Market specifications for cattle

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Australian beef competes with other meats and with the beef from other countries for market share. Supplying carcases and beef cuts that meet the individual market specifications of our domestic and international customers is crucial in ensuring that Australian producers remain competitive.

Meeting market specifications is also important in determining the profitability of beef producing enterprises. End users of stock, including feedlots and beef processors, pay premiums for lines of cattle that fit specifications, while discounting those that do not.

A thorough understanding of the specifications for different markets enables producers to match their property, seasonal conditions and stock with the requirements of their target market. Regardless of the chosen market, an ability to consistently supply suitable stock benefits the entire supply chain, including the producer, processor and consumers.

**Market specifications**

Individual domestic and international markets are defined by a combination of both major and minor specifications (See Table 1). Producers need to manage their breeding and nutrition programs, and continue to improve their live animal assessment, to ensure the highest percentage of cattle meet the specifications.

While most of those specifications are easy to identify and comply with, an inability to meet ideal weight and fat depth guidelines is the most common cause of discounts for producers supplying processors. General specifications for those parameters are presented in Figure 1.

Exceptions include the expanding MSA and Pasture Fed markets. Acceptable carcase weight and fat ranges have increased in this market, while meat quality factors such as meat colour and pH, plus accreditation requirements, have become increasingly important.

<table>
<thead>
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<th>Table 1. Major and minor market specifications.</th>
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<td><strong>Major</strong></td>
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<td>Weight (Live or Carcase)</td>
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<td>Fat (P8 or rib fat depth)</td>
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<td><strong>Minor</strong></td>
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<tr>
<td>Breed</td>
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<tr>
<td>Lifetime traceability</td>
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<tr>
<td>Accreditation or other eligibility requirements (eg European Union, MSA, Pasture Fed)</td>
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<td>Muscle score</td>
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<td>Butt shape</td>
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Figure 1. General weight range and fat cover guidelines for selected markets. The actual carcase specifications will vary among processors within each market however, and producers should familiarise themselves with specific information.

Specific markets
The information presented for the following markets is general in nature, and within each market the actual specifications will vary depending on the purchaser. Producers should familiarise themselves with the specific requirements of their store weaner purchasers, backgrounder, feedlot or processor. In most cases, processors will accept animals or carcases outside listed specifications, but will discount according to an accepted price ‘grid’. Note that there are many more markets than those presented below.

Store weaners
There are no sex or breed restrictions. In addition, there are no weight or fat specifications, although store weaners are sold on a liveweight basis so the heaviest calves are generally the most profitable. Store weaners sold through saleyards also return premiums for heavier muscling. For example, when comparing animals of the same condition and weight, historically a one muscle score increase has resulted in a premium of $0.16 to $0.30/kg liveweight. Because store weaners are not sold directly to an end user such as a processor or feedlot, it is easy for producers to become disconnected with market requirements in the absence of carcase or other feedback.

Store weaner production is suited to areas of low soil fertility where low growth rates after weaning limits the potential for stock to reach feedlot entry liveweights or minimum carcase fat cover requirements. In more tropical and less fertile environments, the use of tropically adapted breeds in a cross breeding program to maximise hybrid vigour will not only improve growth, but will also have a beneficial effect on cow fertility and therefore overall profitability of the beef enterprise.

Light Veal
Calves are slaughtered before reaching a maximum carcase weight of 150kg, generally without being weaned. Once again, there are no sex, breed, or minimum fat requirements. Buyers favour calves that show “bloom” or in other terms have been grown quickly with no setback prior to sale. The number of calves required for this market is generally falling, with premiums being paid for higher quality, well muscled vealers.

Butcher
Milk-fed, grass or grain finished, 0-2 tooth steers or heifers with carcase weights around 150–210kg are suitable for this market. There are no breed restrictions, although animals with early to moderate maturity patterns are generally suitable. Producers use a number of different breeds and management strategies to ensure cattle reach adequate levels of fat (around 3–8mm P8 fat) and weight at a young age, such as dairy infused cow herds with a terminal sire (generally a European or Composite) or creep feeding the calves. The number of animals required for this market is also declining, due to the increased use of ‘boxed beef’ or cryovacs by butchers, and the premiums available for heavier carcases in other markets.

Creep feeding can be used to help finish young cattle for the heavy butcher market.

Photo: Todd Andrews
Meat Standards Australia (MSA)

This is an over-arching meat grading scheme for domestic beef markets, such as local butcher, supermarket, short fed, restaurant or premium-labelled markets, but also some branded export markets. Most processor grids have a specific MSA carcase market, or use MSA to underpin a premium or branded product. Although there are no breed, age or other restrictions, these and other factors (Bos Indicus content, HGP use, saleyard consignment, ossification, marbling etc) are used to predict carcase eating quality via an MSA index or boning group score.

In practice however, additional market restrictions (eg dentition, breed, sex) are often used to determine MSA eligibility / premiums. Premiums may be based on either MSA index score or boning group and the level required also varies between processors. In general, MSA grids require 200-340kg carcases with at least 5mm P8 fat, with discounts applying to carcases less than 300kg and/or with more than 22mm fat. Discounts for dentition, sex, butt shape and other factors vary between processors. Crossbred steers and heifers with moderate maturity are suited to this market.

The MSA grading scheme requires that each step of the supply chain is accredited, including producers, sale yards, processors and retailers, and each has a set of guidelines designed to maximise eating quality. Consumers are also provided with information on cut selection, cook methods etc, to achieve a satisfying eating experience. For more information refer to www.mla.com.au/Marketing-beef-and-lamb/Meat-Standards-Australia

Supermarket

Heifers and steers with 0 (preferred) to 2 teeth and weighing 400-600kg liveweight are required for this market. Animals can be grass finished, grain assisted or grain fed (70-100 days) and processed with carcase weights at 200-320kg and 4-17mm P8 fat. Feedlot entry weights can be around 280-400kg but there is a trend towards heavier carcases and thus heavier feedlot entry weights (340–450kg liveweight) in some sectors of the market.

MSA grading, or its principles, are used to determine eligibility of consigned animals. The use of HGPs is allowed in some markets but not others. In addition, some market segments have breed restrictions, for example preferring less than 25% of either or both European and B. Indicus content. This ensures that animals meet the required specifications of fat cover and eating quality, given the short feeding period.

Feeder steer (Short Fed)

Angus cross or British bred steers are fed for 120-130 days for branded or premium markets while British x Euro or up to 50% B. Indicus (flatback) are fed for 100-120 days for lower value or commodity markets. Some feedlots and markets take pure bred B. Indicus for the shorter fed markets. General specifications are for steers weighing 400-520kg liveweight with 0-2 teeth. Incremental discounts generally exist for lighter (300-420kg), heavier (520-550kg) and 4 teeth animals. Animals are fed to produce carcase weights of 280–400kg (average 350–360kg). HGP acceptability varies but is often not permitted for branded or premium markets but is acceptable for lower value, commodity markets.

Feeder steer (Mid Fed)

Mostly Angus but also Angus cross and Shorthorn steers with feedlot entry weights similar to those for Short Fed Steers, are fed for 150-200 days to produce a 300-400kg carcase with some marbling. HGPs may or may not be acceptable, including distinguishing between androgen and oestrogen types, while animals may also require lifetime traceability, depending on the feedlot. Moderate to later maturing steers suit this market.
Feeder steer (Long Fed)
Purebred Angus steers (no scurs, no white colour forward of navel) weighing 400-500kg with 0-2 teeth and no HGP, preferably vendor bred, are grain fed for up 270-300 days and slaughtered at carcase weights of 420-470kg, averaging 440kg. Carcases are destined for north-Asian and premium domestic markets although the number of animals required for this market has declined. To ensure that animals do not get over fat at the end of the feeding program, moderate to later maturing animals are generally more suitable, though highly marbled carcases are the primary objective.

Note that there is also a long fed market for Wagyu and Wagyu cross (usually Angus but also Friesian) steers, with some heifers also fed. Animals are 350-450kg liveweight with no HGP and are fed for 370 days to produce a 400-420kg carcase.

Jap Ox / Export Steer
Grass finished steers with carcase weights 300 – 440kg and 7–22mm P8 fat are processed for lower value Asian markets. There are no breed or age restrictions for this market although steers with more than 4 teeth are progressively discounted.

European Union
This market requires grass or grain finished steers or heifers with carcase weights 260-420kg, with no more than 4 teeth and 5–22mm P8 fat. Other restrictions include a ban on hormonal growth promotants (HGP), EU property accreditation with the Australian Quarantine and Inspection Service (including NLIS reconciliation and property audits) and limitations on sourcing cattle only from EU-accredited properties (with the exception of bulls and prior approved, replacement females). There are no breed restrictions, although mid to later maturing animals (eg European breeds and their crosses) enable high carcase weights to be achieved efficiently and without excess fat penalties, particularly for heifers. The EU grain fed market is a lucrative one and significant, though occasionally variable, premiums exist for EU feeder steers.

Certified Pasture Fed
This market is generally presented as an additional premium for carcases that are MSA graded from animals that have never eaten cereal grain. The criteria (such as audit requirement and specific rules related to what qualifies as cereal grain) and the premiums vary between individual processors, and is often combined with other requirements such as no HGP or antbiotic use.

Factors affecting compliance to carcase specifications
Achieving the right combination of weight and fat cover (as indicated by P8 and rib fat depths), whilst also complying with age and other restrictions, can be a challenge for producers.

Generally, cattle which are of early maturity (ie lower frame score) will be fatter at lighter carcase weights than cattle of late maturity. Alternatively, animals with later maturity will have heavier carcases before achieving the same P8 fat depth as an early maturing animal (Figure 2).

Other factors affecting maturity rates include animal sex (females mature and therefore lay down fat earlier than steers), muscling (more heavily muscled animals tend to lay down fat more slowly) and mature frame size (large framed animals mature later). In general, a well muscled animal with a moderate frame size tends to be the most versatile in terms of suitability to a range of markets.

Assuming adequate nutrition, 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 that case, use of an earlier maturing, British breed bull may improve market compliance.
In addition to between-breed differences, there are a range of maturity patterns within breeds (Figure 3). BREEDPLAN Estimated Breeding Values (EBVs) and selection indices indicate the maturity pattern of bulls within a single breed. For example, high EBVs for growth and mature cow weight, but low EBVs for rump and rib fat (carcase EBVs are standardised to 300kg) are indicators of a later maturity pattern. Refer to the NSWDPI website for more information about BREEDPLAN and EBVs.

Figure 3. There is a wide range of maturity patterns within breeds. Breedplan EBVs can assist in the selection of bulls with particular maturity patterns within breeds.

The responsibility of ensuring that animals comply with market specifications rests with the consignor of the stock. It is crucial that producers are able to assess the level of fatness so that their condition can be monitored and managed prior to anticipated selling dates to better meet fat and weight specifications. Providing animals with quality pasture or supplementing with high energy (ME>12 MJ/kg) feeds such as grain or pellets can improve compliance rates, particularly for MSA markets.

Accessing and using feedback information

Beef processors provide basic carcase information (Hot Standard Carcase Weight, P8 fat, sex, dentition, bruise score) to producers who consign stock directly to slaughter. Most feedback sheets link this data with NLIS numbers so producers who consign animals directly to feedlots or processors can access this information. Producers who are able to relate carcase information to live animals using NLIS tags are able to respond to this feedback and therefore manipulate their genetics and management to better meet market specifications in the future. Refer to the NSWDPI website for more information about NLIS cattle: carcase feedback.

In addition to the carcase information above, producers who consign animals to the MSA market also receive chiller data (fat colour, meat colour, ossification, marbling scores, pH, eye muscle area, MSA index score or boning group) which are also linked to NLIS numbers. Such information provides producers with further opportunities to analyse their production system and use this information to capture premiums for carcases that meet specifications for those characteristics. MSA accredited producers can access this information online at http://mysa.com.au

More information

Producers can use the Beefspecs Fat Calculator and Drafting Tool to model the impacts of adjusting breed composition/bull selection, nutrition, sex and other factors (eg HGP use) on market compliance. These tools use live animal measurements (liveweight, P8 fat, frame score, sex) plus estimates of breed composition (British/Euro/B. indicus), expected weight gain and other factors to predict carcase weight and fat. Access these tools and explanatory notes, and other information at the NSWDPI website www.dpi.nsw.gov.au

Acknowledgments

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For updates go to www.dpi.nsw.gov.au/factsheets

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