

## NLIS Cattle: utilising carcass information

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The introduction of the National Livestock Identification System (NLIS) is designed to protect and enhance Australia's reputation as a producer of quality beef by providing lifetime traceability of every animal.

This Primefact shows how the introduction of the NLIS has provided beef producers with a means of obtaining and utilising individual carcass feedback from processors.

### Why carcass information is important

It is becoming increasingly important for beef producers to be able to use carcass information in order to maintain farm viability, enhance domestic beef demand and sustain Australia's share of the international beef trade. Approximately 65% of Australian beef is exported, and competes for specific markets with numerous countries. Supplying beef cuts and carcasses that meet the individual market specifications of our customers is crucial in ensuring that Australia remains competitive in the international marketplace.

The importance of meeting market specifications is reflected in the discounts incurred by carcasses that do not comply. These discounts can dramatically affect the economic performance of a beef production enterprise.

In the example in Table 1, the value of a truckload of yearling steers (48 steers, 15–20 months, carcass weight 235 kg) sent directly to slaughter is reduced by \$564 for each 5c/kg reduction in average carcass price.

### Accessing carcass information

Beef processors in NSW are required to provide basic carcass information to the NLIS database, including date of slaughter, NLIS device numbers, consignment property identification code (PIC) and carcass weight. Such basic carcass information is of limited value, and producers who directly consign cattle to slaughter are urged to seek and use more comprehensive information from their processors.

Table 1. Gross value of steers (48 carcasses averaging 235 kg) for a range of dressed weight prices

Steer carcass price (\$/kg)	Gross revenue (48 steers)
\$3.60	\$40,608
\$3.55	\$40,044
\$3.50	\$39,480
\$3.45	\$38,916

For more information see the beef cattle gross margins on the NSW DPI website.





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Carcase Dressing to Ausmeat Specification of a Standard Carcass.

Feedback Sheet : Beef		Ausmeat A+ Category				Fat Probe Operator									
Consignee		Vendor 1		Date of Slaughter				03/05/06							
Consigned To		Operator 1													
Lot No	Mkt	Body Number	Weight Kgs	Sex	Age Teeth	Fat mm	Bruise L - R	Property ID	NLIS ID Number	RFID Number	Test	Com pan	DPI	Condemn Part / Reason	
73	2K	6432	208.4	M	0	9	0 0	NH120	NH120	XBA00	982 000031458				
	2K	6430	204.6	M	0	8	0 0	NH120	NH120	XBA00	982 000031687				
Lot Total		Total Carcasses =		2		Total Weight =		413		Average Wgt =		206.5		Average Fat = 8.5	

Figure 1. Most NSW beef processors can link NLIS numbers with carcass feedback data. Producers who directly consign cattle to slaughter are urged to seek and use this information from their processors if they are not providing it already.

Note that advanced beef processors, including the Northern Co-operative Meat Company, can also link chiller assessment data (fat and meat colour, marbling score, eye muscle area) with NLIS numbers.

Most of the major NSW beef processors can link NLIS numbers with the standard carcass feedback available to producers (Figure 1). That feedback contains a range of information and usually includes:

- bruise score
- hot standard carcass weight (HSCW)
- P8 fat depth
- dentition
- sex
- butt shape.

**Using carcass information**

Discounts for carcasses that fail to meet specifications vary between processors as well as between seasons, but can be substantial. Producers able to relate carcass information to live animals using NLIS numbers are in an excellent position to develop a plan to minimise the risk of carcasses not complying with market specifications.

For example, **dark cutting** or **bruised carcasses** can be heavily discounted. Being able to identify those animals may allow the producer to determine how the bruising may have occurred and, if necessary, adjust the following factors.

- Increase nutrition. Ensure that stock are gaining at least 0.6 kg/day in the weeks prior to slaughter or are otherwise being supplemented with a high energy ration.
- Improve stock handling. Reduce noise and stress during yarding, transport and lairage; wean calves in the yard to improve yard familiarity and socialising ability.
- Improve herd temperament. Select for docility.

Discounts for carcasses that fail to meet the required **HSCW** or **P8 fat depth specifications** are less severe than those for bruising but much more common. Animal genetics and also nutrition influence how animals can produce carcasses that meet the specifications for these components.

The potential for animals to lay down subcutaneous fat whilst also achieving specified HSCW is predetermined by their genetics, in particular by **maturity pattern**. British breeds and their crosses mature earlier than European types and will generally be fatter, or at least have the genetic potential to be fatter, at a given age or carcass weight. Alternatively, animals with more European content will have heavier carcasses before achieving the same P8 fat depth as a British-bred animal (Figure 2).

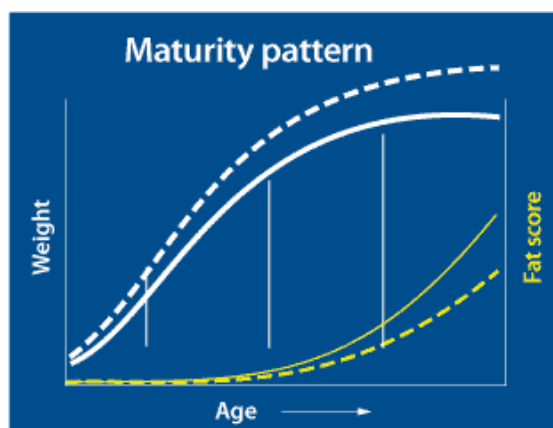


Figure 2. Maturity patterns show the relationship between animal weight and fat score. Lines show a comparison between early maturing (solid) and later maturing (dotted) animals, and between British breeds (top, white lines) and European (lower, yellow lines).

Carcases that are too lean at a specified HSCW, or too heavy by the time they comply with specified P8 fat depth, indicate that animals are maturing too slowly for the targeted market. This may reflect a higher than optimal European breed content. In this case, use of an earlier maturing, British breed bull may improve market compliance.

In addition to between-breed differences, there is a range of maturity patterns within breeds. BREEDPLAN EBVs and selection indices indicate the maturity pattern of bulls within a single breed (see the BREEDPLAN information on the NSW DPI website). With this knowledge, producers can choose genetics to produce carcasses that meet the specifications of their targeted market.

Underpinning the impact of genetics on fat deposition is the assumption that **nutrition** has been adequate. The amount of time required for animals to grow and then fatten is most often limited by dietary energy content. Providing animals with high energy (ME >12 MJ/kg) supplements such as grain, high quality silage or pelleted feed rations will increase growth rates and subsequent fat deposition for a given age.

Ultimately, the responsibility of ensuring that animals sent to slaughter comply with market specifications rests with the consignor of the stock. While judging liveweight is difficult and scales are required to be accurate, it is crucial that producers are able to assess the fat score of live animals so that their condition can be monitored prior to anticipated selling dates. Producers can enhance their **live animal appraisal** skills, such as muscle and fat scoring, by attending a Live Animal Assessment course delivered by their local NSW DPI beef cattle officer.

Butt shape is currently listed on the feedback sheets of some processors. Butt shape is not considered an accurate indicator of **carcase muscle** (it is confounded by carcase fatness) and therefore cannot be used as a guide to retail beef yield. Carcase feedback will probably include an indicator of muscle and retail beef yield, such as Viascan<sup>®</sup>, in the future.

In addition to the carcase information discussed above, the most advanced beef processors can also provide **chiller assessment data** (fat colour, meat colour, marbling score, pH and eye muscle area). Such information provides producers with further opportunities to achieve premiums for carcasses that meet specifications for those characteristics.

## Comparing carcase information

Carcase feedback data is most useful to producers who consign stock directly to processors or to feedlots prior to slaughter. In those cases, knowledge of the nutritional and environmental history of animals may allow valid comparisons.

In order for producers to compare the carcase data of different animals, it is important that the animals being compared are run under similar conditions prior to slaughter. For example, a producer wanting to compare the carcase performance of steers from different sires would need to run the steers in the same mob. Similarly, a producer wanting to compare the impact of different nutrition programs on carcase performance would need to have animals from the same bull(s) in each of the nutrition 'treatments'.

An example of an invalid comparison would be where a group of steers by Sire A were run separately from a group of steers by Sire B. In that case, it would be impossible to determine if any carcase differences were due to the genetic effect of the different sires or the environmental and nutritional effects of the different paddocks.

## In conclusion

The carcase feedback information that NLIS makes available to producers is a potentially rich resource for developing the herd to meet international and domestic market specifications.

## Further information

NSW DPI website at [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

NSW DPI NLIS enquiries at [enquiries.nlis@dpi.nsw.gov.au](mailto:enquiries.nlis@dpi.nsw.gov.au) or 1300 720 405

NLIS database service at [www.nlis.com.au](http://www.nlis.com.au) or 1800 654 743

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