



Livestock Breeding and Genetics Forum

National Livestock Genetics Consortium

“By 2022, > \$400 million Industry improvements through doubling the rate of annual genetic gain in the commercial livestock industry value chain”

National Livestock Genetics Consortium

**World
leading R&D**



Benchmarking and target setting for genetic gain
Eating quality improved through genetics

**Disruptive
technology**



Multi-breed genetic analysis
Cost effective genomics

**Culture
change**



Getting industry to value and trust genetics
Cultural change to increase the adoption of various technologies

**Accessible data
platform**



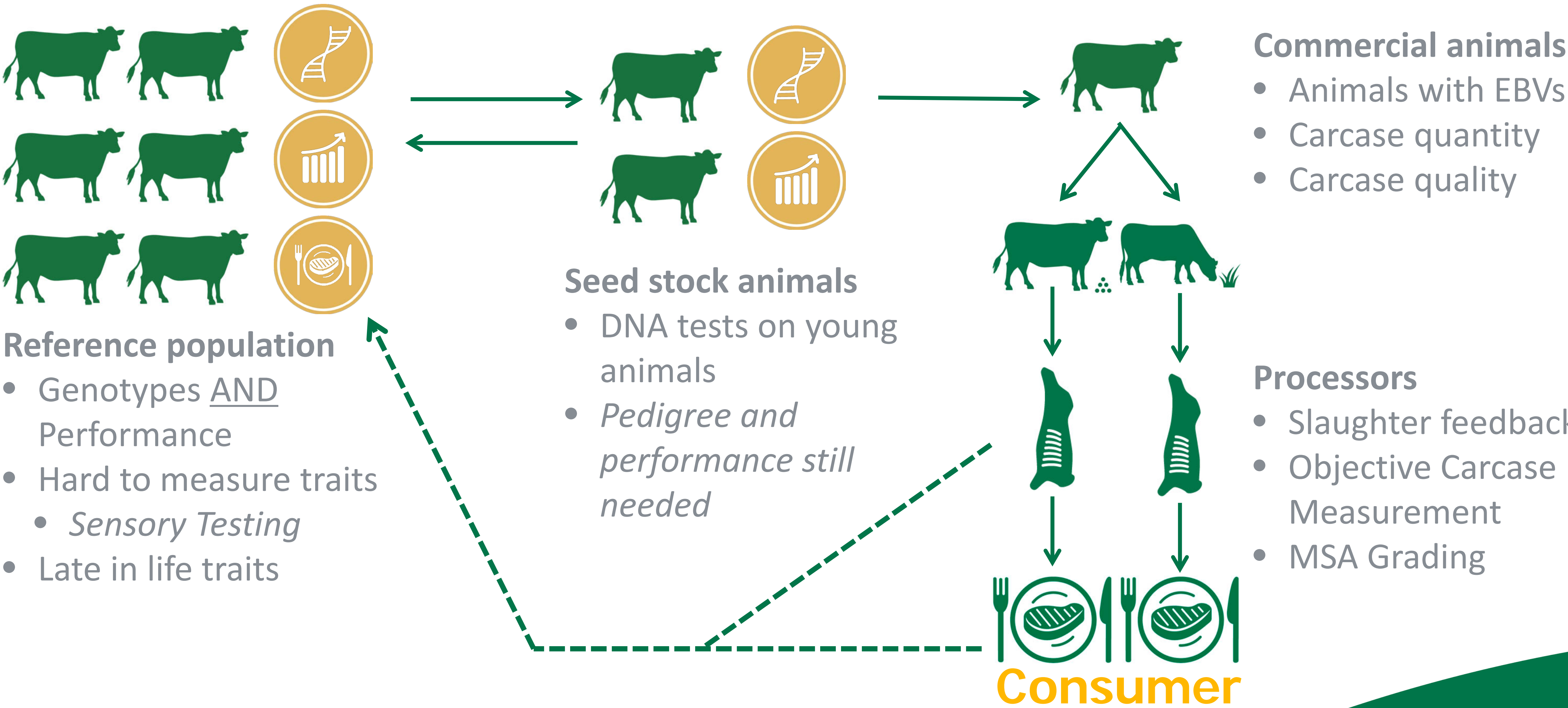
Seamless transfer of data
Linking to industry data (NLIS, MSA, genomics)

Collaboration



Collaboration with partners not normally engaged with in livestock genetics RD&A
Leverage of knowledge and investment across species and world wide

Linking genetics to consumer outcomes



Single Step - Genetic Evaluations

- World first for both Sheep Genetics and the Brahman breed
- Single Step is a change in how we utilise genomics

'Single step' sheep trait analysis promises more accurate selection

NEW ERA FOR BEEF

Brahman breed will be the first in the world to use single step genetic analysis

Central Queensland News 2 Jun 2017 +2 more

AUSTRALIA'S brahman breeders and producers will be the first in the world to benefit from a breakthrough in genetic evaluations that has the potential to boost the genetic gains of cattle herds across northern Australia.

These advances are the result of a move to single step genetic analysis that combines ge-

nomie and pedigree information with performance records, to calculate Estimated Breeding Values. This means brahman breeders and buyers who use EBVs will have access to more accurate, reliable data and increased ability to select for a wider range of production traits when using BREEDPLAN.

The transition to single step genetic analysis follows a long-term collaboration between Meat and Livestock Australia, the Animal Genetics and Breeding Unit, the Agricultural Business Research Institute and the Australian Brahman Breeders' Association.

MLA's program manager - genetics,



SHEEP producer selection for important wool, carcase and meat quality traits will be more accurate and quicker with the move to 'single step' analysis of genomic and breeding values by Sheep Genetics.

Sheep Genetics is Australia's national breeding evaluation service for breeders and buyers and has now moved to full 'single step' analysis of traits to help further accelerate

genetic gains in the industry.

The move is the result of long-term collaboration between Sheep Genetics, the Animal Genetics and Breeding Unit (AGBU), the Cooperative Research Centre for Sheep Industry Innovation (Sheep CRC), Australian Wool Innovation (AWI), and the hundreds of ram breeders who have contributed performance and DNA data. Sheep Genetics is managed by Meat & Livestock Australia.

2017- SINGLE STEP IS HERE

Since the implementation of the Single Step carcase sub-analysis, we have been working on the implementation of Single Step for the main analyses in the TERMINAL, MATERNAL and MERINO runs.

In 2017 we make the transition to using the single step approach over all main analyses, as well as the WEC analysis for all three breed groups and visual trait analyses for Merinos. The reproduction analysis will remain unchanged at this stage due to the limited records available. However, there is ongoing work to develop genomically enhanced Research Breeding Values (RBVs) for reproduction traits later this year.

The benefits of moving to a full single step analysis include:

- › Simultaneous use of all information – no need for blending.
- › More accurate genetic relationship between animals identified and utilised, meaning better use of information from similar animals, with the possibility of correcting pedigree errors.
- › Genomics used for a wider range of traits and the genetic correlations between all relevant traits are now considered.
- › The accuracy of ASBVs better reflects how effectively genomic information contributes due to genotyped animals relationship to the reference population.
- › Genomic information contributes to the calculation of relatives ASBVs, i.e. the siblings or progeny of a genotyped animal will benefit.
- › Industry data now contributes to the reference population.



Transition to an outcomes based language



EQG opportunity

BONE IN BEEF
PRODUCT OF AUSTRALIA

***EQG* SHORTLOIN**

IW/VAC

ANY MEAT WORKS Co
LONG FLAT ROAD
ANYTOWN NSW

32307

KEEP REFRIGERATED



(01) 9 931671012345 3 (3101) 000262 (13) 140110 (21) 41457354

PACKED ON 22 - SEP - 2017

BEST BEFORE 30 - NOV - 2017

GRL MSA 3 @ 5 days MSA 4 @ 14 days

RST MSA 3 @ 5 days MSA 4 @ 14 days

TSL MSA 4 @ 5 days

26.2kg 57.8lb NET WEIGHT

BATCH: 448 CARTON ID: 41457354



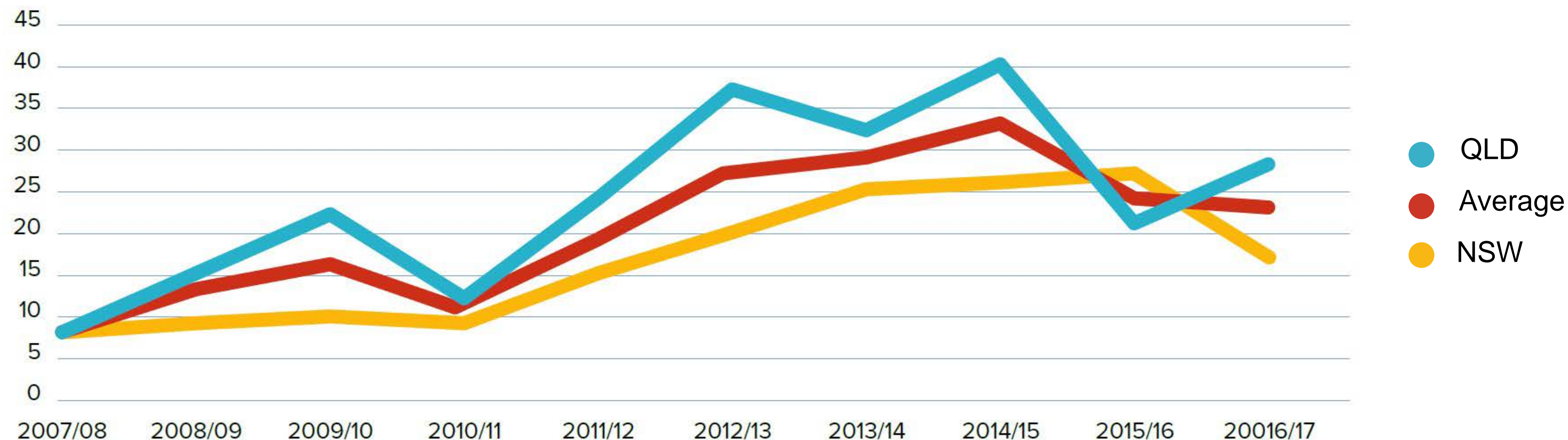
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4 and 6 tooth cattle MSA price ave \$0.05 and \$0.30/kg HSCW below MSA YG respectively:

For 4-6 teeth cattle, extra value =

- Producers = \$9,479,459
- Processor/Brandowner = \$16,502,937
- Retail = \$20,501,429
- Total = \$46,483,825

Benefits for producing MSA cattle

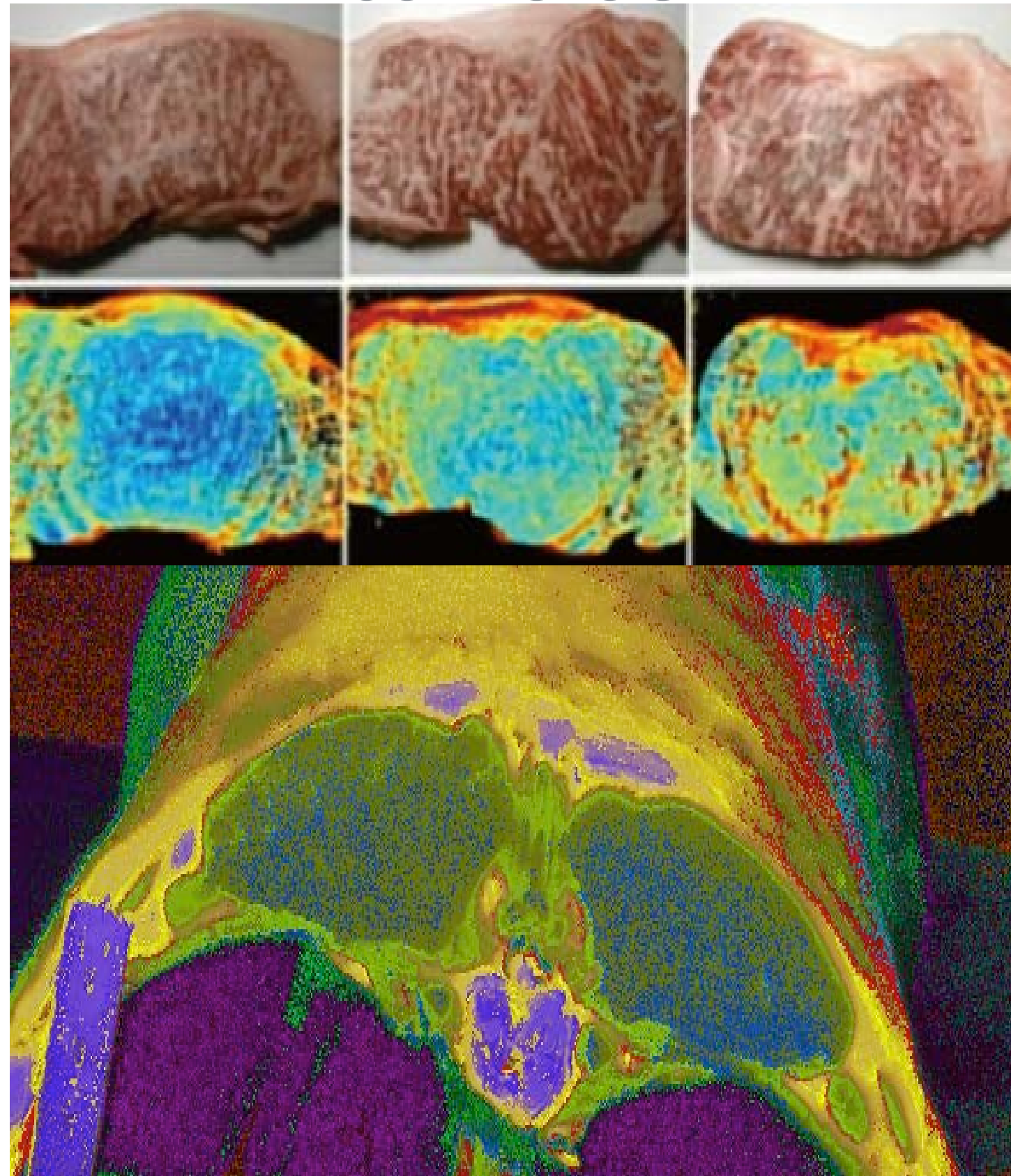


- MSA young non-feedlot cattle = \$0.23/kg = additional \$65/head
- Grainfed cattle = \$0.11/kg = additional \$34/head
- \$130million in additional returns delivered back to the farm gate

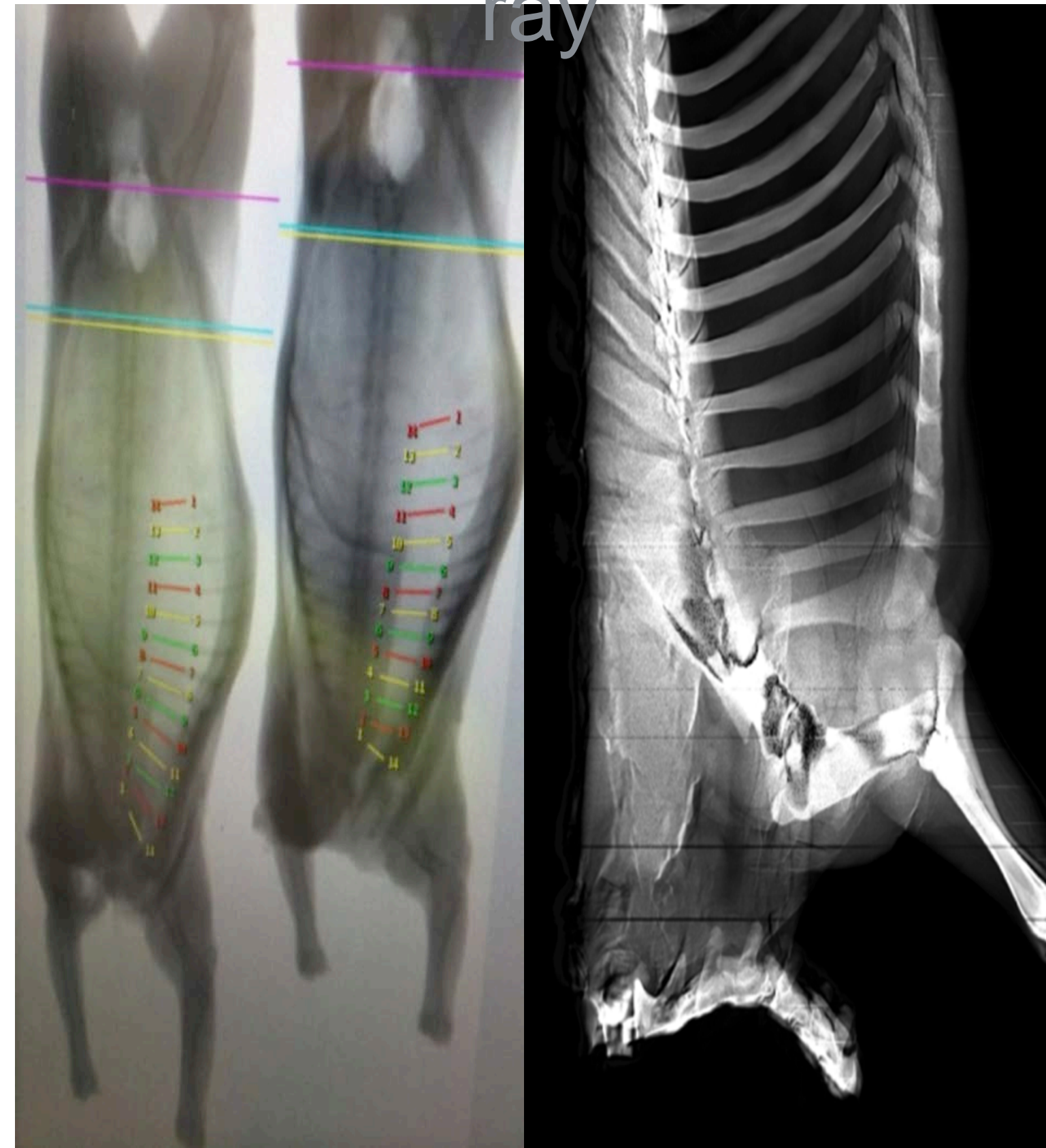
OTH price differential, Source: NLRS

Objective carcass measurement

Hyperspectral
cameras



DEXA – dual energy X-
ray



NIX colour sensor



A vision for a 2025 Red Meat Value Chain

Cheaper Genomic Tests



DNA testing animals routine



Beef bred to end market specs



Objective measures of live animals to predict market spec compliance



DEXA provides a lean meat yield prior to cut out



Objective measurement of Eating Quality Traits



Brand specifications, quality and yield reflected in pricing incentives



Producers paid on the value of the carcase



Cuts and Portions linked to live animal and producer



Consumers purchase by meal occasion, quality, provenance