



Insight Paper No. 3

Trading margins and sensitivities



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The steer trading system

There are two components to a livestock trade. They are the weight gain margin and the trading margin. While both are important, it is the weight gain margin that the livestock manager has the most control over. Factors delivering a high weight gain margin include feed quality, genetics, animal health and managing the livestock–pasture interface.

Refresher: Papers 1 & 2

Insight Paper #1 showed that the mid-winter stocking rate of the trading component was significantly higher than the breeding component of the system. It is plausible that the higher mid-winter stocking rate of the trading component was sustainable as a component of the system because the breeding component stocking rate was relatively lower.

Insight Paper #2 showed that Trading enterprise profits are far more sensitive to deviations in sale weight than are breeding enterprise profits. This occurs because there are far more livestock for the same amount of feed consumption. Understanding and implementing the management factors necessary to deliver target weights is critical to optimising profit.

Insight Paper #3 looks at the Steer Trading System, in particular the weight gain margin and the trading margin.

The Trading Margin

The trading margin is the margin on every kilogram of liveweight purchased. It is calculated by deducting the sell price per kilogram liveweight from the buy price per kilogram liveweight and multiplying by the liveweight at purchase. The trading margin will be positive (trading gain) where the sell price exceeds the buy price per kilogram liveweight and it will be negative (trading loss) where the buy price exceeds the sell price per kilogram liveweight.

For example, consider a trading situation where the weaner steer buy price is \$4.00 per kilogram liveweight and the sale price is \$5.00 per kilogram liveweight. Assuming a purchase weight of 250 kilograms liveweight per head then the trading margin is calculated as:

- (Sell price (\$/kg lwt) less buy price (\$/kg lwt)) x liveweight at purchase
- (\$5.00/kg lwt less \$4.00/kg lwt) = \$1/kg lwt x 250 kg/head lwt = \$250 per head trading margin. This is expressed as a \$250 per head trading gain.



Consider an alternative trading situation where the weaner steer buy price is \$5.00 per kilogram liveweight and the sale price is \$4.00 per kilogram liveweight. Assuming a purchase weight of 250 kilograms liveweight per head again then the trading margin is calculated as:

- $(\$4.00/\text{kg lwt less } \$5.00/\text{kg lwt}) = -\$1/\text{kg lwt} \times 250 \text{ kg/head lwt} = -\250 per head trading margin. This is expressed as a \$250 per head trading loss.
- Where the sell price exceeds the buy price the heavier the liveweight at purchase the greater the trading gain will be. Where the buy price exceeds the sell price the heavier the liveweight at purchase the greater the trading loss will be.

The weight gain margin

The weight gain margin is the margin made on every kilogram of weight gain. It is made up of the total kilograms gained multiplied by the price per kilogram liveweight at sale.

For example, consider a steer purchased at 250 kilograms liveweight and sold for 450 kilograms liveweight at \$4.00 per kilogram liveweight. The weight gain equates to 200 kilograms per head (450-250kg/hd) which is multiplied by the price of \$4.00 per kilogram to give the weight gain margin of \$800 per head. This is then added to the weight gain margin to deliver the net trading margin.

Enterprise expenses are deducted from this figure from this figure to deliver the gross margin.

Effect of price and liveweight on trading margin (gain/loss)

		Price (\$/kg lwt)	
		buy > sell	sell > buy
Liveweight (kg lwt/hd)	Heavy	Large loss	Large gain
	Light	Small loss	Small gain



Per head comparisons of trading margins typically don't account for mortalities thus margins can be overstated when they are only considered on a per head basis. Assessing trading business performance at a gross level is desirable as it accounts for the difference due to mortality between purchase and sale numbers. Once the gross values are determined the numbers can be divided by the purchase or sale number or the average of the two to give per head outcomes.

Figure 1 shows the sensitivity of the difference between trading and breeding system profit to weaner steer purchase price and sale weight assuming no difference in pasture based costs between systems. The three weaner steer purchase prices represent 20% buy to sell discount, parity (\$3.80/kg lwt) and 20% buy to sell premium with a fixed steer sale price of \$3.80 per kilogram liveweight.

The breeding herd is not exposed to the buy side price differences as weaner steers in that system are bred rather than purchased. The five sale weights represent livestock sale weight differences from base case of 455 kilograms liveweight per head (-20%,-10%,0%,+10%,+20%). These changes are reflected in the breeding system as well as the trading system.

The Sensitivity Analysis

The sensitivity analysis shows that if average sale weight of steers does not exceed 435 kilograms liveweight with a weaner purchase price of \$4.60 per kilogram liveweight then the breeding system is more profitable.

Where the buy price is far lower than the sell price (\$3.04 v \$3.80) then weight gain becomes less important and there is far more benefit in managing a trading system than a breeding system. Where the buy price is at parity with the sell price then the profits of the trading system are still weighted heavily in favour of the trading system.

While this sensitivity analysis shows that profits are highly sensitive to buy price, the manager has very little influence in this area.



Outside of purchase timing there is little that a buyer can do to change buy price.

Weight gain on the other hand, is in the control of the manager and has a significant impact on the outcome so this is where the energy of the manager should be invested. Ensuring adequate biomass of suitable quality, buying livestock with high genetic potential and treating animal health disorders proactively and pre-emptively are all factors that influence weight gain.

The relationship shown in Figure 1 below will change where there is differential pasture investment between systems.

Figure 1. The trading system profit is sensitive to buy to sell ratio and sale weight

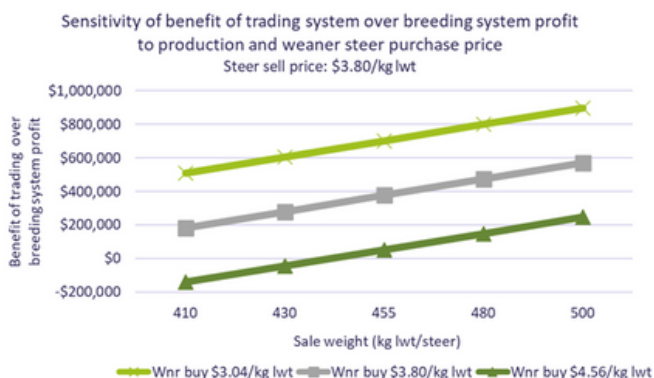
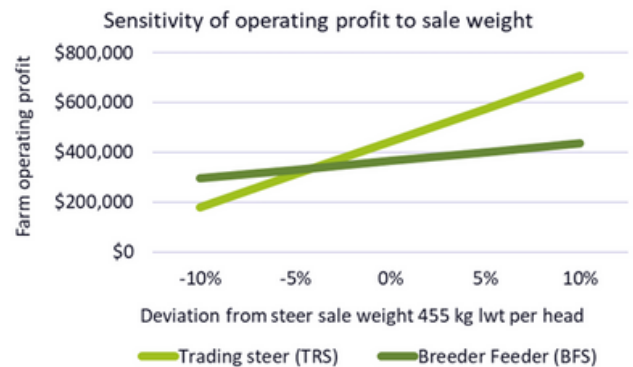


Figure 2. Profit in the trading system is far more sensitive to changes in production than profit in the breeding system



What do this means for you?

Trading enterprise profits are far more sensitive to deviations in sale weight than are breeding enterprise profits.

This occurs because there are far more livestock for the same amount of feed consumption.

Understanding and implementing the management factors necessary to deliver target weights is critical to optimising profit.