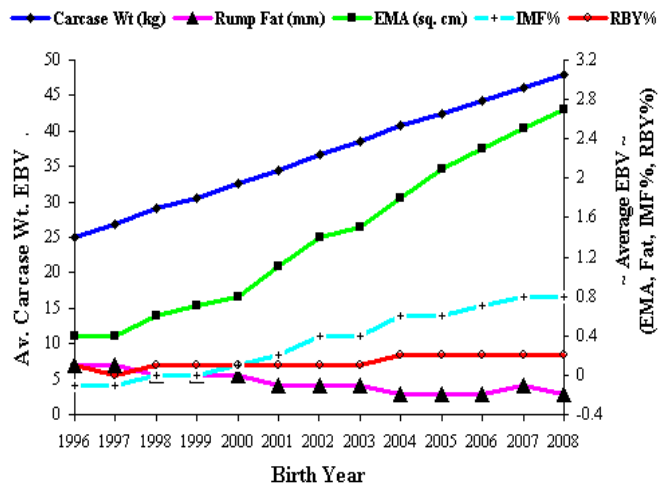


Wayne Pitchford, University of Adelaide

Maternal Productivity in beef cattle Resilient genotypes



Genetic change in Angus cattle



Industry data

Weight
Height
Muscle
Fat depth
IM Fat
Structure
Live calf?
Weaning wt

Pre-calving 1
Weaning 1
Pre-calving 2
Weaning 2

February 2011

	Animals	Records
Hereford	1,614	4,155
Angus	5,889	15,034
Total	7,503	19,149
	100%	94%



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Interviews with breeders



- ✓ 34 interviews
- ✓ 65+ hours recorded interview
- ✓ Over 800 pages transcript
- ✓ 18000+ referenced segment of text
- ✓ 400+ information nodes



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Anti-fat

'I have a real problem with fat and I touched on this before in regard to cow condition. Fat is expensive to put on, you put it on, the animal goes to the processor and they cut it all off. When you feed it (fat) on and it costs you somewhere in the vicinity of 40% of every mega-joule you end up using in the process of putting it on and then re-metabolising it again, that's just crazy'



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Pro-fat

'I use the carcass traits more for maternal productivity than for carcass. It is huge, rib and rump, whenever I use an AI sire I have a really good look at his fat EBVs. When I use a negative fat bull the drop out rate in our maternal side is too high.' 'I know the feedlot buyer wants high yielding steers but I can't afford that in the cow herd.'



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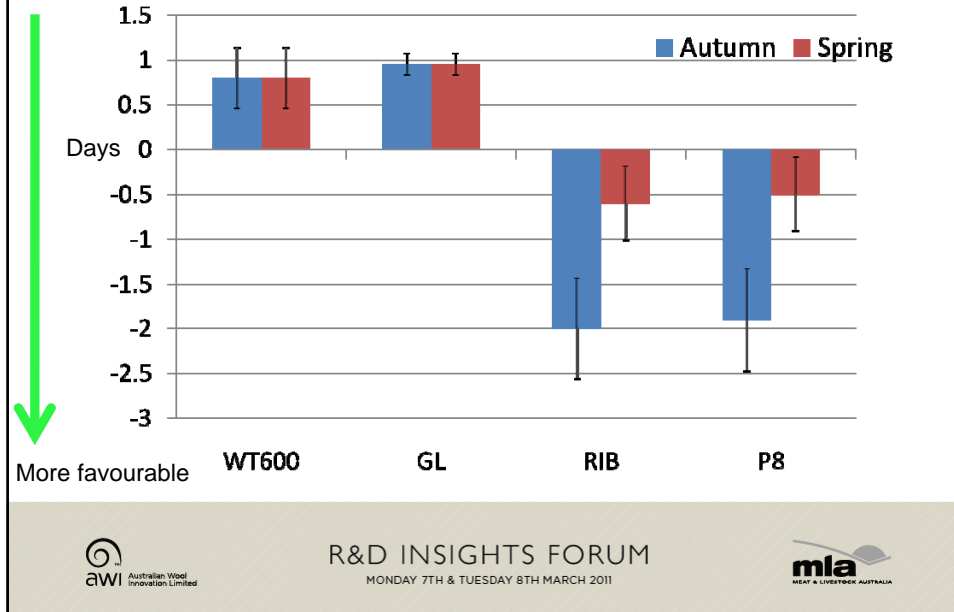
Body composition at weaning 1 is heritable

	Average (SD)		Heritability (SE)	
	A	H	A	H
	<i>n</i> =3,735	<i>n</i> =645		
WT (kg)	515 (64)	503 (43)	0.39 (0.05)	0.42 (0.12)
P8 (mm)	5.8 (2.9)	6.8 (3.0)	0.51 (0.06)	0.97 (0.06)
Rib (mm)	5.0 (2.2)	5.0 (1.8)	0.49 (0.05)	0.54 (0.14)
EMA (cm ²)	59 (9)	58 (6)	0.32 (0.05)	0.47 (0.11)
IMF (%)	5.5 (1.9)		0.39 (0.05)	

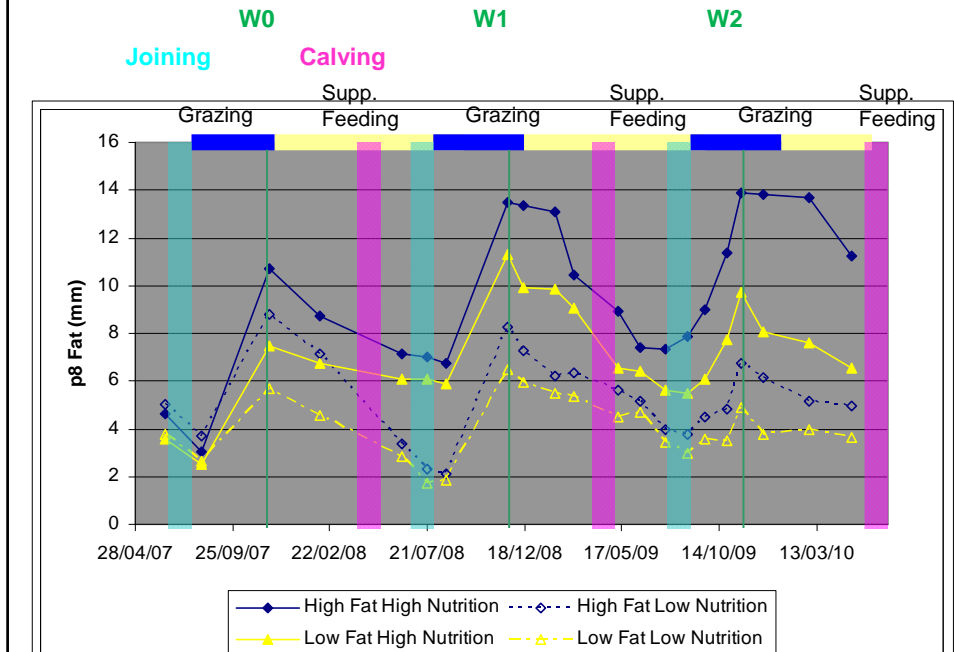
Genetic correlations – basically the same traits over time

Trait	PC1-W1 1 st lactation	W1-PC2 Dry cow	PC2-W2 2 nd lactation
WT	0.88	0.94	0.95
P8	0.70	0.89	0.92
Rib	0.65	0.96	0.96
EMA	0.68	0.84	0.85
IMF	0.76	0.92	0.86

Change in DTC associated with a 1 SD increase in EBV



Research herds – variation and repeatability of fat depth



Difference in conception of heifers

Line	Age (days)*	Weight (kg)	P8 fat (mm)***	Conception rate*	Adjusted conception rate
High Fat	473	370	6.5	93.5	93.4
Low Fat	465	367	4.9	85.1	86.8



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Nutrition and genotype not quite significant for re-breeding conception rate of first calvers

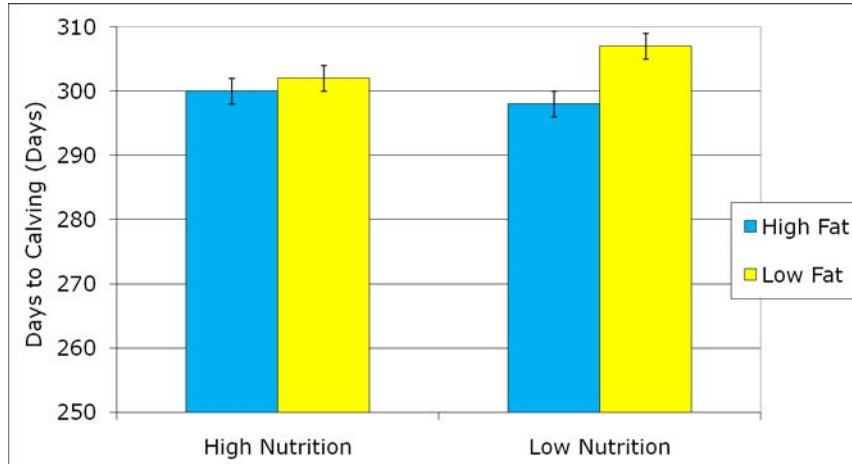
Nutrition	Line	Weight (kg)***	P8 fat (mm)**	Conception rate
High	High Fat	531	8.3	94.9
High	Low Fat	575	7.6	93.5
Low	High Fat	488	5.4	88.4
Low	Low Fat	491	4.2	85.7



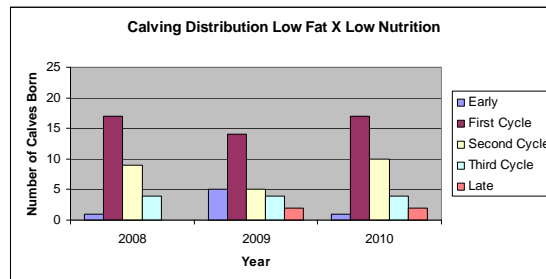
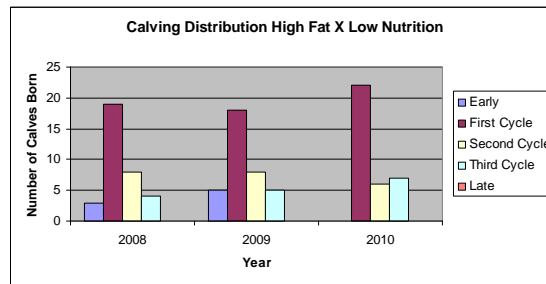
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... but was for days to calving



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Conclusions

Can select fatter heifers and have fatter cows (heritable and repeatable)

Fat covers a multitude of sins ...

- Large frame
- High mature cow weight
- High milk
- Autumn calving
- Low nutrition
- Grass finishing



All evidence is that we can push muscle harder