CASE STUDIES AND CONSIDERATIONS FOR ESTIMATING THE VALUE OF THE PROPOSED LDL SYSTEM

INDUSTRY REPORT

Prepared by Greenleaf Enterprises- 22th June 2010

Case study 1:
Estimate producer costs to increase compliance to HSCW.

Background

It is recognised that within any commercial herd of cattle, there is a "normal" distribution of carcase weights. A vast array of variables contributes to this variation; for example age, birth weight, weaning weight, nutrition, genetics, pathogens, etc. When consigning a group of animals for sale to an abattoir's grid, a producer can use scales to improve the conformity of that lot to the grid specifications for HSCW. However, this does not improve the conformity of the whole herd as there will always be animals that are outside of the grid's ideal weight range.

The objective of this case study example is to highlight the producer costs involved with increasing compliance to HSCW. More specifically, it is to estimate the costs associated with selling the non-compliant animals, and therefore to show the saving in increasing HSCW compliance of the drafted lot sold to the abattoir. A number of scenarios have been compiled based on different management options available to a producer and estimate the net benefit of management interventions.

Assumptions

- The annual number of animals sold is 2 000 head.
- All cattle sales previously are through direct consignment to abattoirs.
- Current drafting for sale is only on a visual basis to have similar lots.
- Scales are not currently owned. With installation of scales and computer the producer can make alternative management decisions. Capital and installation cost for scales was estimated at $5000 (equal to $1000 p.a. over 10 years with a 10% interest rate).
    - Assumes no overweights with scales.
- Baseline freight cost is assumed at $20.0/head (200-400 km) (e.g. Darling Downs (Qld) to Brisbane).
- Freight costs are increased by $25.0/head by selling to different abattoirs (e.g. Darling Downs to Northern NSW).
- Selling out of spec cattle to abattoir "B" with a more favourable grid results in less discounts and a saving of = $0.02/kg on previously non-compliant cattle.
- Sending cattle to saleyards is assumed to be the same cost as baseline freight ($20.0/head). Rates per kilometre increase for short journeys compared to long-haul transport.
- Non-compliant cattle sold through saleyards still receive deductions, and therefore estimated to be the same as non-compliant cattle sold to Abattoir "B" in scenario B.
- Decreasing the size of consignments (Scenario A) increases the cost of freight. For example, rates per kilometre for a body truck are larger than a B-double.
- Holding light animals back to meet market specifications reduces the holding capacity that would otherwise be available. The opportunity cost of agistment is included $5 per head per

week, and is assumed that underweight cattle require a further 6 weeks to reach market specifications for HSCW.

Scenarios

- Current Scenario (no weighing) – sell all cattle to abattoir with 72% compliance to weight spec
- Scenario A (weighing) – draft in spec cattle and send to abattoir A. Hold underweights and send when carcase weight increases to be in spec.
- Scenario B (weighing) – draft in spec cattle and send to abattoir A, sell underweight to abattoir B
- Scenario C (Weighing) - draft in spec cattle and send to abattoir A, sell underweight to sale yards

Producer data

Annual no. head slaughtered	2 000

HSCW Compliance rate	72%	
Average discount ($/kg) at Abattoir "A" (all cattle)	-$ 0.06	
Average ded^n for non compliance	-$ 0.21	
Average discount saving ($/kg) at Abattoir "B"	$ 0.02	
Average discount saving ($/kg) at saleyards	$ 0.10	
Carcase category	Heavy yearling	
Average carcase weight	305	kg
Average sale price (excl. deduct.n)	$ 3.50	per kg (HSCW)
# of cattle within HSCW spec	1440	
# of cattle above HSCW spec	280	(heavy)
# of cattle below HSCW spec	280	(light)
Opportunity agistment cost		
Agistment cost per head/ week	$ 5.00	
No. of weeks to grow under weight cattle	6	

Capital expenses		
Scales	$ 5 000	
Useful life	10	years
Interest	10%	
Annual capital cost	$ 1 000	
Annual cost per head	$ 0.50	
Labour expenses		
Labour/hr	$ 28.6	
Man hours per consignment (no weighing)	24	h
Man hours per consignment (weighing)	32	h
Sale yard costs		
Agent Fees (percentage)	4%	
Agent fees per head ($)	$ 42.7	
Yard Fees	$ 8.50	per head
Freight		
Freight baseline	$ 20.00	per head
Freight variance (scenario B)	$ 25.00	per head
Freight variance (scenario A)	$ 10.00	per head

Labour cost		
Rate/unit	$20.00	per h
Labour on-costs	43.0%	
True labour rate	$28.60	per h
hours per day	8.0	h
Days per year	260	
True labour cost	$59 488	per annum

Cost alternatives to selling through abattoir grid with deductions for non-compliance

	Current scenario		Scenario A:		Scenario B:		Scenario C:	
Compliant animals	Sold to Abattoir "A"		Draft and sell compliant animals to abattoir "A"		Draft and sell compliant animals to abattoir "A".		Draft and sell compliant animals to abattoir "A".	
Non-compliant animals	Sold to Abattoir "A"		Draft and hold back cattle that are under spec (continuous harvesting). Sell to Abattoir "A".		Non-compliant animals sold to abattoir "B" on different price grid		Draft non-compliant cattle and sell through yards	
Weighing/no weighing	No weighing		Weighing		Weighing		Weighing	
Number of consignments (lots) per year	10		20		10		10	
	$/head	Total	$/head	Total	$/head	Total	$/head	Total
Capital cost	$ -	$ -	$ 0.50	$ 1 000	$ 0.50	$ 1 000	$ 0.50	$ 1 000
Labour cost	$ 3.43	$ 6 864	$ 9.15	$ 18 304	$ 4.58	$ 9 152	$ 4.58	$ 9 152
Freight cost	$ 20.00	$ 40 000	$ 30.00	$ 60 000	$ 27.00	$ 54 000	$ 20.00	$ 40 000
Abattoir deduction cost	$ 18.29	$ 36 588	$ -	$ -	$ 16.59	$ 33 173	$ 9.76	$ 19 514
Yard fees	$ -	$ -	$ -	$ -	$ -	$ -	$ 14.33	$ 28 664
Opportunity agistment cost	$ -	$ -	$ 4.20	$ 8 400	$ -	$ -	$ -	$ -
Total cost	$ 41.7	$ 83 452	$ 43.9	$ 87 704	$ 48.7	$ 97 325	$ 49.2	$ 98 330
TOTAL SALES REVENUE	$ 1 067	$ 2 134 300	$ 1 067	$ 2 134 300	$ 1 067	$ 2 134 300	$ 1 067	$ 2 134 300
Sales cost as % of total revenue	4%	4%	4%	4%	5%	5%	5%	5%
Net Benefit	$ 1 025		$ 1 023		$ 1 018		$ 1 018	
Net Benefit Relative to Current	$ -		-$ 2.13		-$ 6.94		-$ 7.44	

Figure 1: Costs of sale of different scenarios with the objective of increasing compliance to HSCW.

Adjustment to models to determine the breakeven points for the various scenarios:

Scenario B (selling out of spec to different abattoir) was at breakeven when the deductions were half of that for Abattoir A ($0.10/kg).

Scenario C (selling out of spec to sale yard) was at breakeven when a price premium of $0.19/kg (HSCW basis) was paid over the abattoirs base price. This assumes that despite being out of HSCW specification at Abattoir "A", the deduction otherwise due to these carcases is reduced by $0.19/kg (HSCW basis) by selling through the saleyards.

Producer data

Annual no. head slaughtered	2 000	
HSCW Compliance rate	72%	
Average discount ($/kg) at Abattoir "A" (all cattle)	-$ 0.06	
Average ded~n for non compliance	-$ 0.21	
Average discount saving ($/kg) at Abattoir "B"	$ 0.10	
Average discount saving ($/kg) at saleyards	$ 0.188	
Carcase category	Heavy yearling	
Average carcase weight	305	kg
Average sale price (excl. deduct.n)	$ 3.50	per kg (HSCW)
# of cattle within HSCW spec	1440	
# of cattle above HSCW spec	280	(heavy)
# of cattle below HSCW spec	280	(light)
Opportunity agistment cost		
Agistment cost per head/ week	$ 5.00	
No. of weeks to grow under weight cattle	6.0	

Capital expenses		
Scales	$ 5 000	
Useful life	10	years
Interest	10%	
Annual capital cost	$ 1 000	
Annual cost per head	$ 0.50	
Labour expenses		
Labour/hr	$ 28.6	
Man hours per consignment (no weighing)	24	h
Man hours per consignment (weighing)	32	h
Sale yard costs		
Agent Fees (percentage)	4%	
Agent fees per head ($)	$ 42.7	
Yard Fees	$ 8.50	per head
Freight		
Freight baseline	$ 20.00	per head
Freight variance (scenario B)	$ 25.00	per head
Freight variance (scenario A)	$ 10.00	per head

Labour cost		
Rate/unit	$20.00	per h
Labour on-costs	43.0%	
True labour rate	$28.60	per h
hours per day	8.0	h
Days per year	260	
True labour cost	$59 488	per annum

Cost alternatives to selling through abattoir grid with deductions for non-compliance

	Current scenario		Scenario A:		Scenario B:		Scenario C:	
Compliant animals	Sold to Abattoir "A"		Draft and sell compliant animals to abattoir "A"		Draft and sell compliant animals to abattoir "A".		Draft and sell compliant animals to abattoir "A".	
Non-compliant animals	Sold to Abattoir "A"		Draft and hold back cattle that are under spec (continuous harvesting). Sell to Abattoir "A".		Non-compliant animals sold to abattoir "B" on different price grid		Draft non-compliant cattle and sell through yards	
Weighing/no weighing	No weighing		Weighing		Weighing		Weighing	
Number of consignments (lots) per year	10		20		10		10	
	$/head	Total	$/head	Total	$/head	Total	$/head	Total
Capital cost	$ -	$ -	$ 0.50	$ 1 000	$ 0.50	$ 1 000	$ 0.50	$ 1 000
Labour cost	$ 3.43	$ 6 864	$ 9.15	$ 18 304	$ 4.58	$ 9 152	$ 4.58	$ 9 152
Freight cost	$ 20.00	$ 40 000	$ 30.00	$ 60 000	$ 27.00	$ 54 000	$ 20.00	$ 40 000
Abattoir deduction cost	$ 18.29	$ 36 588	$ -	$ -	$ 9.59	$ 19 172	$ 2.24	$ 4 488
Yard fees	$ -	$ -	$ -	$ -	$ -	$ -	$ 14.33	$ 28 664
Opportunity agistment cost	$ -	$ -	$ 4.20	$ 8 400	$ -	$ -	$ -	$ -
Total cost	$ 41.7	$ 83 452	$ 43.9	$ 87 704	$ 41.7	$ 83 324	$ 41.7	$ 83 304
TOTAL SALES REVENUE	$ 1 067	$ 2 134 300	$ 1 067	$ 2 134 300	$ 1 067	$ 2 134 300	$ 1 067	$ 2 134 300
Sales cost as % of total revenue	4%	4%	4%	4%	4%	4%	4%	4%
Net Benefit	$ 1 025		$ 1 023		$ 1 025		$ 1 025	
Net Benefit Relative to Current	$ -		-$ 2.13		$ 0.06		$ 0.07	

Figure 2: Break even sale prices of the different scenarios specified in Figure 1.

Case study 2:
Influence of increasing compliance to HSCW on feedlot sales revenue.

Background

Increasing compliance to HSCW within the feedlot is difficult, since a pen of cattle is typically sold as one consignment. Between animal differences (e.g. feed intakes and metabolic conversion of feed intake to gain) can cause variation in live weight at slaughter. Continually "harvesting" cattle that are within specifications for HSCW is not standard practice for most feedlots. The concept of extending or shortening the number of days on feed within a feedlot to minimise the occurrence of under or over weight carcasses has financial consequences that for most feedlots make the concept unprofitable.

The purpose of this case study is to demonstrate the influence of increasing compliance to HSCW upon standard sales prices for grain fed beef cattle. The effect on price per kg to exit cattle before the feeding term (required days on feed) or extending the feeding term are estimated. Commodity and cattle prices fluctuate significantly over time, as do performance levels across different cattle types and production systems. Therefore it is impossible to apply one set of assumptions to all situations. The scenarios used below indicate the drivers involved in making these decisions and the magnitude of value for different management decisions under different market constraints.

Assumptions

Non-costed assumptions

Although not costed within this model, production costs (e.g. labour) will be increased with changes to feedlot operation. These are likely to include, (but not restricted to):

- Costs of feeding (energy, labour and capital costs) will increase as the number of head is reduced per pen under continual harvesting.
- Feed conversion ratio decreases as the number of days on feed increases. The cost of feeding therefore increases as the number of days on feed is increased.
- Labour costs will increase as the number of consignments (and therefore number of cattle handling requirements) increases.

Costed assumptions

Feedlots are unlikely to change the way they turn off cattle in order to increase compliance to carcase weight and fat due to a number of commercial constraints:

1. Factors that prevent feedlots from turning off latter to limit underweight carcases:
    a. In Australia livestock intake costs are normally lower than cost of meat gain in the feedlot. This means it is more costly to keep animals longer than it is to start with new cattle once the required days on feed have been met.
    b. The feed to gain ratio increases as days on feed increases. Ultimately, the cost to hold cattle longer offsets to some degree the savings in holding cattle longer.
2. Factors that prevent feedlots from turning off earlier to limit overweight carcases:
    a. Minimum days on feed are critical to meeting the required grain fed market classification. Exiting the feedlot before the minimum number of days on feed means that the premiums otherwise available are negated.
    b. Grain fed cattle are usually contracted to a fixed number of days on feed. The spot price achieved by exiting a contract is not normally as favourable as the contract value.
    c. Average daily gain between 70-90 days is still very good. The gain achieved in this period normally outweighs the deductions for being overweight.

In the Scenario B below:

- While there is a premium for grain fed product over grass fed, it does not pay to exit cattle less than 100 days on feed.

Feedlot data

Head per pen	200

HSCW Compliance rate	72%	
Average discount ($/kg) at Abattoir "A" (all cattle)	-$ 0.06	
Average ded~n for non compliance	-$ 0.21	
Carcase category	Grainfed 100 Days	
Average carcase weight	312	kg
120 day contract price	$ 4.20	per kg (HSCW)

	Percent of pen	price reduction
70-100 day spot price deduction (not grain fed)	10%	-$ 0.30
100 day spot price deduction (grain fed)	15%	-$ 0.10
+120 day (incur cost of gain to meet weight spec)	10%	assumes 20 days additional feeding

Average liveweight at induction	300	kg
Days on feed (term)	120	
ADG (0-120 days)	2.0	kg
ADG (100-120 days)	1.6	kg
FCR (kg feed / kg of gain)	6.0	
Feed cost	$ 300	MT
Daily feed intake	12	kg
Liveweight at term	540	kg
Dressing percentage	65%	
Average carcase value	$ 1 474	(Contract value)
Carcase cost at Induction	$ 1.90	per kg
Cost of feedlot gain @ 120days	$ 2.25	per kg

Influence of increasing HSCW compliance upon feedlot sales revenue

	Current scenario		Scenario A:		Scenario B:	
Description	Harvest all cattle within pen at completion of term		Continuous harvesting after 100 days		Continuous harvesting regardless of term length	
Compliant animals	Sold to Abattoir "A"		Draft and sell compliant animals to abattoir "A"		Draft and sell compliant animals to abattoir "A".	
Non-compliant animals	Sold to Abattoir "A"		Draft and hold back cattle that are under spec (continuous harvesting). Sell to Abattoir "A".		Draft and hold back cattle that are under spec (continuous harvesting). Sell to Abattoir "A".	
Weighing/no weighing	No weighing		Weighing		Weighing	
Minimum days on feed (term)	120		100 - 120		70-120	
	$/head	Total per pen	$/head	Total per pen	$/head	Total per pen
Abattoir deduction cost	$ 18.73	$ 3 745	$ 5.35	$ 1 070	$ -	$ -
Reduced price (forfeiting contract price)	$ -	$ -	$ 7.80	$ 1 561	$ 7.80	$ 1 561
Increase/reduction in feedlot cost of gain†	$ -	$ -	$ 1.12	$ 224	$ 1.12	$ 224
Additional labour costs		$ -	$ 2.29	$ 458	$ 3.43	$ 686
Reduced value (selling as grass fed <100 DOF)	$ -	$ -	$ -	$ -	$ 9.36	$ 1 873
Total cost	$ 18.7	$ 3 745	$ 16.6	$ 3 312	$ 21.7	$ 4 344
TOTAL SALES REVENUE	$ 1 311	$ 262 164	$ 1 311	$ 262 164	$ 1 311	$ 262 164
Sales cost as % of total revenue	1.4%	1.4%	1.3%	1.3%	1.7%	1.7%
Net Benefit	$ 1 292		$ 1 294		$ 1 289	
Net Benefit Relative to Current	$ -		$ 2.17		-$ 2.99	

† Cost of liveweight gain in the feedlot may be increased or decreased, depending upon commodity and feeder cattle prices.

Figure 3: Costs of sale for different scenarios with the objective of increasing compliance of feedlot cattle to HSCW specifications

In Scenario A below:

- While the grain fed spot price is not a big differential from contracted prices, it does make sense to exit +120 day cattle earlier that would otherwise be overweight and out of specification.

It is acknowledged that the production costs associated with the process changes below may outweigh any potential increases in product value; however it is not considered within the scope of this estimate.

Feedlot data

Head per pen	200	

HSCW Compliance rate	72%	
Average discount ($/kg) at Abattoir "A" (all cattle)	-$ 0.06	
Average ded~n for non compliance	-$ 0.21	
Carcase category	Grainfed 100 Days	
Average carcase weight	312	kg
120 day contract price	$ 4.20	per kg (HSCW)

Average liveweight at induction	300	kg
Days on feed (term)	120	
ADG (0-120 days)	2.0	kg
ADG (100-120 days)	1.6	kg
FCR (kg feed / kg of gain)	6.0	
Feed cost	$ 300	MT
Daily feed intake	12	kg
Liveweight at term	540	kg
Dressing percentage	65%	
Average carcase value	$ 1 474	(Contract value)
Carcase cost at Induction	$ 1.90	per kg
Cost of feedlot gain @ 120days	$ 2.25	per kg

	Percent of pen	price reduction	
70-100 day spot price deduction (not grain fed)	0%	-$ 0.30	
100 day spot price deduction (grain fed)	15%	-$ 0.10	
+120 day (incur cost of gain to meet weight spec)	10%		assumes 20 days additional feeding

Influence of increasing HSCW compliance upon feedlot sales revenue

	Current scenario		Scenario A:		Scenario B:	
Description	Harvest all cattle within pen at completion of term		Continuous harvesting after 100 days		Continuous harvesting regardless of term length	
Compliant animals	Sold to Abattoir "A"		Draft and sell compliant animals to abattoir "A"		Draft and sell compliant animals to abattoir "A".	
Non-compliant animals	Sold to Abattoir "A"		Draft and hold back cattle that are under spec (continuous harvesting). Sell to Abattoir "A".		Draft and hold back cattle that are under spec (continuous harvesting). Sell to Abattoir "A".	
Weighing/no weighing	No weighing		Weighing		Weighing	
Minimum days on feed (term)	120		100 - 120		70-120	
	$/head	Total per pen	$/head	Total per pen	$/head	Total per pen
Abattoir deduction cost	$ 18.73	$ 3 745	$ -	$ -	$ -	$ -
Reduced price (forfeiting contract price)	$ -	$ -	$ 4.68	$ 936	$ 4.68	$ 936
Increase/reduction in feedlot cost of gain†	$ -	$ -	$ 1.12	$ 224	$ 1.12	$ 224
Additional labour costs		$ -	$ 2.29	$ 458	$ 3.43	$ 686
Reduced value (selling as grass fed <100 DOF)	$ -	$ -	$ -	$ -	$ -	$ -
Total cost	$ 18.7	$ 3 745	$ 8.1	$ 1 618	$ 9.2	$ 1 847
TOTAL SALES REVENUE	$ 1 311	$ 262 164	$ 1 311	$ 262 164	$ 1 311	$ 262 164
Sales cost as % of total revenue	1.4%	1.4%	0.6%	0.6%	0.7%	0.7%
Net Benefit	$ 1 292		$ 1 303		$ 1 302	
Net Benefit Relative to Current	$ -		$ 10.64		$ 9.49	

† Cost of liveweight gain in the feedlot may be increased or decreased, depending upon commodity and feeder cattle prices.

Figure 4: Costs of sale for different scenarios, highlighting a reduced cost by not selling grain fed cattle before minimum feed is attained.

In Scenario A below - As soon as the price differential between 100 day grain fed spot price and contracted 120 day price exceeds $0.18/kg at the current production and feeder cattle costs it is better not to sort cattle on weight compliance.

Feedlot data

Head per pen	200

HSCW Compliance rate		72%	
Average discount ($/kg) at Abattoir "A" (all cattle)	-$	0.06	
Average ded~n for non compliance	-$	0.21	
Carcase category		Grainfed 100 Days	
Average carcase weight		312	kg
120 day contract price	$	4.20	per kg (HSCW)

	Percent of pen	price reduction	
70-100 day spot price deduction (not grain fed)	0%	-$ 0.30	
100 day spot price deduction (grain fed)	30%	-$ 0.18	
+120 day (incur cost of gain to meet weight spec)	0%	assumes 20 days additional feeding	

Average liveweight at induction	300	kg
Days on feed (term)	120	
ADG (0-120 days)	2.0	kg
ADG (100-120 days)	1.6	kg
FCR (kg feed / kg of gain)	6.0	
Feed cost	$ 300	MT
Daily feed intake	12	kg
Liveweight at term	540	kg
Dressing percentage	65%	
Average carcase value	$ 1 474	(Contract value)
Carcase cost at Induction	$ 1.90	per kg
Cost of feedlot gain @ 120days	$ 2.25	per kg

Influence of increasing HSCW compliance upon feedlot sales revenue

	Current scenario		Scenario A:		Scenario B:	
Total cost	$ 18.7	$ 3 745	$ 18.7	$ 3 735	$ 19.8	$ 3 963
TOTAL SALES REVENUE	$ 1 311	$ 262 164	$ 1 311	$ 262 164	$ 1 311	$ 262 164
Sales cost as % of total revenue	1.4%	1.4%	1.4%	1.4%	1.5%	1.5%
Net Benefit	$ 1 292		$ 1 292		$ 1 291	
Net Benefit Relative to Current	$ -		$ 0.05		-$ 1.09	

Figure 5: Demonstrated cost of sale for feedlot cattle when sold out of contract price.

The Scenario A below assumes all out of spec cattle are under weight and have to be fed for an additional 20 days. Grain prices are high at $400/MT and feeder cattle prices are low at $1.80/kg. It is still profitable to hold cattle back and increase carcase weights.

It is acknowledged that the production costs associated with the process changes below may outweigh any potential increases in product value; however it is not considered within the scope of this estimate.

Feedlot data

Head per pen	200

HSCW Compliance rate	72%	
Average discount ($/kg) at Abattoir "A" (all cattle)	-$ 0.06	
Average ded~n for non compliance	-$ 0.21	
Carcase category	Grainfed 100 Days	
Average carcase weight	312	kg
120 day contract price	$ 4.20	per kg (HSCW)

	Percent of pen	price reduction
70-100 day spot price deduction (not grain fed)	0%	-$ 0.30
100 day spot price deduction (grain fed)	0%	-$ 0.10
+120 day (incur cost of gain to meet weight spec)	30%	assumes 20 days additional feeding

Average liveweight at induction	300	kg
Days on feed (term)	120	
ADG (0-120 days)	2.0	kg
ADG (100-120 days)	1.6	kg
FCR (kg feed / kg of gain)	6.0	
Feed cost	$ 400	MT
Daily feed intake	12	kg
Liveweight at term	540	kg
Dressing percentage	65%	
Average carcase value	$ 1 474	(Contract value)
Carcase cost at Induction	$ 1.80	per kg
Cost of feedlot gain @ 120days	$ 3.00	per kg

Influence of increasing HSCW compliance upon feedlot sales revenue

	Current scenario		Scenario A:		Scenario B:	
Description	Harvest all cattle within pen at completion of term		Continuous harvesting after 100 days		Continuous harvesting regardless of term length	
Compliant animals	Sold to Abattoir "A"		Draft and sell compliant animals to abattoir "A"		Draft and sell compliant animals to abattoir "A".	
Non-compliant animals	Sold to Abattoir "A"		Draft and hold back cattle that are under spec (continuous harvesting). Sell to Abattoir "A".		Draft and hold back cattle that are under spec (continuous harvesting). Sell to Abattoir "A".	
Weighing/no weighing	No weighing		Weighing		Weighing	
Minimum days on feed (term)	120		100 - 120		70-120	
	$/head	Total per pen	$/head	Total per pen	$/head	Total per pen
Abattoir deduction cost	$ 18.73	$ 3 745	$ -	$ -	$ -	$ -
Reduced price (forfeiting contract price)	$ -	$ -	$ -	$ -	$ -	$ -
Increase/reduction in feedlot cost of gain†	$ -	$ -	$ 11.52	$ 2 304	$ 11.52	$ 2 304
Additional labour costs		$ -	$ 2.29	$ 458	$ 3.43	$ 686
Reduced value (selling as grass fed <100 DOF)	$ -	$ -	$ -	$ -	$ -	$ -
Total cost	$ 18.7	$ 3 745	$ 13.8	$ 2 762	$ 15.0	$ 2 990
TOTAL SALES REVENUE	$ 1 311	$ 262 164	$ 1 311	$ 262 164	$ 1 311	$ 262 164
Sales cost as % of total revenue	1.4%	1.4%	1.1%	1.1%	1.1%	1.1%
Net Benefit	$ 1 292		$ 1 297		$ 1 296	
Net Benefit Relative to Current	$ -		$ 4.92		$ 3.77	

† Cost of liveweight gain in the feedlot may be increased or decreased, depending upon commodity and feeder cattle prices.

Figure 6: Cost of sale for different scenarios with altered buy-in feed and cattle prices.

Case study 3:
Influence of HCW compliance on abattoir processing costs.

Background

Hot carcase weight impacts on processors in a number of ways. Cattle are purchased to meet specific market requirements. Specifications may include number of pieces per carton where over weight primals reduce the number of pieces per carton and increase packaging cost. Primal weight ranges may also be required where product outside the target weight is worth less or not accepted at all.

Management of slaughter and boning operations is based on chain speeds for given carcase types and boning room manning based on average carcase weights. If carcases fall into the lower end of the grid the operational costs per kilogram are increased and impact on carcase profit. Boning room labour costs varying significantly across processing plants depending on the configuration of the room, the type of cattle being processed and the cutting specifications being produced. Table 1 (below) indicates approximate costs to processors for out of specification carcase weights.

Table 1: Impact of carcase weight on boning costs

	HCW changes on labour cost /kg			
HCW	250	300	350	
Boning Labour / kg	0.190	0.158	0.136	
	-$ 0.054	-$ 0.023	$ -	$/kg
	-$ 13.56	-$ 6.78	$ -	$/Hd

Case study 4:
Influence of increasing P8 fat compliance on abattoir processing.

Background

The fatness of an animal impacts on final saleable meat value in a number of ways at the processor. These include the amount of meat or lean meat yield (LMY) from an animal. The higher the ratio of saleable meat the greater the average carcase value per kilogram. Fatter animals require additional trimming of fat to meet customer specifications. This extra work slows the production flow and increases boning labour cost per kilogram of meat.

Table 2 indicates the magnitude of additional work required to bone out fatter carcases. This number could change by 100-200% in direct cost per kilogram between different processing plants, carcase types and customer specifications. However, the magnitude of difference (2-5% change in chain speed) is realistic.

Table 2: Estimated difference in labour cost for boning fatter carcases

Pdn kg p.a.	263					
Pdn Head p.a.	1					
Boning throughput/category (if no carcases were out of fat spec)						
	CCW	Hd/hr Increase	% chain increase with lean carcases	$/hd labour cost saving	% annual mix	Labour saving p.a.
Light Veal	80	0.5	0%	$ -	0%	$ -
Heavy Veal	125	0.1	0%	$ -	0%	$ -
Yearling	175	0.7	3%	-$ 1.29	10%	-$ 0.13
Cow	220	0.6	2%	-$ 0.62	20%	-$ 0.12
Short Fed	280	0.3	3%	-$ 1.40	65%	-$ 0.91
Long Fed	390	0.6	5%	-$ 5.74	5%	-$ 0.29
Average	263.0	0.4			100%	**-$ 1.45**

Increasing Carcase LMY over time

The use of P8 fat in Australia continues to have a low correlation with the yield or saleable value of the carcase. Implementing an accurate measurement system would provide commercial data on how to better select animals, allowing faster improvement in carcase composition over time. The question is: "how does increasing yield provide financial benefit to the processor and producer?"

Using a VIA-Scan system with R^2 around 0.65 could provide a significant cost saving. The payback is based primarily around increasing the average LMY % through production selection as premiums are paid to producers for higher lean meat yield. At a meat price of $3.50/kg an increase in LMY of 0.5% on a 350 Kg carcase is an additional $6.12/head. Passing on 40% ($2.45/hd) of the premium as incentive to the growers returns $3.68/head to the processor.

The calculations below indicate possible benefits in carcase lean meat yield over time and estimate the difference in value over time between different levels of predictive accuracy.

The first table below indicates the type of benefits possible using a measurement system that is about 60% accurate.

The Second table shows the additional benefit using a system that is 80% accurate.

Table 3: Increased value resulting from improved carcase lean meat yield

Weekly Throughput		4,800
Red Meat Revenue	$	3.80
Net Benefit to Plant (supplier 40%)		60%
Weeks		50
HSCW		350

Red Meat Yield Improvement (LMY R^2 ~ 0.60)	LMY ↑ p.a.	$AUD
Year 1	0.00%	$ -
Year 2	0.30%	$ 574,560
Year 3	0.50%	$ 957,600
Year 4	0.60%	$ 1,149,120
Year 5	0.70%	$ 1,340,640
Total Improvement	2.10%	$ 4,021,920
Average Annual Improvement over 5 years	0.42%	$ 804,384

By having an even more accurate system (than that illustrated above), the signals sent back to growers are clearer and the rate of supplier change increases faster.

Sales (Product Value)

Optimising Carcase Value through better sales management

Existing supplier payment grids average distribution of predicted LMY values and balance out on either side of the actual value. The less accurate the prediction of carcase value, the more variation between actual carcase value and what the supplier is paid for the carcase.

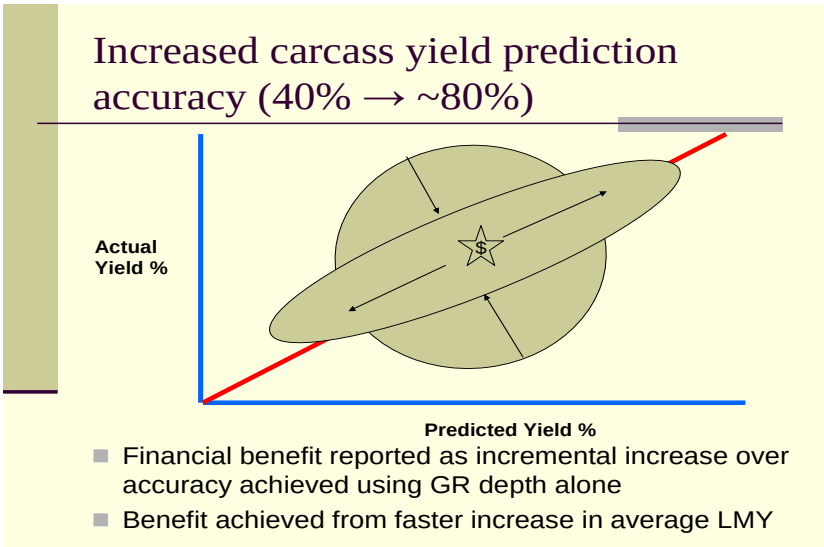


Figure 7: Graphical representation of improved yield prediction from 40% to 80%

A LMY prediction graph plots predicted values above and below the actual LMY value and averages total livestock cost. At any given point in time the average livestock price is the same with both highly accurate and very inaccurate systems. This assumes the inaccuracies are spread evenly under and over the average value, as in the example graph below (.

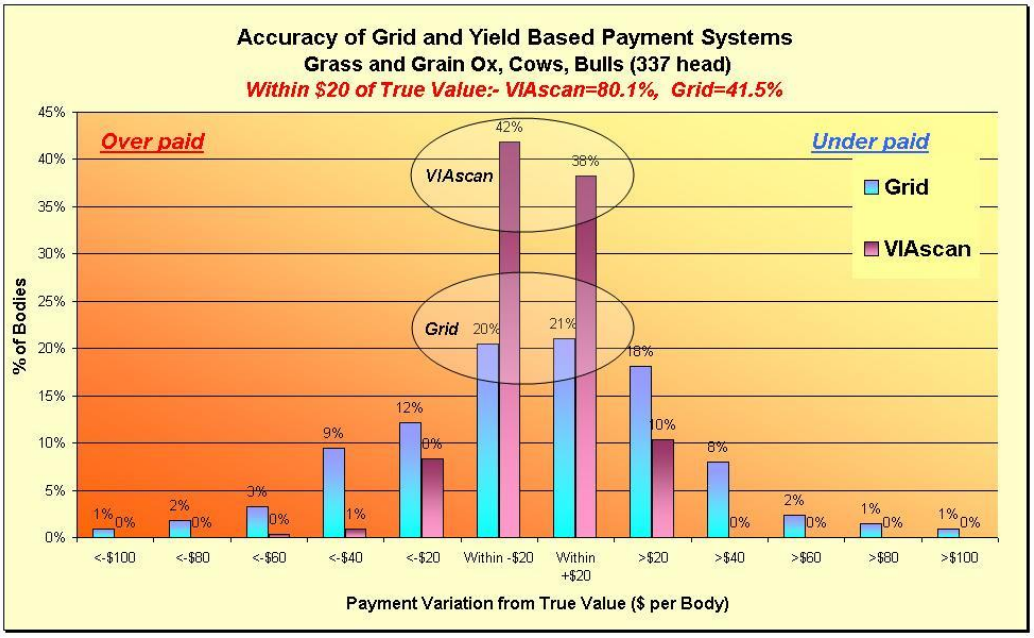
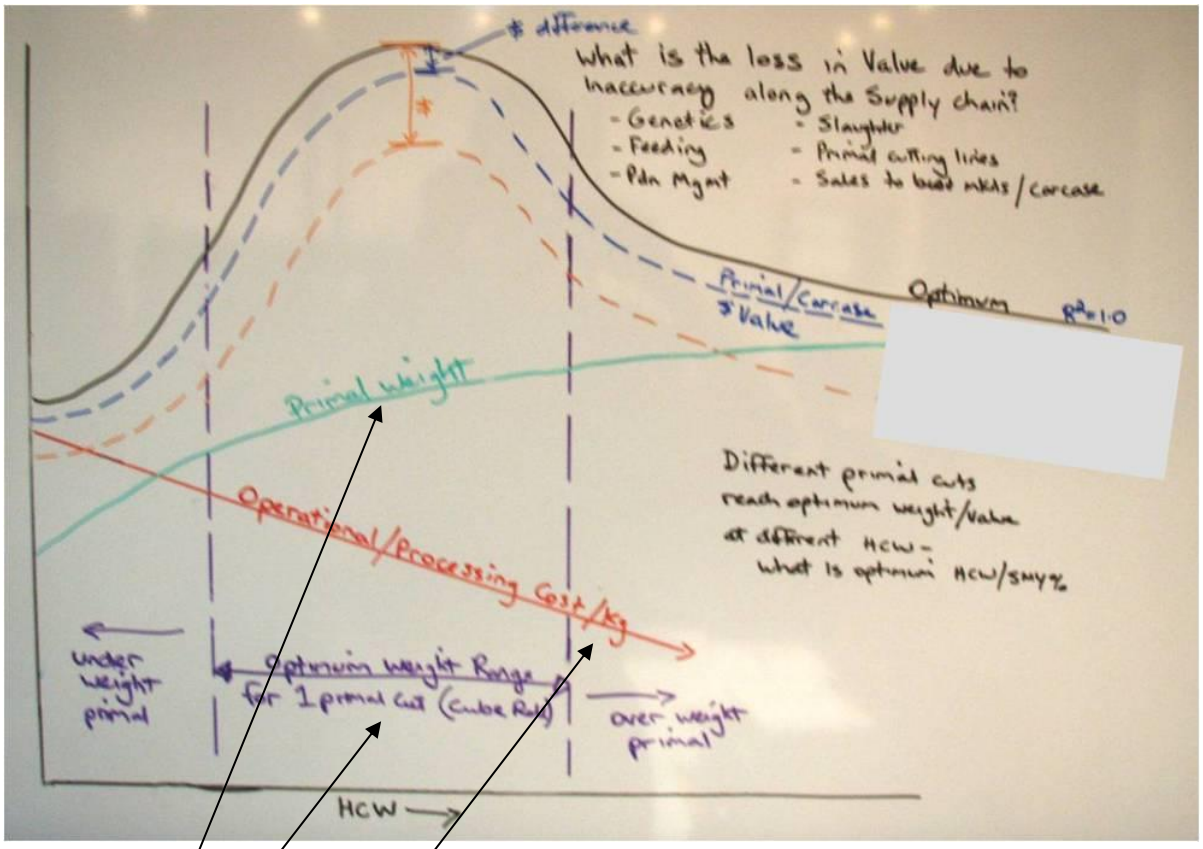


Figure 8: Graphical representation of improved yield prediction from 40% to 80%

Prediction of optimum carcase value can't average or cancel over paid with under paid cattle. Any inaccuracy will be a decrease from optimum. Therefore, increasing accuracy of value prediction is a direct increase in dollars gained by the sales team.



The key points depicted in the graph above show the optimum $ VALUE for a carcase in the solid black line across the top. This optimum value is driven by a combination of:

- Primal cut weight ;
- Cutting lines governed by sales decisions;
- Target vs. actual Primal SMY % and weights; and
- Processing costs governed by carcase size with:
    a. larger carcases being cheaper to process per kilogram; and
    b. fatter carcases being more expensive to process

As weight of a carcase increases the primal weights increase. There is an optimum range in primal weight to produce the highest value product (for example, supply of weight ranged cube rolls to foodservice). Once a carcase goes above a certain weight its value decreases but is offset to some degree by reduced processing costs for larger cuts.

Not all cuts in the carcase reach optimum weight at the same time. In addition, the variation in LMY and primal SMY prediction and the variability makes it impossible to even consider tighter

production planning and sales optimisation. However, if the above things are able to be predicted before boning they become a powerfully beneficial management tool. Attempts to estimate this value difference will gain the attention and interest of some plants. Based on the numbers presented by VIA-Scan, there are significant dollar benefits by implementing VIA-Scan LMY over current P8 and HCW. In addition, such as system will deliver greater increase in total supply chain value over time.