Market specifications for beef cattle

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

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 even lines of cattle that fit specifications, and they discount those that do not.

A thorough understanding of the specifications for different markets enables producers to match their properties, seasonal conditions and stock to the requirements of their target markets. Regardless of the chosen market, an ability to consistently supply suitable stock benefits both the producer and the consumer.

**Market specifications**

Specifications for the myriad of markets that Australian beef supplies, both domestically and internationally, can be broken into two different groups: major and minor specifications (see Table 1). The specifications for different markets are usually defined by a combination of different requirements. Producers need to vary their breeding and management accordingly to ensure that the highest percentage of cattle meet the specifications.

**Table 1. Major and minor market specifications**

<table>
<thead>
<tr>
<th>Major</th>
<th>Minor</th>
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<tbody>
<tr>
<td>Weight (live or carcase)</td>
<td>Sex</td>
</tr>
<tr>
<td>Fat (P8 fat depth or score)</td>
<td>Age (dentition)</td>
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<tr>
<td>Breed</td>
<td>Lifelong traceability</td>
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<tr>
<td>Hormonal growth promotant status</td>
<td>Meat colour</td>
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<tr>
<td>Accreditation or other eligibility requirements (e.g. European Union market, Woolworths, Meat Standards Australia)</td>
<td>Fat distribution</td>
</tr>
<tr>
<td>Muscle score</td>
<td>Meat/carcass pH</td>
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<tr>
<td>Butt shape</td>
<td></td>
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Although most of those specifications are easy to identify and comply with, inability to meet ideal weight and fat depth guidelines is the most common cause of discounts for producers. General specifications for those parameters are presented in Figure 1.

![Diagram showing market specifications for beef carcases and weights](image-url)
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 some 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 live weight basis the heaviest calves are generally the most profitable. Store weaners sold through saleyards also have shown substantial benefits from heavier muscling. When comparing animals of the same condition and weight, an increase by one muscle score has shown a price increase of $0.16 to $0.30 /kg live weight.

Store weaner production is suited to areas of low soil fertility where low growth rates after weaning limits the potential for stock reaching feedlot entry weights or suitable fat cover to meet minimum slaughter specifications.

In harsher, less fertile environments, the use of tropically derived breeds in a crossbreeding program to maximise hybrid vigour will not only improve growth but will also have a beneficial effect on the fertility, and therefore the overall profitability, of the beef enterprise.

Veal

Calves are slaughtered before they reach a maximum carcass weight of 150 kg, generally without being weaned. Once again, there are no sex or breed restrictions or minimum fat requirements. Buyers favour calves that are showing ‘bloom’ and have been grown very quickly with no setback before sale. Distinct premiums are paid for high-yielding, well muscled vealers.

Local butcher

Grass- or grain-finished 0- to 2-tooth steers, or heifers with carcase weights around 160 to 220 kg, 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 that cattle reach adequate levels of fat (around 4 to 8 mm P8 fat). Common methods of producing these calves are from dairy-infused breeding herds with a terminal sire (generally a European or European-cross sire). Creep feeding is commonly used in this production system (see Agfact A2.57 Weaning beef calves).

Supermarket

Heifers and steers with 0 to 2 permanent teeth (preferably 0 teeth) and weighing 370 to 500 kg live weight are required for this market. Animals can be grass finished, grain assisted or grain fed for up to 70 days and slaughtered with carcase weights at 200 to 280 kg, with 5 to 16 mm P8 fat. There is a trend towards heavier carcases and thus heavier feedlot entry weights (300 to 380 kg live weight) in some sectors of the market.

In addition, some market segments have breed restrictions. For instance, some prefer less than
25% of either or both European and *Bos indicus* content. This ensures that animals meet the required specifications of fat cover and eating quality, given the short feeding period.

Producers need to be aware that Woolworths now has its own quality assurance program; producers need to be accredited to supply this market.

### 120-day feeder steers (Japan/Korea short fed)

Generally British, British × European, or up to 50% *Bos indicus* steers are preferred. Some feedlots and markets will take both steers and heifers and purebred *Bos indicus* cattle weighing 400 to 500 kg live weight with up to 4 permanent teeth and 3 to 12 mm P8 fat (fat score 2 or 3). Steers destined for Asian (Japan and Korea) supermarkets are grain fed for 120 to 150 days and slaughtered at carcase weights of 280 to 400 kg (average 350 to 360 kg).

**Jap steers**

Previously referred to as ‘Jap ox’, grass-finished steers with carcase weights of 300 to 420 kg and 7 to 22 mm P8 fat are slaughtered for lower value Asian markets. There are no breed or age restrictions for this market, although steers with 6 or more permanent teeth can be heavily discounted.

**Jap feeder steers (Japan/Korea long fed; B2 to B3)**

Angus, Shorthorn and their British breed crosses are suited to this market. The live weight entry weight for steers is from 350 to 500 kg, with the ideal weight for most feedlots 380 to 480 kg. The preference is for lifetime traceability or vendor-bred cattle with a maximum of 12 mm P8 fat (fat score 3). Steers are grain fed for 150 to 350 days and slaughtered at carcase weights of 350 to 450 kg. Carcases are destined for Asian restaurants and supermarkets, depending on their marble scores. To ensure that animals do not get over-fat at the end of the long feeding program, mid- and later-maturing animals are generally more suitable. Highly marbled carcases are the primary objective.

**European Union**

This market requires grass- or grain-finished steers or heifers with carcase weights of 260 to 419 kg (premium 338 to 419 kg hot standard carcase weight, HSCW), with no more than 4 permanent teeth and 7 to 17 mm P8 fat. Stock must never have been treated with hormonal growth promotants (HGPs). Properties must be accredited to supply the EU market, and cattle brought onto the property (except bulls for breeding) must be sourced only from EU-accredited properties. (Replacement females may be purchased, but only with prior approval from the Australian Quarantine and Inspection Service, AQIS.) There are no breed restrictions, although the market favours mid- to later-maturing animals (e.g. European breeds and their crosses), so that high carcase weights can be achieved without penalties for excess fat cover, particularly for heifers.

**Factors affecting compliance with carcase specifications**

Achieving the right combination of weight and fat cover (as indicated by P8 and rib fat depths) while also complying with age restrictions is the greatest challenge for producers. Producers
Selection indices indicate the maturity pattern of bulls within a single breed. For example, high EBVs for mature cow weight, but low EBVs for rump and rib fat (carcase EBVs are standardised to a 300-kg body) are indicators of a later maturity pattern.

Some factors affecting maturity rates include 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.

Ultimately, the responsibility for 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 the condition of the stock can be monitored and manipulated before the anticipated selling dates to better meet fat and weight specifications. Providing animals with high energy (metabolisable energy > 12 MJ/kg) supplements such as grain, high quality silage or pelleted feed rations is one way of improving compliance rates. Fodder crops or legume or high-production pastures are another way to increase growth rates and subsequent fat deposition for a given age.

Producers can enhance their skills in live animal appraisal (e.g. in muscle, dressing percentage and fat scoring) by attending a Live Animal Assessment course delivered by their local NSW DPI Beef Cattle Officer.

**Accessing and using feedback information**

Most beef processors provide basic carcase information (HSCW, P8 fat, sex, dentition, bruise score) to producers who consign stock directly to slaughter. Most of the major NSW processors can link these data with National Livestock Identification System (NLIS) numbers, so producers who consign animals directly to feedlots or processors are urged to access this information.

Beef producers who are able to relate carcase information to live animals by using NLIS identification are able to respond to this feedback and can therefore manipulate their herd genetics and management to better meet market specifications in the future.

In addition to the carcase information above, some beef processors and specific markets can provide chilled assessment data (fat colour, meat colour, marbling score, pH and eye muscle area), which are linked to NLIS numbers. Such information provides producers with further opportunities to analyse their production systems and use this

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**Figure 3. There is a wide range of maturity patterns**

![Maturity pattern diagram](image)

between animal weight and fat score. Lines compare early maturing (solid) and later maturing (dotted) animals.

can adjust breed composition and manipulate genetics and animal nutrition to better meet market specifications.

Generally, cattle that are early maturing (assuming adequate nutrition) will be fatter at lighter carcase weights than late maturing cattle. Alternatively, animals with later maturity will have heavier carcases before achieving the same P8 fat depth as an early maturing animal (Figure 2).

Assuming adequate nutrition, carcases that are too lean at a specified HSCW, or too heavy by the time they comply with a specified P8 fat depth, indicate that the 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 is a range of maturity patterns within breeds (Figure 3). BREEDEPLAN Estimated Breeding Values and selection indices indicate the maturity pattern of
information to capture premiums for carcases that meet the specifications for these characteristics.

Further reading
Primefact 249 Checking your bull is ready for joining
Primefact 620 Developing an effective breeding plan for your beef business
Primefact 622 Live beef cattle assessment
Primefact 623 Cattle breed types
Primefact 624 Beef cattle breeding systems
Primefact 625 Using EBVs and $ Index Values in beef breeding
Primefact 626 Selecting and managing beef heifers
Primefact 627 Economic advantages of better management of your beef breeding herd

Further information
For further information contact your local NSW Department of Primary Industries Livestock Officer (Beef Products).