

Livestock production and meat quality – SW region

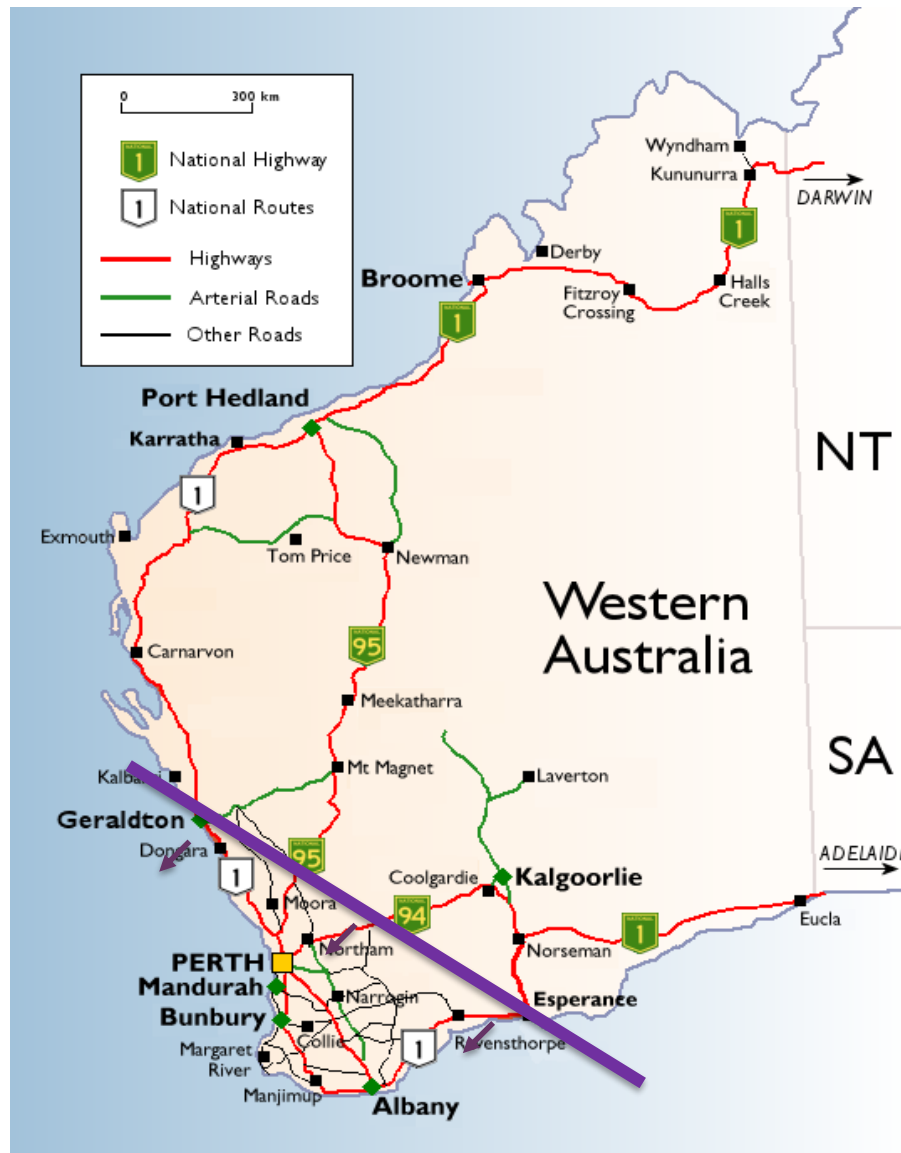
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FASAP, FAIA, FNSA, FA de la V, CPAg, RAnNutr



Sth West – where are we !



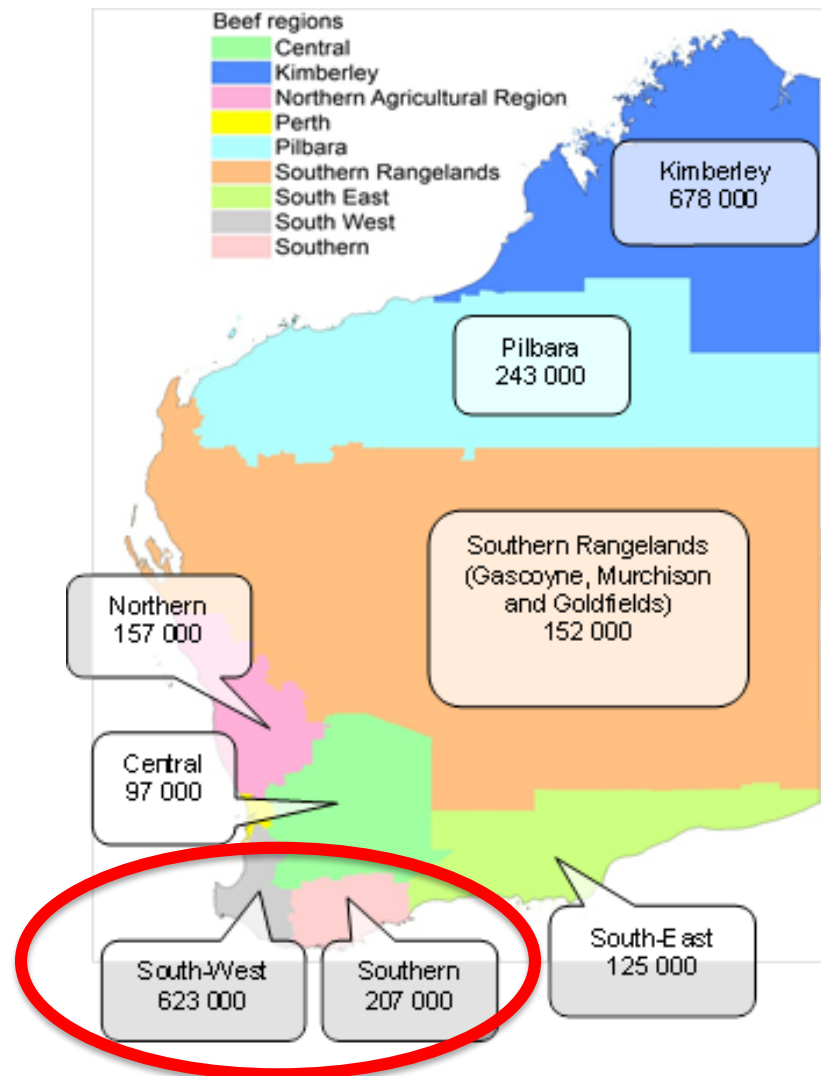
Cropping + wetter
deep south

Sth West – where are we !

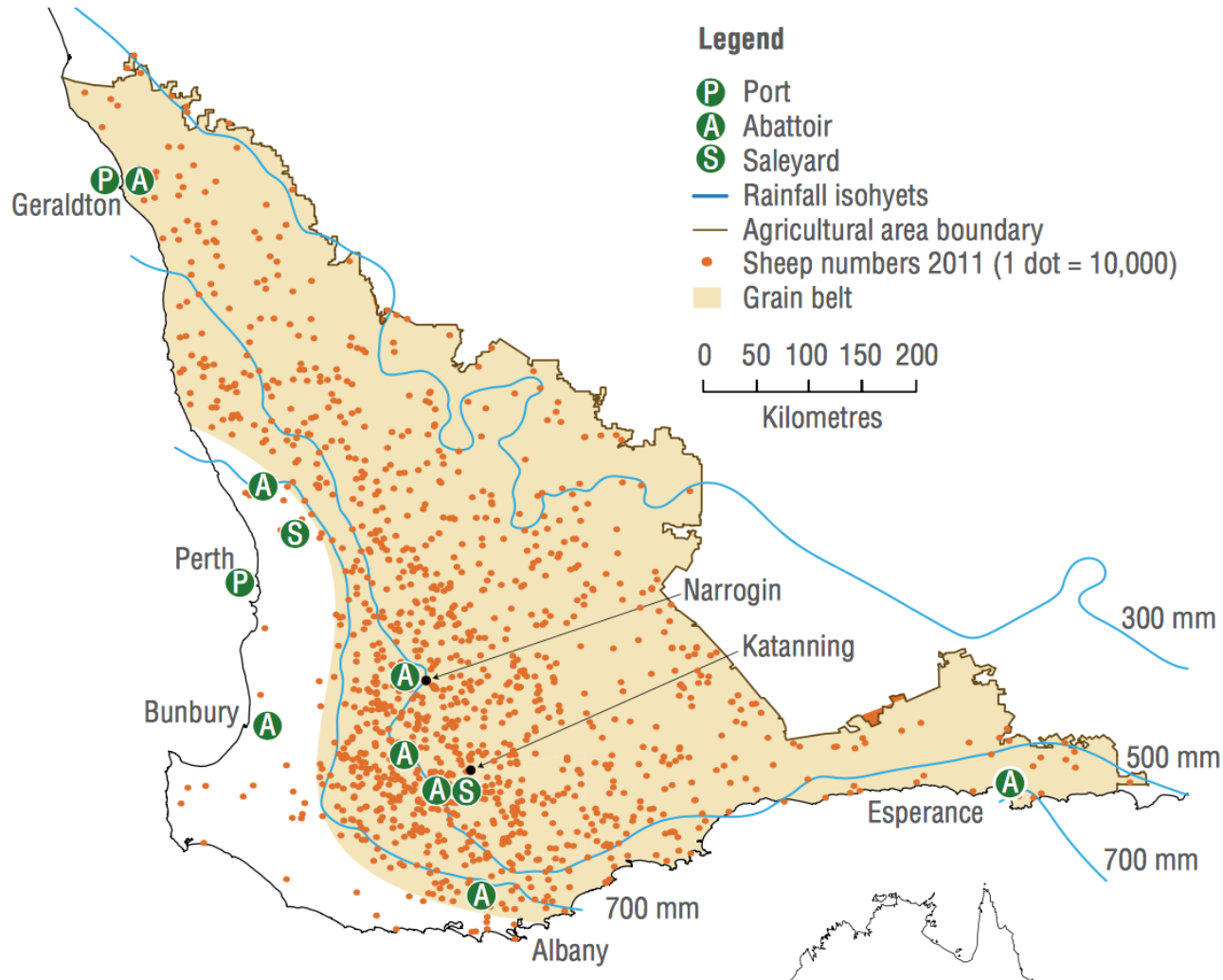


Wetter deep south

Cattle - More in the 'deep' south



Lamb = more in cropping zone

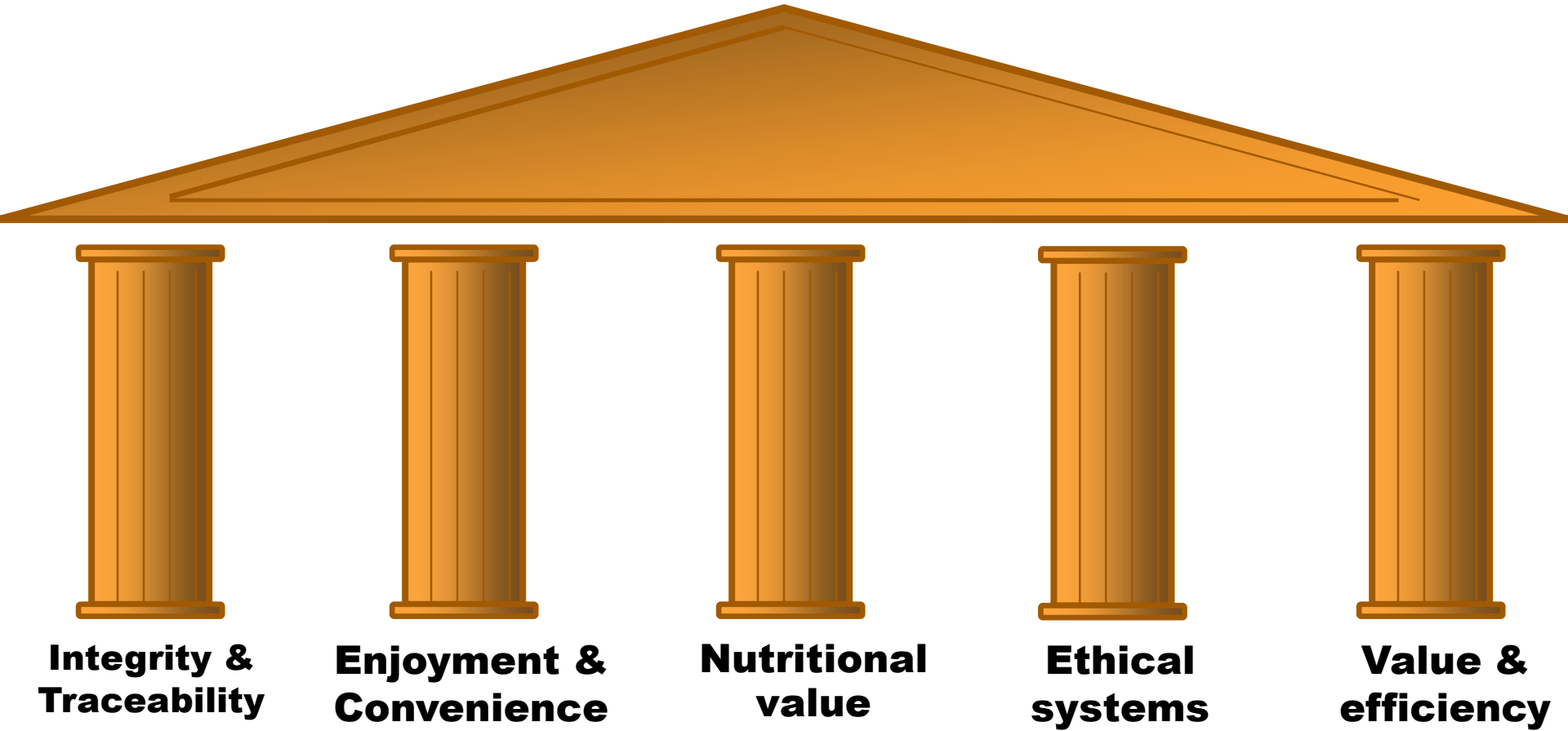


Sth West – where are we !

I have assumed both – but a
beef emphasis

What are the key aspects of consumer focused meat brands ?

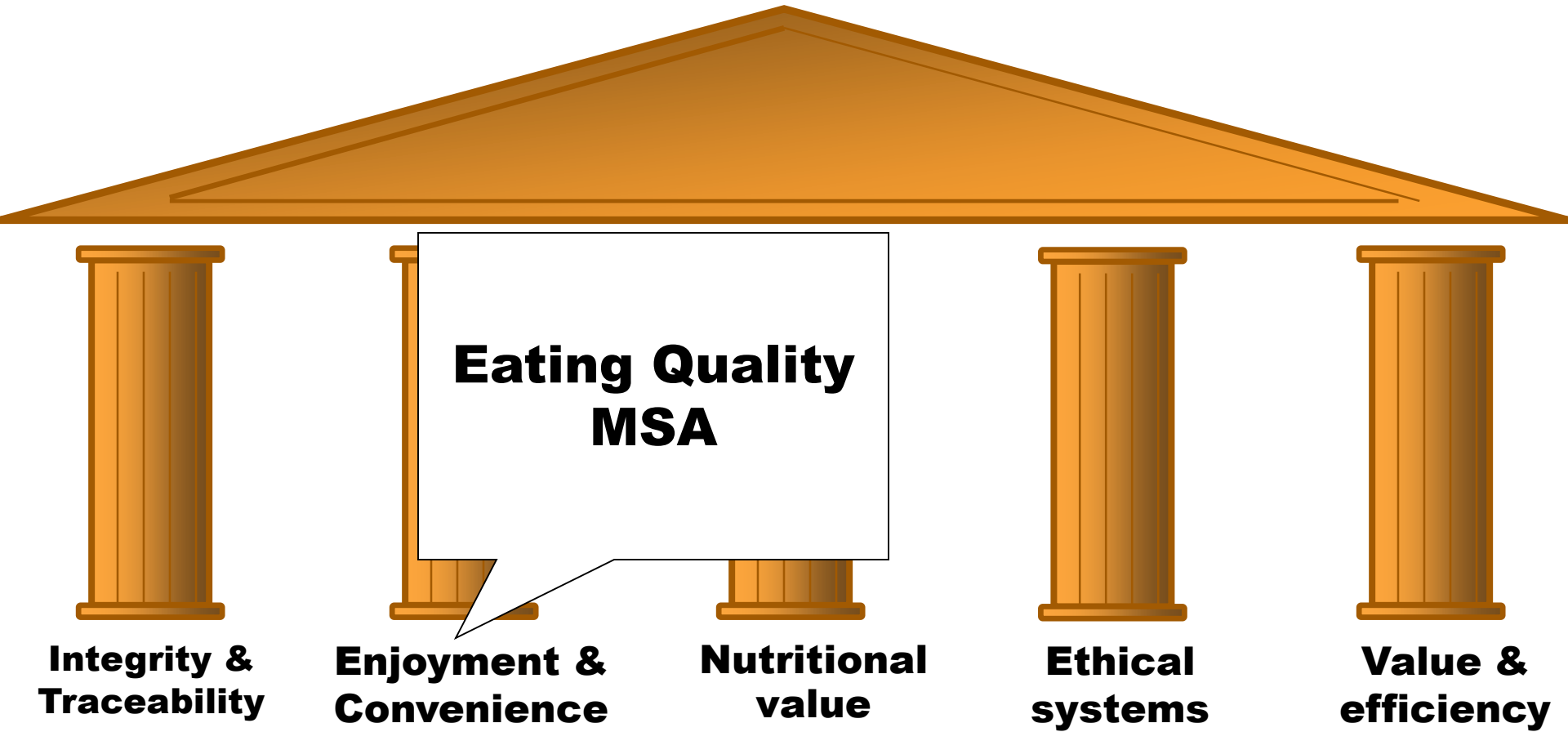
5 pillars of demand



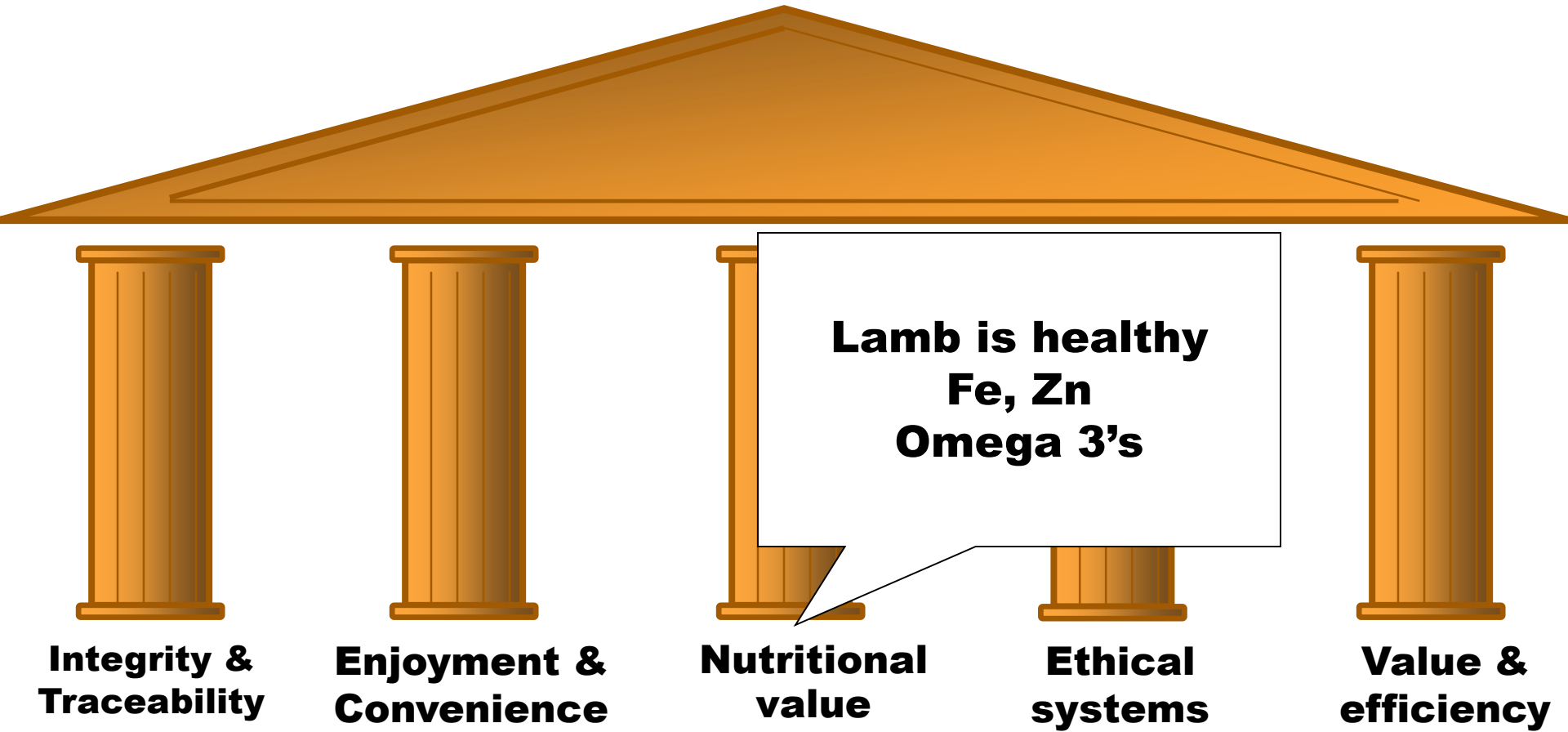
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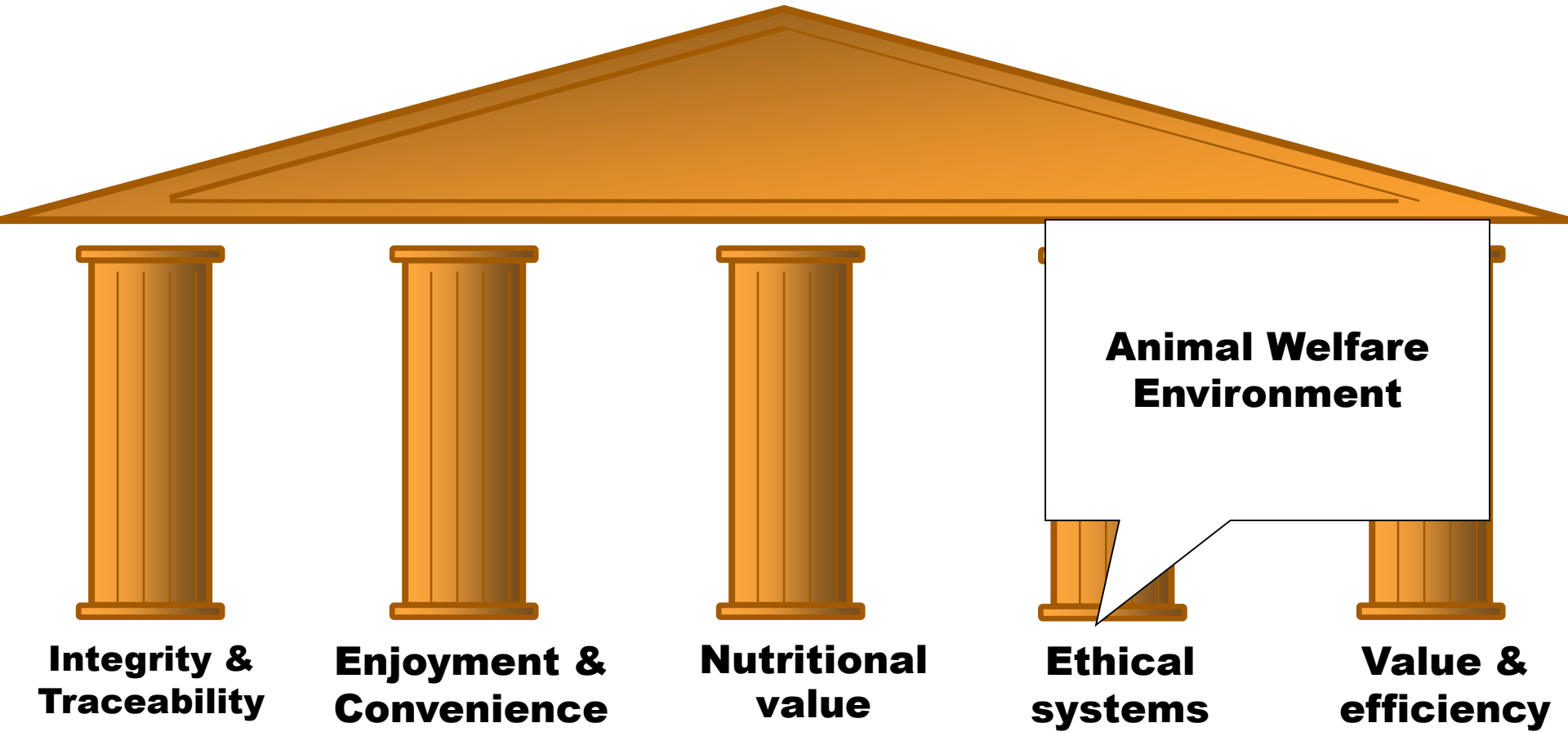
5 pillars of demand



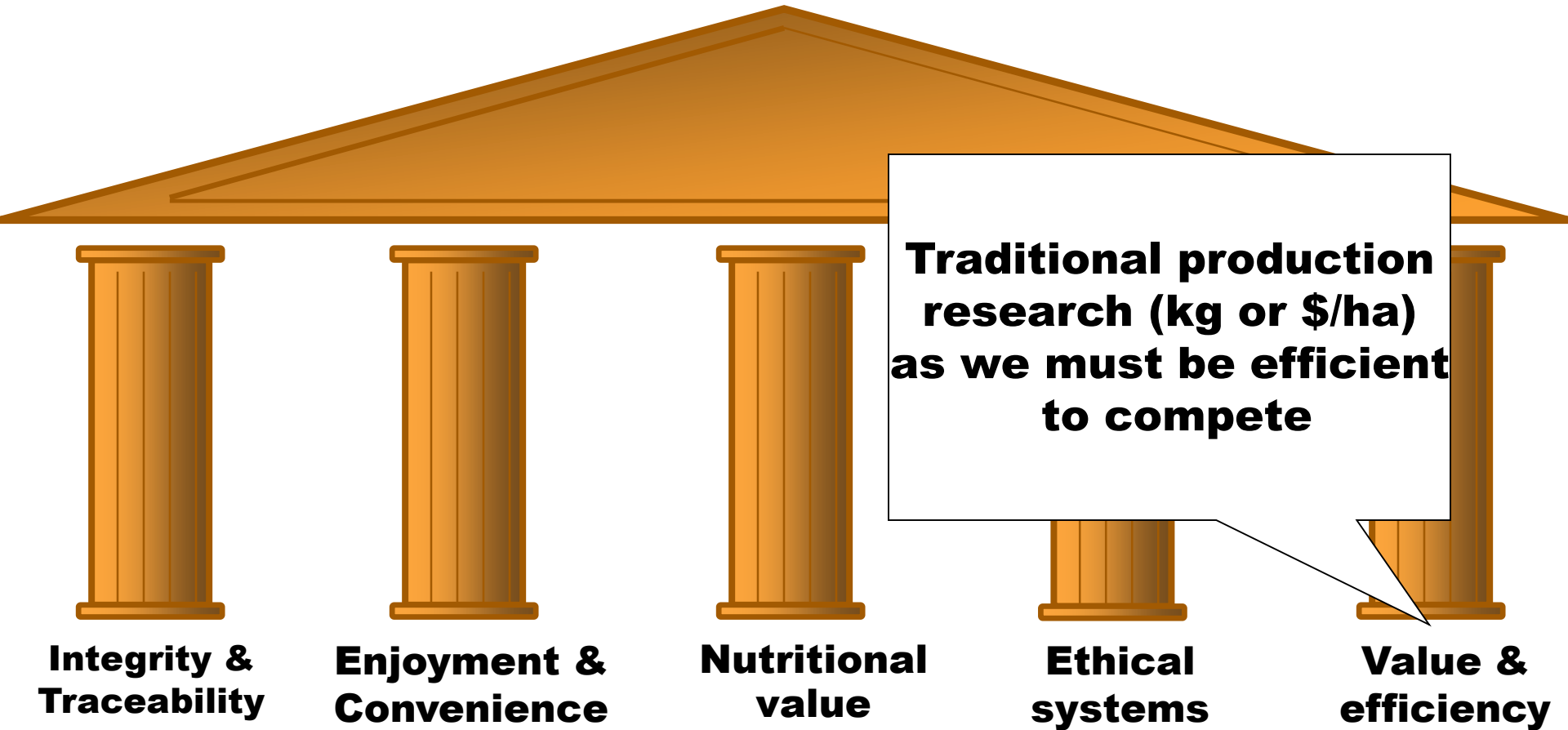
5 pillars of demand



5 pillars of demand



5 pillars of demand



Sth West score card for first 3

5 pillars of demand



Traceability & integrity

- WA has an excellent reputation
- Beef – of course national electronic tagging system
 - There is excellent individual carcass feedback with MSA
- Sheep/Lamb – still use traditional 'coloured' tags
 - Vic heading down electronic tags for goats and sheep
 - Biosecurity reasons
 - Considerable debate
- Lamb abattoirs and hook tracking
 - Investment in a number of abattoirs in the 'East'
 - Allows more accurate carcass feedback (genetics)
 - Tracking from hot to cold and maybe even boning room

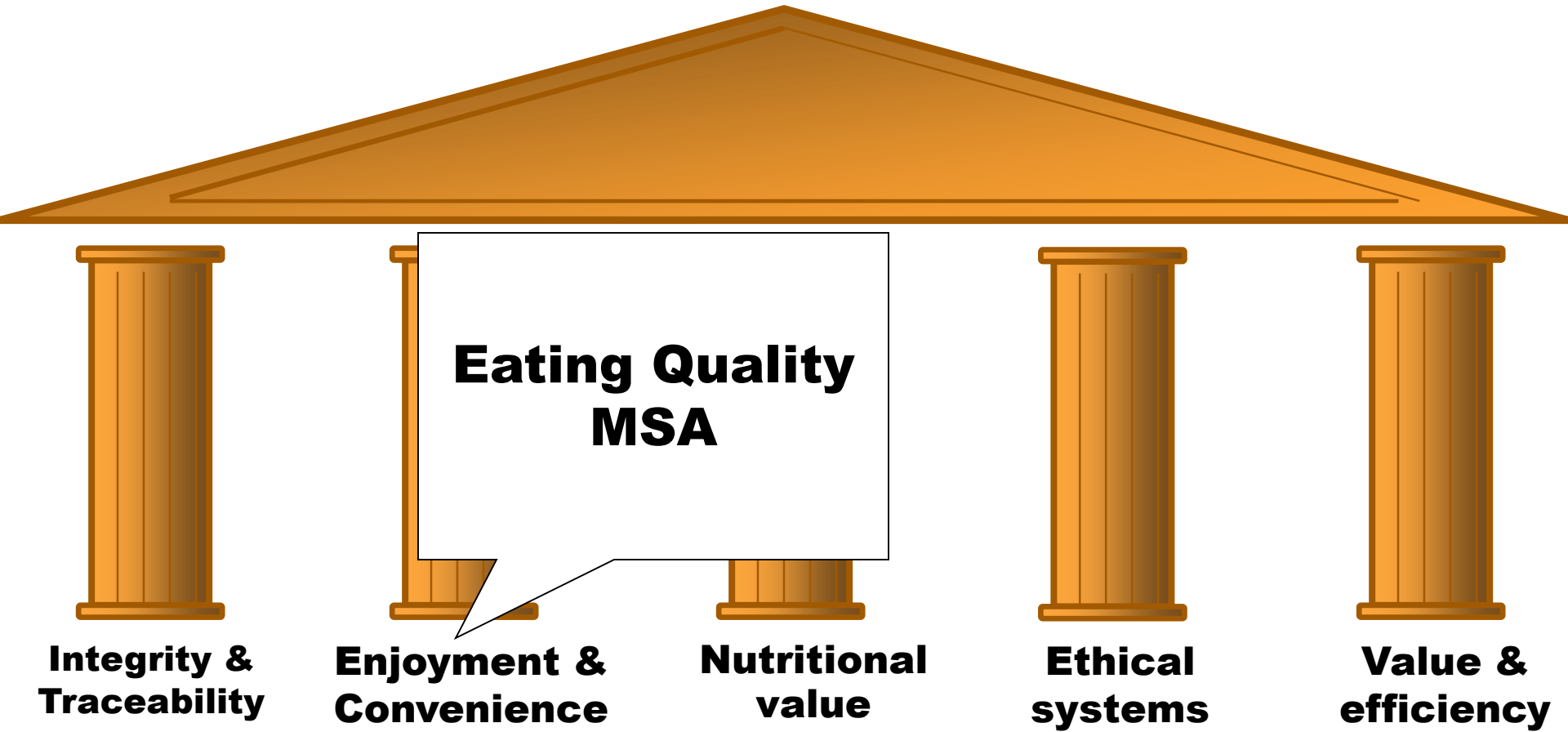
Traceability & integrity

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- Beef – of course national electronic tagging system
- Sheep/Lamb – still use traditional tags
 - Vic heading down electronic tags in goats and sheep
 - Biosecurity reasons
 - Considerable debate
- Abattoirs and hook tracking
 - Investment in a number of abattoirs in the 'East'
 - Allows more accurate carcase feedback (genetics)
 - Tracking from hot to cold and maybe even boning room
- No investment in WA beyond surveillance & border control

Traceability & integrity & ethical

- The Hook tracking \$ case in lamb is still unfolding
- It is crucial in some cases even for lot based carcass feedback
- Of course crucial for individual animal feedback
- Also vastly improved carcass sorting within abattoir
- A key big data initiative for genetic improvement
- Will WA miss out ? Maybe YES
- One big Eastern states collaborating processor has
 - 2,500 farm assured beef
 - 1,100 farm assured lamb

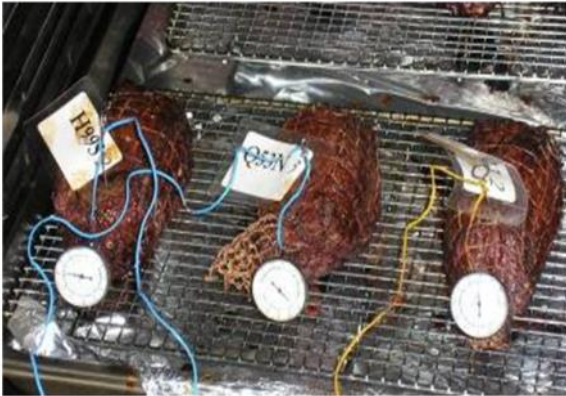
5 pillars of demand



WA value chain has played a key role in the development of Meat Standards Australia



Consumer taste tests



- The MSA program is based on over 140,000 consumers of beef and lamb
- 8 cooking methods tested
- Consumer testing has been carried out in 8 countries

Untrained Consumer taste tests

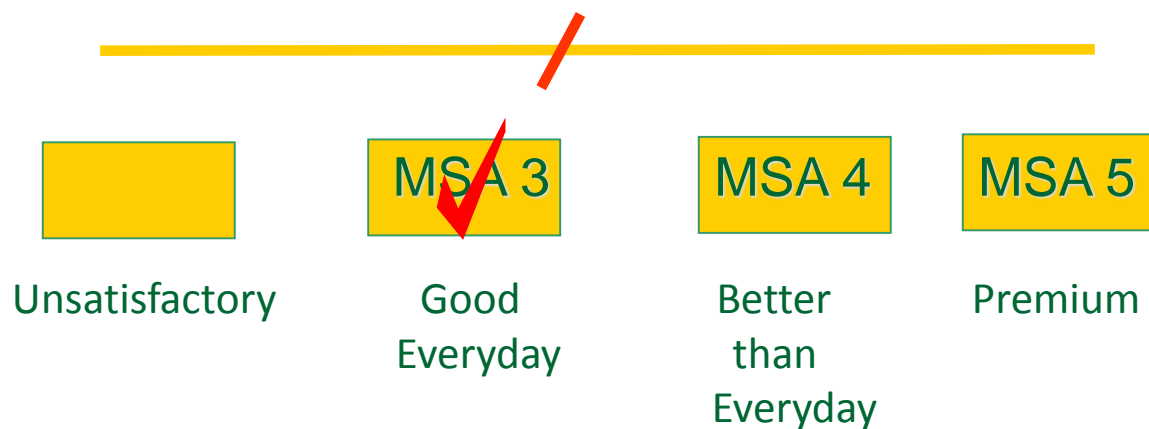


Tenderness 0 100

Juiciness 0 100

Flavour 0 100

Overall Liking 0 100



The final grade

one of 4



What does this mean ?

- So its about value and fit for purpose
- It's a continuous grading system
- Good / Better/ Best
- Pass / Credit / Distinction

Willingness to pay - China

O'Reilly, Pannier et al 2016

	Fail	Pass (3*)	Credit (4*)	Distinction (5*)
USA	46%	100%	150%	209%
China	57%	100%	147%	212%
AUS	53%	100%	141%	189%

Grilled lamb

Does MSA differentiate WA Beef ?

**Yes if used to its fullest
extent**

Currently

- Carcase is MSA graded (pH, colour, ossification, fat depth, marbling ...)
- Allocated to a 'boning run'
- 'Boning runs' classify carcasses with selected cuts of 'like' eating quality
- Brands will select boning runs based on getting MSA accreditation for selected cuts



MSA Boning Group Table

Achilles Hung - Primal

		Tenderloin				Cube Roll				Striploin				Blade					Rump					Knuckle					Topside					Chuck				Thin Flank		Brisket		Outside Flat					Eye Round											
	Cook Method	GRL	RST	SFR	TSL	GRL	RST	SFR	TSL	GRL	RST	SFR	TSL	GRL	RST	SFR	TSL	SC	GRL	RST	SFR	TSL	SC	GRL	RST	SFR	TSL	SC	GRL	RST	SFR	TSL	SC	SFR	TSL	SC	SFR	SC	TSL	SC	GRL	RST	SFR	TSL	SC	CN	GRL	RST	SFR	TSL	SC	CN						
Boning Group	1				21					14	14																																															
	2		28			14	14	14	14	21	21	21	21																																													
	3	14				14	14	21	14	28	28	21	21																																													
	4	21				21	21	21	14	35	35	28	21																																													
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	16					28	35	35	21																																																	
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5★ Tenderloins

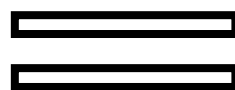
4★ Cube rolls

4★ Striploins

4★ Oyster Blade

4★ Rump Roast

Plus others of \$ value

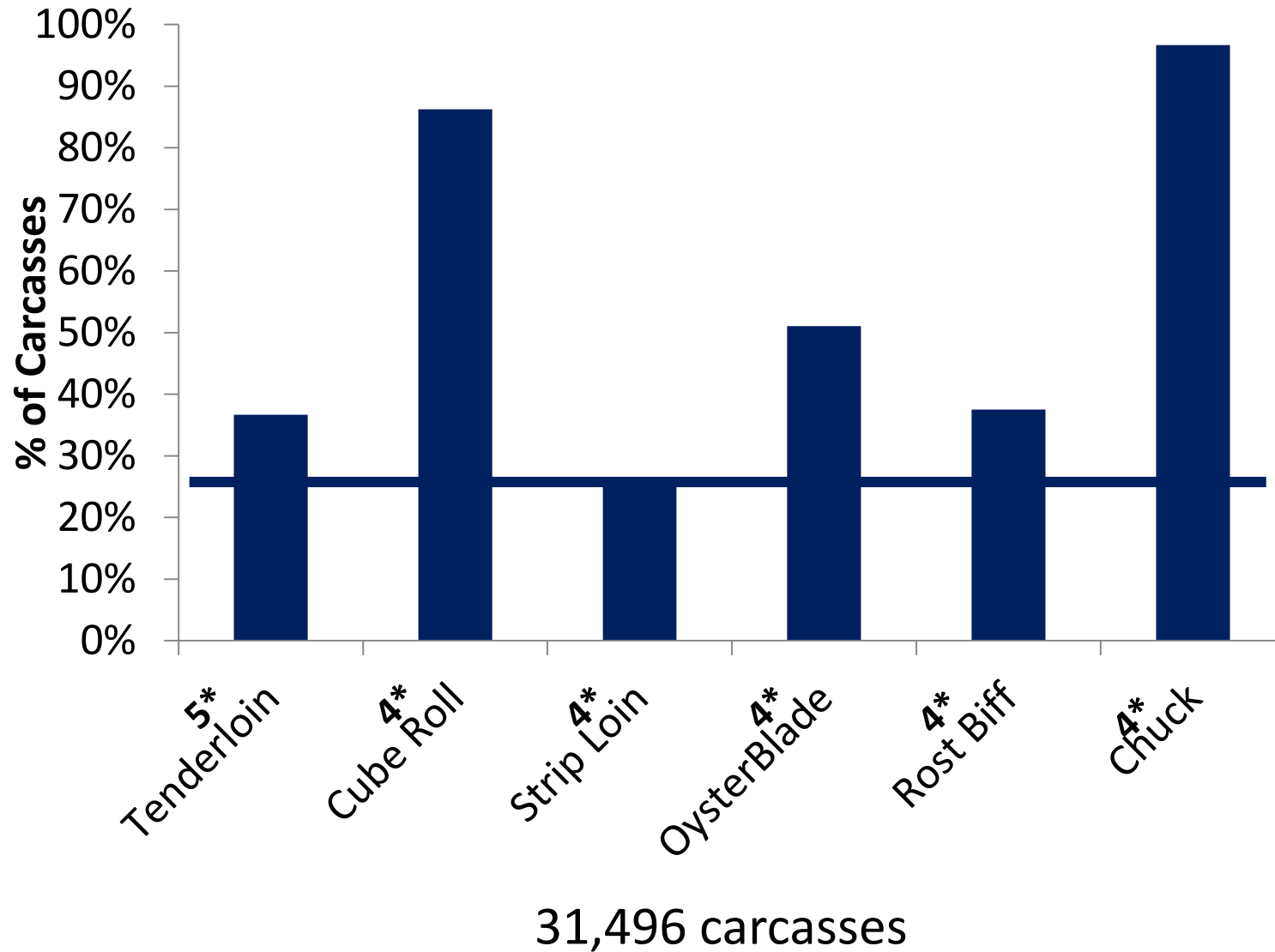


Premium Grade

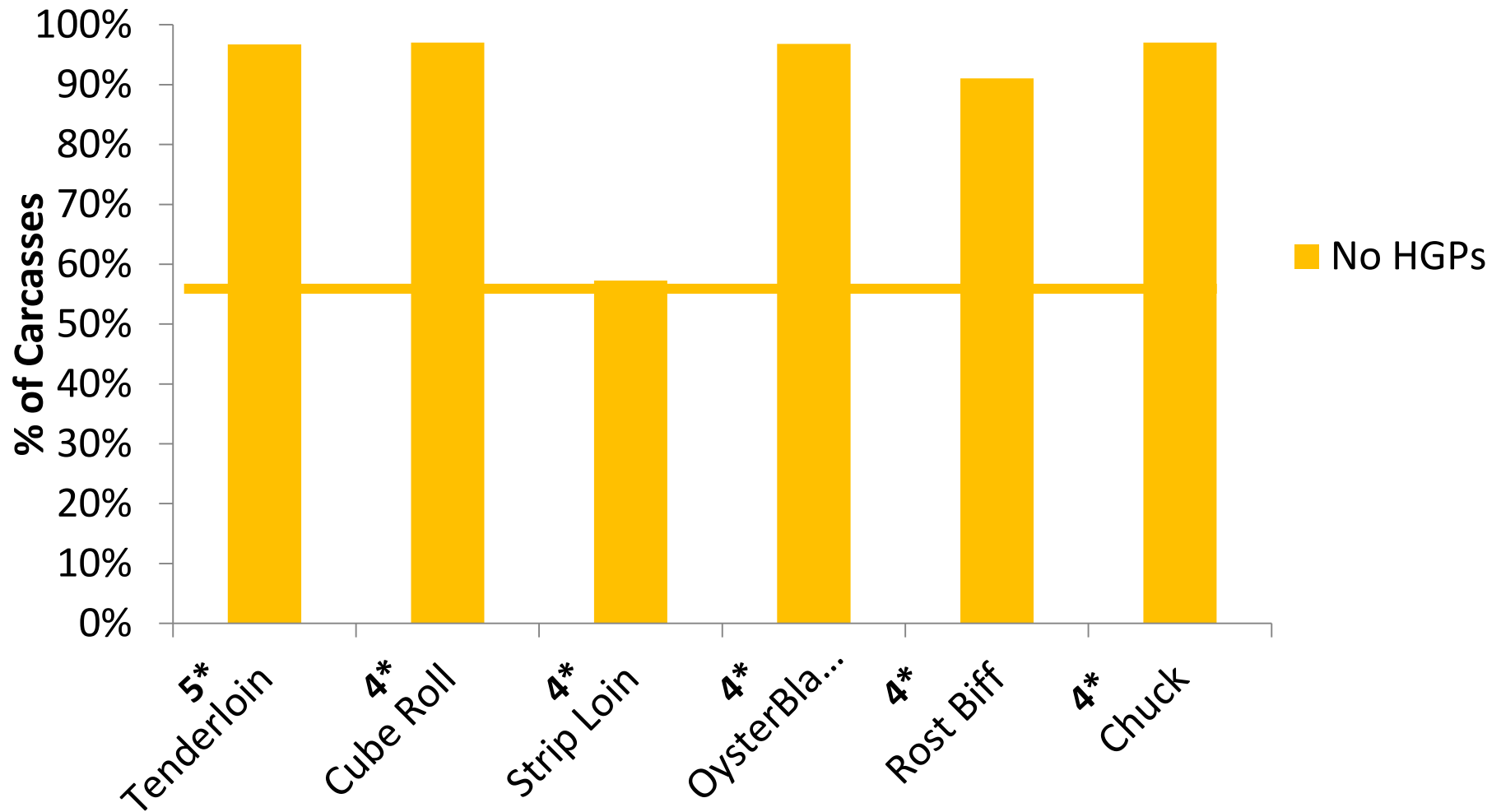
Currently

- Elite brands will segregate 4* and 3*
 - 'Platinum' – might be 4* strips, cubes, rump roast,
 - 'Gold' – might be at least 3 star
- More generic brands will have lower cuts but still be MSA
 - Lower quality cattle
 - More just prefer an MSA in/out system
- As far as I know only 1 WA brand could be classified as 'Platinum'

Data from WA abattoirs



Minus HGP's



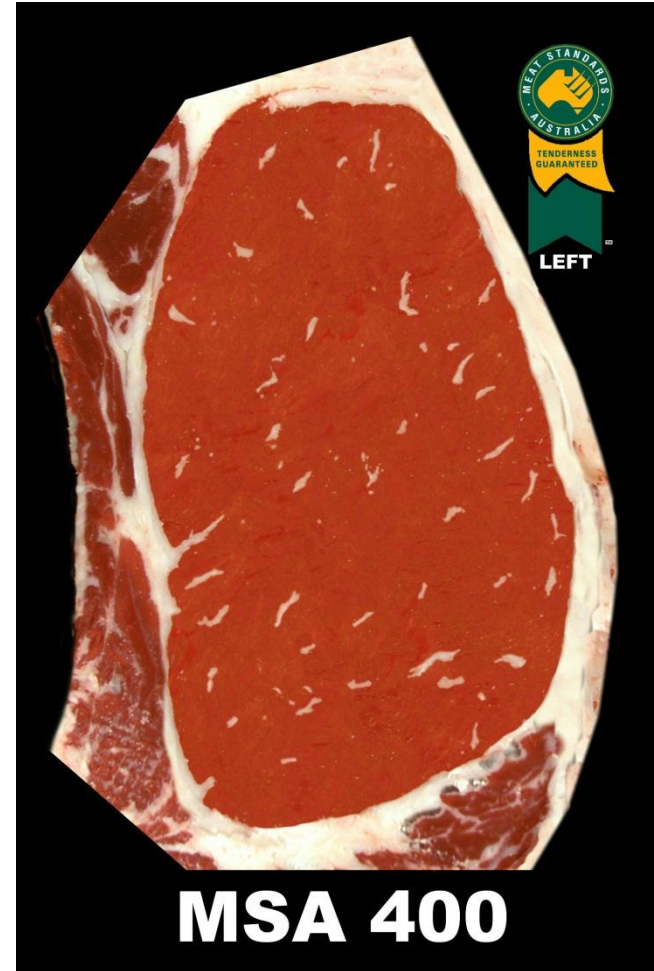
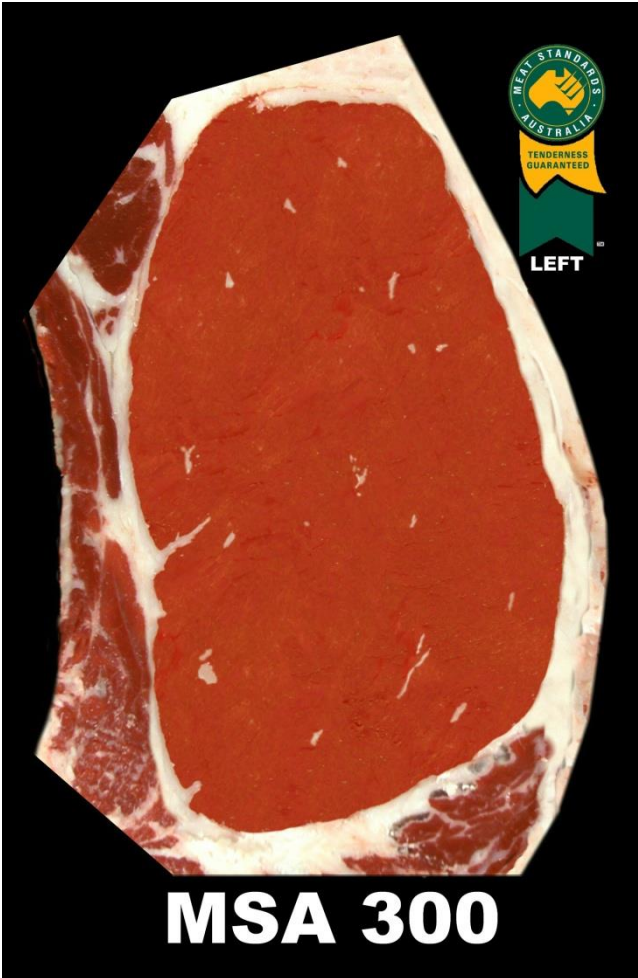
31,496 carcasses

Southern Beef - 3 main factors:

- **Reduce incidence of HGP use (growth genetics)**
- Ossification – grow them faster, kill younger – we have to !! (growth genetics and better feeding)
- Enough Marbling – genetics & feeding
- [Change to tender stretch hanging from AT]

You need a moderate marble score





About 4-6% IMF



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Same 3* Claim on the box

Legend

	MSA 3 - at 5 days		MSA 4 - at 5 days		MSA 5 - at 5 days
	Ungrade until MSA 3 at 14 days		MSA 3 at 5 days, MSA 4 at 14 days		MSA 4 at 5 days, MSA 5 at 14 days
	Ungrade until MSA 3 at 21 days		MSA 3 at 5 days, MSA 4 at 21 days		MSA 4 at 5 days, MSA 5 at 21 days
	Ungrade until MSA 3 at 28 days		MSA 3 at 5 days, MSA 4 at 28 days		MSA 4 at 5 days, MSA 5 at 28 days
	Ungrade until MSA 3 at 35 days		MSA 3 at 5 days, MSA 4 at 35 days		MSA 4 at 5 days, MSA 5 at 35 days

Cooking Method Description

GRL - Grill RST - Roast SFR - Stir Fry TSL - Thin Slice SC - Slow Cook CN - Corn



MSA Boning Group Table

Achilles Hung - Primal

[illegible]

5★ Tenderloins

4★ Cube rolls

4★ Strip loins

4★ Oyster Blade

4★ Rump Roast

Plus others of \$ value



Premium Grade



BONELESS BEEF
PRODUCT OF AUSTRALIA

Just 3*

2193582460120404006850

STRIPLOIN IW/VAC 0-2.7KG MSA
MSA GRILL 3 @ 35 DAYS
GRAIN FED BEAF

PACKED ON 04-APR-12

D-RUMP
IW/VAC

MSA

MB: 2+
PRODU

Good 3*

MSA 3 Grl @ 5 Days
MSA 3 Sfr @ 5 Days
MSA 3 Tsl @ 5 Days
MSA 3 SC @ 5 Days

YG STRIPLOIN MSA
4KG+ IW/VAC
ANGUS BEEF

Just 4*

MSA 3 Grl @ 5 Days, MSA 4 @ 35 Days
MSA 3 Tsl @ 5 Days, MSA 4 @ 35 Days
MSA 3 Sfr @ 5 Days, MSA 4 @ 28 Days
MSA 3 Tsl @ 5 Days, MSA 4 @ 21 Days

V. Good 4*

76856

PREPARED BY
GRASS FED
RAISED WITH
*NO GENETICALLY ENGINEERED INGREDIENTS ADDED

(01)99331079046052(3102)001436(13)161109(21)338147366752

VP-CUR CUBE ROLL

2.2-3.1kg IW/VAC
PRODUCT OF AUSTRALIA
BONELESS BEEF

KEEP REFRIGERATED
MSA4 GRL @ 5 DAYS

MARBLE

5PC



SLAUGHTER DATE: 08-NOV-16
PACKED ON: 09-NOV-16

EST195 TIME: 14:24 NET WEIGHT IN KILOGRAMS 14.36 kg 31.65 lb

True value of the carcase

$$\begin{array}{ccccc} \text{Carcase value} & & \text{Wt retail} & & \text{Value of the cuts} \\ (\$) & = & \text{cuts (kg)} & \times & (\$/\text{kg}) \end{array}$$

Next is carcase yield

Dual Energy Images

Low Energy Image



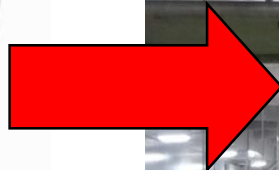
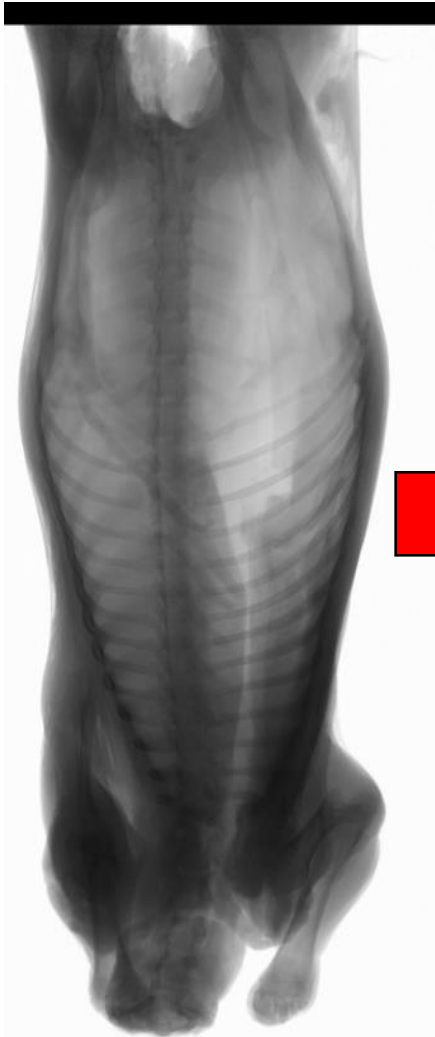
High Energy Image



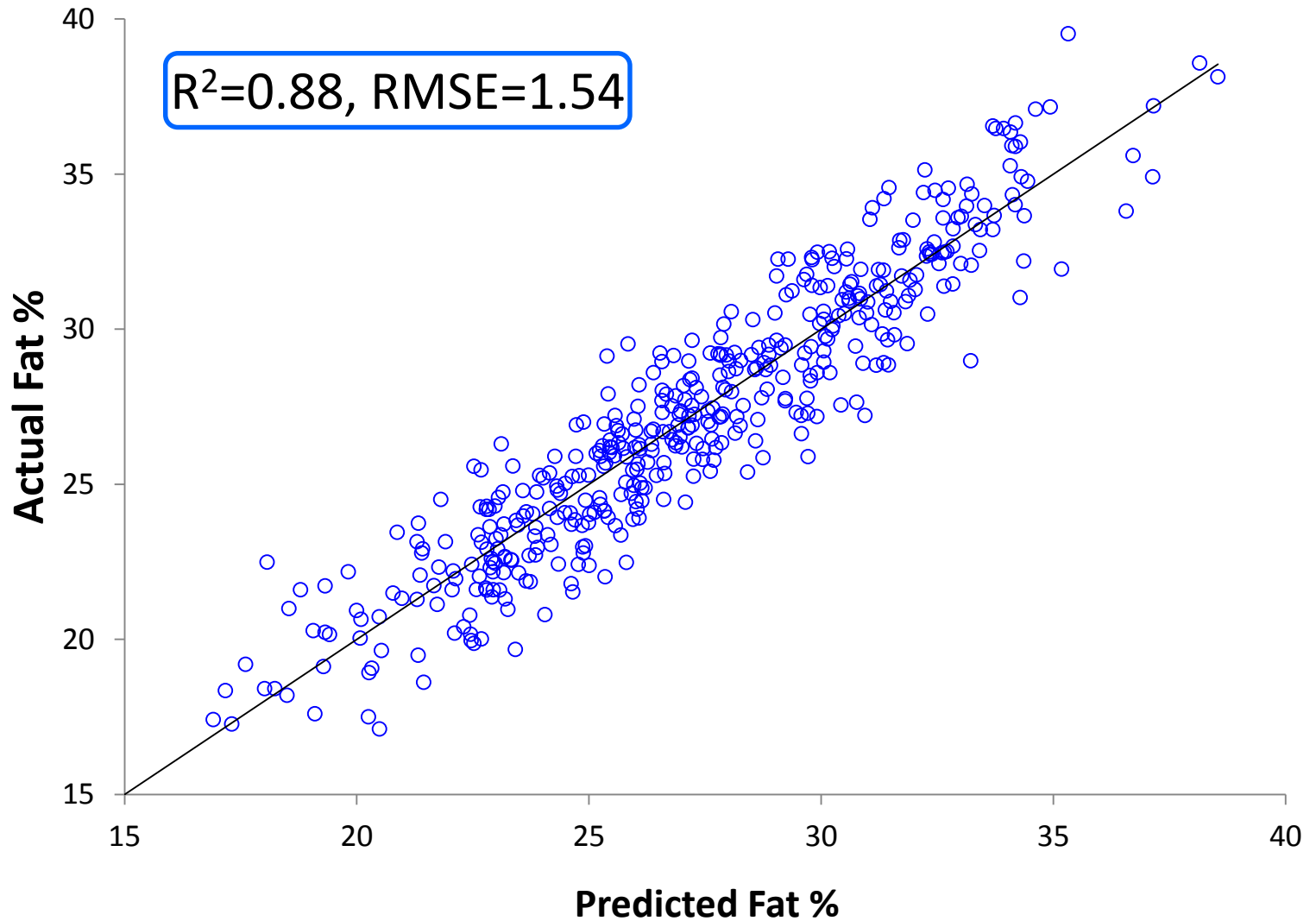
$$R \text{ value} = \ln(I/I_0)_{\text{LowEnergy}} / \ln(I/I_0)_{\text{HighEnergy}}$$

X-Ray also driving robots

Scott Technology



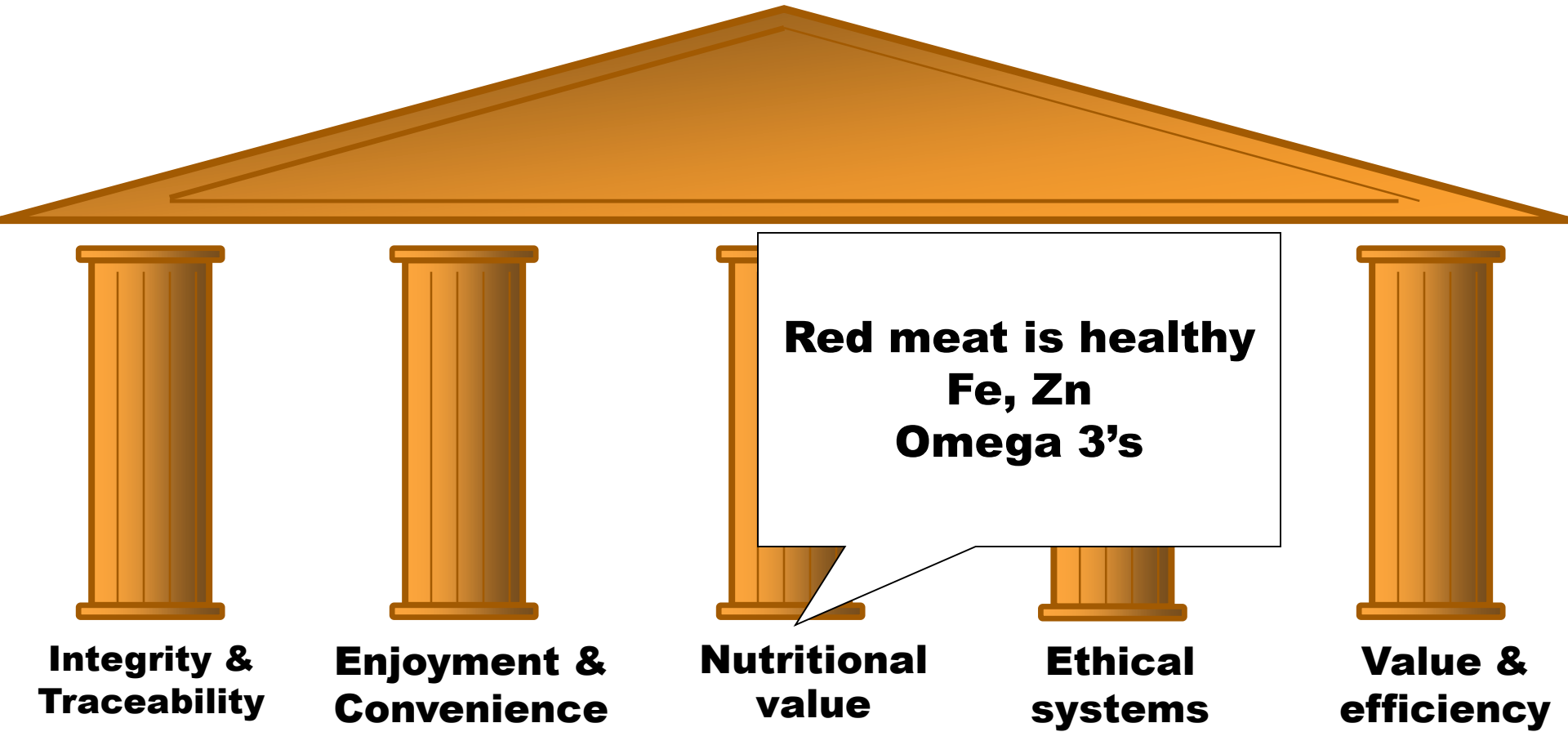
Predicting CT Fat% in lamb



True value based trading

- Our collaborators are in the eastern states
- Will we miss out on new trends in value based trading – probably YES

5 pillars of demand



Nutritional Value (human perspective)

Main aspect is fatty acid profile
'grass better than grain'

- Generally speaking pasture based production gives a better fat profile than grain
- This makes it hard in WA
- However it can and is being done
- There are certainly premiums
- MSA is a great system for underpinning grass fed product

The Information Nucleus

(500 sires, 10,000 slaughter lambs)



Average Lamb Nutritional Value

Fatty acid profile of lean – SATURATED FAT

- Lamb often criticised for its fatty acid profile
- Saturated fat – IMF = 4.2% and 40% is saturated
- = 1.7g/100gm
- Low in saturated fat claim = 1.5g/100g
- BUT still a trivial source of saturated fat

(FSA&NZ)

Average Lamb Nutritional Value

Fatty acid profile of lean – OMEGA 3

Fatty acid	Mean of 2,001 lambs (mg/100gm)
n-3 linolenic	37
n-3 EPA+DHA	24 ✓
n-3 EPA+DHA+DPA	44
	81
n-6 linoleic	130 ✓
n-6 arachidonic	42
	172
n-6:n-3	2.1 ✓

Source EPA/DHA @ 135gm serve = 22mg/100gm

Ollis, Meyer, Howe 1999 – n-6:n-3 = 8:1

Extremes in Lamb Nutritional Value

Fatty acid profile of lean – OMEGA 3

Highest/lowest kill groups for the 7 sites

Fatty acid	Dry pasture kill groups	Growing pasture kill groups
n-3 EPA+DHA	15 ↓	37 ↑
n-3 EPA+DHA+DPA	25 ↓	65 ↑
n-6:n-3	5.9 ↑	1.0 ↓

Source EPA/DHA @ 135gm serve = 22mg/100gm

Ollis, Meyer, Howe 1999 – n-6:n-3 = 8:1

Average Lamb Nutritional Value

What do human nutrition experts say ? – OMEGA 3

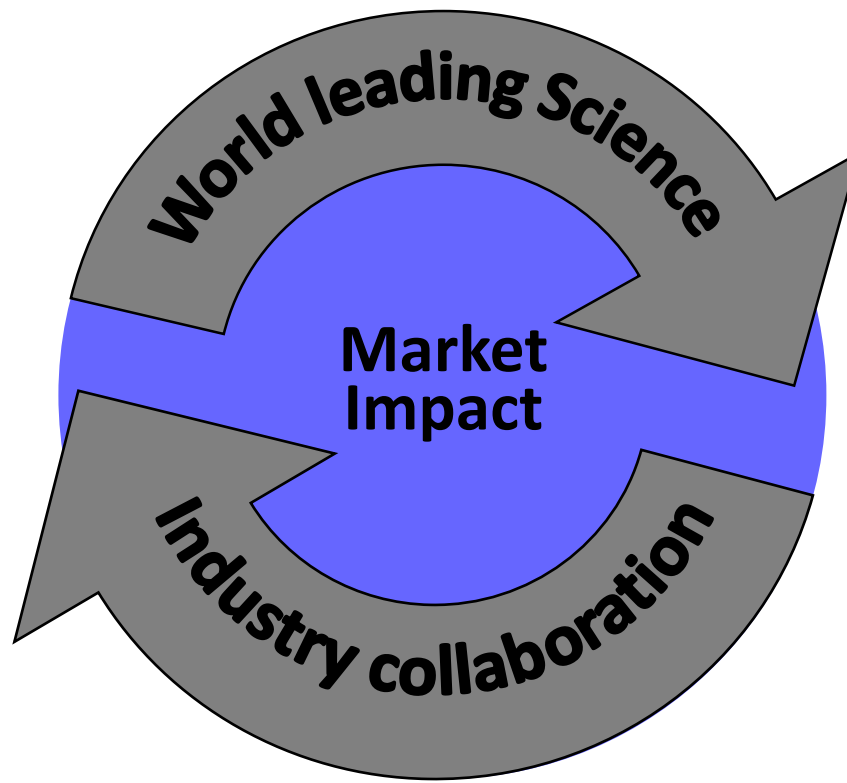
- Omega 3 human nutrition is important over months in fact years
- The average value for lamb is 'great'
- So the difference between eating average and always maximal (grass fed) is marginal
- **Sorry no such info on beef !**

In conclusion

- South West produces high quality beef
 - Young (we have to push'em through)
 - Enough marble – genetics & growth
 - No hormones - genetics for muscle & growth
- Does the value chain extract the maximum potential ? Maybe NO
- Feedback and data across the value chain is the way of the future – are we 'ready' – maybe NO

In conclusion

- Grass versus grain (fatty acid profile)
- WA combination of both is our strength ?
- Aussie consumers cannot pick the difference
- At least for lamb the average omega 3 value is great
- However clear premiums do exist for beef



Value Chain focus

- **Producers**
- **Livestock companies**
- **Processors**
- **Livestock Transporters**
- **Retailers** (Wholesalers)
- **Consumers**