Red Meat Update - Launceston

Richard Norton

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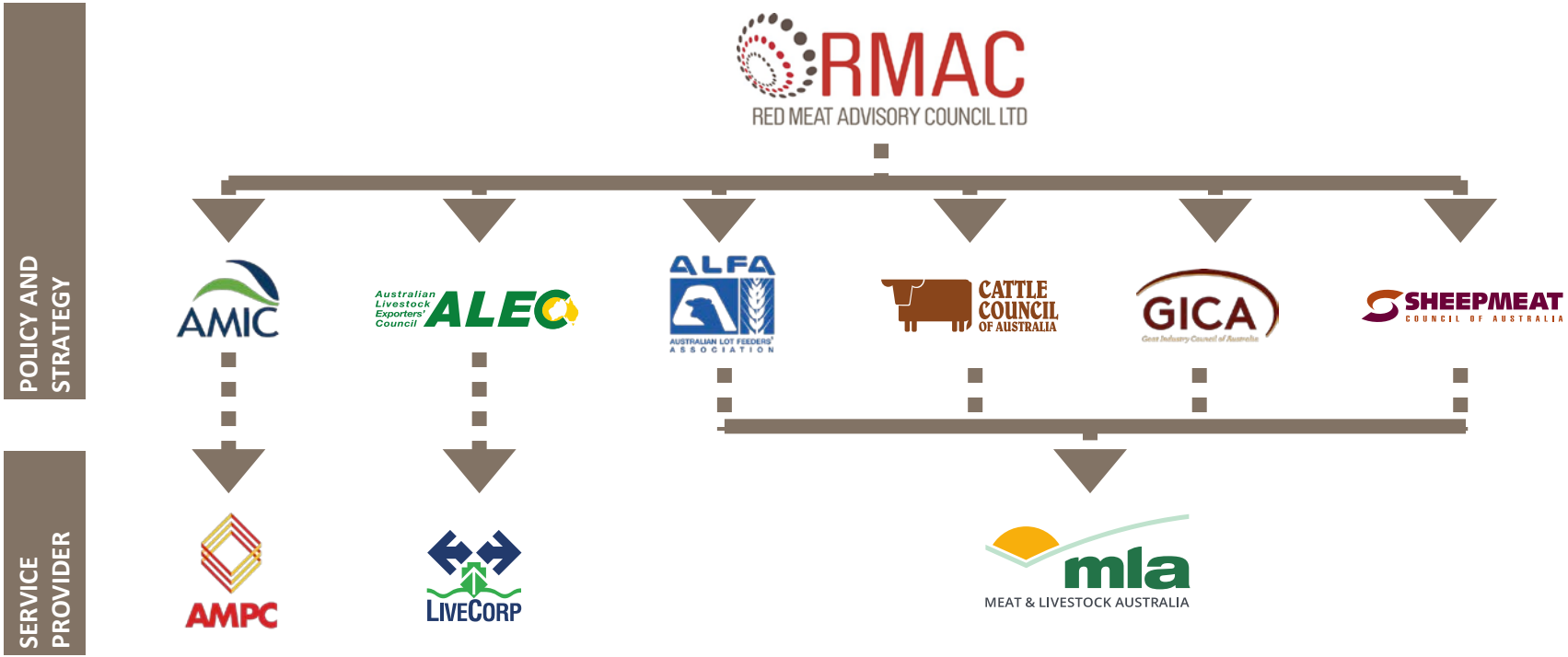
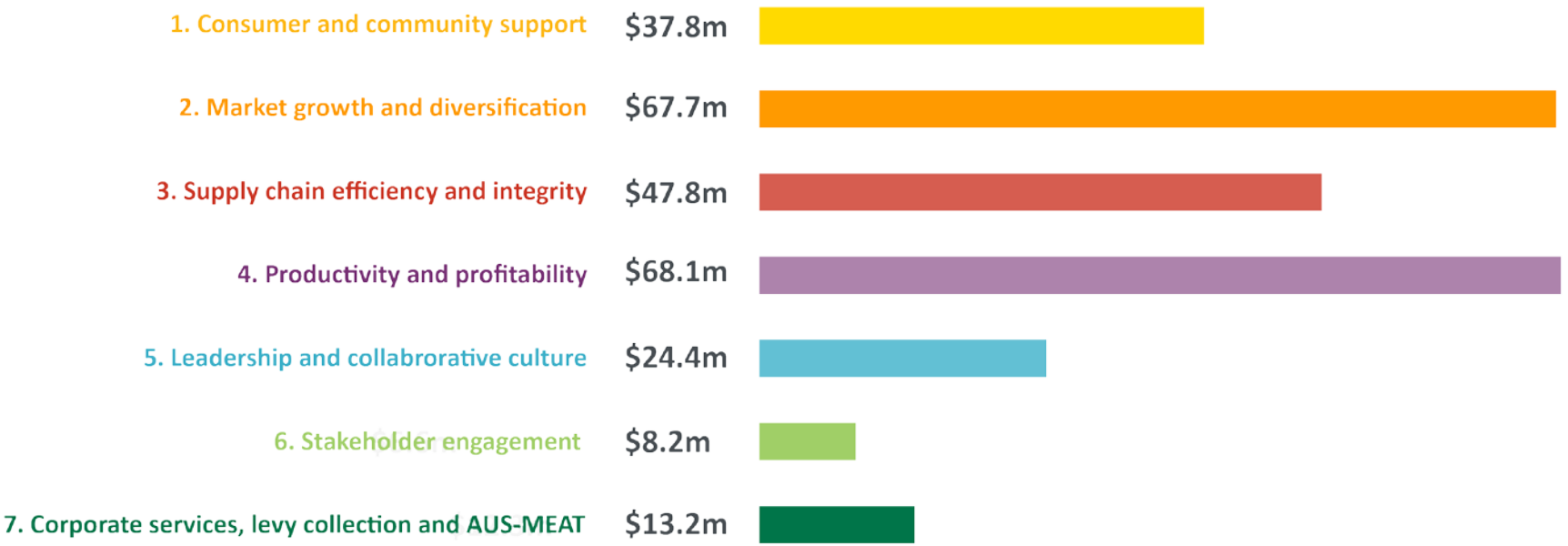
Industry structure



Projected Investment 2017-18 by pillar



Total investment $267.3 million Total may not add up due to rounding.

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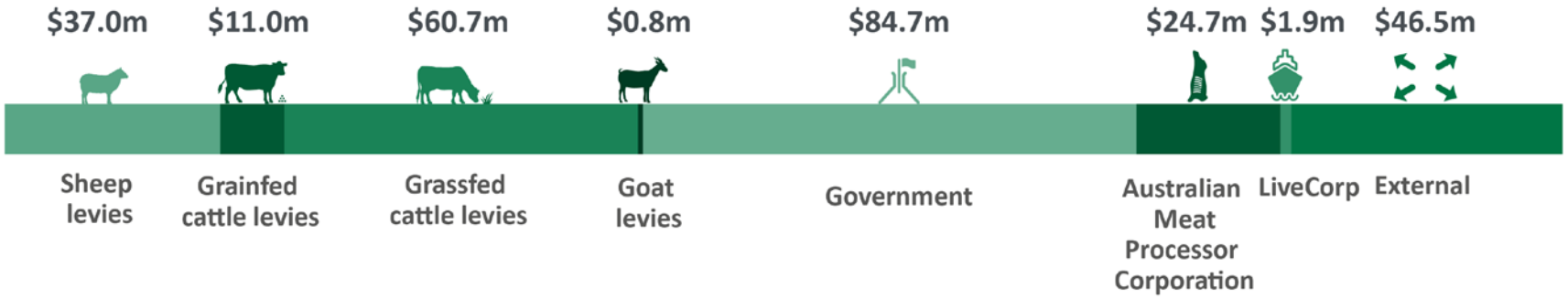
Projected 2017-18 investment by funding source



Total investment $267.3 million Total may not add up due to rounding.

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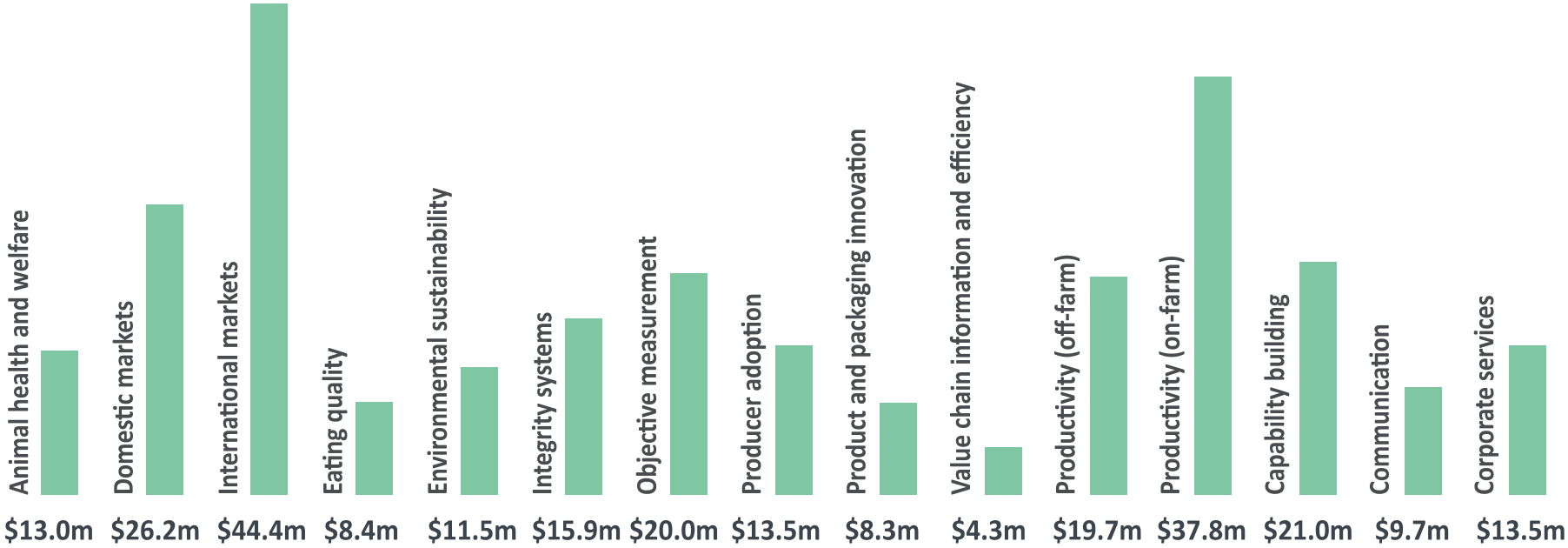
Projected 2017-18 investment by program



Total investment $267.3 million Total may not add up due to rounding.

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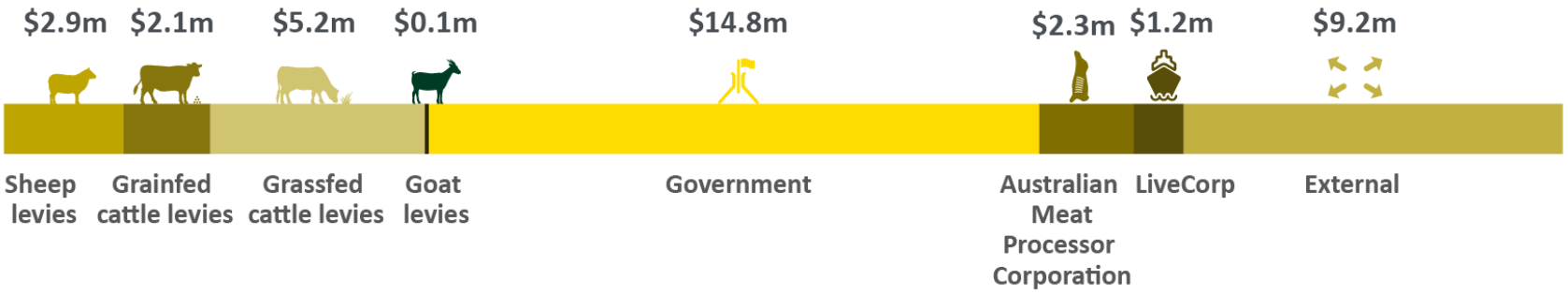
Pillar 1. Consumer and community support

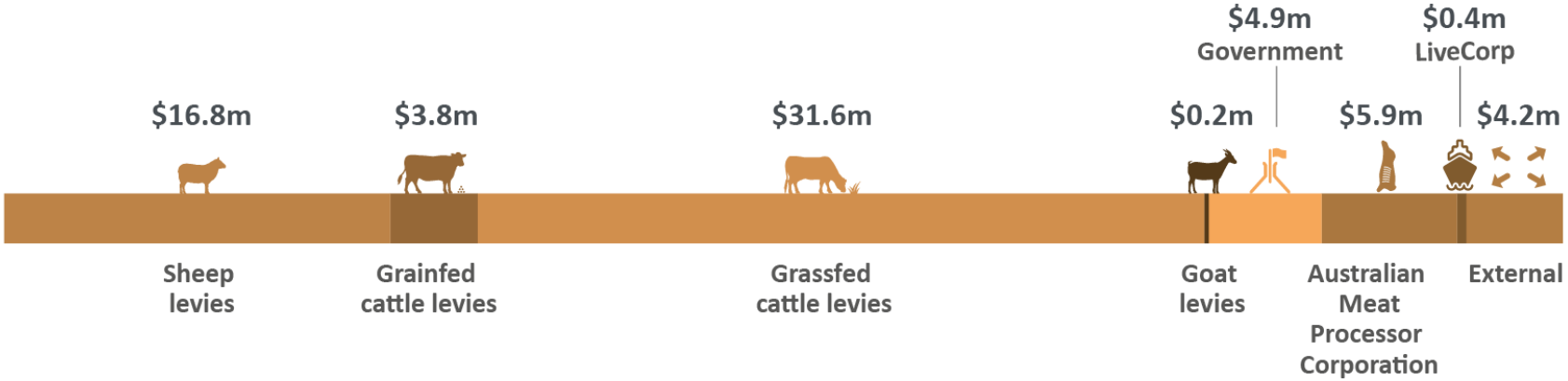
Projected 2017-18 investment by funding source



Total investment $37.8 million Total may not add up due to rounding.

Pillar 2. Market growth and diversification

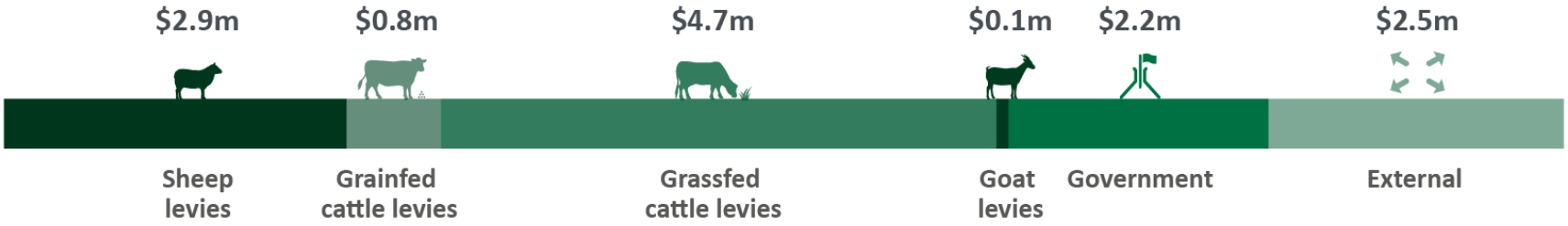
Projected 2017-18 investment by funding source



Total investment $67.7 million Total may not add up due to rounding.

Corporate services, levy management & AUS-MEAT

Projected 2017-18 investment by funding source



Total investment $13.2 million Total may not add up due to rounding.

MLA highlights – 2016/17

Grab-and-go beef

Hot, cooked beef products were rolled out to 900 Woolworths stores nationally

Global branding

Awareness of the *True Aussie* brand increased in Japan and Korea

Accelerating innovation

The MLA Donor Company invested in its largest ever number of projects

MSA awards

The MSA awards recognised top-performing MSA producers. MSA returned $150m to farm gate

New research

1st round of MLA's R&D consultation process was completed, with 18 new R&D projects funded

TRUE AUSSIE BEEF, LAMB & GOAT

mla MEAT & LIVESTOCK AUSTRALIA DONOR COMPANY

MEAT STANDARDS AUSTRALIA GRADED

mla MEAT & LIVESTOCK AUSTRALIA

MLA highlights – 2016/17

Pain relief

Buccalgesic gel for cattle and sheep has been commercialised.

Better genetics

Eating quality breeding values were produced for a wide range of animals

Beef automation

Beef automation technologies advanced to working prototypes

Adoption pilots

95 producers piloted a new program to support improved business performance

MLA review

A key finding was for every $1 invested in MLA's programs, industry is recouping $6.20

Profitable Grazing Systems
your pathway to success

mla
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Tedera

- Forage from Canary Islands
- Perennial legume
- Adapted Mediterranean-like climates
- 300-800mm AAR

ATTRIBUTES

- Quality green forage all year round
- Retains green leaf (in dry)
- Summer production
- Proven value: reduce supplementary feeding
- More tolerant to acid soils than lucerne

Land clearing rates in Queensland on par with Brazil, new study finds

I went vegan for week and it planted a seed

Sustainability group to drive industry plan

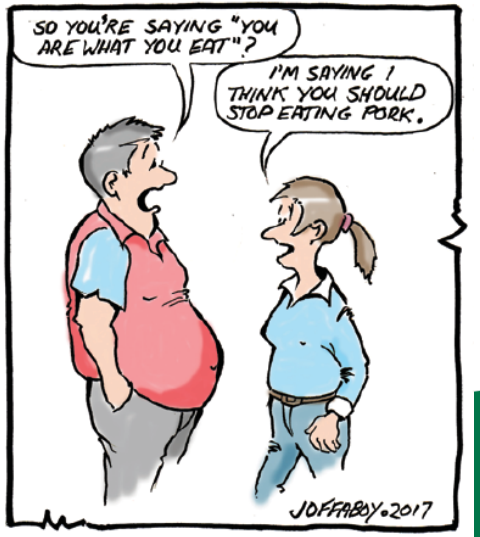
Where To Eat Meat, Guilt-Free

Celebrate no-meat day

Court ruling is a first step toward controlling air pollution from livestock farms

Global warming presents rising cost to Australia's livestock industries, vets told

Farmers call for climate action



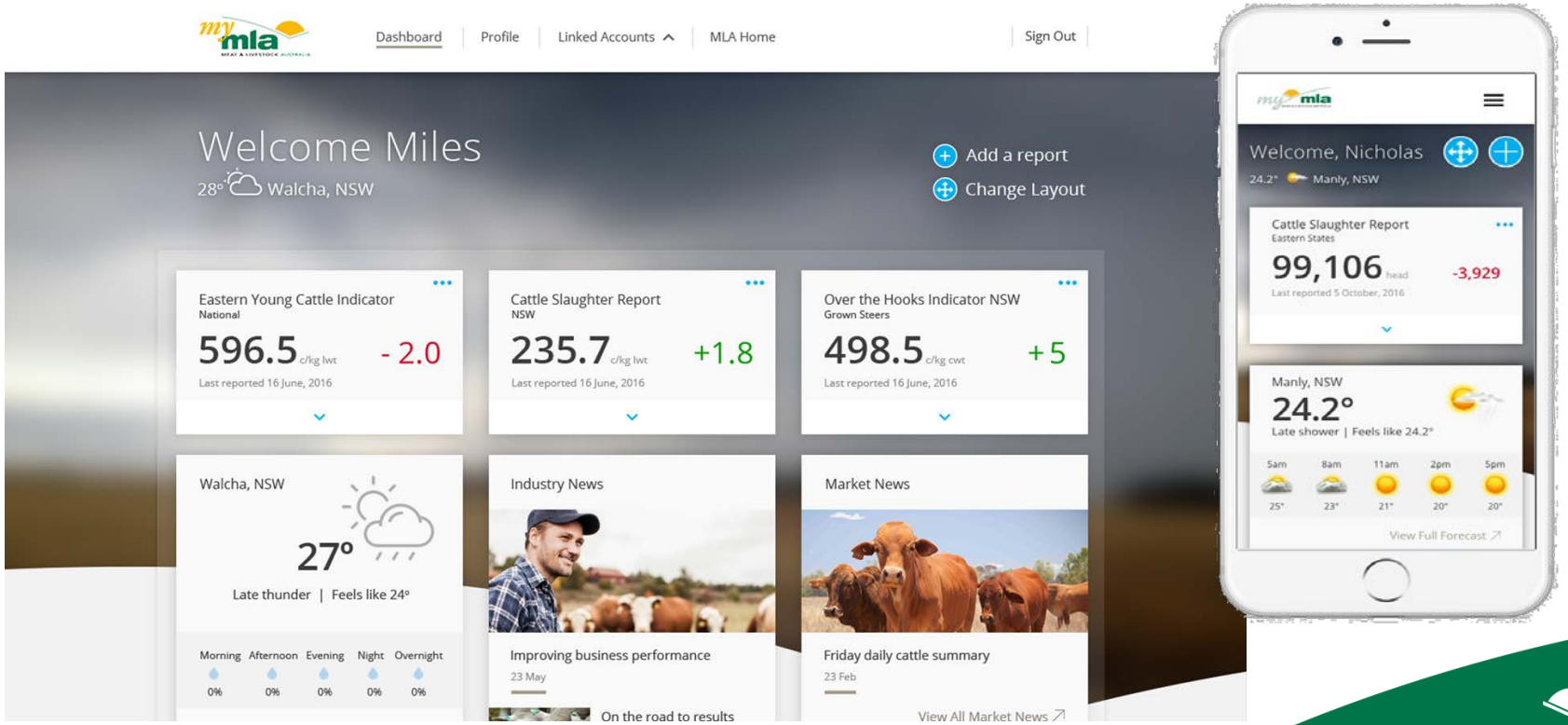
Power-hungry diets — what meat really means

Anti-meat line laid bare

Red meat – big data

MEAT & LIVESTOCK AUSTRALIA

myMLA – a personalised online dashboard



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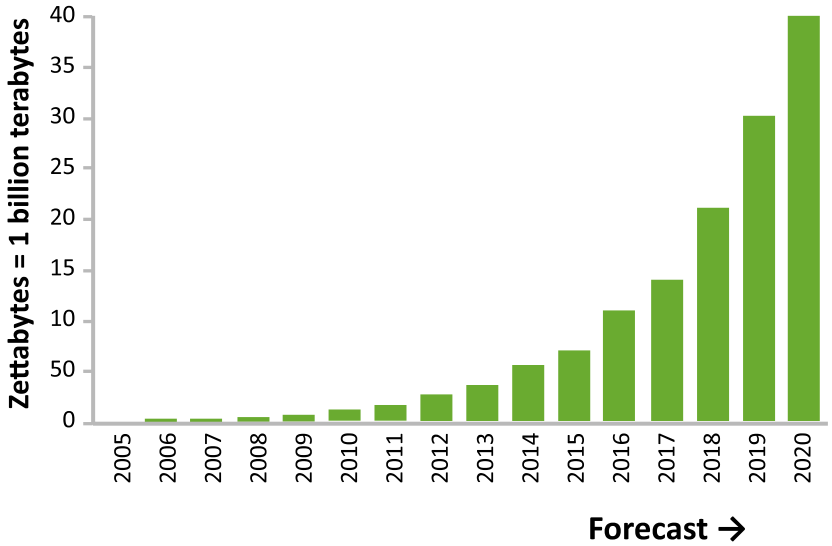
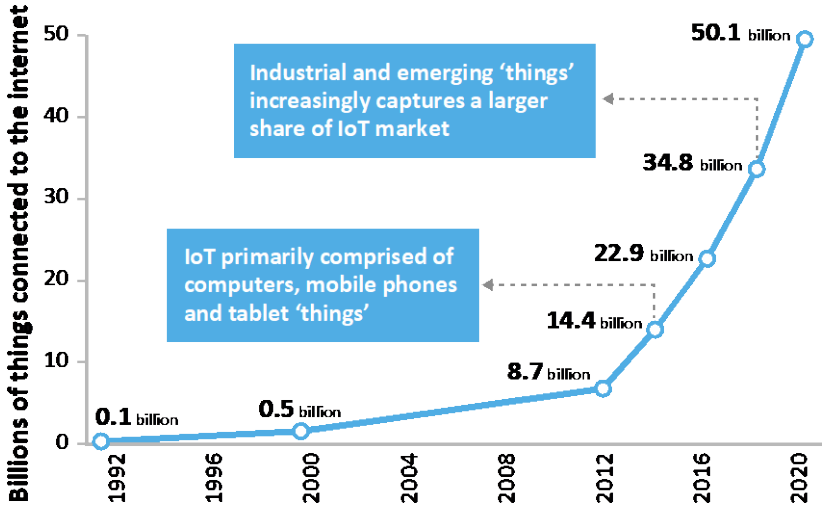
Convergence – information and measurement

Data generated (globally)



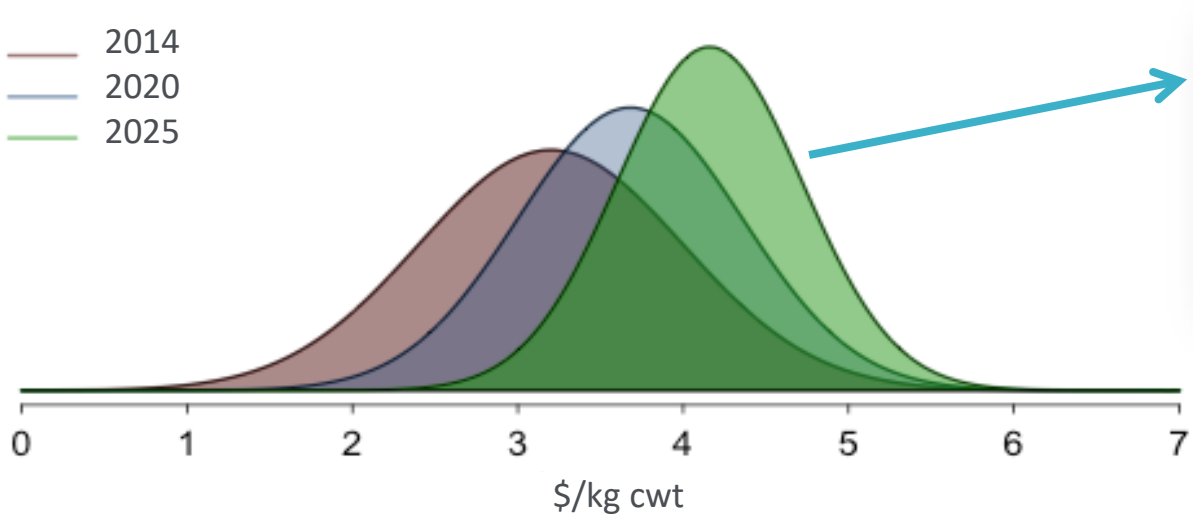
Source: United Nations Economic Commission for Europe (2015)

Internet of everything



Sources: Group SJR, Cisco, CompTIA

Why is data important?



Price is driven by consumer demand

Data drives efficiencies:

- more value from the same environmental resources
- data delivers a better price
- price drives change

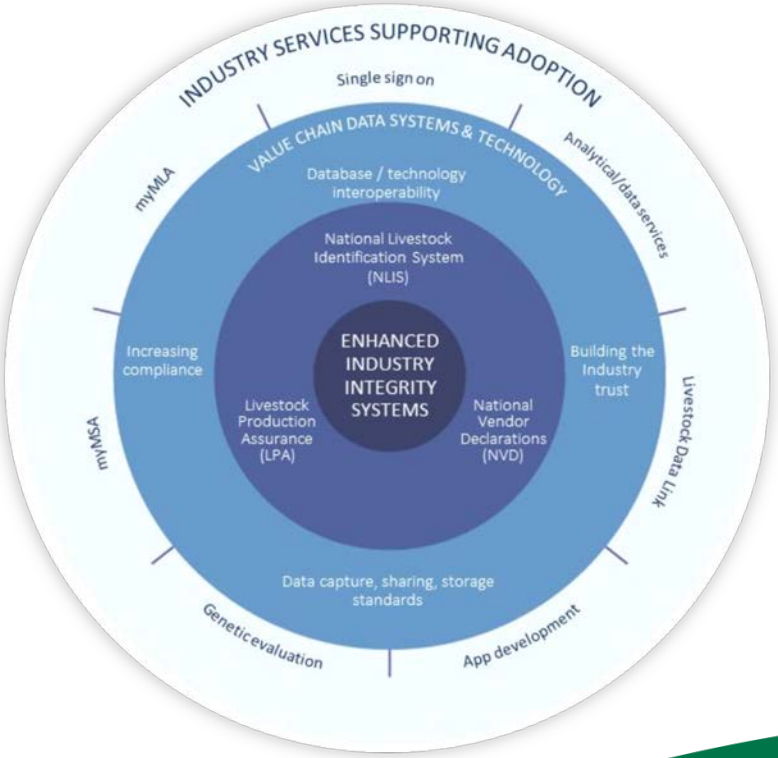
DNA data

- Highly accurate genomic evaluations for any breed/cross/composite
  - for all traits contributing to profit
  - increasing use of genomics for management decisions
- At low cost
- And high speed – > crush side genotyping

Integrity systems are outcomes of data collection

Data delivers:

- consumer trust
- optimal value chains
- market access
- sustainability credentials
- animal welfare measures
- traceability
- auditing systems



Integrity systems company measures data by:

- individual properties
- individual animals

Live animal measurement R&D update (all species)

LIVE TRACKING AND ID

Individual stock movement

- Count head for automatic stock take.
- Monitor cattle movement for health indications.

Animal identification

- Identify animals uniquely.

Status

- Uses human security CCTV software, human biometrics and facial recognition solutions.
- Early concept evaluations with various global solution providers.

FRAME SCORE

3D camera (Stage 1 – Angus)

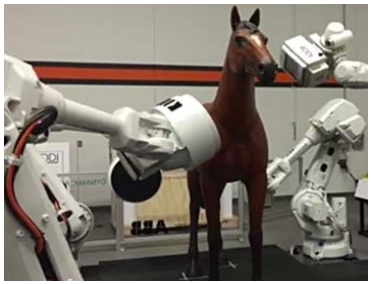
- P8 fat and muscle score.
- A working prototype of a 3D imaging system using gaming cameras.
- Preliminary R^2 of 80-90% in determining these values.
- Results in 5-10 seconds to allow for drafting decisions.

Phone apps

- Early investigation into utilisation of phone camera and or phone case with smarts for weight and frame score.

Live animal measurement R&D update (all species)

LIVE ATTRIBUTES (SINGLE)



DEXA Live

- Program 1 – Using existing carcase DEXA solutions for live animal LMY
- 2017/18 evaluation R&E

CT Live

- Program 2 – Using equine CT to measure marbling and health attributes
- A working prototype to be delivered to Australia early 2018 for evaluation.
- Will require the development of a carbon fibre crush section.

LIVE ATTRIBUTES (MOB)

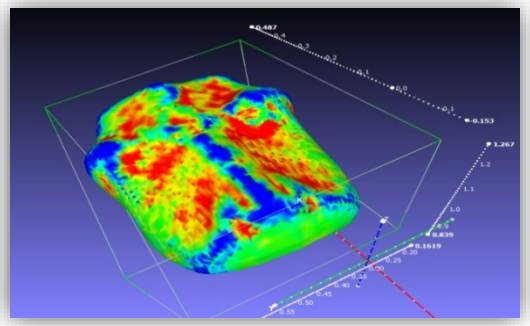
Aviation baggage CT (at scale)

- Continuous race and or truck scale CT.
- Health, marbling and LMY measurements.
- Small scale system delivered to Australia by end of 2017 for 2018 evaluation purposes.

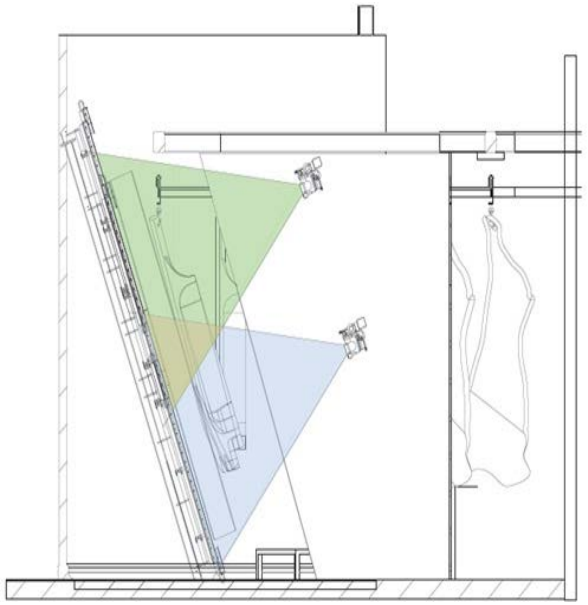
On-Farm Yield Prediction

- 3D Red, Green, Blue, + Depth (RGBD - xbox) camera technology

- Trialed to show great ability to assess body condition score



Dual Energy X-ray Absorptiometry (DEXA)



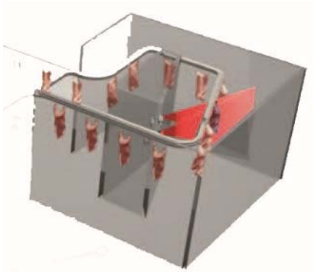
DEXA data by carcase:

- saleable or lean meat yield
- bone
- fat

OCM data by carcase:

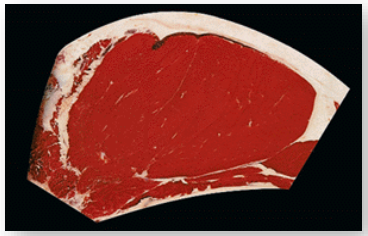
- eye muscle
- colour meat/fat
- IMF

DEXA

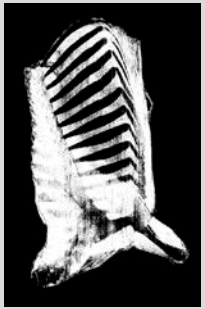


Automation cut lines

Carcase cut out calculator



DEXA – technology, algorithm and LMY correlation

Technology

$$(x+a)^n = \sum_{k=0}^{n} \binom{n}{k} x^k a^{n-k}$$

$$(x+a)^n = \sum_{k=0}^{n} \binom{n}{k} x^k a^{n-k}$$

Algorithm


Correlation

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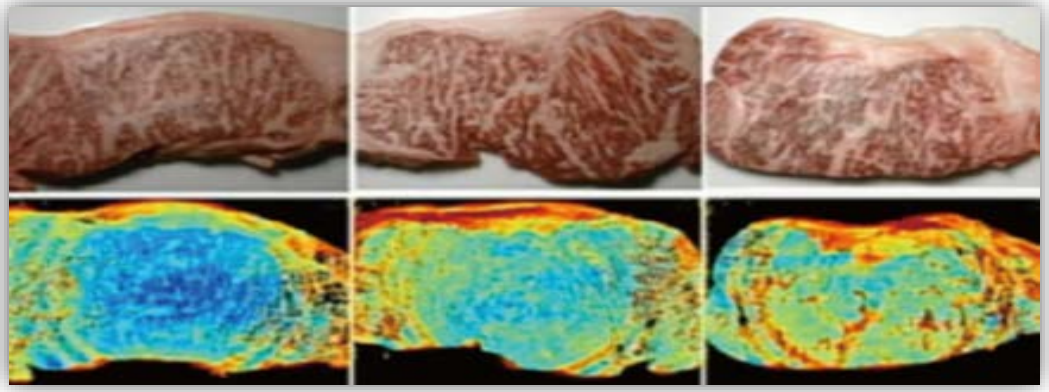
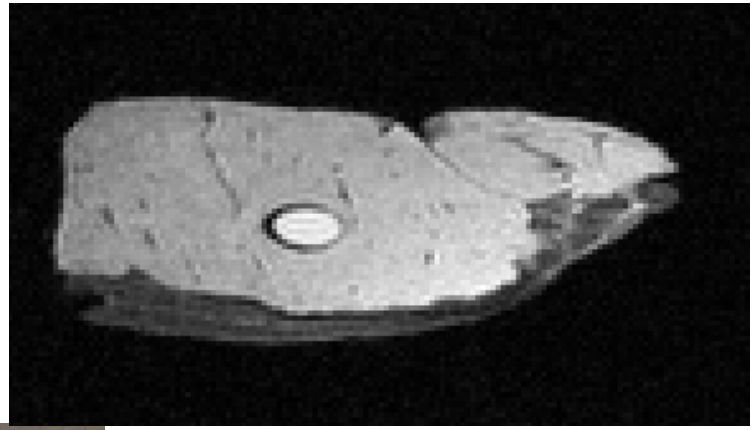
What about quality - Hyper spectral imaging

What we think it can grade:

- Eye muscle area
- IMF (marbling scores)
- Meat / Fat colour
- Subcutaneous fat
- Ossification



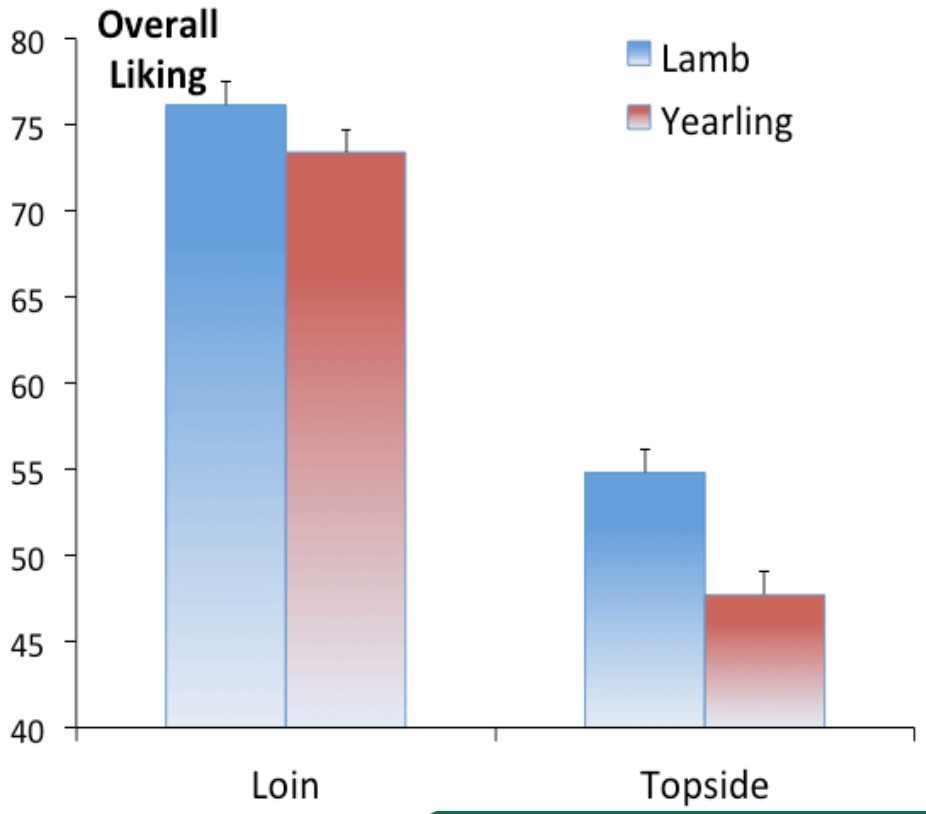
What about quality? (NMR/MRI)



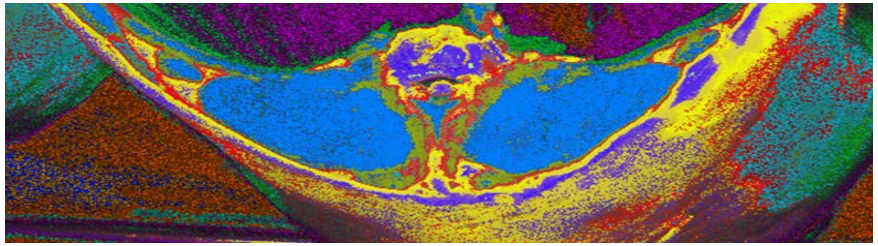
Merino yearling testing completed

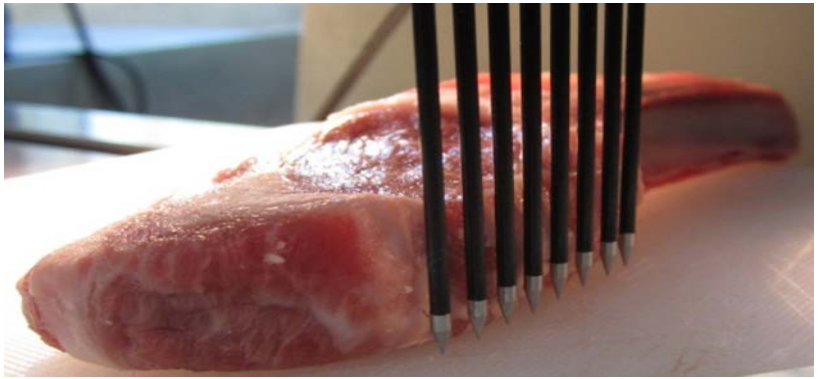
Merino lamb vs Merino yearling – half brothers (355 days old vs 685 days old)

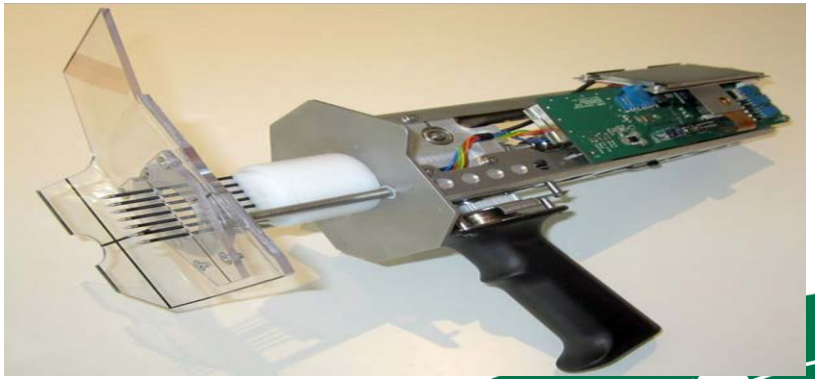
- Loin cuts high quality ….
- Leg cuts tougher but mostly acceptable



Grading technologies - QUALITY

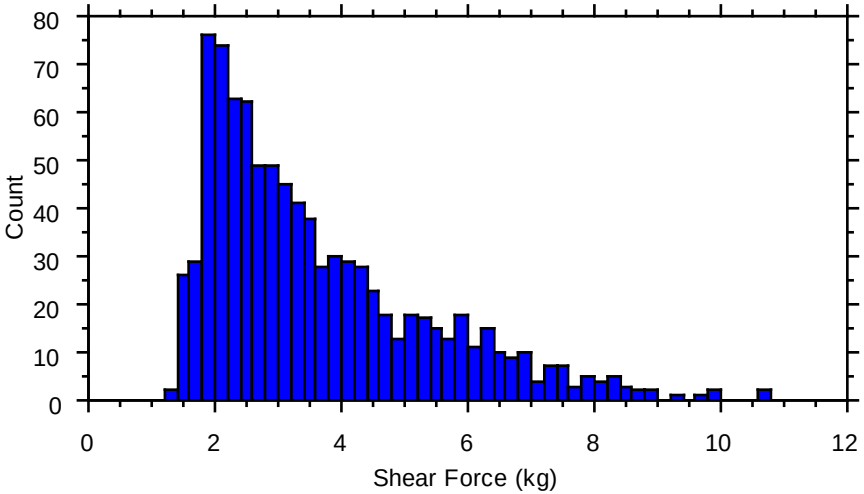




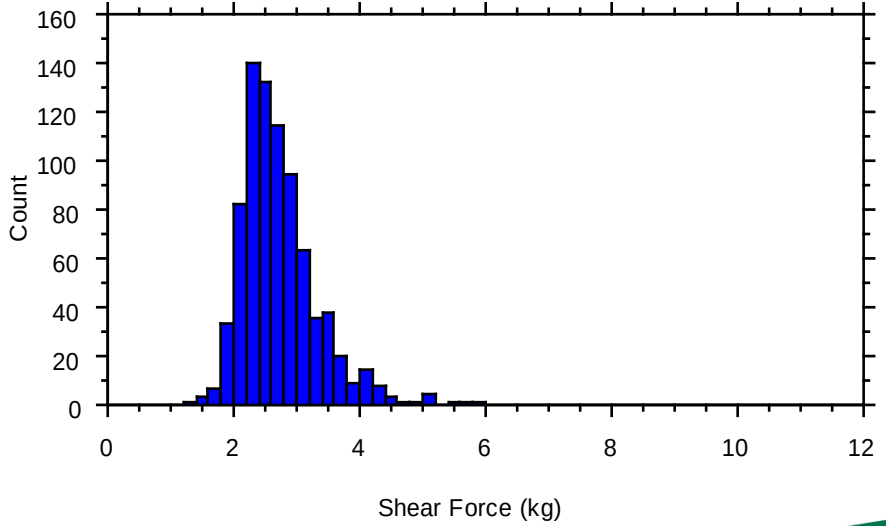


Change is possible

Pre MSA



Post MSA



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Meat Standards Australia

- Almost 40% of cattle slaughter has MSA grading information collected
- Over 54 million pieces of information collected in 2015/16
- Over 2.8 million MSA compliant animals received an MSA Index value

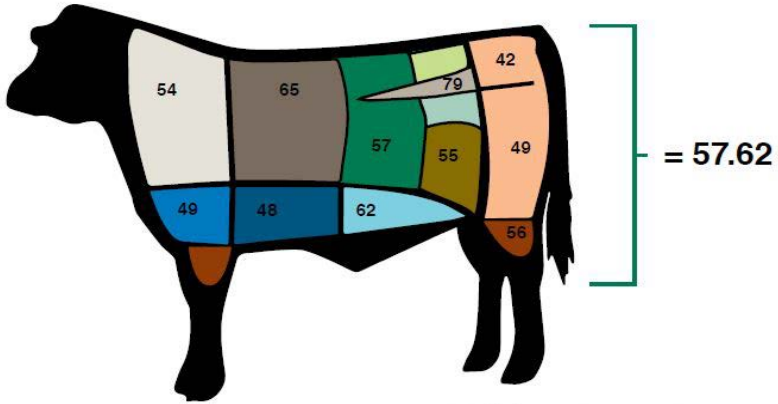

Illustration for example purposes only

Marbling	Fat colour	HGP treatment
Carcase weight	Eye muscle area	Feed type
pH	Ossification	Milk fed vealer
Sex	Tropical breed content	Consignment pathway
Fat coverage	Hump height	
Meat colour		

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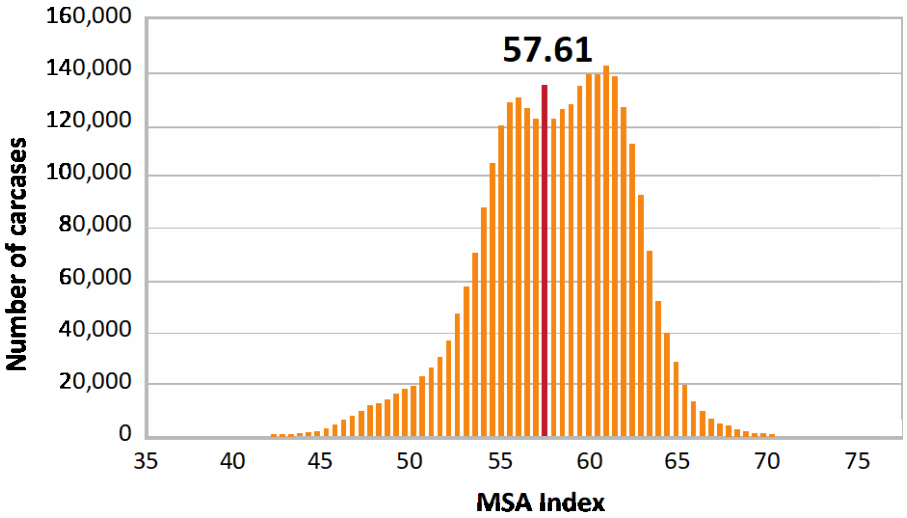
Using MSA data to benchmark eating quality

Biennial Australian Beef Eating Quality Audit released to:

- measure current performance
- identify areas for improvement
- identify the key drivers of eating quality and compliance
- benchmark amongst others in different production categories.

Current situation for Australian eating quality



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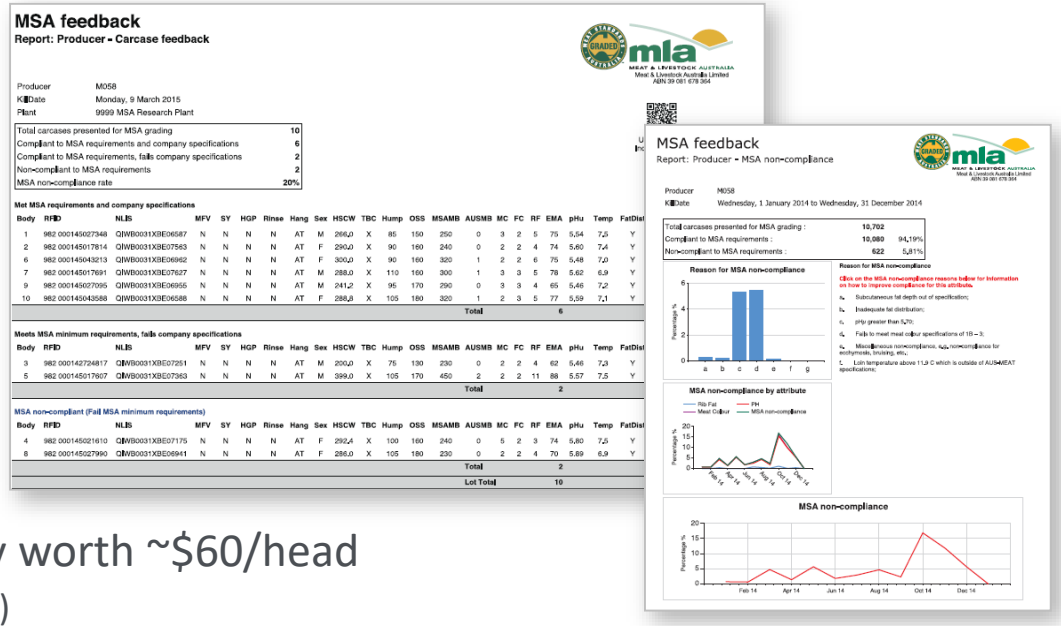
myMSA feedback system

Allows real-time carcase feedback and benchmarking for 47,000 producers



MSA feedback
Report: Producer - Carcase feedback

Producer M058
Kill Date Monday, 9 March 2015
Plant 9999 MSA Research Plant

Total carcases presented for MSA grading	10
Compliant to MSA requirements and company specifications	6
Compliant to MSA requirements, fails company specifications	2
Non-compliant to MSA requirements	2
MSA non-compliance rate	20%

Met MSA requirements and company specifications

Body	RFID	NLIS	MFV	SY	HGP	Rinse	Hang	Sex	HSCW	TBC	Hump	OSS	MSAMB	AUSMB	MC	FC	RF	EMA	pHu	Temp	FatDist
1	982 000145027348	QIWB0031XBE06587	N	N	N	N	AT	M	266,0	X	85	150	250	0	3	2	5	75	5,54	7,5	Y
2	982 000145017814	QIWB0031XBE07563	N	N	N	N	AT	F	290,0	X	90	160	240	0	2	2	4	74	5,60	7,4	Y
6	982 000145043213	QIWB0031XBE06962	N	N	N	N	AT	F	300,0	X	90	160	320	1	2	2	6	75	5,48	7,0	Y
7	982 000145017691	QIWB0031XBE07627	N	N	N	N	AT	M	288,0	X	110	160	300	1	3	3	5	78	5,62	6,9	Y
9	982 000145027095	QIWB0031XBE06955	N	N	N	N	AT	M	241,2	X	95	170	290	0	3	3	4	65	5,46	7,2	Y
10	982 000145043588	QIWB0031XBE06588	N	N	N	N	AT	F	288,8	X	105	180	320	1	2	3	5	77	5,59	7,1	Y
																		Total		6	

Meets MSA minimum requirements, fails company specifications

Body	RFID	NLIS	MFV	SY	HGP	Rinse	Hang	Sex	HSCW	TBC	Hump	OSS	MSAMB	AUSMB	MC	FC	RF	EMA	pHu	Temp	FatDist
3	982 000142724817	QIWB0031XBE07251	N	N	N	N	AT	M	200,0	X	75	130	230	0	2	2	4	62	5,46	7,3	Y
5	982 000145017607	QIWB0031XBE07363	N	N	N	N	AT	M	399,0	X	105	170	450	2	2	2	11	88	5,57	7,5	Y
																		Total		2	

MSA non-compliant (Fail MSA minimum requirements)

Body	RFID	NLIS	MFV	SY	HGP	Rinse	Hang	Sex	HSCW	TBC	Hump	OSS	MSAMB	AUSMB	MC	FC	RF	EMA	pHu	Temp	FatDist
4	982 000145021610	QIWB0031XBE07175	N	N	N	N	AT	F	292,4	X	100	160	240	0	5	2	3	74	5,80	7,5	Y
8	982 000145027990	QIWB0031XBE06941	N	N	N	N	AT	F	286,0	X	105	180	230	0	2	2	4	70	5,89	6,9	Y
																		Total		2	
																		Lot Total		10	

MSA feedback
Report: Producer - MSA non-compliance

Producer M058
Kill Date Wednesday, 1 January 2014 to Wednesday, 31 December 2014

Total carcases presented for MSA grading :	10,702	
Compliant to MSA requirements :	10,080	94,19%
Non-compliant to MSA requirements :	622	5,81%

Reason for MSA non-compliance

Reason for MSA non-compliance

Click on the MSA non-compliance reasons below for information on how to improve compliance for this attribute.

- a Subcutaneous fat depth out of specification;
- b Inadequate fat distribution;
- c pHu greater than 5,70;
- d Fails to meet meat colour specifications of 1B – 3;
- e Miscellaneous non-compliance, e.g., non-compliance for ecchymosis, bruising, etc.;
- f Loin temperature above 11,0 C which is outside of AUS-MEAT specifications;

MSA non-compliance by attribute

Rib Fat PH
Meat Colour MSA non-compliance

MSA non-compliance

- MSA compliance is currently worth ~$60/head (price differential to non-MSA cattle)
- In 2015/16, 7.3% MSA non-compliance = approx $13.5 million lost opportunity

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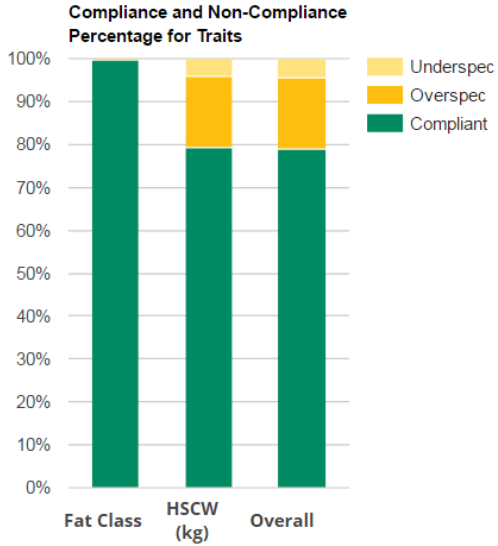
What is Livestock Data Link?

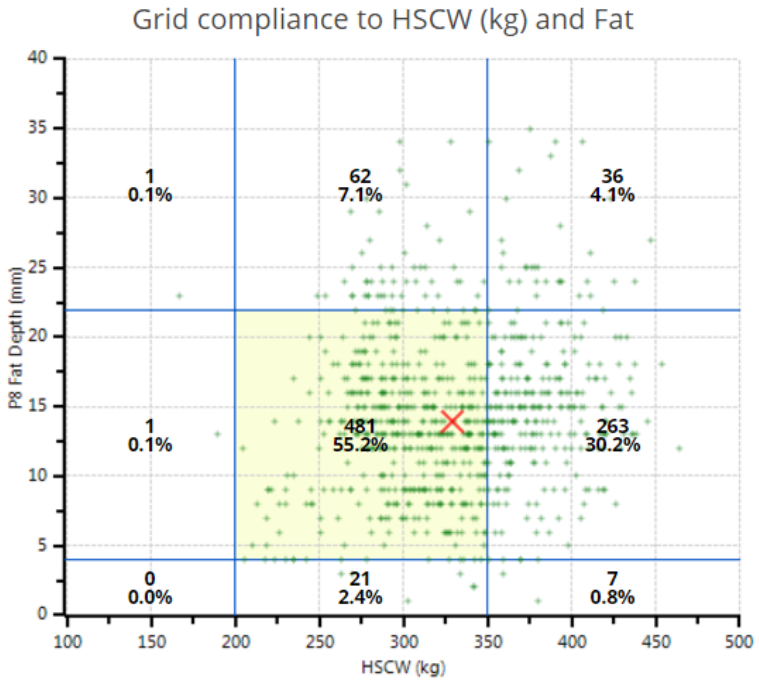
- Centralised on-line feedback system
- Identifies non-compliant carcases and the associated costs
- Allows performance benchmarking
- Will include some sheep animal health data
- Includes NLIS and MSA information
- Links to ‘Solutions to Feedback’
- Turns complex information into simple decision making through analysis and reporting



	Fat Class	HSCW (kg)	Overall
Number of head	972	972	972
Number compliant	970	770	768
Percent compliant	99.8 %	79.2 %	79.0 %
Number non-compliant	2	202	204
Percent non-compliant	0.2 %	20.8 %	21.0 %

How do I measure up?

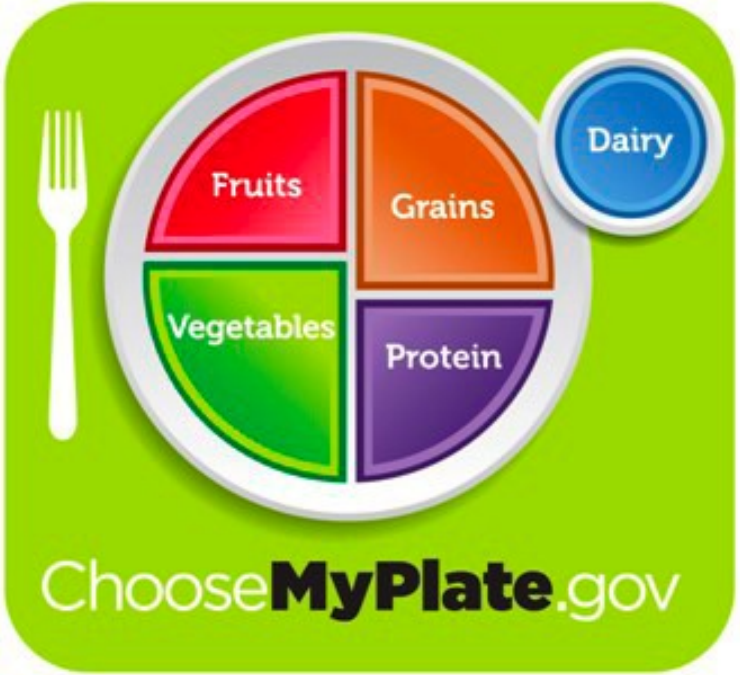
Carcase Analysis Report



Gender Breakdown | Compliance | Sweet Spots

Compliance by Gender				
	Male	Female	Unknown	All
No. Head	576	296		872
No. Condemned	0	0		0
Total HSCW (kg)	202,635.5	84,729.0		287,364.5
Max HSCW (kg)	502.5	433.0		502.5
Min HSCW (kg)	235.0	166.5		166.5
Avg HSCW (kg)	351.8	286.2		329.5
Max P8 Fat Depth (mm)	42.0	41.0		42.0
Min P8 Fat Depth (mm)	1.0	3.0		1.0
Avg P8 Fat Depth (mm)	13.9	15.9		14.6
Non-compliance count	430	127		557
Non-compliance cost	$38,626.78	$8,089.78		$46,716.55
Non-compliance cost/head	$89.83	$63.70		$83.87

Consumer insights



- Macro trends
- Affordability
- Economic drivers
- Demographics
- Attitudes
- Behaviours
- Trends
- Regulatory environment

Across 100 countries and markets

Big data

Red Meat Value Chain Data

The current ‘silos’ of data:

- in the animal
- on-farm
- market reporting
- on the carcase
- carcase attributes
- eating quality
- processing requirements
- consumer drivers
- consumer feedback

2025 Beef Value Chain

Genome markers.

↓

DNA testing live animals.

↓

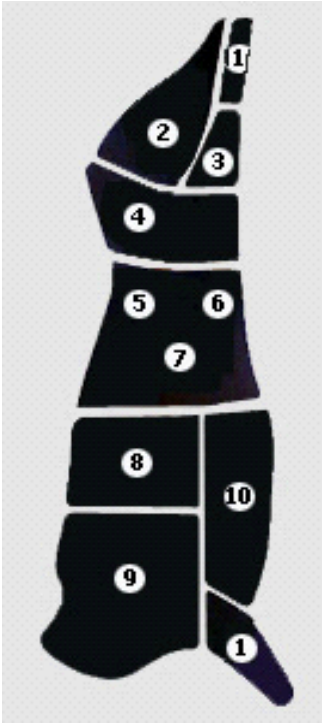
Beef breed to end market.

↓

Produces rewarded by the value of the cut.

↓

DEXA provides a saleable meat yield prior to cut out.



Data driven Integrity Systems.

↓

Automated processing plants – chiller to retail ready.

↓

Consumers are linked to producers and can rate steak by texture, taste, provenience and eating quality through an app.

↓

The eating quality app is linked to DNA.

We have started the discussion!

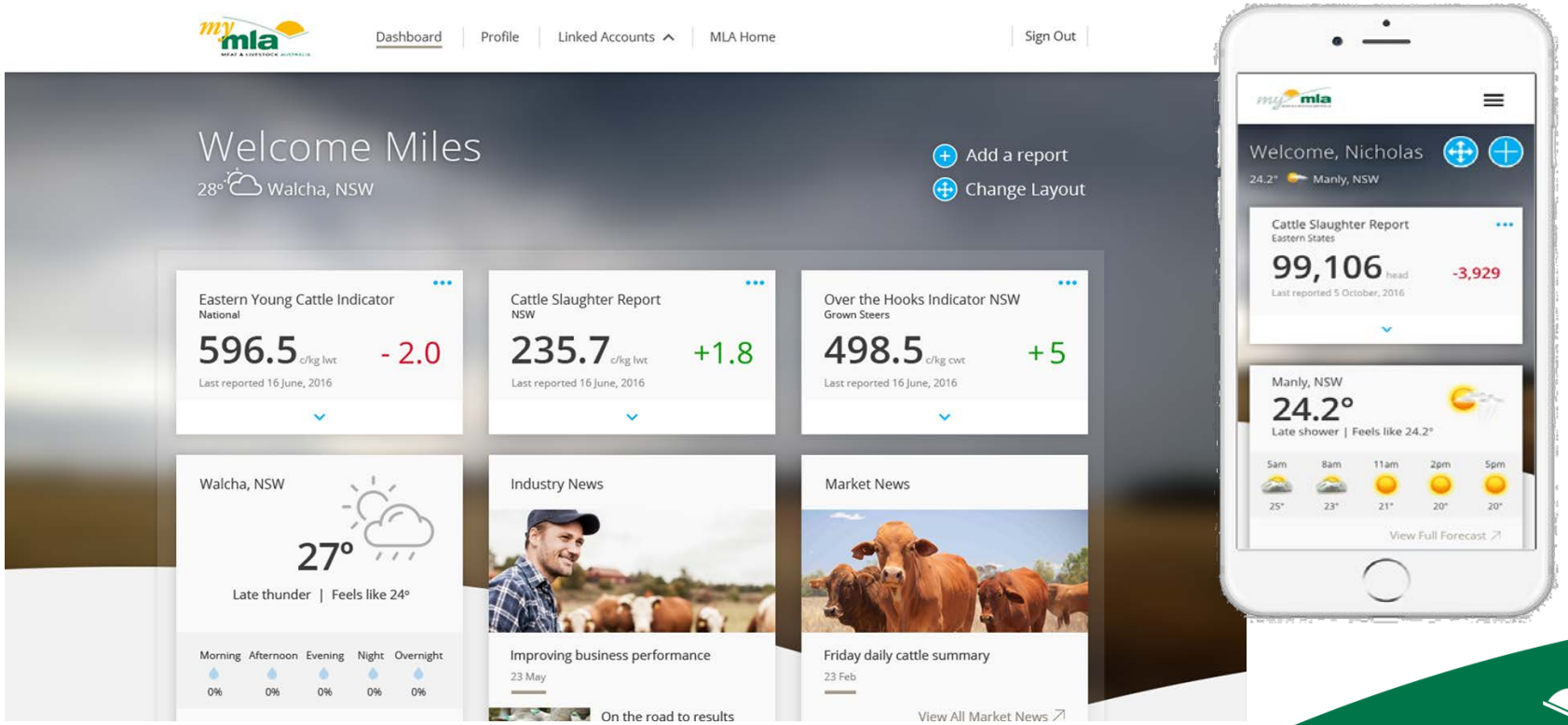
Three principals agreed within industry:

- common data language
- share data
- cloud based storage for ease of ‘plug in applications’

Future R&D models must sign on to data sharing.

Existing data bases are being merged.

myMLA – a personalised online dashboard



MEAT & LIVESTOCK AUSTRALIA

Future value propositions

Red meat – big data

Contents

- The Australian Red Meat Industry collects a lot of data, however:
  - data will be shared
  - data will be available to the whole supply chain
- Collecting data will drive growth and efficiencies.
- Value Based Marketing will deliver fairer returns to producers.

Thank you – any questions?

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