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Beef Research

facing the challenge:

Climate Variability
Increased World Demand
and
Consumer Expectations

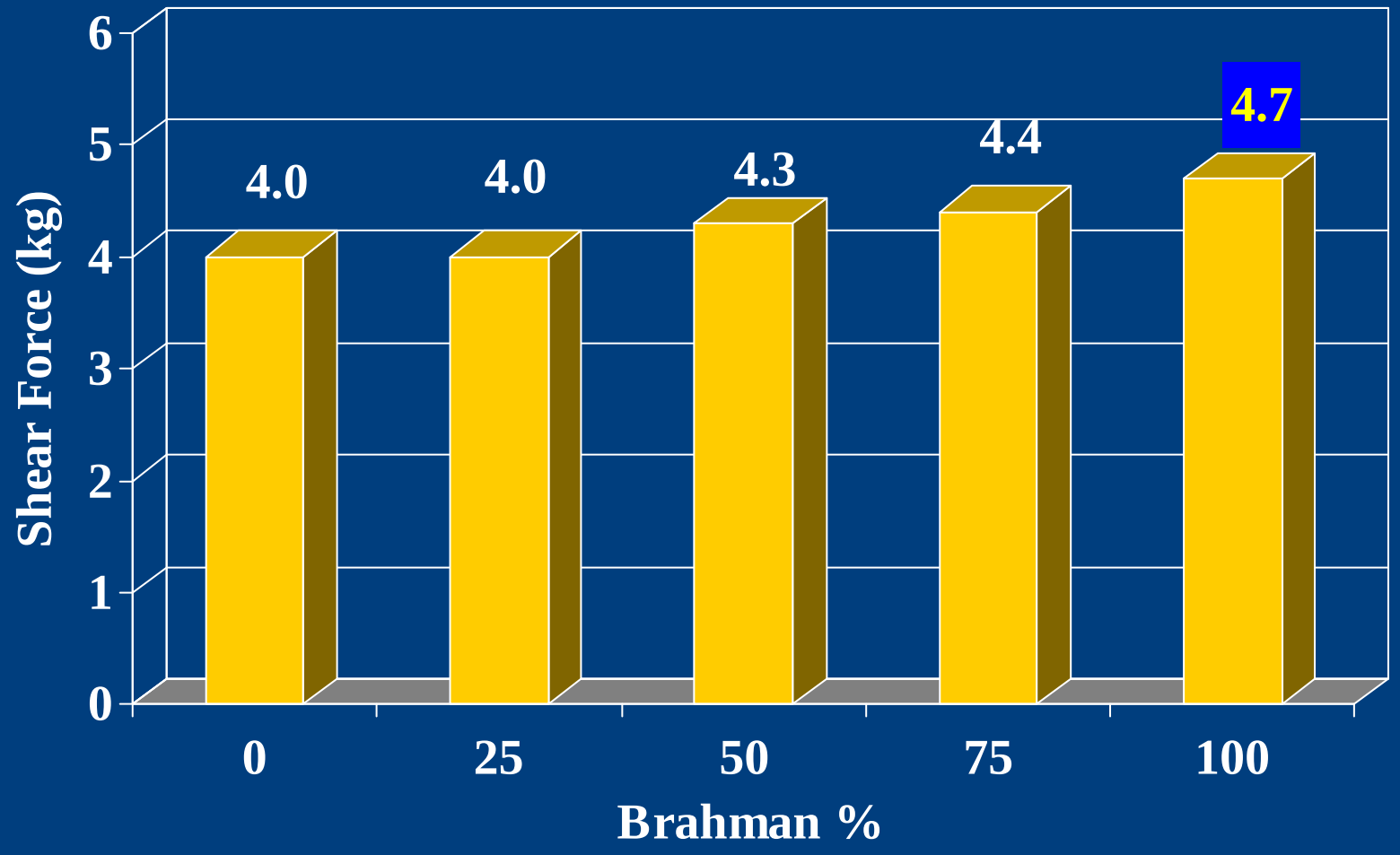
Bill McKiernan

Research Leader Animal Production

Beef productivity/cow can be improved **10-30% by** crossbreeding with adapted Breeds *(NSW research 1975-90)*

Adaptation
BUT
possibly tough meat

% Brahman effect on tenderness



Consumers report card – Beef

1993 research (independent of Bos indicus effect)

- 38% - beef quality problems
- 57% - problem selecting tender beef
- 81% - price no indicator
- >90% - fat = poor quality

- However willing to buy and pay more if satisfied

Source: Dangar Research 1993.

The need for a total quality system

- Decline in beef consumption
- Declining prices
- Declining profitability
- Carcase description schemes that had little power to predict eating quality
- Variable product quality

RESEARCH REQUIRED

a cooperative approach

Development of the Beef Grading System
MEAT STANDARDS AUSTRALIA - **MSA**

- Meat science
- Animal growth and development
- Genetics

and now

- Genomics

Paddock to plate system

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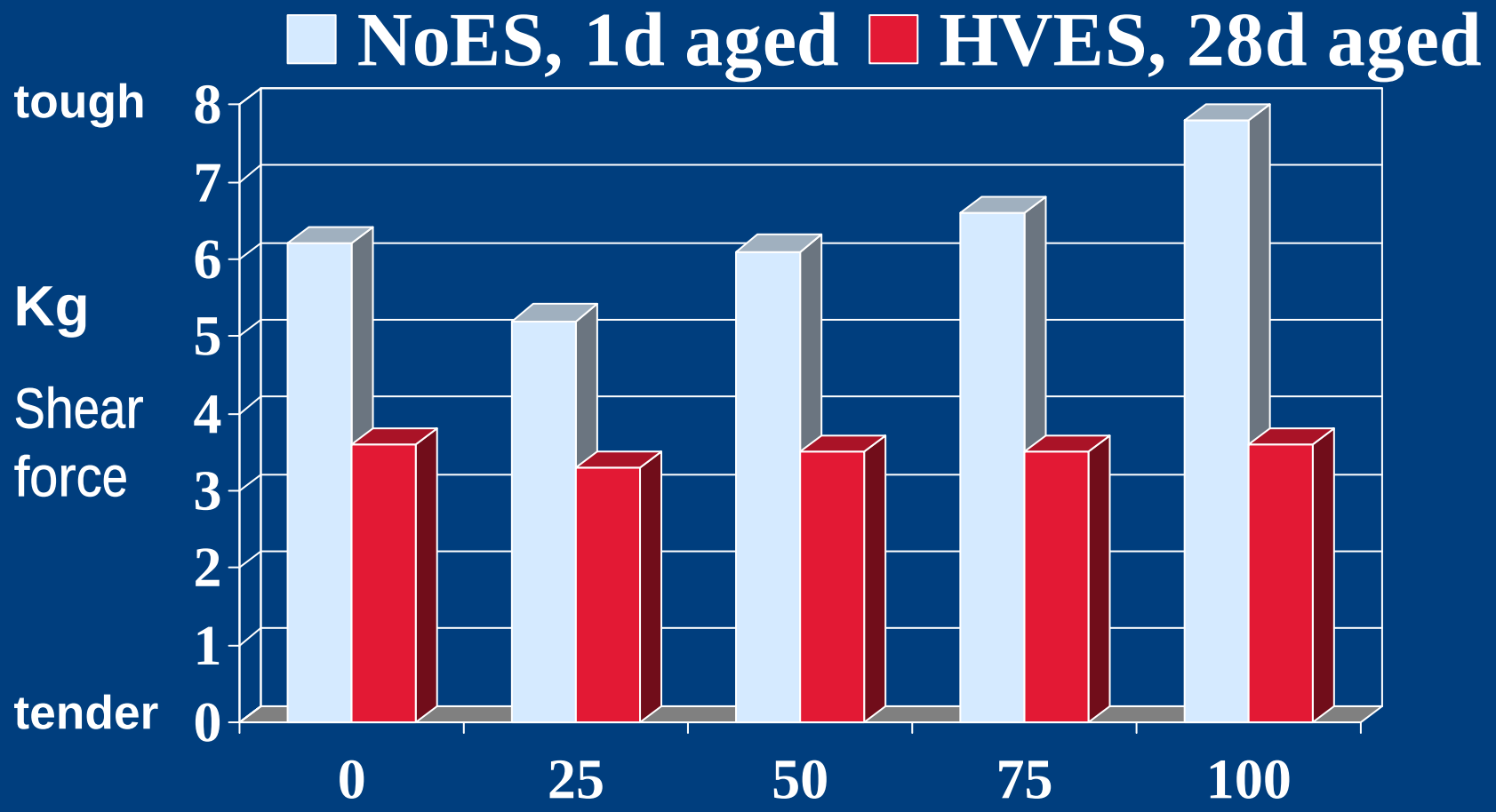
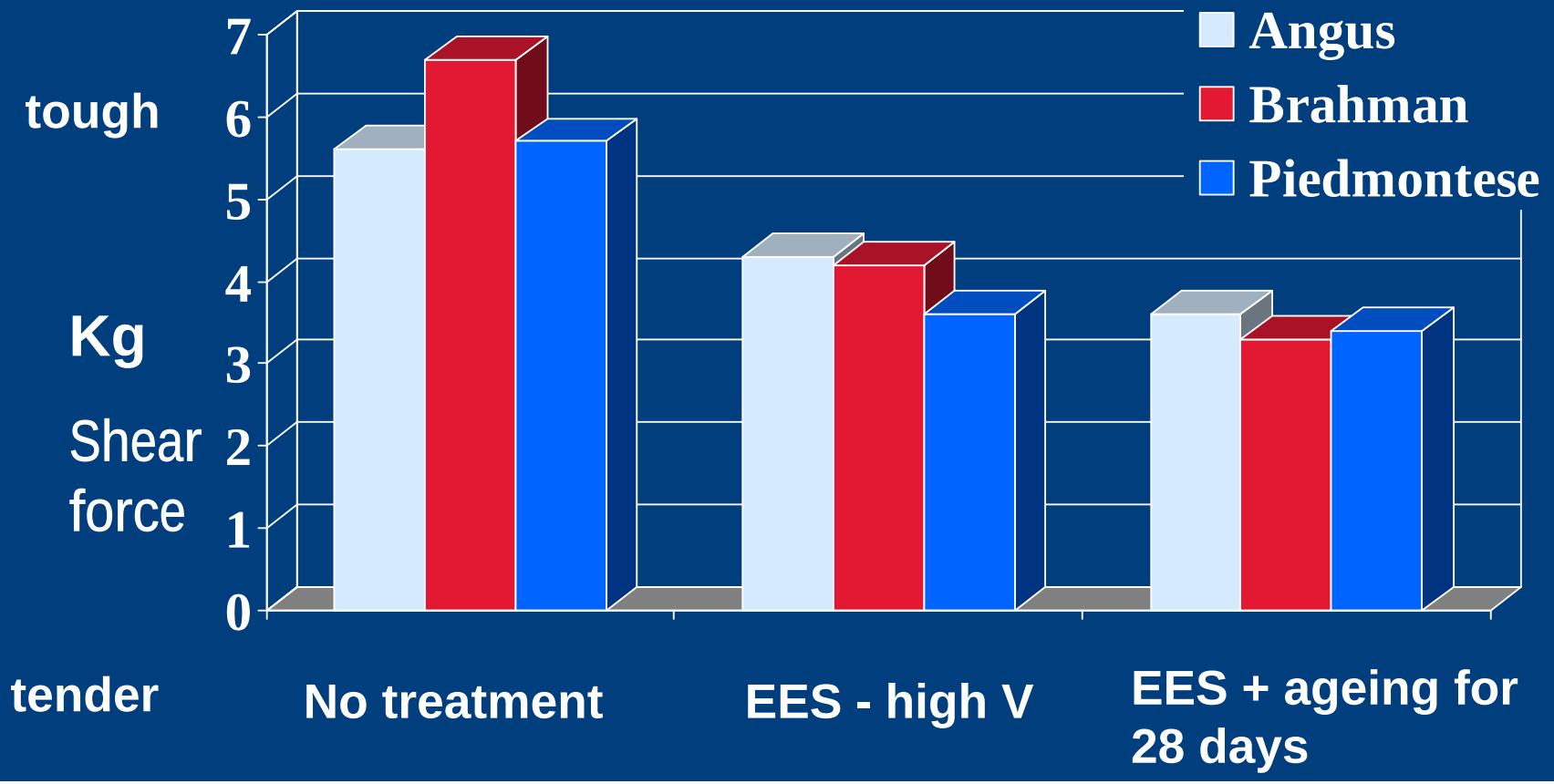
Genetics and Meat Science Research

Effect on tenderness of electrical stimulation, ageing, % Brahman



Contribution to Tenderness

- Electrical stimulation 47%: ageing 38%: breed 15%:



The way a carcase is hung in the chiller has a large affect on tenderness

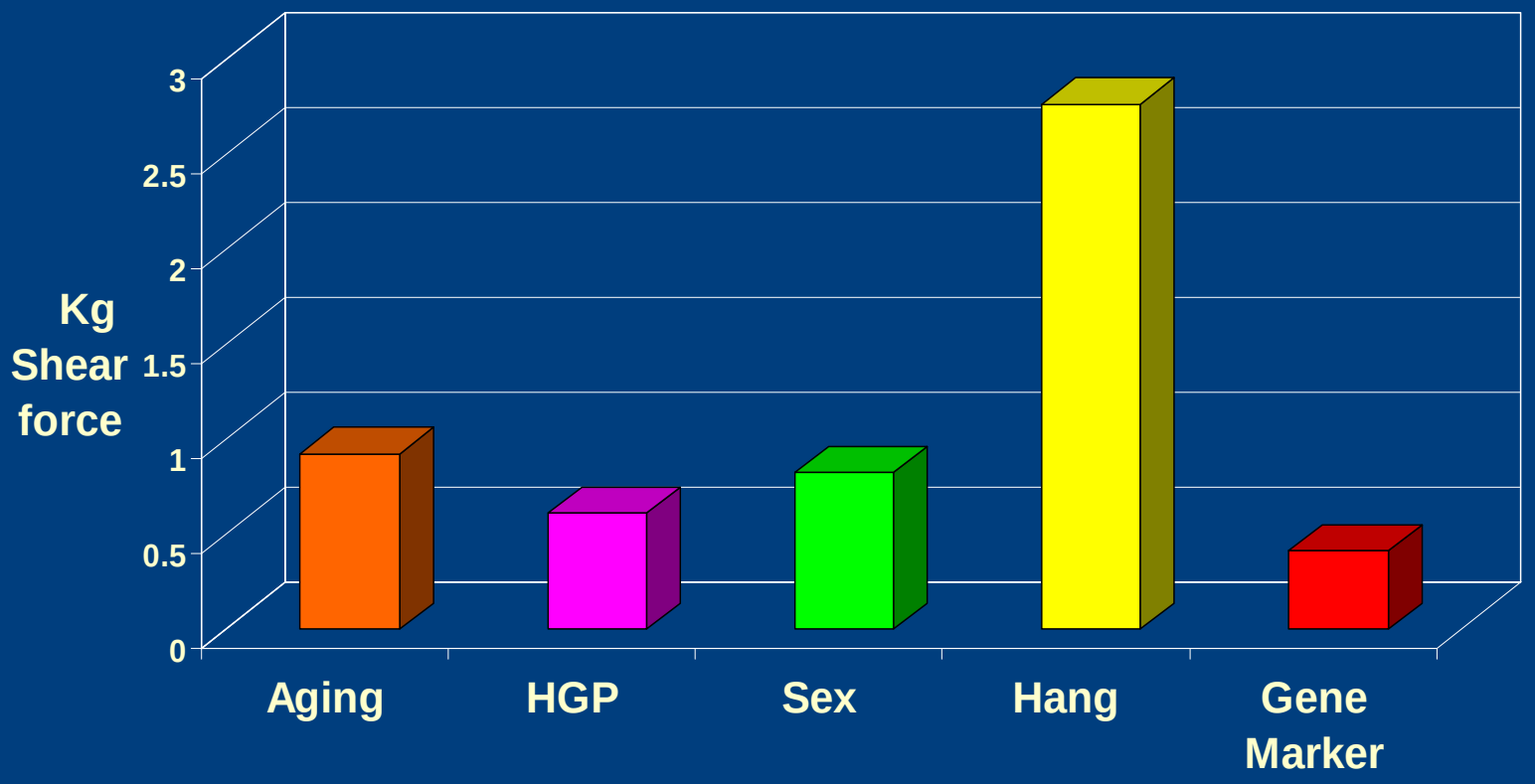
(AT – achilles tendon : TS – tenderstretch)

AT hung

TS hung

Overall Effects of Treatment on Improving Tenderness

NSW Brahman data - Striploin Shear Force

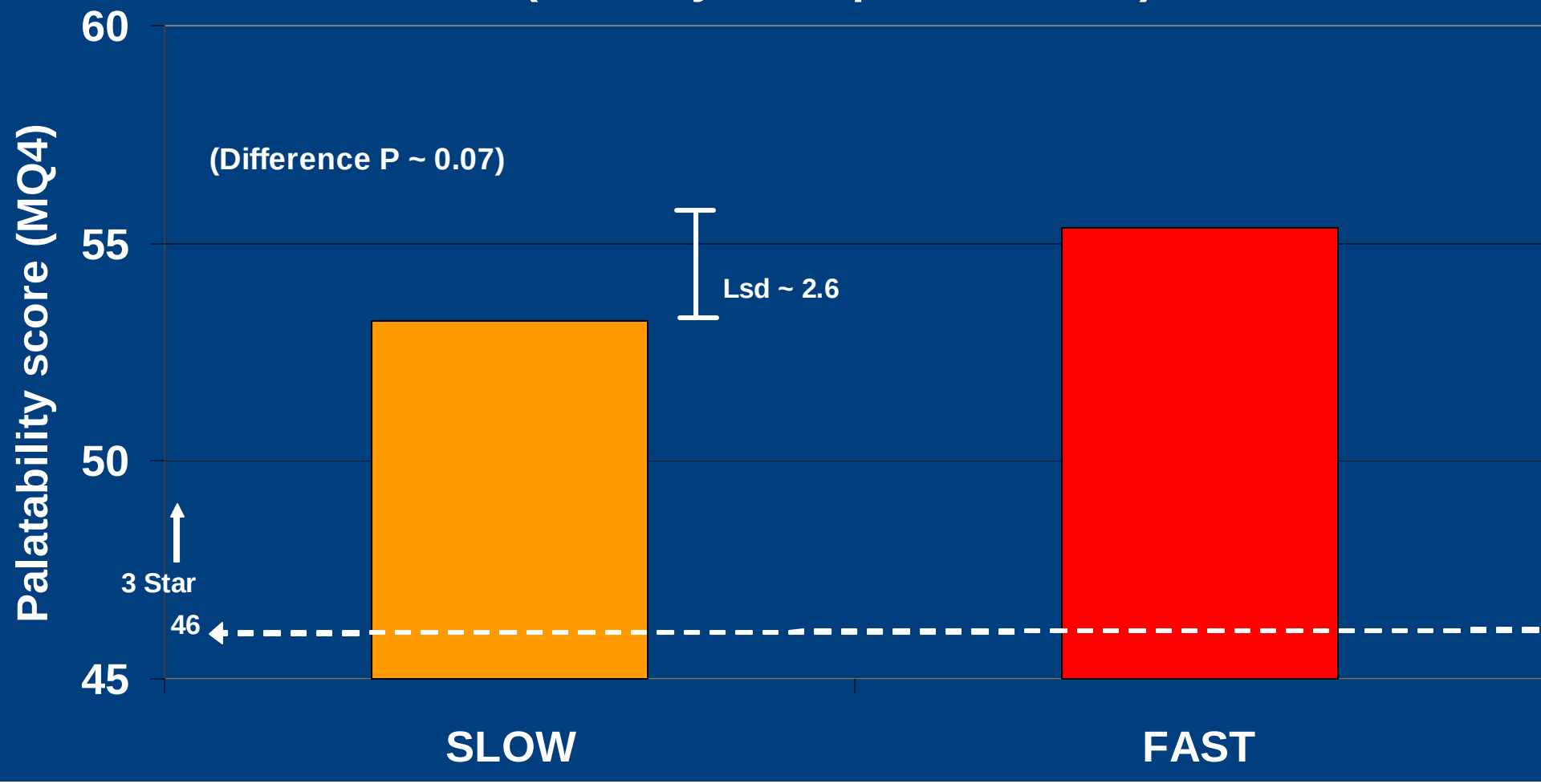


Growth and Meat Science Research

Effect of backgrounding growth rate on ultimate eating quality

Eating quality - MQ4 score (n = 452)

(sensory taste panel results)



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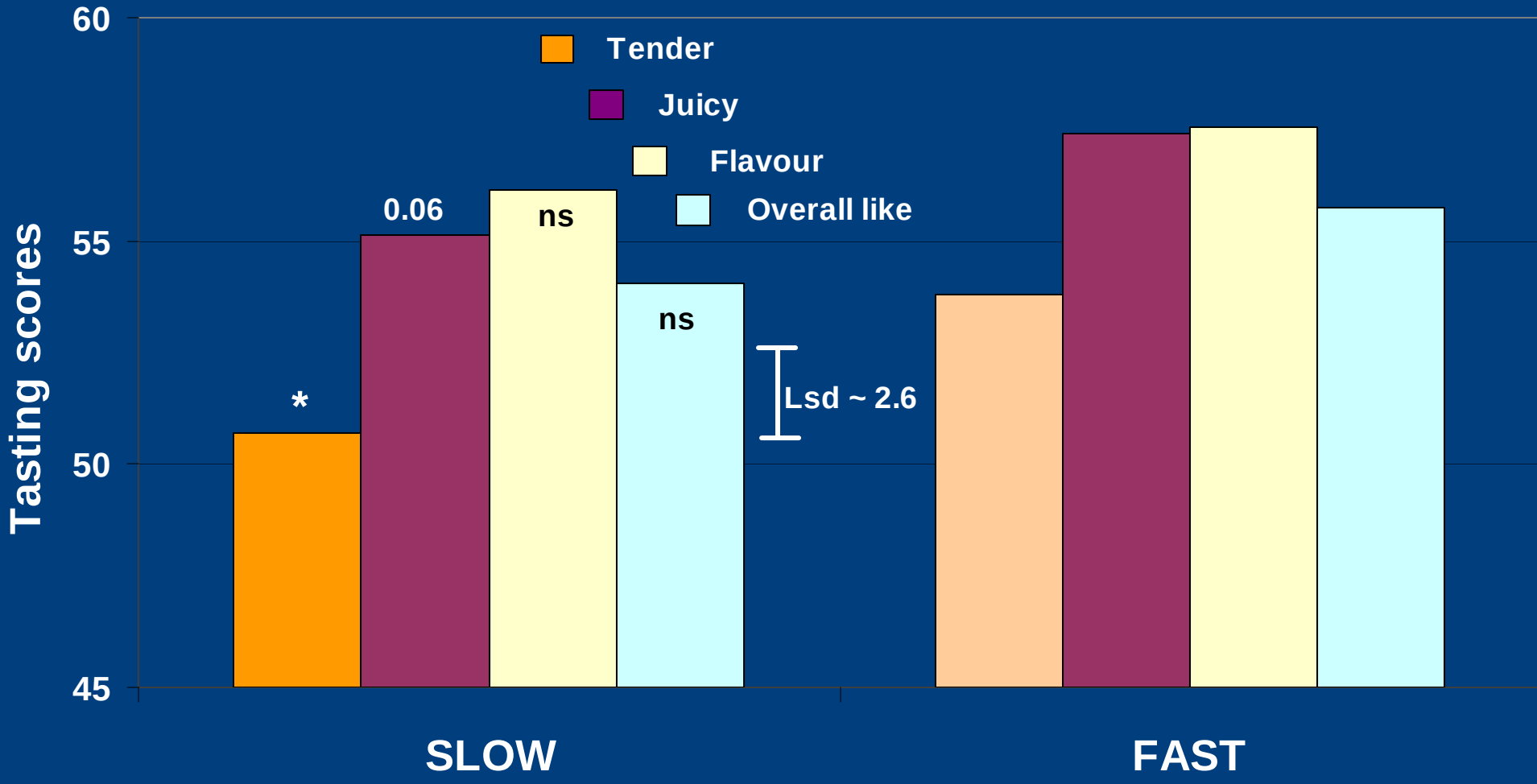
Eating quality - components of MQ4 score, as affected by backgrounding growth



The ‘new’ MSA model??

MSA2009 model®

Hang (AT/TC/TS/TX)	at
HGP (Y/N)	y
Sex (M, F)	m
Est.% Bos Indicus	0
Hump Height cms	0
Hot Std Carc Weight	180
USDA Ossification	100
Milk Fed Vealer Y/N	n
USDA Marbling	380
Days Aged (min 5)	35
Quarter Point Ribfat	12
Ultimate pH	5.50
Gene Markers	??

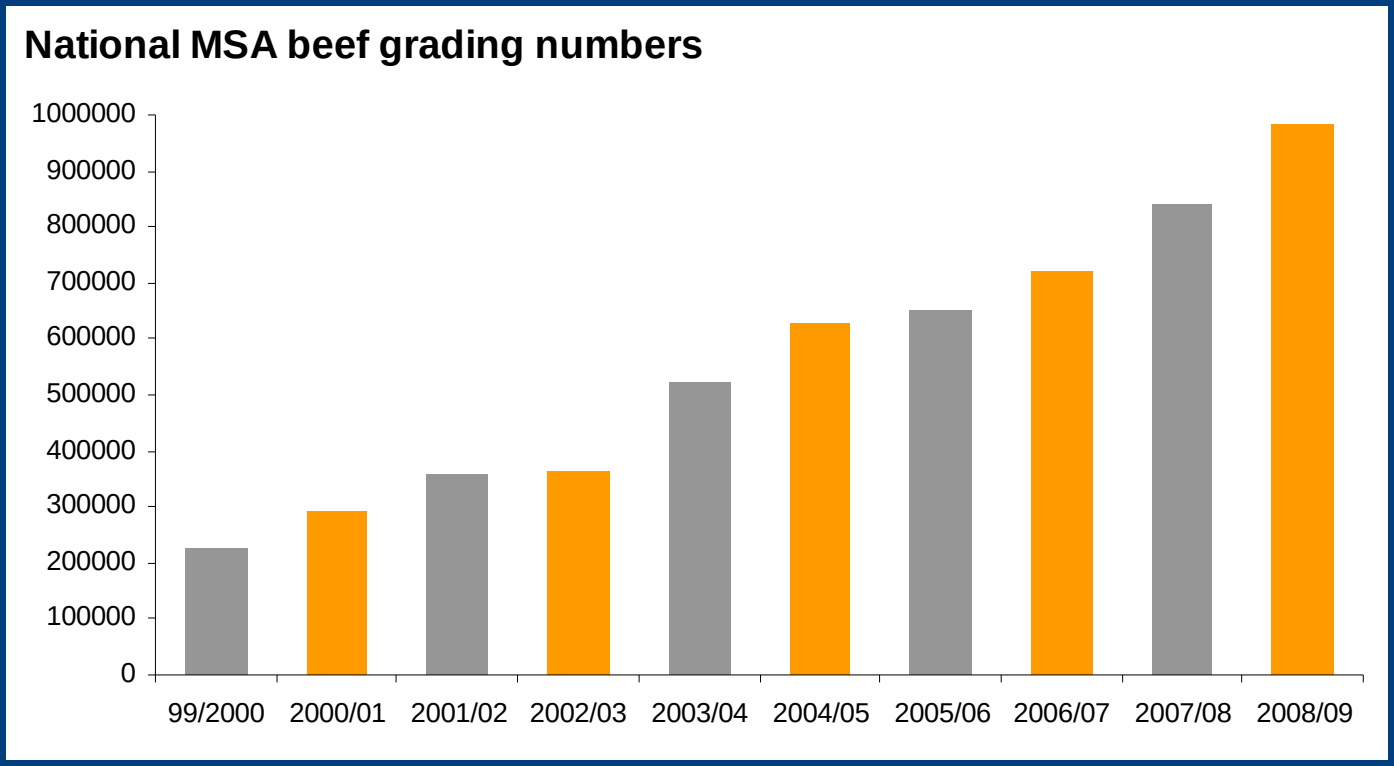
AUSMEAT Meat Col.	3
Saleyard? (Y, N)	n

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

World class science, creating first class beef

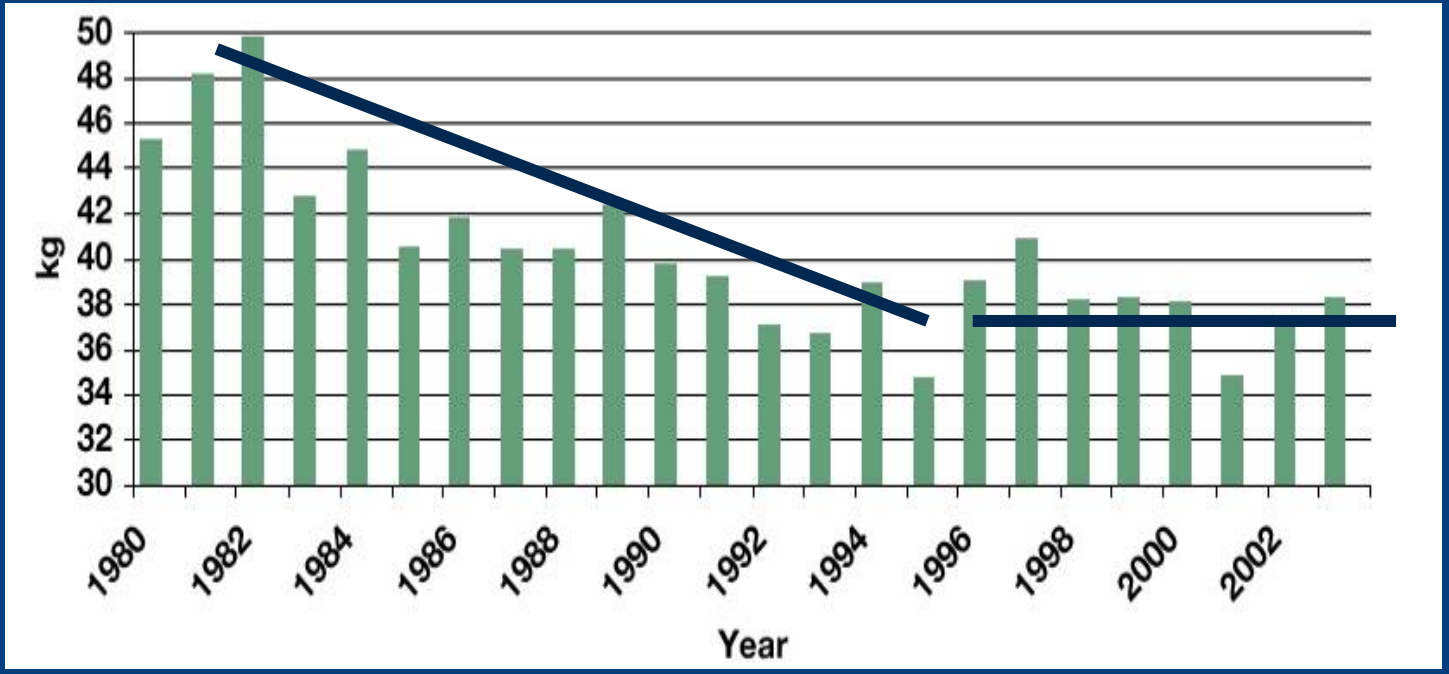
MSA beef grading

- In 2008/09, over 982,000 cattle graded
- Increase of 16.9% on 2007/08



Improving quality and consistency

- The single biggest thing we can do to stabilise beef consumption



Beef consumption per capita (source Abare 2004)

Consumers report card – Beef

Follow up research

- 45% of surveyed consumers in 2005 agreed that ‘overall, the quality of beef has improved since 2000
- Per capita beef consumption increased 1.2% to 35.7kg per person between 2000 and 2006
- Retail value of beef increased 60% between 2000 - 2006

SUMMARY

- Co-operative R&D program
- An accurate prediction of beef eating quality (MSA)
- Cumulative retail-level economic benefit of MSA to 2007/8 = $300 m
- Annual benefit $57 m/yr
- Cost of R&D to date $74 m
- R&D benefit-cost ratio 4:1

(Griffith et al 2009)