Lardner Park

2017

LARDNER PARK STEER TRIAL RESULTS

LARDNER PARK EVENTS 2017 STEER TRIAL

The Lardner Park steer trial provides valuable information on the growth and carcase quality of the steers entered. It enables all those that interact with the trail to gain an improved understanding of live steer assessment, market requirements and the impact of feed quality on the growth and fattening ability of the stock. It is currently the only grass based steer trail in Australia. The steer trial provides a valuable forum for discussion of many aspects of the cattle industry.

The Competition

Cattle were inducted onto the property on the 3rd of July, with the steer trial commencing on the 10th July. Cattle were weighed regularly and the weighing days allowed interested parties to view the progress of the stock.

In 2017, there was one turnoff – standard domestic trade.

Cattle had to meet the following specifications for the **standard domestic trade** when they were turned off:

Hot standard carcase weight	210 – 285kg
Fat range (P8)	8-14mm

Penalty points were imposed if cattle fell outside specifications for carcase weight.

Each carcase falling outside the weight range of 210 – 285kg carcase weight was applied with penalty points of 2 points per kg over 285kg carcase weight or 2 points per kg under 210kg carcase weight.

No individual steer/carcase was disqualified from the 'Domestic Weight Gain & Carcase' category, or the 'Highest Carcase Score as a Pair' if animals failed to meet specifications as this was taken into account through the penalty point system.

However, to be in contention for the 'Highest Weight Gain Pair', both animals in the pair had to fall in the carcase weight specifications of 210 – 285 kg carcase weight. If one or both animals in the pair failed to meet the carcase weight specifications, the pair were not eligible for the award.

MSA grading

Carcases were graded at JBS Australia Pty Ltd's Brooklyn processing plant on behalf of Coles. The national Meat Standards Australia (MSA) grading system was used to assess carcases in the competition. The MSA measurements were then converted to carcase points using an Australian Beef Carcase Appraisal System (ABCAS).

Judging System details.

The MSA system was utilised with the judging criteria: P8 fat, fat colour, meat colour, rib fat, eye muscle area, ossification, marbling and muscle pH. These MSA measures were used to estimate eating quality. Muscle pH (acidity or alkalinity) is closely related to tenderness, shelf life and meat colour.

Carcases needed to be between pH 5.4 to 5.7 to grade MSA. For MSA, cattle needed to be below a notional 30 months of age (maturity) determined by an 'ossification' score below 200.The degree of ossification is determined by change of cartilage to bone in the sacral (rump), lumbar (loin) and thoracic (rib) vertebrae.

For MSA there is no minimum marbling requirement but is described as some markets require marbling. Marbling is related to 'juiciness' and can contribute to meat flavour.

Reasons cattle may have received no eating quality points under the MSA system are that rib fat is less than 3mm, or the pH is above 5.7, or the meat colour is 1a or greater than 3.

Carcase Prices and discounts

The top three carcases (taking into account P8 fat points, Meat Colour points, Rib Fat points, Eye Muscle Area points and Eating Quality points) were awarded a premium resulting in a price of $5.50/kg carcase weight.

If carcases received no discounts the price received was $5.30/kg carcase weight.

Carcases that fell outside of specifications - were too heavy (above 285kg carcase weight), too light (below 210kg carcase weight) or had unacceptable pH - received a $0.20 discount, resulting in a price of $5.10/kg carcase weight.

The 2017 Competition

The initial weight was taken on 10th July after a one week settling in period and the final weight on 4th December. (147 days from initial to final weight) .

The herd was run in one mob on predominately ryegrass based pasture with supplements fed as deemed necessary depending on pasture growth. Cattle were consigned on the 11th December and processed on the 12th December. The tables below summarise the liveweight gain (empty weight) and carcase performance.

Lardner Park 2017 Steer Trial – Summary of Awards

STANDARD DOMESTIC TRADE

Standard Domestic Trade 210-285 kg carcase weight
Fat range (P8) 8-14 mm

Combined Weight Gain & Carcase Awards		
Sponsored by: **Gallagher Australia**		
Breeder	*Breed*	*Points*
1st Prize		
Delatite Station (Mark Ritchie – Mansfield)	Angus	224.8

Combined Weight Gain & Carcase Awards		
Sponsored by: **Lardner Park**		
Breeder	*Breed*	*Points*
2nd Prize		
The Bend South Devons (Chris & Leonie Daley – Mirboo North)	South Devon	222.7
3rd Prize		
Riverbend (Barb Stewart – Kernot)	Angus	222.5

Highest Weight Gain Pair		
Sponsored by: **Evans Petroleum BP**		
Breeder	*Breed*	*Pair Av Daily Gain*
Winterwood (Peter Hutchinson – Churchill)	South Devon	1.49 kg/day

Highest Carcase Score As A Pair		
Sponsored by: **Coopers Animal Health**		
Breeder	*Breed*	*Pair Av Carcase Score*
Lineham Farm (Alex Lineham – Vervale)	Angus	85.44

Highest Eating Quality (MSA Index) As A Pair		
Sponsored by:**Radfords Warragul**		
Breeder	*Breed*	*Pair Av MSA Index*
Delatite Station (Mark Ritchie – Mansfield)	Angus	63.60

Cattle Performance Analysis – Liveweight Gain Performance

Average Liveweight Gain Performance

Standard Domestic Class												
	Average LW kg						Average LW Gain kg per day					
	2017	*2016*	*2015*	*2014*	*2013*	*2012*	***2017***	*2016*	*2015*	*2014*	*2013*	*2012*
Initial	**306**	295	279	289	279	285						
Turnoff	**486**	485	469	467	473	469						
Wt Gain	**180**	190	190	178	194	184	**1.22**	1.22	1.22	1.14	1.26	1.20

2017 saw the averaged weight gain performance the same as the previous two years, with an average weight gain of 1.22 kgLW/day.

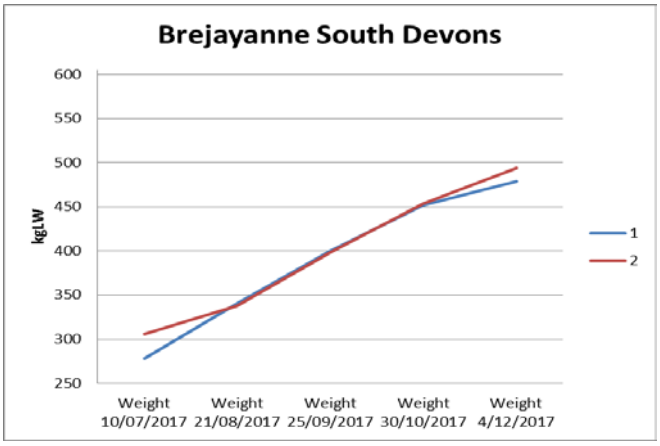
Individual weight gains averaged over the trial period ranged from 0.88 kgLW/day up to 1.52 kgLW/day.

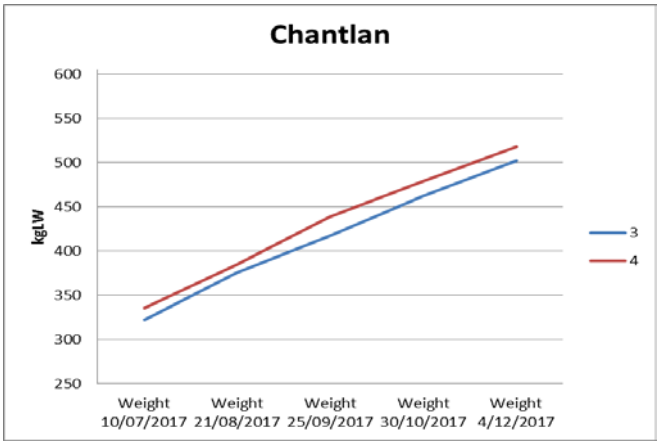
The weight gain of 1.52 kgLW/day was from a South Devon steer, with the other animal of the pair growing at 1.46 kgLW/day, resulting in a pair average daily gain of 1.49 kgLW/day.

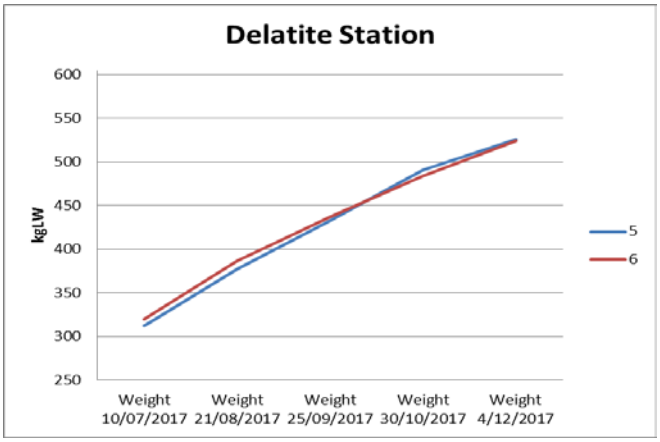
The averaged weight gain of 0.88 kgLW/day was from a Speckle Park x Angus, with the other animal of the pair growing at 1.01 kgLW/day.

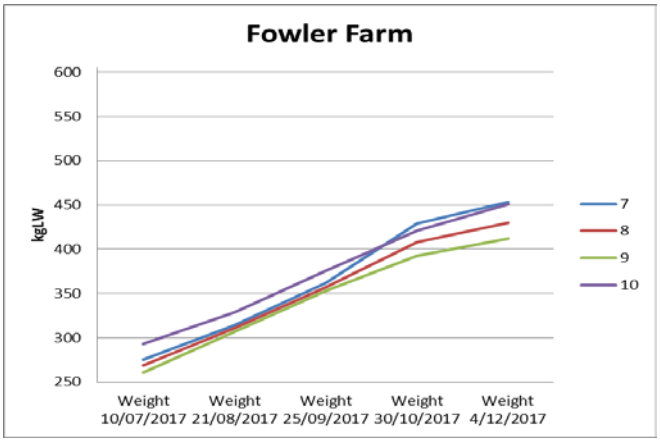
The following graphs show the steer pairs liveweight gain performance across the weighing dates and their average daily gain (ADG) across the weighings.

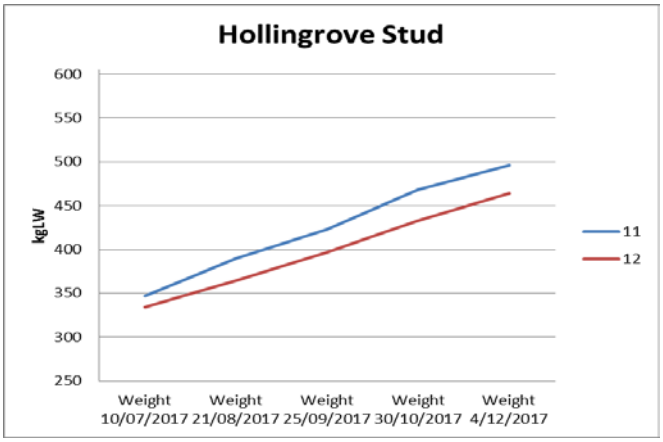
Number next to coloured line is the Lardner Park ear tag number of the steer.

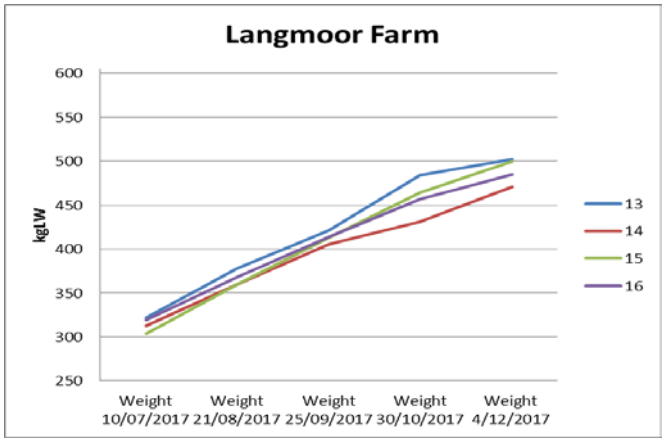

Brejayanne South Devons
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
1
2

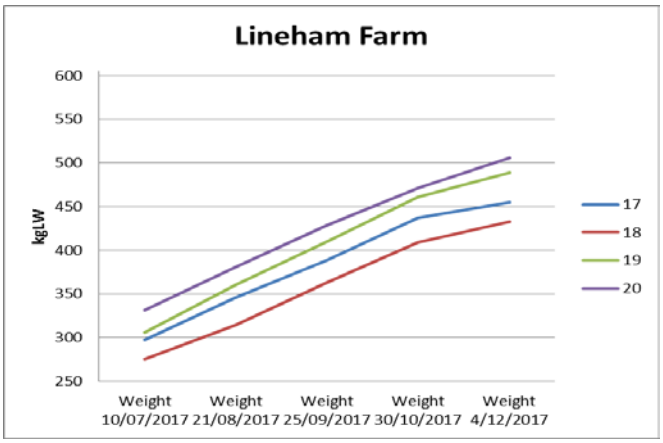

Chantlan
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
3
4

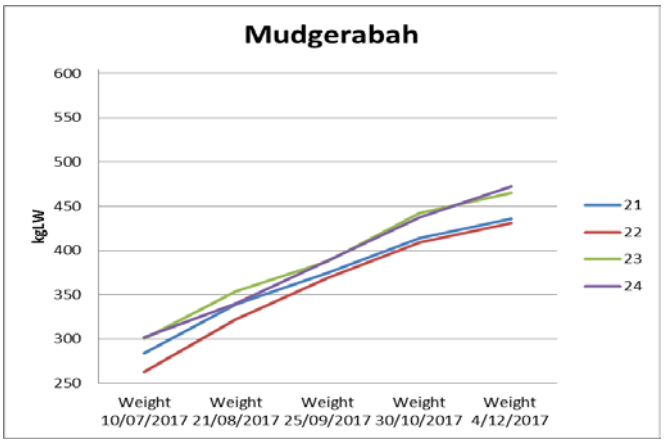

Delatite Station
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
5
6

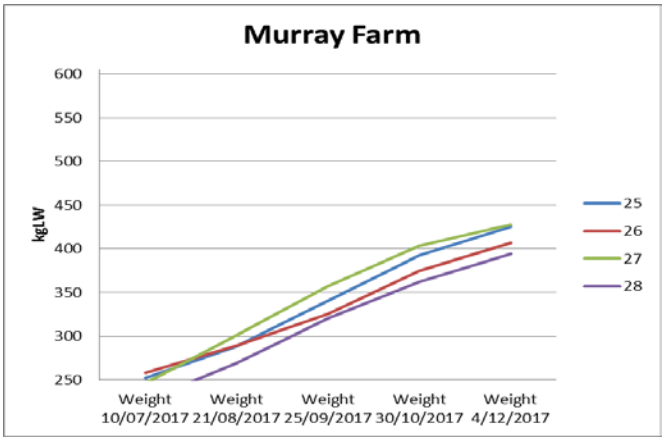

Fowler Farm
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
7
8
9
10

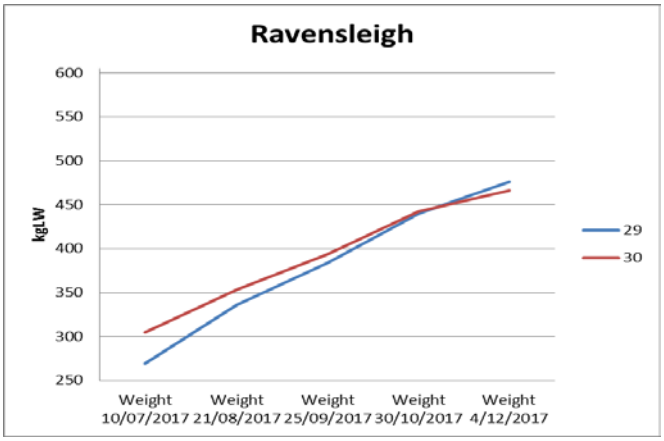

Hollingrove Stud
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
11
12

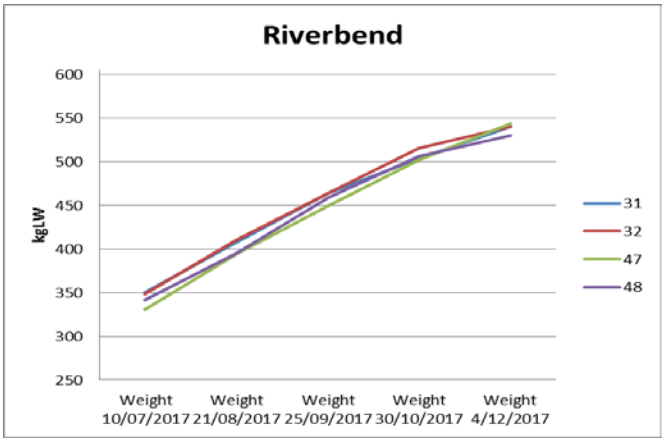

Langmoor Farm
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
13
14
15
16

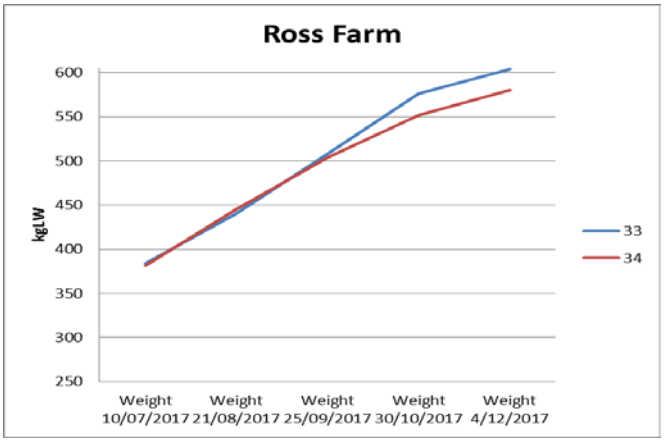

Lineham Farm
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
17
18
19
20

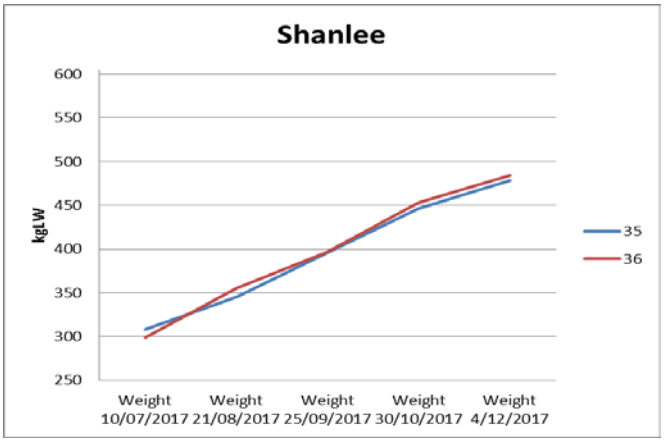

Mudgerabah
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
21
22
23
24

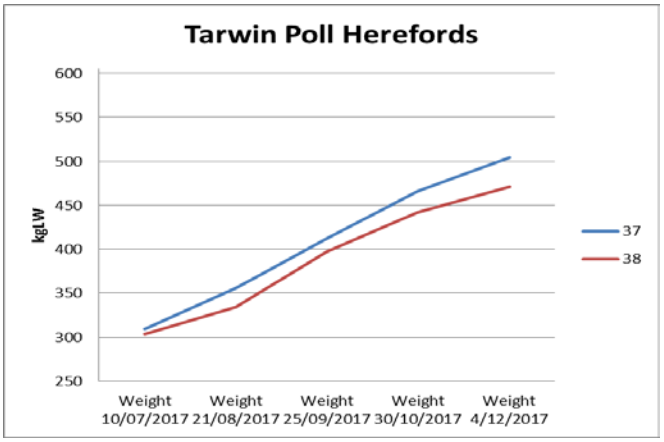

Murray Farm
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
25
26
27
28

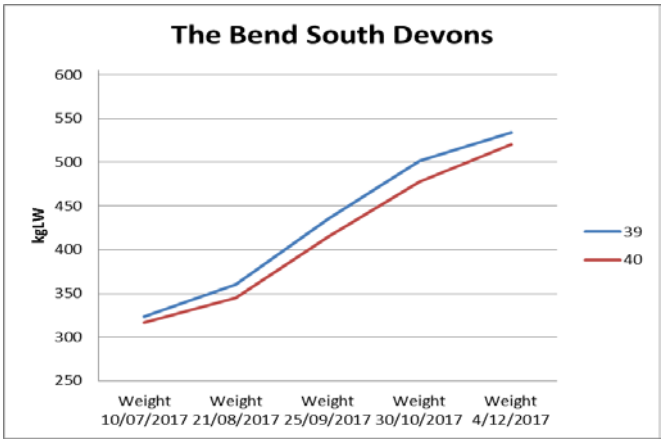

Ravensleigh
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
29
30

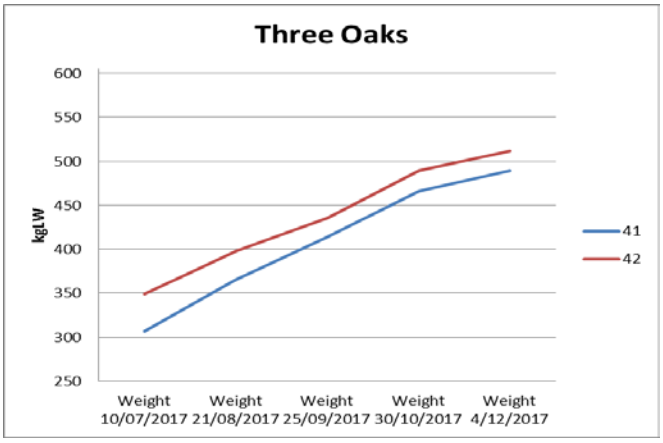

Riverbend
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
31
32
47
48

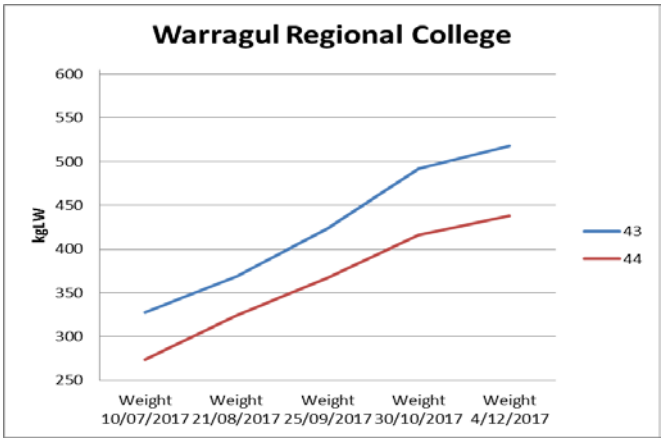

Ross Farm
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
33
34

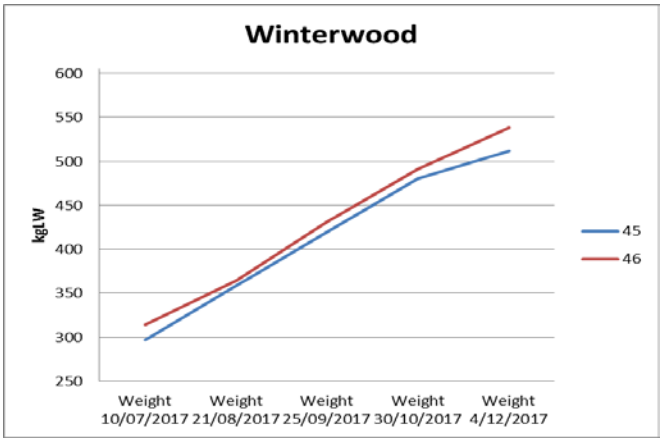

Shanlee
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
35
36


Tarwin Poll Herefords
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
37
38


The Bend South Devons
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
39
40


Three Oaks
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
41
42


Warragul Regional College
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
43
44


Winterwood
kgLW
600
550
500
450
400
350
300
250
Weight 10/07/2017
Weight 21/08/2017
Weight 25/09/2017
Weight 30/10/2017
Weight 4/12/2017
45
46

Cattle Performance Analysis – Carcase Performance

48 steers competed in the Standard Domestic Trade class for 2017.

Four steers (or 8%) were outside specifications for carcase weight (and were awarded penalty points) – two were over the 285 kg upper weight limit and two under the 210 kg lower limit. The heaviest steer was 35.5 kg over at a carcase weight of 320.5 kg resulting in a 71 point penalty for that carcase. The lightest steer was 6.5 kg too light at a weight of 203.5 kg, resulting in a 13 point penalty.

Three steers received no points for eating quality, as they had a pH above 5.7, resulting in a meat colour of 4 or above (dark cutters).

FYI - last year of the 50 steers competing, 4 (or 8%) were outside specifications on carcase weight and 8 received no points for eating quality.

Steer Trial Carcase Performance across the years

Carcase details	2017	2016	2015	2014	2013	2012
Av Carcase Weight (kg)	252.8	254.5	246	236	247	250
Av Dressing %	52	52.5	52.4	50.6	52.55	53.4
Av P8 Fat Depth (mm)	7.4	6.2	6.2	8	6.5	6.4
Av rib fat (mm)	5.5	4.1	5.2	3.9	7.7	7.4
Av Eye Muscle Area (sq cm)	65.7	64.6	63	70	65.9	67.7
Av pH	5.6	5.59	5.56	5.52	5.49	5.47
Av Ossification Score	125	116	127	115	112	116

Average Dressing % ranged from 48.9% up to 55.4%. The steer that dressed out at 48.9% was a South Devon (the other steer of the pair dressed out at 52.5%). The steer that dressed out at 55.4% was a Composite x Composite (the other steer of the pair dressed out at 53%).

Average Eye Muscle Area ranged from 54 sq cm to 80 sq cm. The largest eye muscle are came from a Composite x Composite (the other steer of the pair had an eye muscle area of 57 sq cm). The second and third largest eye muscles (at 79 and 77 sq cm) both came from Composite x Composite.

Fat distribution plays an important role at the abattoir, impacts on eating quality and on the marketability of the animal

Fat distribution is the coverage and distribution of subcutaneous (external) fat on a carcase. An even coverage of subcutaneous fat leads to even chilling throughout the underlying muscles. The greater the fat depth on a carcase, the slower and more uniform the muscle chilling rate will be. The coverage and distribution of subcutaneous fat over primals helps prevent dehydration and provides protection for the muscles from microbial contamination. Uneven fat coverage causes the muscles with inadequate coverage to chill at a faster rate, which can create cold shortening conditions near the surface and heat shortening in the deep core, affecting the eating quality of the meat. (source: MLA Tips and Tools – fat distribution and eating quality)

Points were awarded as follows for P8 fat:

P8 fat mm	3	4	5	6	7	8-14	15	16	17	18	19	20
Points	3	5	7	8	9	10	9	8	7	6	5	4

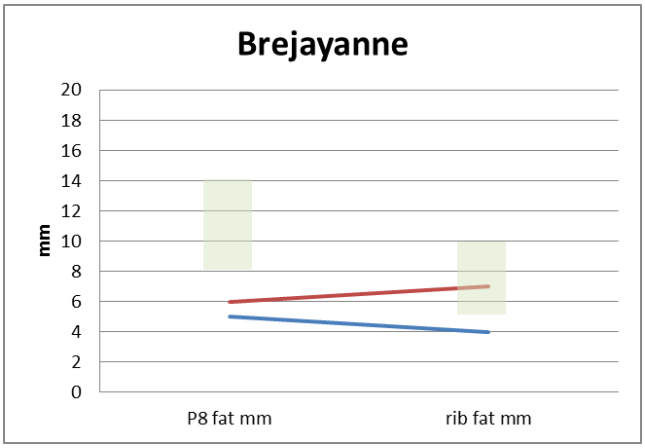
Points were awarded as follows for rib fat:

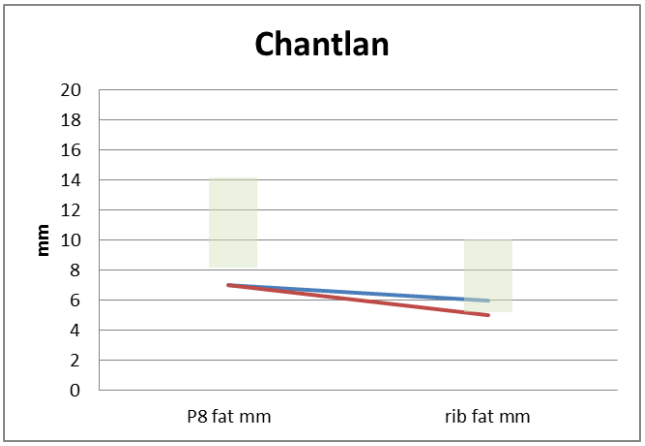
Rib fat mm	2	3	4	5-10	11-12	13	14	15	16
Points	0	8	12	15	11	10	9	8	0

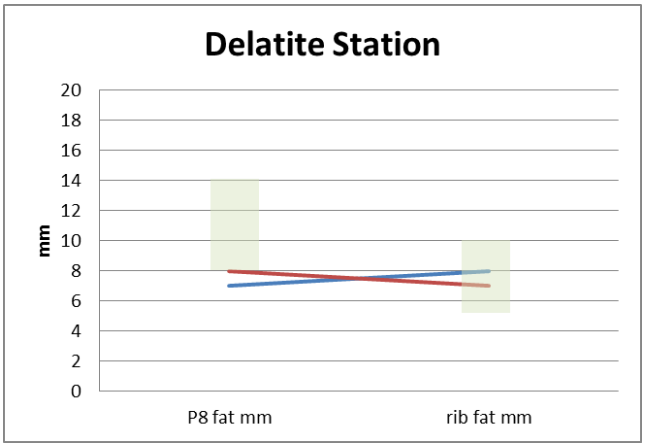
In a stud situation it may be acceptable to have uneven fat measurements on an animal if it is being marketed to the commercial producer as an animal that can be used to correct fat issues in the commercial herd. For example the commercial herd may have an issue of having not enough rib fat but adequate P8 fat. They may choose to use a bull with slightly higher than desired rib fat levels (but adequate P8 fat levels) to make a quick correction in their herd to better meet market specifications. However if retaining heifer calves as future breeders they may then need to revert to a bull that has a more even distribution to maintain an even distribution in their herd.

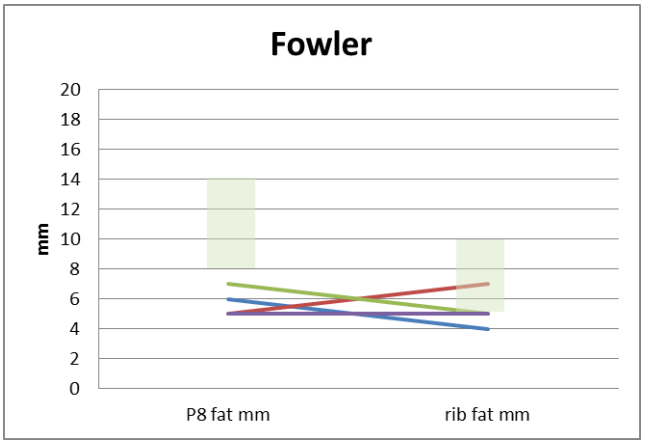
Following are the graphs of each entrants teams of steers showing the rib fat and P8 fat measurements.

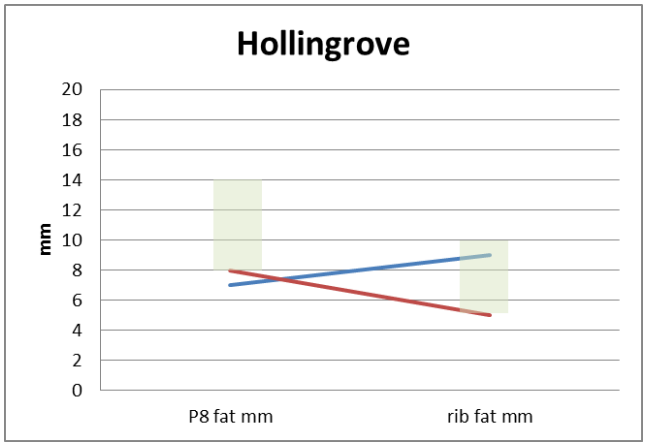
Note – the **green rectangles** on the graph are the preferred fat ranges**.**

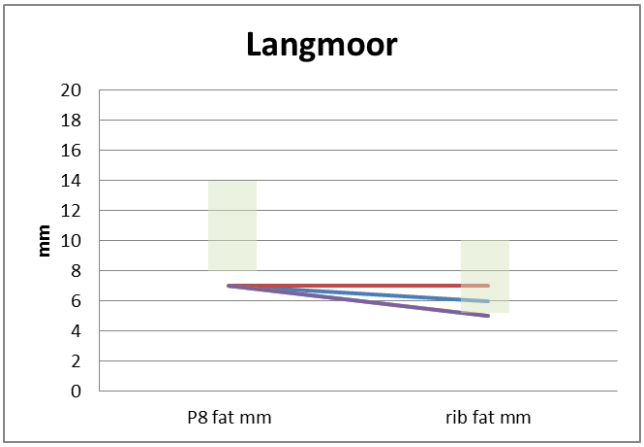


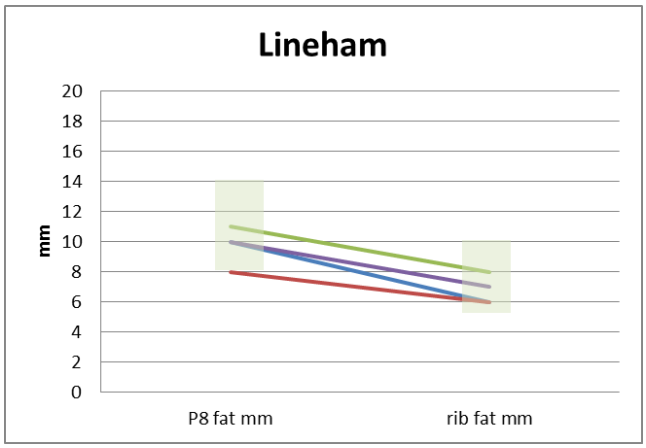




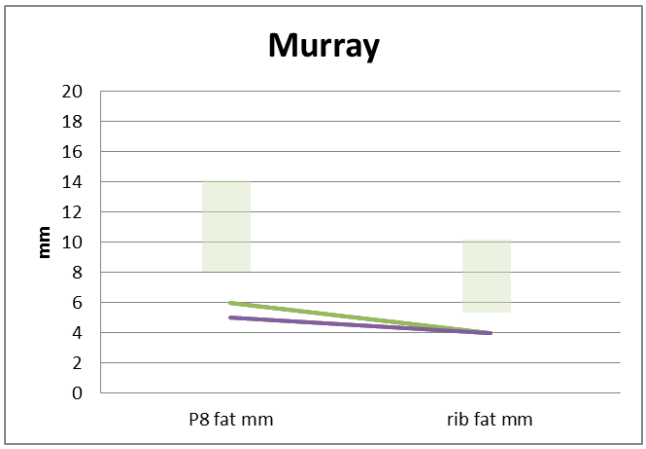


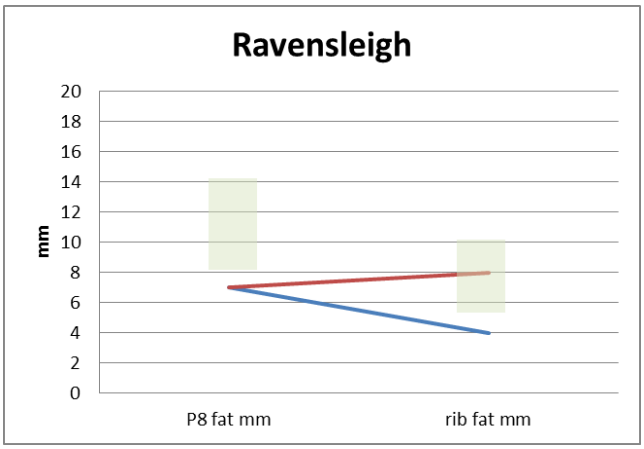

Hollingrove
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm

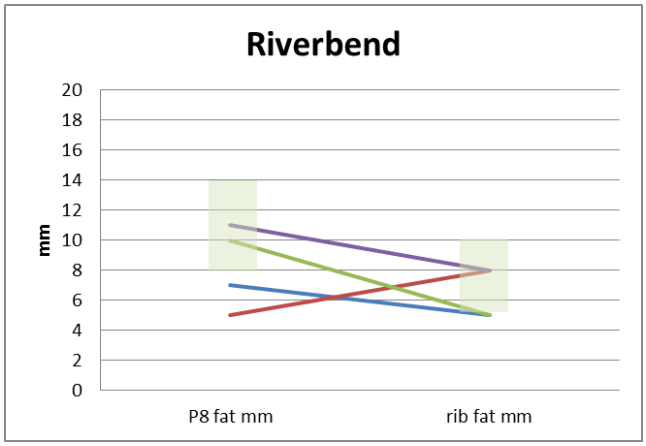

Langmoor
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm

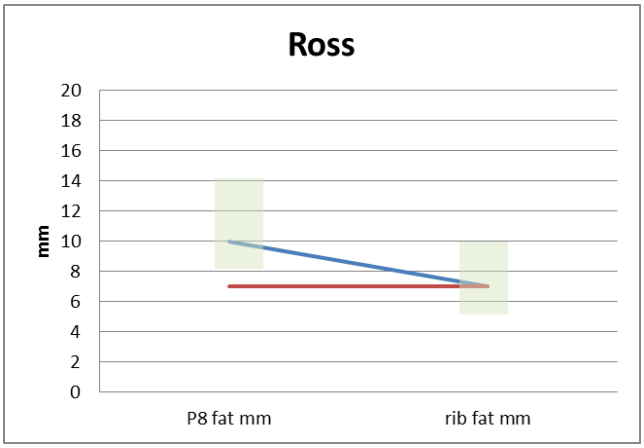

Lineham
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm

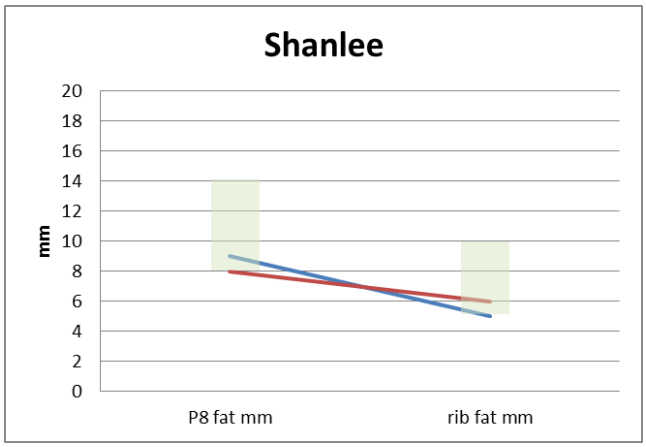

Mudgerabah
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm

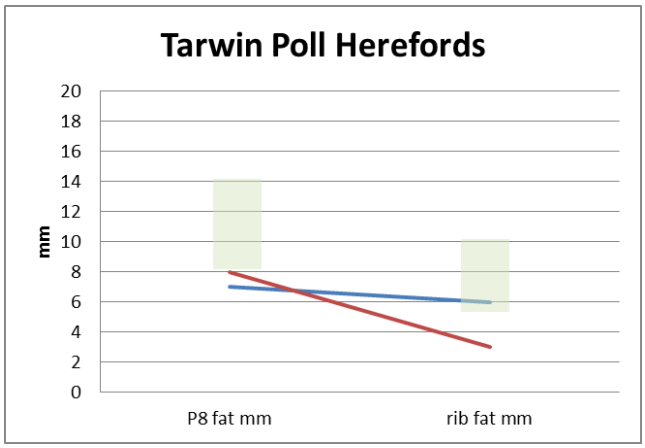

Murray
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm

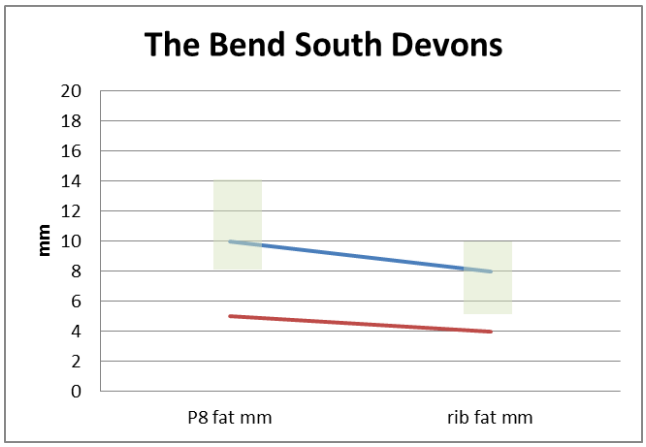

Ravensleigh
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm

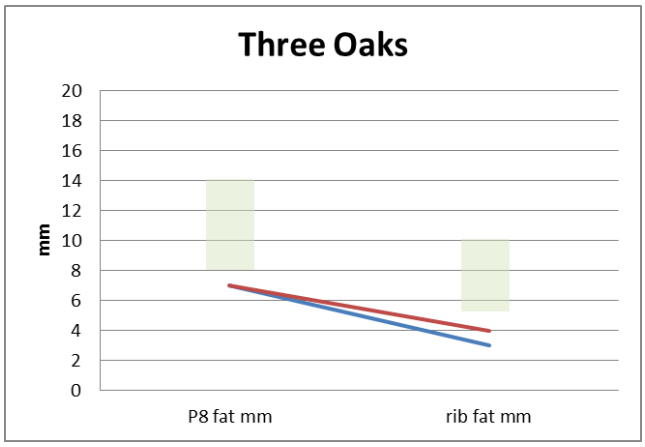

Riverbend
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm

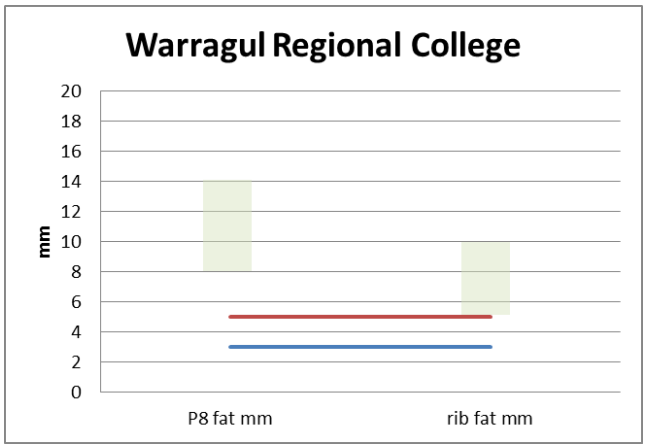

Ross
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm


Shanlee
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm


Tarwin Poll Herefords
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm


The Bend South Devons
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm


Three Oaks
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm


Warragul Regional College
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm


Winterwood
mm
20
18
16
14
12
10
8
6
4
2
0
P8 fat mm
rib fat mm

MSA Index

The MSA Index is a standard national measure of the predicted eating quality and potential merit of a carcase.

The MSA Index is a number between 30 to 80, representing the eating quality potential of the whole carcase.

MSA eating quality scores are the combination of tenderness, juiciness, flavour and overall liking of beef. The MSA Index is a weighted average of these scores for the 39 MSA cuts for the most common corresponding cooking method.

How can you breed for increased MSA index values?

There is an opportunity to increase MSA Index values through genetic selection. For detailed information, see the TechTalk article at the following link:
http://sbts.une.edu.au/pdfs/TTJune15.pdf

Marbling: an increase in the MSA marble score of 100, equates to a 1.5 unit increase in the MSA Index. MSA marbling in the steer trial ranged from 140 up to 350. Selection for improved MSA marble score can be achieved by selecting animals with higher Intramuscular Fat (IMF) EBVs

*Ossification: As ossification scores decrease by 10, the MSA Index potentially increases by 0.6 index units. Ossification scores in the steer trial ranged from 100 (lowest score possible) up to 400. *Note in this trial most carcases scored between 100-170. The figure of 400 could indicate an illness or nutritional challenge in the animals lifetime or a highly stressed animal. Selection for lower ossification scores can be achieved by selecting animals with higher 200 day growth, 400 and 600 day weight EBVs.*

Rib fat: A 1mm increase in rib fat corresponds to a potential increase in the MSA Index of 0.1 index units. Rib fat in the steer trial ranged from 1-9mm, remembering that to be eligible for MSA grading rib fat must be 3mm or above.

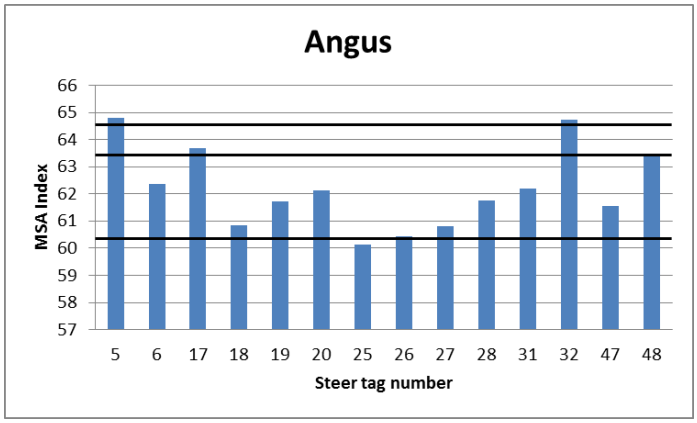
Carcase weight: carcase weight only has a small impact on MSA Index, with MSA calculating that as HSCW increases by 1kg, the MSA Index will potentially increase by less than 0.01 index units.

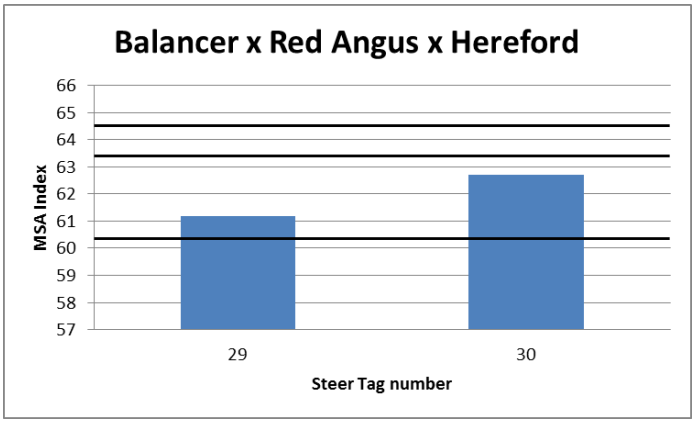
For further information please see the Tips and Tools at the following link:
http://www.mla.com.au/files/4d0d7909-f1de-4a04-96dc-a2fb00d09704/msa-index-tip-and-tool.pdf

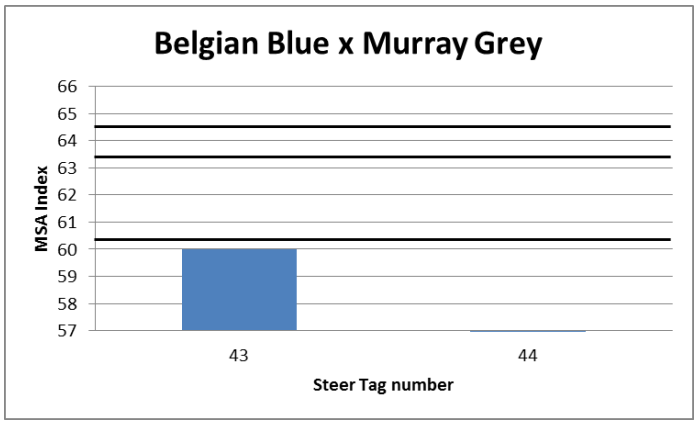
The graphs overpage highlight how the steers scored for MSA Index

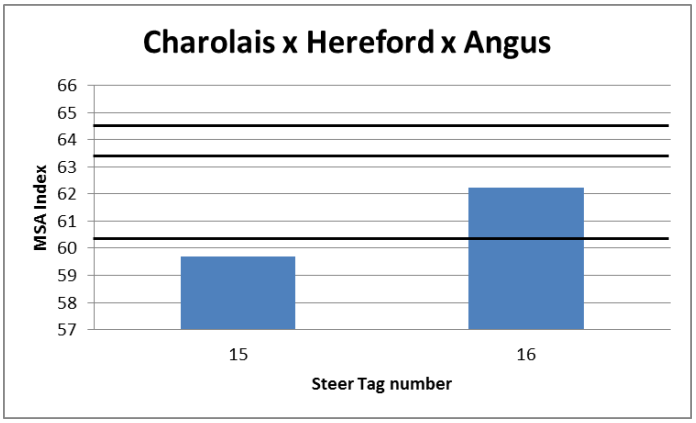
Note: the top line indicates highest 5%, middle line indicates highest 10% and bottom line indicates the 50% (median) of MSA Index scores in Australia (2017)

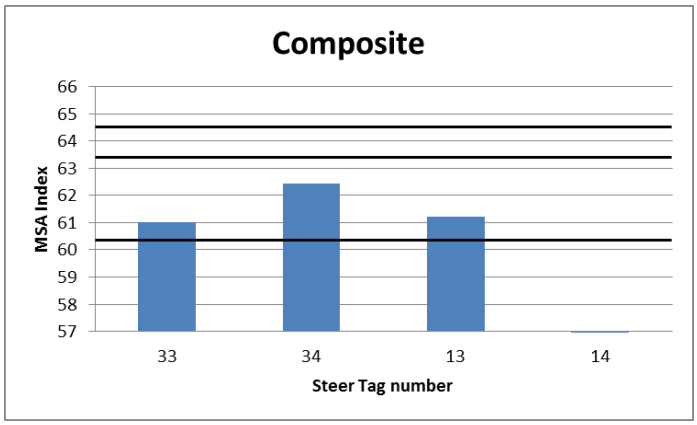
Also note – 3 steers did not receive MSA Index scores due to having elevated pH levels resulting in dark cutting meat.

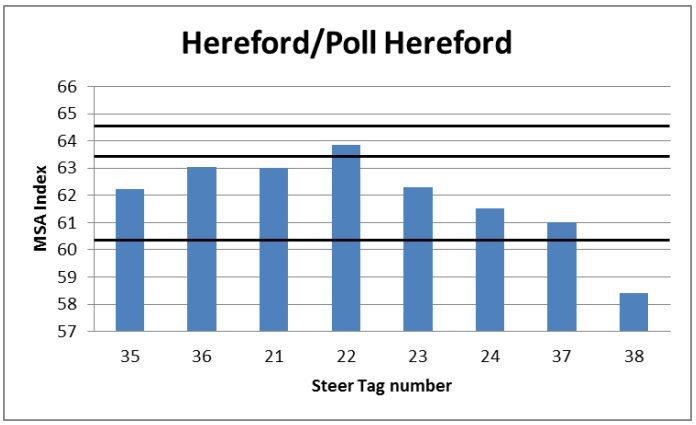

Angus
MSA Index
66
65
64
63
62
61
60
59
58
57
5 6 17 18 19 20 25 26 27 28 31 32 47 48
Steer tag number

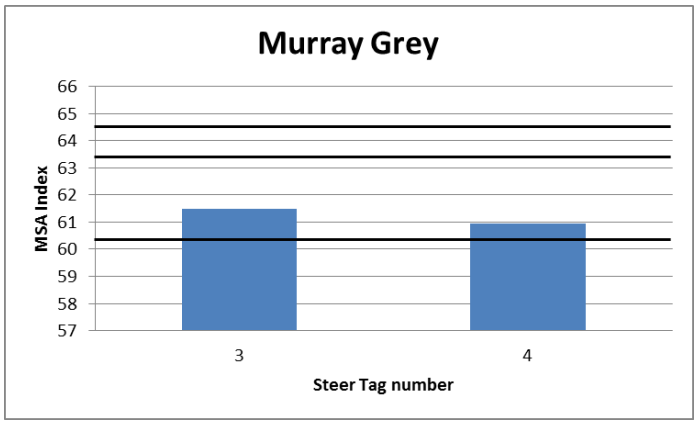

Balancer x Red Angus x Hereford
MSA Index
66
65
64
63
62
61
60
59
58
57
29 30
Steer Tag number

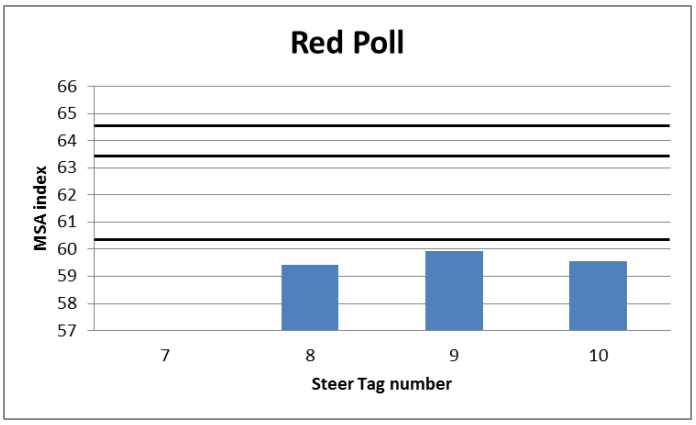

Belgian Blue x Murray Grey
MSA Index
66
65
64
63
62
61
60
59
58
57
43 44
Steer Tag number

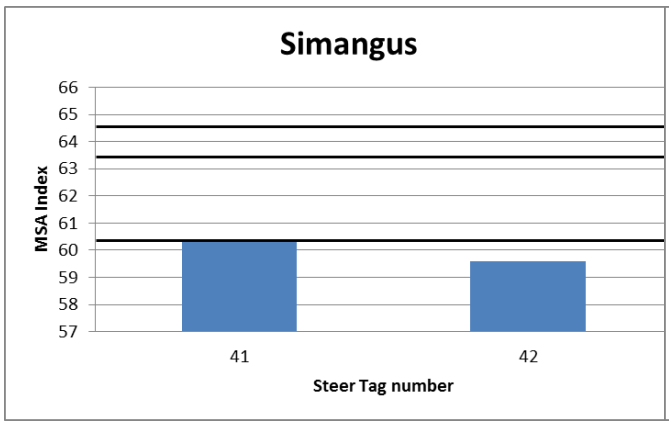

Charolais x Hereford x Angus
MSA Index
66
65
64
63
62
61
60
59
58
57
15 16
Steer Tag number

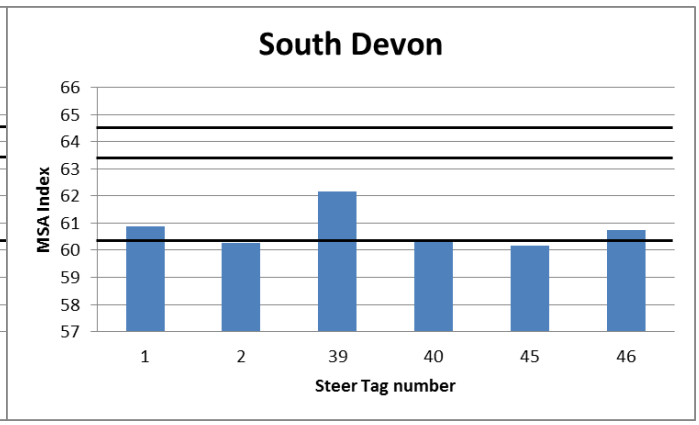

Composite
MSA Index
66
65
64
63
62
61
60
59
58
57
33 34 13 14
Steer Tag number

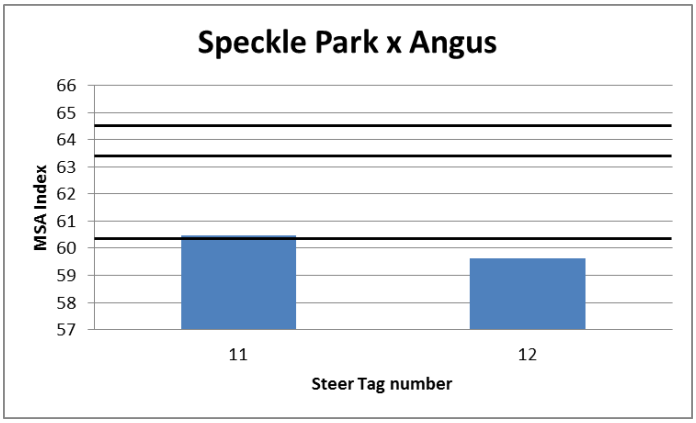

Hereford/Poll Hereford
MSA Index
66
65
64
63
62
61
60
59
58
57
35 36 21 22 23 24 37 38
Steer Tag number


Murray Grey
MSA Index
66
65
64
63
62
61
60
59
58
57
3 4
Steer Tag number


Red Poll
MSA index
66
65
64
63
62
61
60
59
58
57
7 8 9 10
Steer Tag number







Feed Quality and possible impacts on cattle growth and carcase results

This year a number of FeedTests were taken throughout the trial period. This was done to monitor the feed quality of the pasture - particularly the energy, protein and fibre levels – to see if the pasture was having an impact on steer performance and carcase results, in particular dark cutting percentages.

Growing cattle need 13% crude protein in their diet to support good positive growth rates. However, excessive levels of crude protein in the diet can impact on cattle performance. To process and excrete the excess protein from the body requires the use of energy, which would have otherwise been available for growth. The steer will utilise 0.18 MJME in every kilogram of dry matter consumed for each percentage the crude protein is above the required level.

For example, if the feed they are consuming has a crude protein level of 24% and the steer only requires 13%, it is in excess by 11%.

So the energy the steer will be “stealing” from possible growth will be:
0.18 x 11 = 1.98 MJME/kgDM consumed

And if the steer is eating 8.78 kgDM per day, that equates to:
1.98 x 8.78 = 17.4 MJME that he will be using to process the excess, rather than using for growth.

It can be one of the reasons steers don't perform the way we expect them to.

Fibre levels (expressed as NDF% - neutral detergent fibre) dictate how much feed a steer can eat in a day. To determine how much feed a steer can eat based on the fibre level, the following equation can be used:

Dry Matter Intake (kgDM) = liveweight x ((120/NDF)/100)

For example – 300 kg steer, with a pasture NDF of 41%
Dry matter intake = 300 x ((120/41)/100) = 8.78 kgDM

From this figure we can work out how much energy in a day that steer will consume if he eats his maximum dry matter intake.

For example the 300 kg steer will eat 8.78 kgDM, and the pasture has an energy level of 13.7 MJME/kgDM

Steer energy intake = 8.78 x 13.7 = 120.3 MJME (if the crude protein % is in excess, the energy required to process the excess protein needs to be subtracted from this figure. So if this steer was consuming feed with 24% crude protein, we need to subtract 17.4 MJME.
Adjusted steer energy intake = 120.3 – 17.4 = 102.9 MJME

We can then predict the expected growth rate of the steer if he is eating to his maximum intake. To do this we use one of the following equations:
(Energy intake/Maintenance Energy requirements) – 1 if steer is >500kgLW
(Energy intake/Maintenance Energy requirements) – 1.1 if steer is 300-500kgLW
(Energy intake/Maintenance Energy requirements) – 1.2 if steer is <300 kgLW

Note: maintenance energy requirements = (0.1 x LW) +5
So for our 300 kg steer, maintenance energy requirements = (0.1 x 300)+5 = 35 MJME

So his predicted growth rate on the feed he was consuming would be:
(102.9 / 35) – 1.1 = 1.84 kgLW/day

See the table below for the FeedTest results.

	18/07/2017	8/8/2017	5/09/2017	31/10/2017
Energy MJME/kgDM	13.7	12.2	13.1	12.2
Protein CP%	24.7	21.0	22.8	16.3
Fibre NDF%	41.0	48.5	42.9	52.8

See table below for expected performance of steers based on the FeedTest results and consuming only pasture.

Date	18/07/2017	8/8/2017	5/09/2017	31/10/2017
Estimated Av steer liveweight	315 kgLW	340 kgLW	377 kgLW	458 kgLW
Dry Matter Intake	9.2 kgDM	8.4 kgDM	10.5 kgDM	10.4 kgDM
Excess Protein impact	19.4 MJME	12.1 MJME	18.48 MJME	6.14 MJME
Total energy intake	126.04 MJME	102.48 MJME	137.55 MJME	126.88 MJME
Energy intake (adjusted for protein)	106.6 MJME	90.38 MJME	119.07 MJME	120.74 MJME
Maintenance energy	36.5 MJME	39 MJME	42.7 MJME	50.8 MJME
Expected animal performance	1.82 kgLW/day	1.22 kgLW/day	1.69 kgLW/day	1.27 kgLW/day
Av measured steer growth rate	1.17 kgLW/day Period 1	1.17 kgLW/day Period 1	1.44 kgLW/day Period 2	0.86 kgLW/day Period 4

Note: the FeedTest provides a snapshot of the feed quality on the day the sample is taken. Feed quality can vary over time and cattle may be selective as they graze which may impact on liveweight gains.

The difference seen in the expected animal performance and the average measured growth may be due to the availability of feed on offer – the expected performance is based on cattle being able to eat to their maximum intake of the pasture sampled. If there is not enough pasture on offer, or a supplement is included in their diet that is of a higher fibre level, they will not be able to consume to this calculated maximum. The supplement will also have a different energy and protein profile compared to the grass.

As an example, if the pasture is high in protein, but the supplement (such as hay or silage) is lower, the stock may choose to consume the supplement to help balance out their diet.

The supplement though, if it is hay or silage, will likely be higher in NDF%, impacting on the total kgDM the steer can eat in a day. It can be a fine line balancing out a diet to balance protein, but ensuring fibre levels of the overall diet does not impact on daily consumption and therefore performance.

The final FeedTest also looked at mineral levels in the feed sample. See the following table for the results:

	Calcium	Potassium	Magnesium	Sodium
FeedTest result	5.2 g/kg	33 g/kg	1.8 g/kg	2.2 g/kg
Recommended level*	>3 g/kg	<20 g/kg	>2 g/kg	>1.5 g/kg

*see NSW PrimeFact – Grass Tetany in cattle

It can be seen from the above analysis taken on the 31/10/2017, pasture magnesium levels are below the recommended levels, with potassium being higher than recommended. It is possible this could have had an impact on the performance of the steers in the trial. More analysis in the following years will need to be completed to see if there is a link.

Research is currently being conducted through Murdoch University looking at the impacts of low pasture magnesium levels on the rate of dark cutting in cattle. Dark cutting occurs if the pH of the meat does not drop from its neutral level of 7 at slaughter to less than 5.7 in the 24 hours after slaughter. The resulting meat has a darker colour and generally lower eating quality. It is caused by low muscle glycogen (stored energy) levels at slaughter.

Grass tetany can significantly impact on the performance of growing stock – cattle may be impacted by subclinical grass tetany, whereby the only indication is lower than expected growth performance. Grass tetany may be caused by either a low level of pasture magnesium or by a combination of low magnesium and high pasture potassium levels

Some of the research has indicated that low pasture magnesium can increase the frequency of dark cutting, independent of high potassium levels. There was also a clear link between increased crude protein pasture levels leading up to slaughter and increased incidences of dark cutting. It is known that high levels of nitrogen from protein in pastures can interfere with the absorption of magnesium in the rumen.

It is recommended that cattle be growing at >0.8 kgLW/day to minimise the risk of dark cutting. Of particular importance is ensuring this growth rate in the 2 weeks prior to slaughter.

According to the research, cattle with low magnesium levels can produce more adrenalin in response to stress plus have a heightened reaction to that adrenalin. This can results in an increased rate of depletion of the muscle glycogen stores, leaving them more susceptible to dark cutting.

Recommendations:
FeedTest analysis are conducted throughout the 2018 Steer Trial, with possible weekly analysis in the 3 weeks leading up to slaughter.
Cattle are weighed a fortnight prior to transport to allow the cattle growth rates to be determined for the fortnight leading up to slaughter

Possible magnesium supplementation in the future if it is determined low pasture magnesium levels may be impacting on growth and possible carcase performance

Further reading/references for interest:

NSW PrimeFact – Grass Tetany in cattle
http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0013/111334/Grass-tetany-in-cattle.pdf

On farm factors increasing dark cutting in beef cattle http://www.asap.asn.au/wp-content/uploads/abstract-2015/236/attach_brief.pdf

The real cost of dark cutting meat http://www.farmingahead.com.au/wp-content/uploads/2016/10/e7b5b751d05a0f0854026d936093422f.pdf.pdf

CRC Fact Sheet – Producers can eliminate 'dark cutting'
http://www.beefcrc.com/documents/publications/fact-sheets/FS10-ProducerscaneliminateDarkCutting.pdf

Fiona Baker
Beef Extension Officer
Agriculture Victoria
Ellinbank 5624 2234
Fiona.baker@ecodev.vic.gov.au

2nd March 2018

Lardner Park

AGRICULTURE VICTORIA coles COOPERS EST. 1843 GALLAGHER mla MEAT & LIVESTOCK AUSTRALIA

EST. 1946 RADFORDS Warragul

evans petroleum bp Castrol

VISIT Baw Baw