- Who will provide a solution?
- What makes it deliver on the plate?
- Can we deliver this in Wales?

Opportunities

- Water availability for Welsh agriculture
- Grass growth & sunshine hours
- Natural environment
- Human Nutrition (Lean beef is nutrients dense)

'We are in the Health business' Associate Professor of public health University College Dublin Patrick Wall 2015

- Foodservice is a significant sector, worth £73bn per annum (Kantar 2018)
- Demand remains for premium beef and lamb, with provenance
- Explore demand for sustainable, pasture fed beef
- Smaller portions, higher quality – buy less, get better
- Beef Q Wales Eating Quality Project

PASTURE FOR LIFE CERTIFICATION MARK

BeefQ Beef Eating Quality

menter a busnes · HYBU CIG CYMRU · Prifysgol Aberystwyth University · Celtica · Birkenwood International Leading Innovation in Red Meat Quality · Queen's University Belfast

BEEF

CARCASE AUTHENTICATION AND VERIFICATION SERVICES

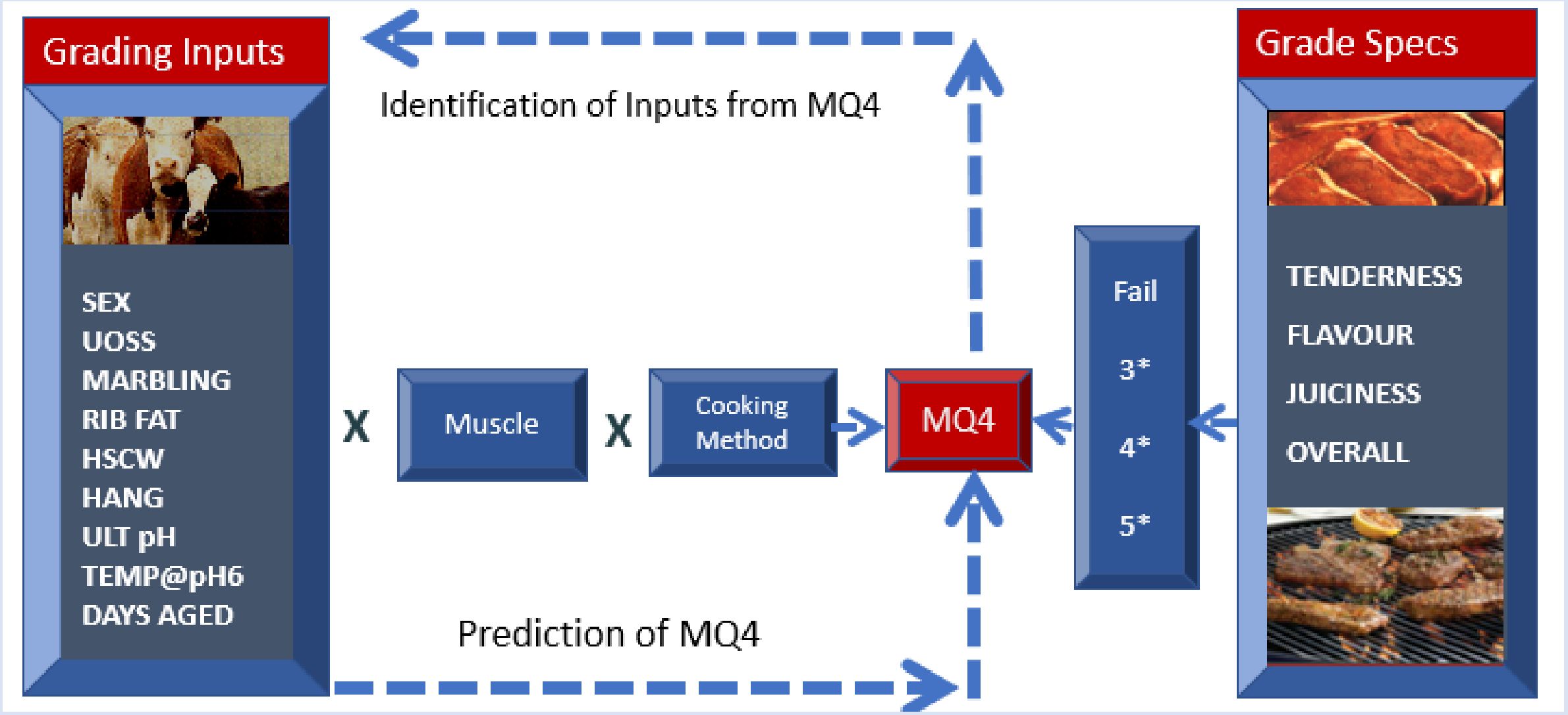
- Is Europ grid still fit for purpose?
- Yield Based
- Informs the producer
- But does it inform the consumer?

EBLEX consumer survey 2011
Conclusion- considerable variability of beef eating quality at retail level.

BeefQ Task Planning

Prediction Model Development

Predicting Consumer Satisfaction from inputs identified by research



Tasks being led
- WP2 MSA Evaluation & Data Analysis

- **Principal Steps:**
  - ABCAS (MSA Chiller Assessment) training course delivered by AUS-MEAT through the IMRF
  - Applied Meat Science related to grading principals
  - Product survey – 1,000 typical Welsh carcasses across multiple factories
  - Cut collection & transfer to Celtica
  - Fabrication to sensory samples at Celtica
  - “Pick & Post” samples to allocated sensory tests
  - Consumer evaluation
  - Data entry, analysis & reporting

ABCAS chiller assessment training

AUSTRALIAN BEEF CARCASE ASSESSMENT SYSTEM

Chiller Assessment Language

The Australian Beef Carcase Chiller Assessment System (ABCAS) was developed to enable Licensed Enterprises to assess, grade or class carcases using a uniform set of standards under controlled conditions. Chiller Assessment provides a means of describing meat characteristics and of classifying product prior to packaging. These characteristics include the colour of meat and fat, the amount of marbling, eye muscle area, the rib fat and the maturity of the carcase.

Assessments are made by qualified assessors and results are allocated to the carcase and provide a means of (carcase) selection according to individual contract specifications.

The ABCAS Chiller Assessment Language is only available to Licensed processors.

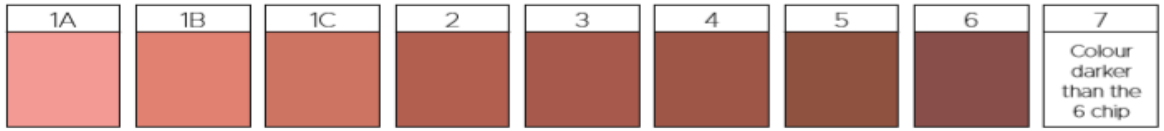
Initial training and access for Research Purposes

Can be upgraded to license factories for commercial grading

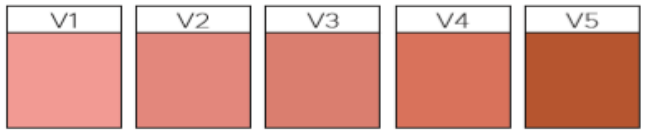
ABCAS chiller assessment training

BEEF AND VEAL MEAT COLOUR

Meat Colour is the predominant colour of the rib eye muscle (M. longissimus dorsi). Meat colour (Beef and/or Veal) is assessed on the chilled carcase at the bloomed rib eye muscle area (M. longissimus dorsi) and is scored against the AUS-MEAT Meat Colour Reference Standards.



Beef Colours displayed show the darkest colour of each grading and it is a guide only, not a true representation.



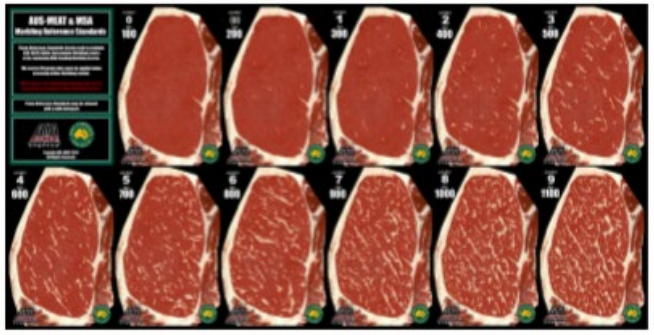
Veal Colours displayed show the darkest colour of each grading and it is a guide only, not a true representation.

FAT COLOUR

Fat colour is the intermuscular fat lateral to the rib eye muscle. It is assessed on the chilled carcase and scored against the AUS-MEAT Fat Colour Reference Standards. Fat colour is assessed by comparing the intermuscular fat colour lateral to the M. longissimus dorsi and adjacent to the M. iliocostalis and is scored against the AUS-MEAT Fat Colour Reference Standards.

Colours displayed show the darkest colour of each grading and it is a guide only, not a true representation.

MARBLING



Marbling is the fat that is deposited between muscle fibres of the M. longissimus dorsi muscle. Marbling is assessed and scored against the AUS-MEAT / MSA Marbling Reference Standards.

The AUS-MEAT Marbling system provides an indication of the amount of marbling in beef. The MSA Marbling System provides an additional indication of distribution and piece size.

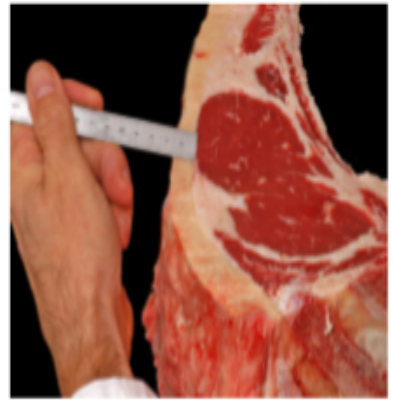
Marbling is an assessment of the chilled carcase and scored by comparing the proportion of marble fat to meat at the surface of the assessment site which lies within the M. longissimus dorsi boundary.

Marbling may be assessed at any ribbing site from 5th-13th rib. The rib at which the measurement was performed must be nominated in company records.

RIB FAT MEASUREMENT

SUBCUTANEOUS

Subcutaneous Rib Fat measurement is a measurement in millimetres of the thickness of subcutaneous fat at a specified rib.



TOTAL

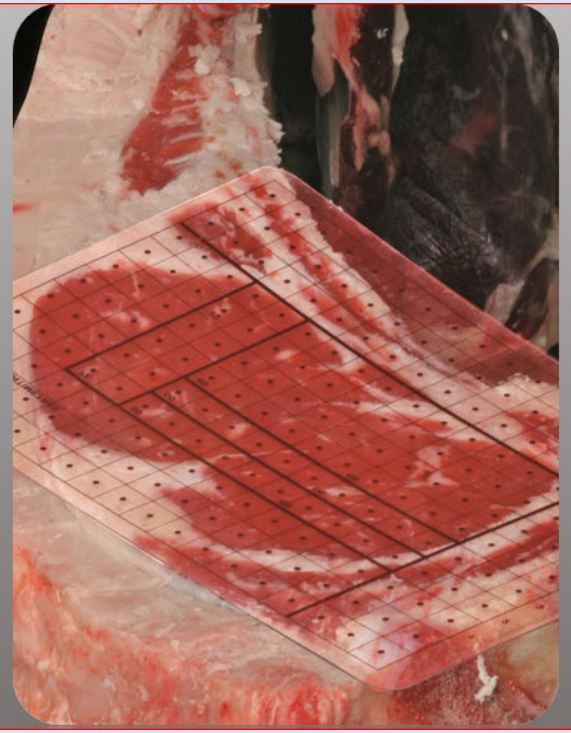
Total Rib Fat measurement is a measurement in millimetres of the thickness of subcutaneous fat and intermuscular fat at the specified rib.

Maturity

- Measurement of the degree of ossification
- Measured in the sacral, lumbar and thoracic vertebrae
- Colour and shape of ribs considered
- Where a carcase falls between two standards the higher is assigned

Eye Muscle Area

- Measured at the M.longissimus dorsi
- Calculated in square centimetres
- Measured manually using an approved plastic grid
- Dots touching the LD are counted
- LD must remain in situ and not distorted



* Age to also be recorded

Facilitation and delivery of ABCAS training

- Arranged through the International Beef Research Foundation (IBRF)
- Live in intensive course over 2 weeks
- Trainer supplied by AUS-MEAT with grading tools
- Support including OsCap/MSA & Mr Murray Patrick
- Australian coordination by Rod Polkinghorne (Birkenwood)
- Welsh coordination by Deanna Leven including factory and lecture venues
- Course provided to 10 participants (external parties to bring to 10 if needed)
- Current date January 28th to Feb 8th 2019 in conjunction with Meat Science.

Applied Meat Science

Purpose: To establish relevance & understanding of grading inputs

Course content:

- The consumer focus
- Beef measurement by consumers
- On farm influences on eating quality
- Transport and lairage impact on eating quality
- Slaughter and chilling impact on eating quality
- Carcasses, muscles and muscle position relative to eating quality
- Post mortem ageing and packaging impact on eating quality
- Cooking method interaction with muscle
- Prediction of eating quality from available inputs
- Factory application
- Retail application

Delivery by Dr John Thompson and Dr Rod Polkinghorne

Welsh Product Survey

To closely follow the ABCAS training

Overall coordination by Rod Polkinghorne

Welsh coordination by Deanna Leven

Objective:

To establish carcase quality distribution across 4 Welsh sites

- Distribution by sex, body weight, fat, age & ossification, marbling & EUROP
- Data collection by licenced MSA graders with plant course participants assisting

Base pH and temperature decline data

- Base data to be utilised to confirm project population
- Cuts to be collected from selected carcasses
- Welsh survey will include beef steers & heifers, dairy cross steers & heifers, young bulls, cows.

To be repeated in August 2019

Product Collection

To be conducted in conjunction with plant personnel coordinated by Rod Polkinghorne and Deanna Leven. Most efficient timing immediately after survey within each factory.

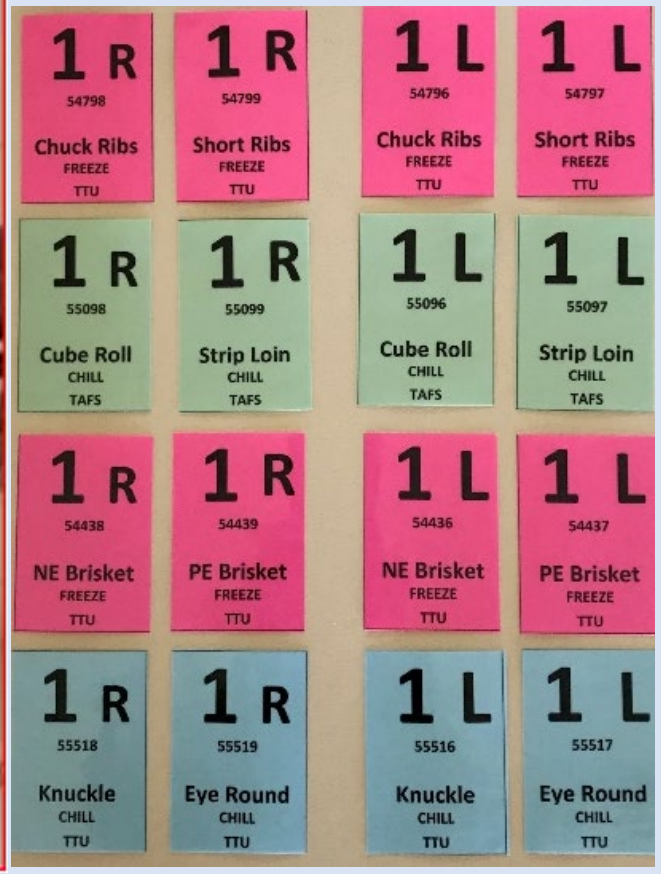
MSA licensed grader arranged through the IMRF and working in conjunction with plant training course participants.

Resources required: Kill floor records, MSA grader and grading tools, pH meters, recording sheets, carcase ID and s/s pins, primal ticketing, liasion with boning room manager, 2 – 4 staff, arrangements for cut collection, vacuum packing, boxing and transfer to Celtica.

Cut collection

MSA Grading Data

Carcase ID



Primal ID

Primal Label Bagged

Consumer Sample Fabrication

Conducted by Celtica in accordance with MSA protocols

Protocol explanation and oversight by Birkenwood including provision of operational files and ticketing

Resources required: Chilled and frozen storage, at least 5 metres of lineal bench space, cutting boards and jig (supplied by Birkenwood), 2 trained butchers and 2 knife hands, control files & ticketing, slap, suitable trays (400 x 600mm ideal), 150 x 200 mm vacuum pouches, vacuum packer, secure storage crates, labour to record, wrap and pack.

Unwrap primal & place on tray with ticket insert. Denude primal.

Using labels provided, put labels on tray to match primal number. Mark off in book. Use cutting guide to cut into required portions, wrap each grill sample with plastic slap, place label on bag, pack the 5 grill samples, cryovac bag. Place in container ready for freezing, sorted by freezing down date.

AUS111278 T0Q2
57913 GRL A
CUB045 2409

AUS111277 A2Q4
57913 GRL C
CUB081 2409

Pick & Post

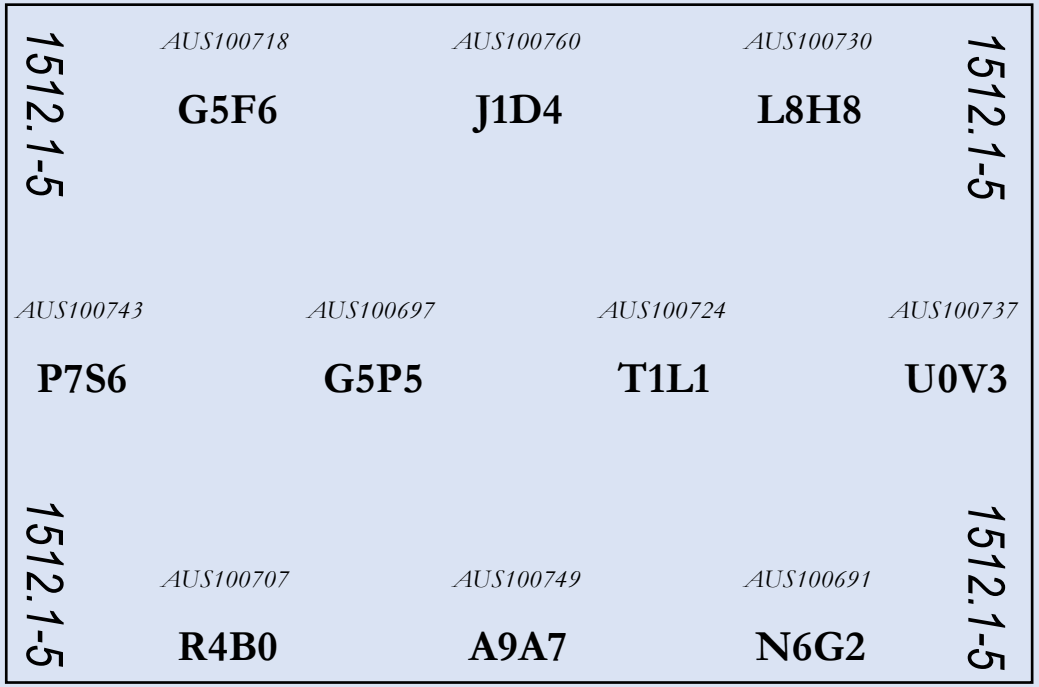
Pick design and sample allocation by Birkenwood

Conducted by Celtica in accordance with MSA protocols

Protocol explanation and oversight by Birkenwood including provision of operational files and ticketing

Resources required: Stainless table(s) approx 1.2 x 2 metres, foam boxes, carton liners, A4 sheet protectors, 250 x 350 mm vacuum pouches, vacuum packer, frozen storage, printer and 3 or more staff.

Count samples – there should be 42. Take link product out and place on tray. Lay the remaining 36 samples out on a table in alphabetical order. When ready, use scissors to cut the tops of each pack, leave for 10 minutes. Make sure every sample in each pack is separate. Posting sheets placed in plastic sleeve (place in upside down), then turned around and placed in the large cryovac bag ready for posting. Place on a stainless steel clipboard. When completed place clipboard onto cryovac machine to stop samples moving from their designated postions and cyrovac. Once all samples are posted, put back into the freezer in 2 boxes marked with its PICK No.



Consumer Testing

To be managed by Celtica in accordance with MSA protocols.

Instruction and initial supervision of testing provided by Birkenwood. Label files to be provided by Birkenwood for printing.

Resources required: Recruitment coordinator, Suitable venues, Silex grill, Cook Timing Sheet, generator & 3 phase leads, count up timers, tongs, cutting boards, knives, 5 tables to seat 4 and chairs, corflute for dividers, paper plates, plastic cups, knives & forks, questionnaires & labels, pens, 35 serving trays, aprons and caps, cleaning materials and rubbish disposal. Staff: 1 consumer manager, 1 cook and 3 to 5 others depending on serving layout.

Samples are cooked to a protocol using a Silex grill. 10 consumers taste every sample - 7 samples, 6 diverse products from good to bad, using latin square presentation

COOKING CHART FOR 25ML STEAK ON SILEX

Top Plate	195°C		Bottom Plate	220°C

Note: All Steaks 25mm thick & cooked with central Wt/Ht setting

Round No.	*Unload Steaks*	Load Next	*Close Lid*	Cut Up & Serve
		START	*00:30*	
Starters	*05:00*	6:15	*07:00*	
1	*12:00*	13:15	*14:00*	15:00
2	*19:00*	20:15	*21:00*	22:00
3	*26:00*	27:15	*28:00*	29:00
4	*33:00*	34:15	*35:00*	36:00
5	*40:00*	41:15	*42:00*	43:00
6	*47:00*	48:15	*49:00*	50:00
7	*54:00*			*57:00*

Consumer Testing – Serving & Demographics

Date:_____ Group Name:_____

I.D. Number :_____ Session Number_____

Thank you for your participation today with our meat tasting.

Before you commence please listen to the instructions on how to use the scales contained in this questionnaire.

In between each sample please cleanse your palate by first taking a sip of diluted Apple Juice then chew a piece of bread and then take another sip of diluted Apple Juice

We are after your opinion and therefore ask that you do not talk to any one else in the room during the research session.

Now just a few questions about yourself, please tick the appropriate box. (All this information is strictly confidential)

Demographic data

1) Please write down the county of the address you normally live at:_____

2) Age group (please tick 1 box)

Younger than 20 years	20-25 years	26-30 years	31-39 years	40-60 years	Older than 60 years
☐	☐	☐	☐	☐	☐

3) Gender (please tick 1 box)

Male ☐ **Female** ☐

4) What is the occupation of the main income earner in your household? (please tick 1 box)

Profession eg. Teacher	Admin	Technical	Sales/ service	Labourer	Home duties	Student	Other employment	Not employed
☐	☐	☐	☐	☐	☐	☐	☐	☐

5) How often do you eat Beef? (in any form such as Steaks, Roasts, Stews, Casseroles, Mince, BBQ, etc., please tick 1 box)

Daily	4-5 times a week	2-3 times a week	Weekly	Fortnightly	Monthly	Never eat
☐	☐	☐	☐	☐	☐	☐

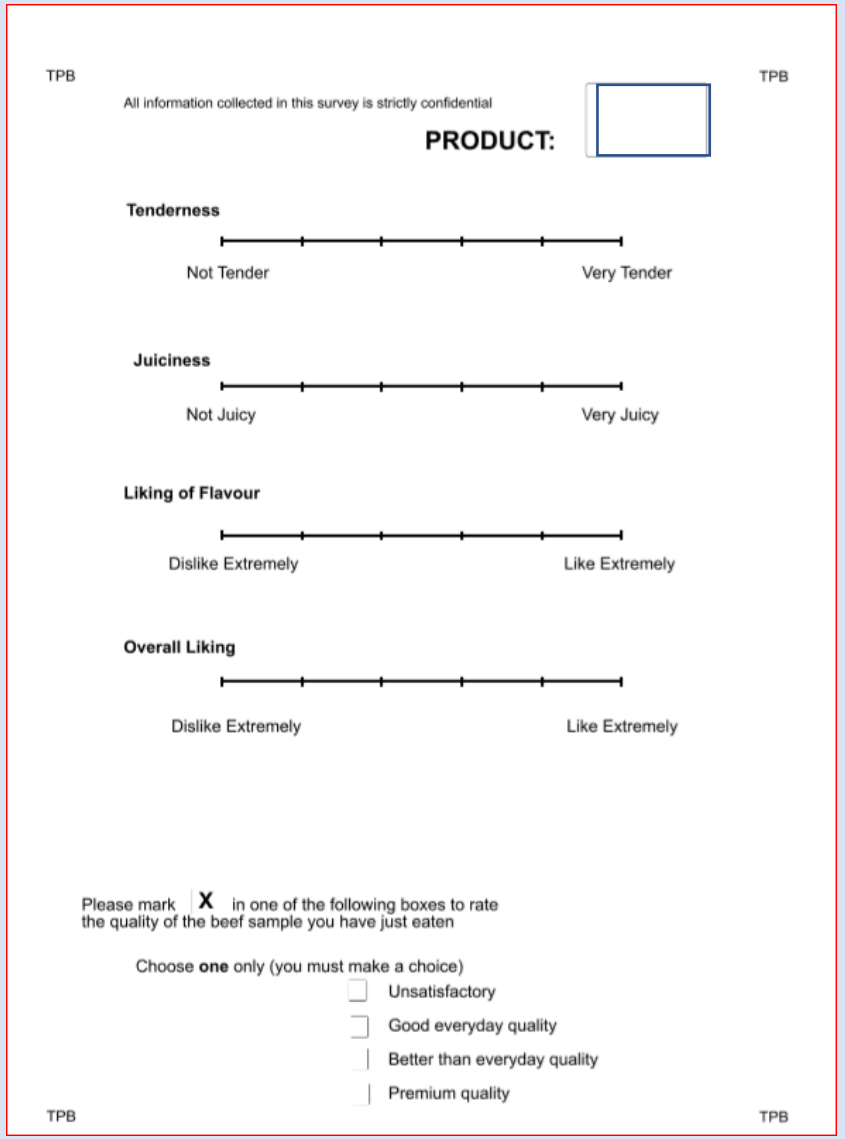
Product Rating

- Every consumer is served 7 samples
- The first is a common mid quality “link”
- The last 6 represent a wide quality range
- The 6 are presented in a 6x6 Latin Square order
- Every sample is scored by 10 consumers
- The 10 consumers are spread across the 60
- The 10 samples are served in 5 different orders

Latin Square Presentation

Common First Sample

1	2	3	4	5	6
2	4	1	6	3	5
3	1	5	2	6	4
4	6	2	5	1	3
5	3	6	1	4	2
6	5	4	3	2	1


TPB TPB

All information collected in this survey is strictly confidential

PRODUCT:

Tenderness

Not Tender — Very Tender

Juiciness

Not Juicy — Very Juicy

Liking of Flavour

Dislike Extremely — Like Extremely

Overall Liking

Dislike Extremely — Like Extremely

Please mark X in one of the following boxes to rate the quality of the beef sample you have just eaten

Choose **one** only (you must make a choice)

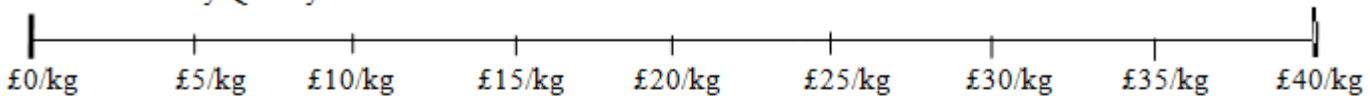
- ☐ Unsatisfactory
- ☐ Good everyday quality
- ☐ Better than everyday quality
- ☐ Premium quality

TPB TPB

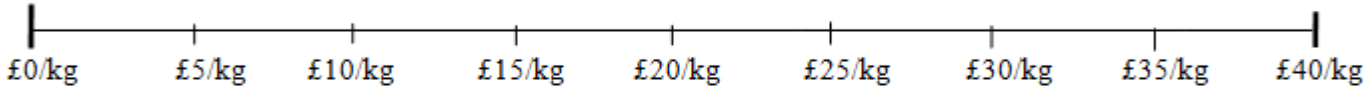
Willingness to Pay

Based on the beef you just consumed: Please mark the line at the price per Kg you believe best reflects the value for each category.

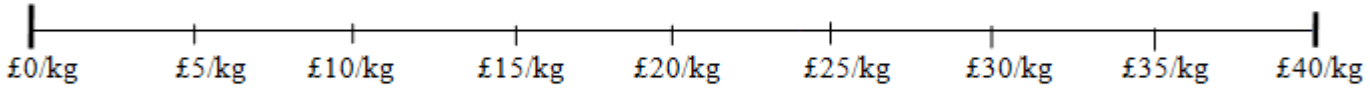
Unsatisfactory Quality



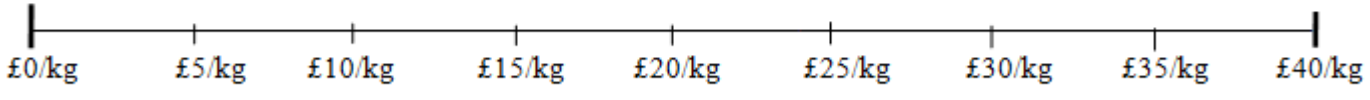
Good Everyday Quality



Better than Everyday Quality



Premium Quality



Are you the regular purchaser of beef for your family (please tick one box)?

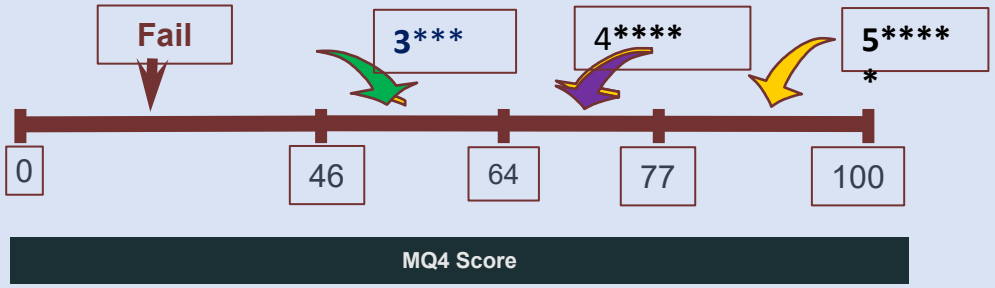
Yes ☐ No ☐

Define consumer response & apply

Consumer Satisfaction Score (MQ4)

Tenderness	0.3	MQ4 score
+		
Juiciness	0.1	
+		
Like flavour	0.3	
+		
Overall liking	0.3	

Grade Cut-Off points



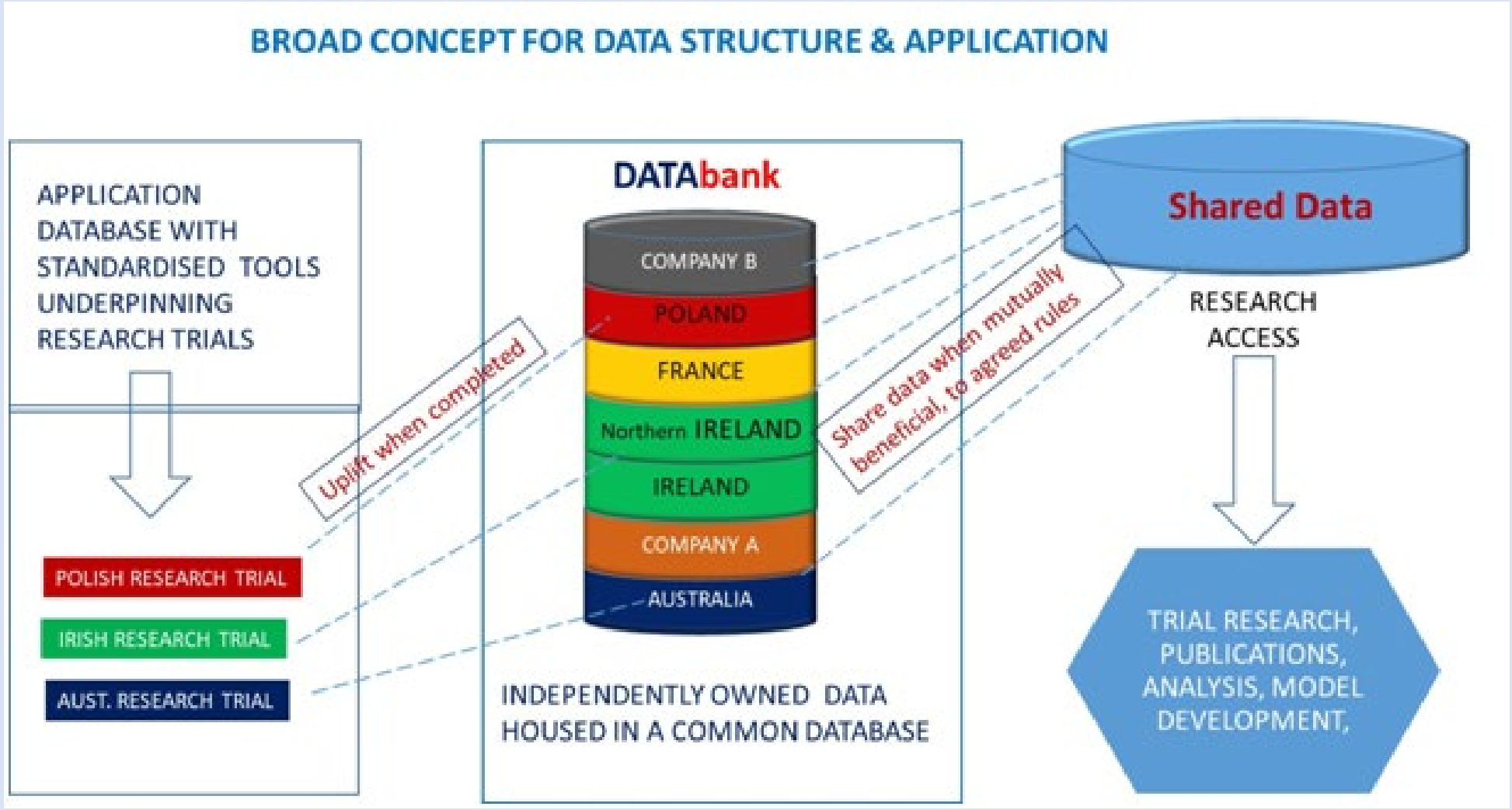
- The **sensory data** is used to define consumer response
- THIS SETS THE **STANDARDS** / GRADES
- All potential **grading inputs** are then statistically evaluated for their relationship to MQ4
- A **grading model** is then created utilising the statistical relationships

Predicted MQ4 Outcome

cut	muscle	GRL	RST	SFR	TSL	YAK	SSB	SCT	CRN
spinalis	SPN081	85	75	85	81	86			
tenderloin	TDR034	87		81					
tenderloin	TDR062	82	82	84	79	75	71		
tenderloin	TDG062	82							
cube roll	CUB045	78	78	78	79	79			
striploin	STA045	76	77	79	75	78	70		
striploin	STP045	76	77	79	75	77	70		
oyster blade	OYS036	67	64	70	71	71			
blade	BLD095			46	51				
blade	BLD096	60	64	66	66	68	53	66	
chucktender	CTR085		56	58	63			66	
rump	RMP131	63	72	70	74	69	61	66	
rump	RMP231	66	74	73	73	77			
rump	RMP005	68	73	76	77	79			
rump	RMP032			75	77				
rump	RMP087		63	68	68			67	
knuckle	KNU066	57	70	65	69	67		58	
knuckle	KNU098			65	70			67	
knuckle	KNU099	47	58	55	62	58		63	
knuckle	KNU100			71	75	73		66	
outside flat	OUT005	52	51	55	65	66	53	67	61
outside flat	OUT029			67	75			69	
eye round	EYE075	52	55	53	55	57		56	54
topside	TOP001	53		64	67	71		63	
topside	TOP033	47		64	69	69		71	
topside	TOP073	48	57	57	67	67	58	66	
chuck	CHK068			53	58			70	
chuck	CHK074	65	61	66	72	64		77	
chuck	CHK078	60	63	63	67	63	50	75	
chuck	CHK081			66	69	65		80	
chuck	CHK082			57	61				
ct flank plate	TFL051			69				69	
flap meat	TFL052			78	70			75	
flank steak	TFL064			72	69			71	
rib-blade	RIB041			52					
brisket	BRI056			48	62	58		65	43
brisket	BRI057			46	53	53		69	
shin	FQshin							68	
shin	HQshin							71	
intercostal	INT037			61					

cut	muscle	GRL	RST	SFR	TSL	YAK	SSB	SCT	CRN
spinalis	SPN081	72	62	71	68	73			
tenderloin	TDR034	74		68					
tenderloin	TDR062	70	69	72	67	63	59		
tenderloin	TDG062	68							
cube roll	CUB045	52	52	52	52	53			
striploin	STA045	44	44	46	43	45	38		
striploin	STP045	41	42	44	41	42	36		
oyster blade	OYS036	63	60	66	67	67			
blade	BLD095			39	44				
blade	BLD096	48	52	54	53	55	42	54	
chucktender	CTR085		47	49	54			56	
rump	RMP131	46	54	53	56	52	44	49	
rump	RMP231	49	56	55	55	59			
rump	RMP005	54	58	61	61	63			
rump	RMP032			58	60				
rump	RMP087		47	52	52			50	
knuckle	KNU066	43	55	51	54	53		44	
knuckle	KNU098			50	55			53	
knuckle	KNU099	33	44	41	47	44		49	
knuckle	KNU100			56	60	57		51	
outside flat	OUT005	40	39	42	51	52	40	54	48
outside flat	OUT029			50	56			51	
eye round	EYE075	41	44	42	44	46		44	43
topside	TOP001	35		46	48	52		45	
topside	TOP033	32		47	52	52		54	
topside	TOP073	31	39	39	48	48	40	47	
chuck	CHK068			43	48			59	
chuck	CHK074	55	51	56	61	54		66	
chuck	CHK078	50	52	53	56	53	40	63	
chuck	CHK081			55	58	54		68	
chuck	CHK082			47	50				
ct flank plate	TFL051			51				51	
flap meat	TFL052			59	52			56	
flank steak	TFL064			54	51			53	
rib-blade	RIB041			40					
brisket	BRI056			41	54	49		56	35
brisket	BRI057			38	45	45		60	
shin	FQshin							51	
shin	HQshin							55	
intercostal	INT037			49					

DATAbank data storage & sharing principles



IRISH FARMERS JOURNAL

Irish beef production

Ireland produces enough beef to feed 30m people with a population of only 5m