

5.6 Selecting a production system

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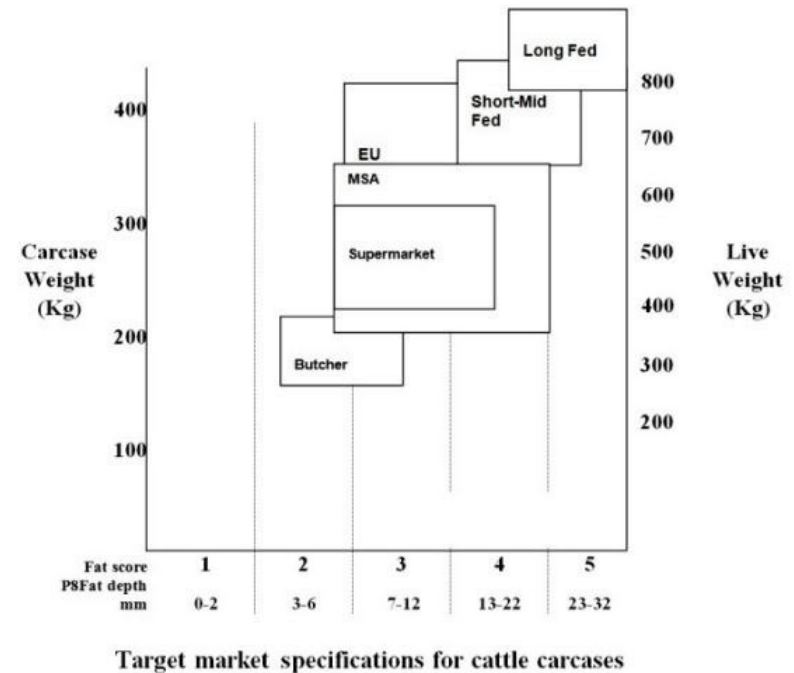


VETS30030 / VETS90123

What production system?

- Depends on farm environment and pasture growth rate
- What markets are available?
- Is enterprise going to target a finished market or sell “store” animals
- Some types of cattle will only meet a limited number of markets, others may fit several
- Flexibility can be beneficial (with variable seasons)

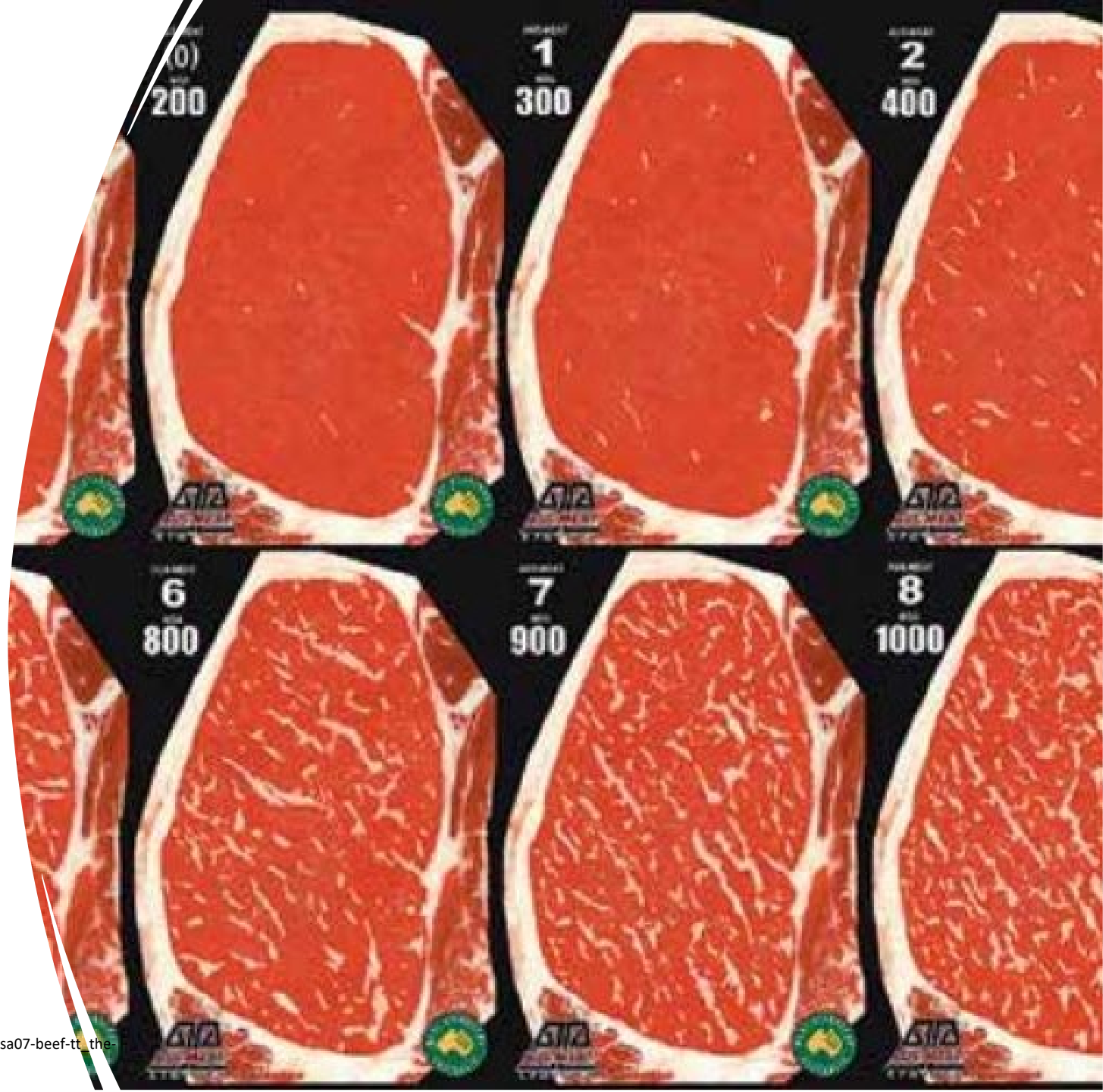
Figure 1. General weight range and fat cover guidelines for selected markets. The actual carcass specifications will vary among processors within each market however, and producers should familiarise themselves with specific information.



https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0005/148415/Market-specifications-for-cattle.pdf

Variation within and between breeds

- Every breed has a lot of variation eg the Lowline breed was established from selection within Angus
- Trangie herd based on 3 Angus lines based on yearling growth rate (high, low & control)
- Also significant variation between breeds
- Easiest seen in coat colour, but this isn't important in final beef product (maybe important for rugs etc)
- Number of important meat characteristics you cant observe externally – IMF (marbling), can still select for this



Abattoir characteristics

- Body number/lot number
- Carcase weight – important in determining weight for maturity
- Sex – male or female
- Tropical breed content – the hump height is also measured to < 25% guarantee the most accurate eating quality grade
- Hanging method – determined as being either Achilles hang or tenderstretch
- Hormonal growth promotants – will affect MSA score obtained for different muscles
- Ossification – measured to determine carcase maturity
- Marbling – using both the MSA and AUS-MEAT measurement systems
- Rib fat – a minimum of 3mm is required, measured at the AUS-MEAT standard site. Overall fat cover is also assessed including any hide puller damage
- pH and temperature – pH is measured using a pH meter and must be below 5.71. The temperature should be below 12°C, according to AUS-MEAT standards

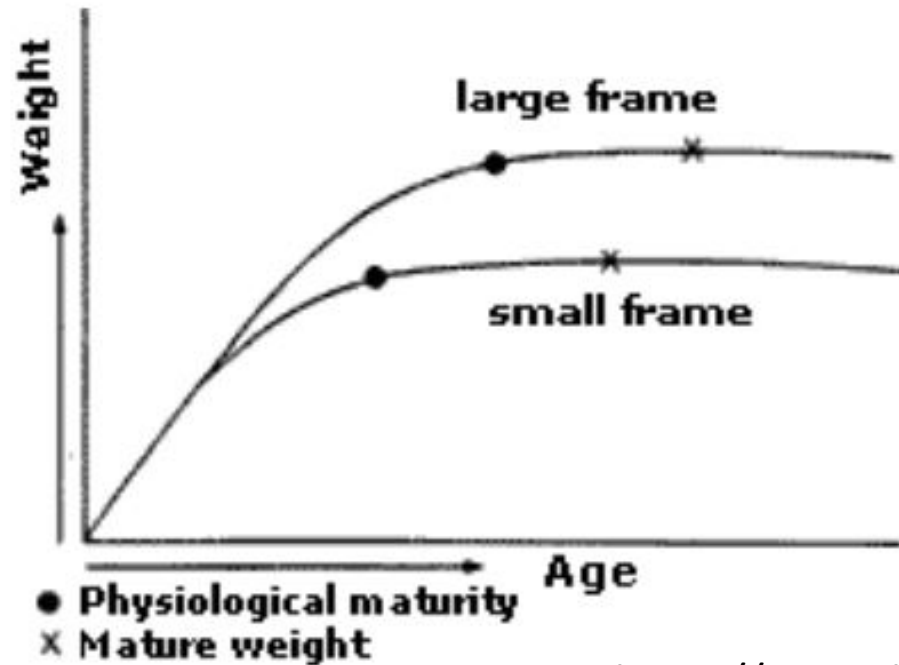
Example breeding program

- Senepol = tropically adapted Bos taurus (slick coat gene) – derived from a cross between Red Poll and N'Dama (from Senegal), hence the name
- Tuli are another tropically adapted Bos taurus breed (cream colour)
- Bos taurus infusions to improve meat quality
- Meat Standards Australia guidelines allow maximum 25% Bos indicus to meet maximum quality standards

Composite Development Breed	Barkly Composite	Gulf Composite
- Senepol	25.0%	25%
- Charolais	25.0%	25%
- Santa Gertrudis	50.0%	
- Brahman		50%
F1 Heterosis	62.5%	65.6%
Bos Taurus overall	75.0%	50%

Frame Score

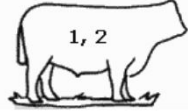
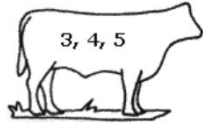
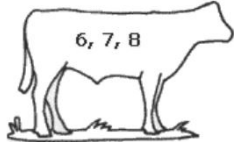
- Overall size of cattle is determined by frame score
- Measured from 1-10
- Can assess via measuring hip height versus their age
- Later maturing animals have higher frame score
- British breed tend to be 1-7, Euro 4-9
- Higher frame score = higher DSE



Market	Days on feed	Optimal frame score
Domestic	70–100	3–5
Export e.g. Japan short fed	100–150	4–6
Export e.g. Japan long fed	220–300	5–7

<https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/appraisal/publications/frame-scoring>

Frame score and production system

Maturity type	Frame type score
Early maturing —small framed (frame score 1 and 2): <ul style="list-style-type: none">• Generally short in every skeletal dimension.• Short legged and short bodied.• Generally show a tendency towards waste.• Lack rapid growth potential.• Can still show good muscle expression.• Generally reach market potential at low carcass weights, i.e. 150–180 kg carcass weight at 9–12 mm of fat at the P8 site.	
Moderate maturing —average framed (frame score 3, 4 and 5): <ul style="list-style-type: none">• Average growth potential rising to good growth for frame 5's.• Generally good length of body and, particularly in British breeds, can have good muscle development.• Generally reach market potential at carcass weights of 200–350 kg with 9–12 mm of fat.	
Late maturing —large framed (frame score 6, 7 and 8): <ul style="list-style-type: none">• Much larger cattle with high growth potential, and lean.• Non-continental breeds of this size generally lack muscle expression.• Reach market potential much later at carcass weights of 350–450 kg with 9–12 mm of fat.• Suitable for long feedlot feeding if structurally sound, reasonably muscled and with the potential to marble.	
Very late maturing —extreme framed (frame score 9, 10 and 11): <ul style="list-style-type: none">• Huge cattle with extreme growth potential, and usually extremely lean.• It is doubtful if animals of this size will achieve enough fat for any quality market.	