BETTERRETURNSPROGRAMME

AHDB
AGRICULTURE & HORTICULTURE DEVELOPMENT BOARD

Marketing prime beef cattle for Better Returns

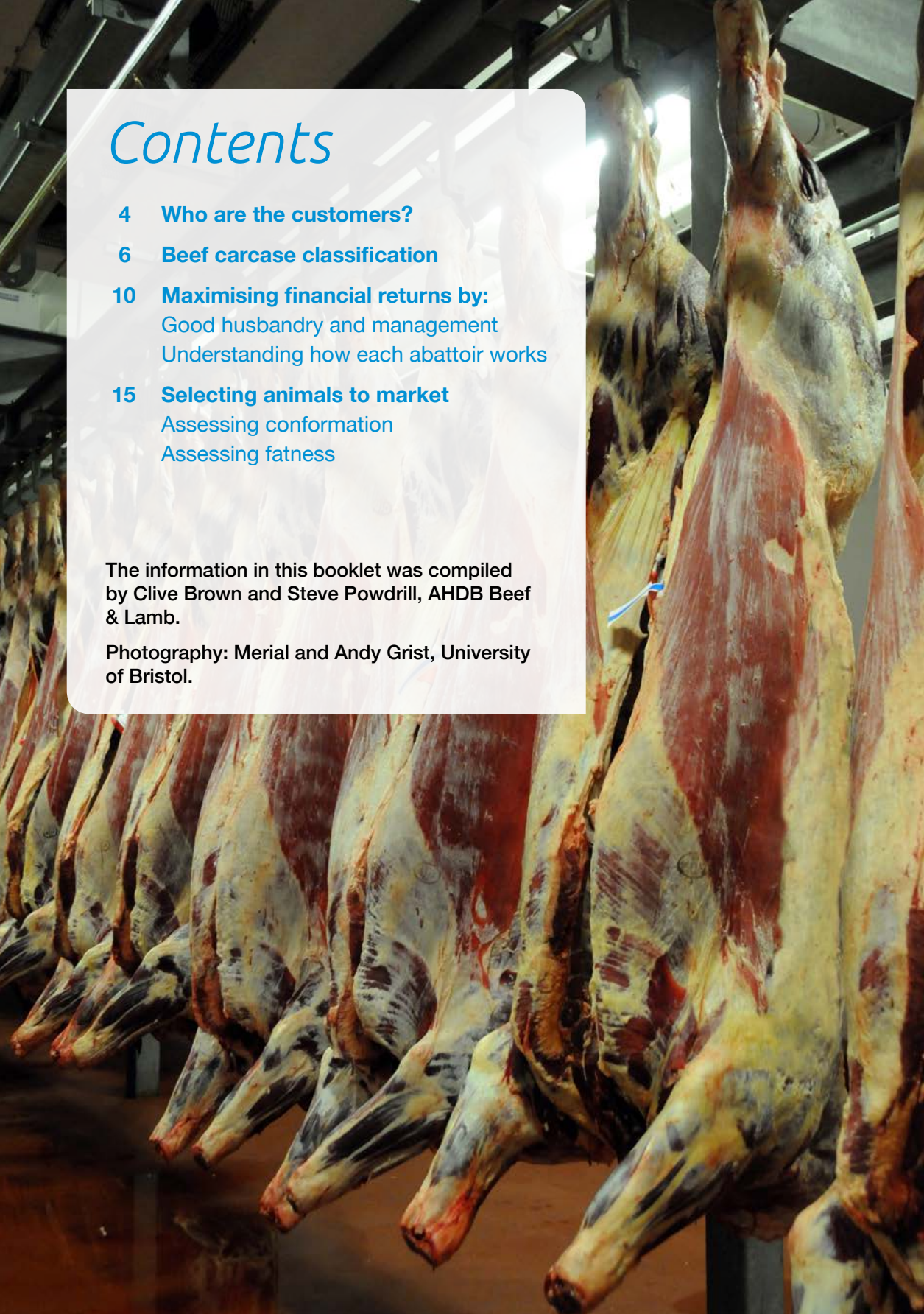
Beef Manual 2

BEEF & LAMB

Contents

The information in this booklet was compiled by Clive Brown and Steve Powdrill, AHDB Beef & Lamb.

Photography: Merial and Andy Grist, University of Bristol.



Introduction

In order to maximise their financial returns, beef producers need to produce and sell the type of finished cattle markets really want and are willing to pay the most money for.

Identifying a target market is the key to successful cattle finishing, as is building relationships with customers. Then the task is to produce cattle to meet their specific needs as cost-effectively as possible.

There are many other elements to get right too, such as:

- Avoiding price penalties due to poor handling or health
- Presenting clean animals
- Hitting the right specification for conformation, fat class and weight

Sending overfat cattle to slaughter costs UK producers approximately £8.8 million per year in potential lost earnings and must be avoided.

Processors, retailers and consumers do not want excess fat. It is estimated that it takes four times the amount of feed energy for an animal to put on a kilogram of fat compared to a kilogram of muscle. Producing 'fat' cattle costs farmers far more in feeding than any gain from sending heavier animals.

Steve Powdrill
AHDB Beef & Lamb
National Selection Specialist

Who are the customers?

The consumer

The beef producer's ultimate customer is the person who eats their meat.

Market research shows that consumers want tender, juicy and tasty meat that is not too fatty. Price and value for money are also very important.

Above all they are looking for a consistent product that gives them the same satisfying experience every time they buy, cook and eat it. Consumers can take up to 12 weeks to buy a specific cut of meat again following a bad eating experience.

The retailer

Consumers buy their meat from a range of retail and food-service outlets. Supermarkets now sell approximately two thirds of the beef sold in England. Each outlet knows exactly the type of meat it requires to satisfy its customers' needs, based on detailed knowledge of their previous buying behaviour.

The meat processor

The beef producer's direct customer is the cattle buyer, based either at a livestock market, or at an abattoir if selling deadweight.

Each buyer will have different specifications for the cattle they want in terms of weight, conformation and fat class. The prices offered by different abattoirs may vary for the same animals and will depend on the requirements of their customers further down the supply chain.

Abattoirs are looking for animals that:

- Are quick and easy to process
- Arrive at the right time, on the right day
- Are clean
- Hit the correct carcase and fat specification
- Hit the correct weight specification

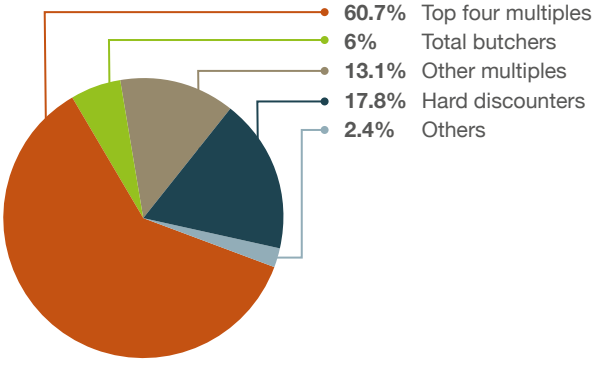


Figure 1. English prime beef – Retail volume share 2017 (% tonnes)

Source: AHDB

Typical specifications

Producers should identify markets for cattle that can be finished efficiently on their system before breeding or buying them in. This way, cattle can be bred and finished according to the market requirement. Knowing your market will enable you to produce cattle that are the correct breed, weight and specification to maximise returns.

Producers should identify a few key target markets, find out what buyers in these sectors are looking for and do everything possible to meet these requirements as accurately and as consistently as possible.

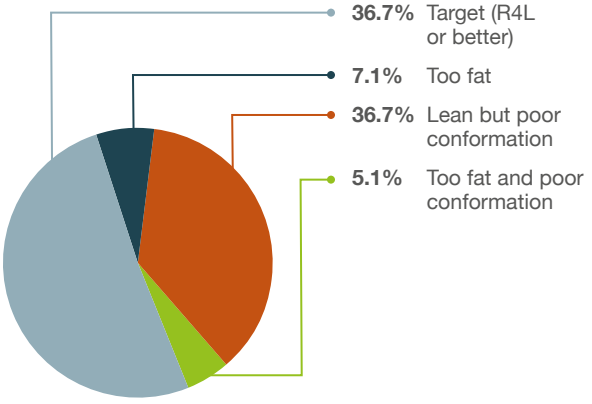


Figure 2. Percentage of English prime beef falling within and outside target specifications in 2016

Source: AHDB

49% of prime beef fails to meet ideal target market specifications

Table 1. Typical target market requirements for different types of animal

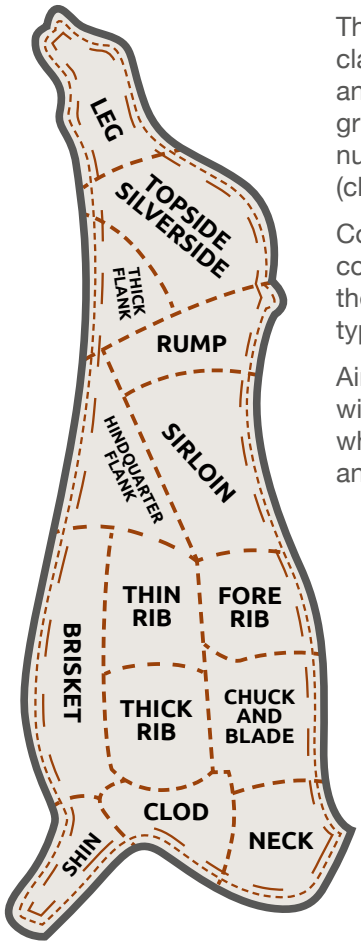
Main market	Target age (months)	Gender	Carcase weight (kg)	Classification	
				Conformation	Fat
Butchers	16–24	Heifers, Steers	240–320	R or better	4L (poss 4H)
Supermarket	16–30	Heifers, Steers	270–400	O+ or better	3 or 4L
Manufacturing Beef	12–30	Bulls, Heifers, Steers	260+	-O or better	3 or leaner

Farm assurance and beef schemes

Product from farm assured stock that passes through an assured supply chain can carry the Red Tractor logo and Quality Standard Mark on pack. These schemes give consumers confidence in the provenance, traceability and welfare of the animal. Depending on the plant and its customers, non-assured stock can receive significant financial penalties.

There are also marketing schemes run by retailers that focus specifically on native breed or native cross cattle, with the aim of enhancing taste and consistency of product. These schemes can offer a premium for cattle that are bred from registered sires and fall within specification.

Beef carcase classification

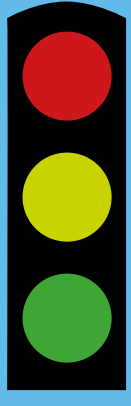


The current system for classifying carcases in the UK and Europe uses the EUROP grid for conformation and a numeric assessment for fatness (classes 1–5).

Combining scores for conformation and fat determines the market most suited for each type of carcase.

Aim for most animals to fall within the green shaded area where there is greatest demand and highest prices.

Market signals



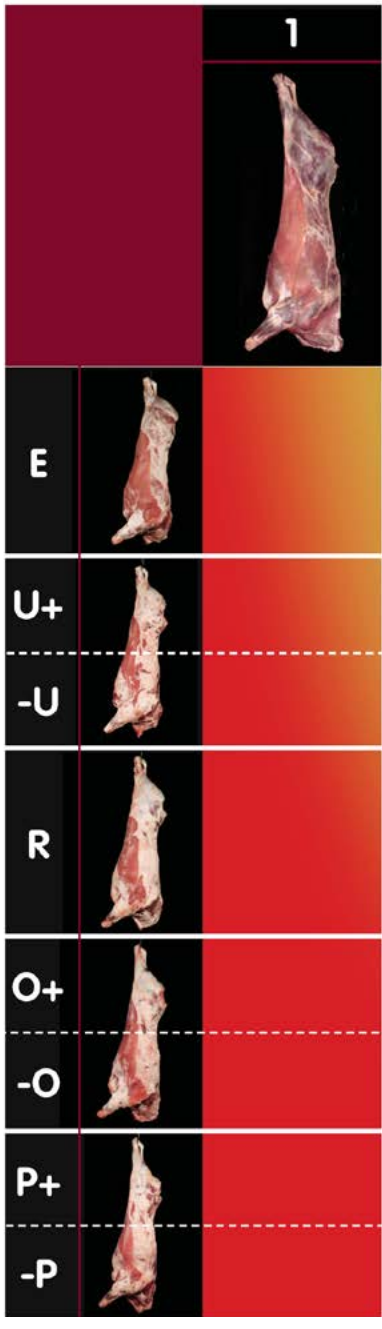
Little or no demand
Discount prices
Poorest returns

Medium demand
Average prices
Moderate returns

High demand
Premium prices
Best returns

CONFORMATION CLASS Improving conformation

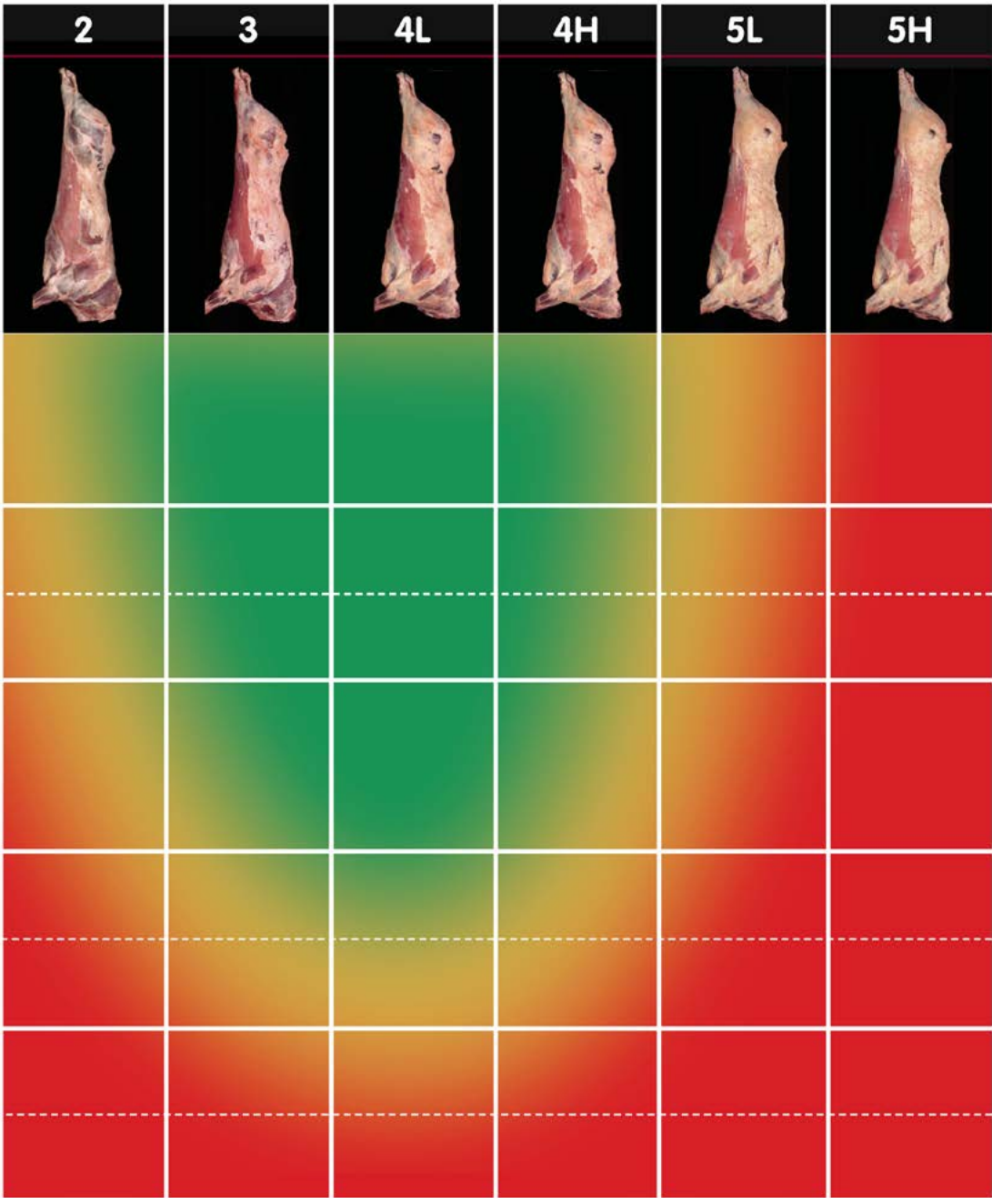
Conformation is determined by a visual appraisal of shape, taking into account carcase profile and fullness of legs. No adjustment is made for the influence of fat on overall shape.



FAT CLASS

Increasing fatness

Fat is determined by visual assessment of external fat cover. There are five main classes. Classes 4 and 5 are subdivided into L (leaner) and H (fatter)

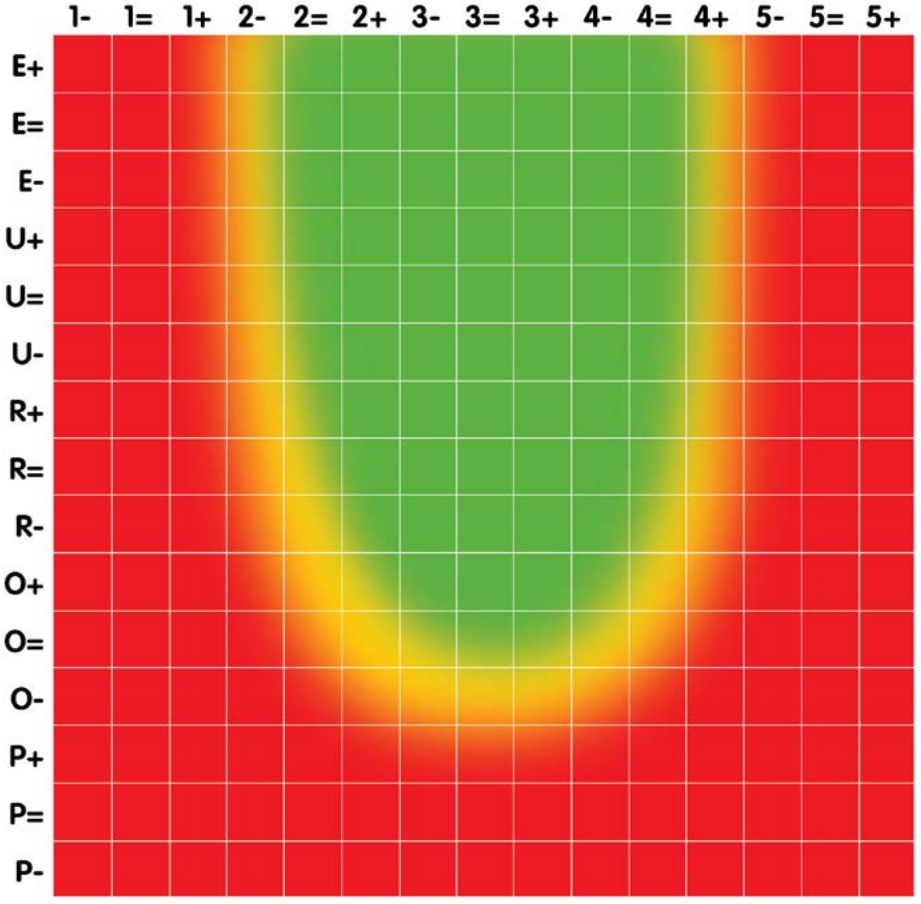


15-point grid

To further enhance the classification system, some abattoirs have adopted a 15-point grid, in which each conformation and fat class is subdivided into three; low (-), medium (=) and high (+) classes. This grid gives a total of 225 potential classifications compared to 56 under the standard scale. This could be useful in better informing all concerned on the types of carcases available, which could have potential financial benefits for the supply chain. Carcases classified by VIA technology will be assessed against the 15-point grid. There are also a small number of abattoirs in which the 15-point grid is used where VIA is not in operation.

Video Image Analysis (VIA)

In normal practice, VIA machines are integrated into the slaughter line, usually near the scale point. One side of each suspended carcase is illuminated and digital video images are captured and processed using specialised software to extract data which relates to conformation and fat cover, such as length, width, angles, areas, volume and colour. The machine has the ability to interpret both the 2D and the 3D records.



Markets and exports

Exports

Export markets for English beef have increased dramatically over the past few years, both within Europe and beyond, including countries in South East Asia and the Far East.

In 2016, about 16% of the beef produced in the UK was exported, including processed products.

Demand varies from country to country but markets tend to be specific in what they want.

Extra care has to be taken when targeting export markets, as adverse currency fluctuations outside farmers' control can quickly erode any potential financial advantages over selling into domestic markets.

Sales of premium beef from England to European food service are increasing fast and English produce now features on the menus of some of the best restaurants in Italy, Spain, Portugal, Cyprus, France, Belgium, the Netherlands, Switzerland, the Czech Republic and Denmark. There are various specifications for each country, which include category, weight and level of finish.

Sources of market information and prices

Make informed marketing decisions by tapping into the latest information including:

- Trends in the domestic beef market
- Up-to-date liveweight and deadweight prices
- Estimated weekly slaughter throughputs
- Latest retail prices
- Consumer purchasing trends

Available free at **beefandlamb.ahdb.org.uk**

Market prices are also available in the farming press.

For more specific information contact your local auctioneer, abattoir or marketing agent.

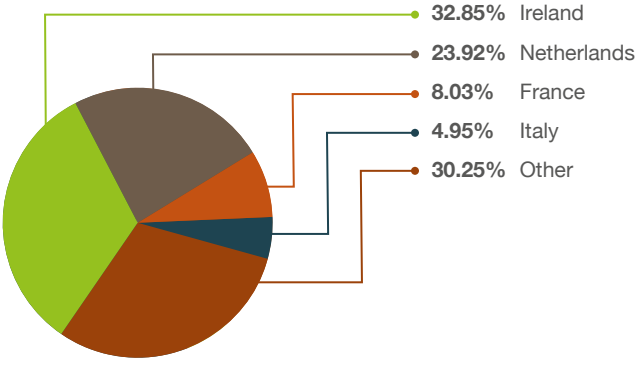


Figure 3. Beef exports (fresh/frozen) by percentage share (2016)

Source: AHDB

Maximising financial returns

Good husbandry and management

Cattle finish at a variety of weights and ages, depending on their breed, gender, mature size and the system on which they are reared, grown and finished.

Different target markets require different types of animal. For examples see Table 1 on page 5.

Tailor management to ensure animals hit target specification at the right time to increase returns.

The beef market can be affected by seasonal demand.

Weigh and handle animals regularly to monitor progress. Feeding regimes can then be adjusted to bring stock to market when prices are highest.

Feeding for short, sharp gain

The key to profitable finishing is feed conversion efficiency (FCE), by maintaining high dry matter intakes of high energy feeds. Improving FCE reduces the feed cost/kg gain.

Fast finishing maximises muscle development and improves conformation but beware of increasing fat deposits. Animals that are finished slowly (1kg/day) and classifying R may potentially have been a –U if finished faster (1.5kg/day).

However, faster finishing cannot create a large change in conformation (eg turn a -O into a U+) as this relies more on genetics.

Minimising Growth Checks

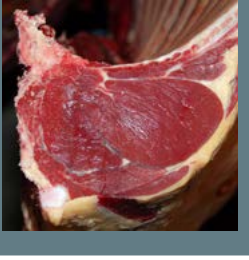
Transition between diets and stress around weaning and group changes should be carefully managed to avoid growth checks in young cattle. Growth checks can cause meat quality issues by causing areas of gristle to form in cuts. Older animals with longer growth paths tend to show significantly larger areas of gristle.

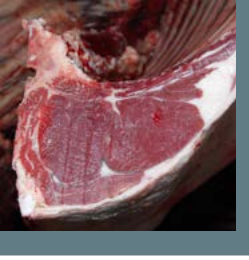
Fat colour and flavour

Some markets require carcases with white fat, such as bulls for export.

Fat colour comes from pigments in plants including grass. Cereal-fed cattle will tend to have whiter fat than those fed on grass or silage. Diet is an important determinant of flavour, with grass-based forage diets delivering a stronger flavour preferred by British consumers.

For more detailed information on how to finish cattle, see Beef BRP Manual 7 Feeding growing and finishing cattle for Better Returns.





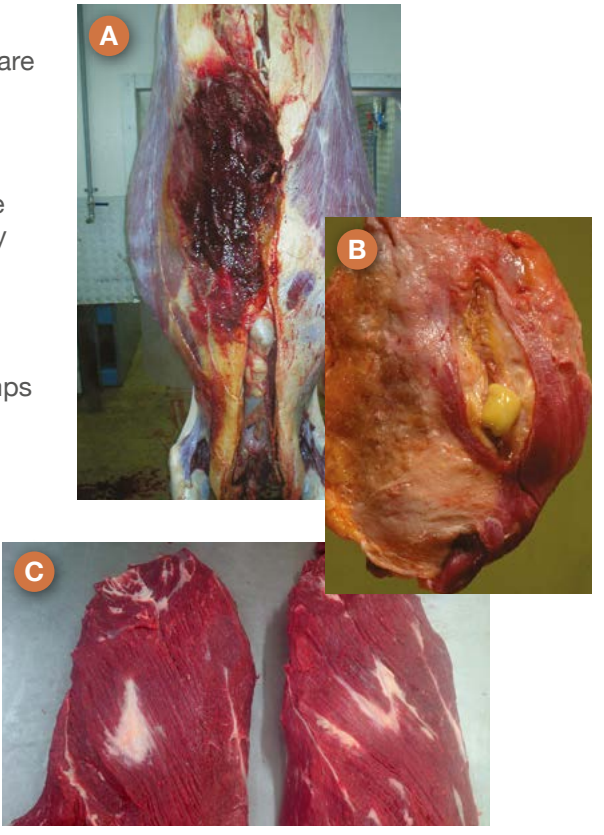
Handle with care

Sensitive handling is vital for animal welfare and to minimise damage that shows up after slaughter.

Bruising and abscesses lead to wasteful trimming and even partial rejection of the carcase, which in turn reduces saleability and the amount paid to the producer.

Avoid potential losses by:

- Handling cattle in races with smooth walls, non-slip floors and gradual ramps
- Not using sticks or goads
- Not overcrowding animals in vehicles and by using internal partitions to restrict movement while travelling
- Using clean injection needles and correct injection techniques to avoid infection
- Choosing injection site with care. Producers should inject animals in the neck and avoid the rump



Bruising (A), abscess (B) and silverside injection sites (C).

Healthy animals produce Better Returns

Underlying health issues will affect growth rates and influence returns. For example, liver fluke (*Fasciola hepatica*), reduces the animal's appetite and can increase the time it takes for cattle to finish by as much as 80 days.

At certain times of year up to 50% of livers can be rejected in abattoirs due to liver fluke damage and livers cannot be sold for human consumption. This ultimately has a knock-on effect to the whole supply chain.

CCIR (collection and communication of inspection results) data provided by abattoirs should also be used by producers to check for any preventable issues on farm that may be affecting performance.

Maximising financial returns

Present clean animals

Cattle in a dirty condition will not be accepted for slaughter. A dirty hide is worth less than a clean one and it can contaminate the carcase. Carcases will be trimmed to remove areas of contamination resulting in price penalties for producers.

Cattle in yards require frequent bedding with dry straw. Handling yards should always be kept clean. The key areas that need to be clean, or clipped, on cattle going to slaughter are;

- Belly
- Brisket
- Hocks
- Knees
- Tail end

Unacceptable

Acceptable

Dark cutting meat

Dark cutting beef, where the meat looks an unattractive deep red, can occur in all types of cattle, with the incidence highest in young bulls. Shelf-life is also reduced and the carcase devalued.

This is usually caused by stress in the 24–48 hours before slaughter.

To avoid stress:

- Always handle animals quietly
- Avoid mixing cattle from different groups
- Provide clean, dry bedding and plentiful water in any holding pens or lairage

From left to right, severely dark cutting meat, slightly dark cutting and normal.

Understanding how each abattoir works

Different processing plants operate different payment systems. When comparing deadweight prices it is important to understand the pricing basis and be aware of any potential weight or out-of-specification penalties.

Beware!

All abattoirs will have an upper and lower weight limit. Cattle falling out of the weight range will usually attract a penalty. Sometimes this can be severe so check before sale.

An example pricing grid for an abattoir, with premiums and penalties shown in p/kg

	1	2	3	4L	4H	5L	5H
E	-10	+15	+20	+20	+15	-10	R
U+	-10	+15	+15	+15	+8	-15	R
-U	-15	+5	+5	+5	B	-20	R
R	-20	B	B	B	-5	-25	R
O+	-30	-10	-10	-10	-15	-30	R
-O	-40	-30	-20	-20	-30	-40	R
P+	-50	-40	-40	-40	-50	-60	R
-P	-70	-50	-50	-50	-70	R	R

B = Base price R = Realisation

Weight penalties

Many abattoirs now require smaller and lighter carcases, driven mainly by changes in consumer preferences. The average number of people per household is decreasing and the requirement for meals that take less time to cook is increasing, therefore consumers are showing a preference towards smaller cuts.

Retailers also require carcases to be a particular size and weight for portion control so that cuts can be packaged and displayed consistently.

Maximising financial returns

Hot weight rebates

The larger British abattoirs (those slaughtering more than 20,000 cattle a year) reduce the hot carcase weight by 2% to establish the cold weight (payment weight) to the supplier. However, while some lower throughput abattoirs have adopted the 2% hot weight reduction, others may continue to use the historical reductions based on the following:

Side weights	Rebate per side
Up to 125kg	2.0kg
125.5–150kg	2.5kg
150.5–200kg	3.0kg
200.5kg and over	3.5kg

NB. Hot weights rounded down to 0.5kg

Suppliers should therefore enquire which hot weight rebate method is used at the abattoir to which cattle are sent.

Rounding

Abattoirs which apply the 2% hot weight reduction must record the actual hot weight shown on the scale (scales may be calibrated to 0.1, 0.2 or 0.5kg but no rounding must be applied to the indicator weight). Abattoirs continuing to use the historical table of rebates are likely to still round hot weights down to the nearest 0.5kg.

Dressing specification

When comparing grid prices between two abattoirs, check that the dressing specification is the same.

For a carcase of 320kg, payable weight can differ by an average of 9kg depending on the dressing specification used (from spec 1 to 3).

There are three dressing specifications approved for use in the UK.

The following weight reductions are for a typical beast. Carcases with excess fat will have higher weight losses.

Standard Specification to EC Specification
Males – 1.2% Females – 1.7%

EC Specification to UK Specification
Males – 0.8% Females – 0.8%

Standard Specification to UK Specification
Males – 2.0% Females – 2.5%

In most cases carcases are dressed excluding kidney knob and channel fat.

Table 2. Approved UK dressing specifications

		Cod/ Udder fat	Crown fat	Thin skirt	Bed fat	Brisket fat
1	Standard Specification	On	On	On	On	On
2	EC Reference Specification	Off	Off	Off	On	On
3	UK Specification	Off	Off	Off	Off	Off

Selecting animals to market

Weight and visual appraisal are general guides to an animal's readiness for market, but to ensure accurate selection, handling the live animal is essential.

Key handling points

These five key points give the best indication of level of finish and fat class. They combine reliability with ease of access.

Assessing conformation

To gauge an animal's conformation take into account the depth and thickness of the round, fullness of the loin, and thickness of the flesh over the shoulder.

Remember, carcase classification is an assessment of three areas: round, loin and shoulder.

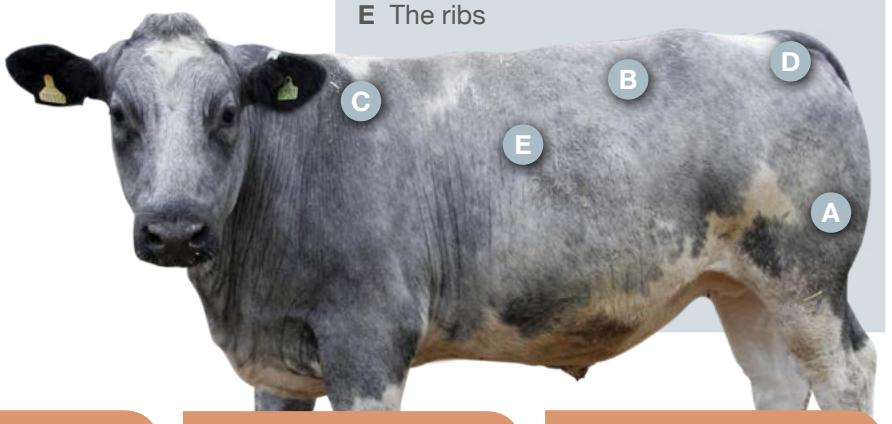
When the three parts differ, the classification for two of the three is applied.

To assess conformation feel the animal at:

- **A** The round or hindquarter
- **B** The loin
- **C** The shoulder

To assess fat level feel the animal at:

- **D** The pin bones and either side of the tailhead
- **B** The loin (transverse process)
- **E** The ribs



Shoulder

- **E** Very rounded
- **U** Rounded
- **R** Fairly well developed
- **O** Average development to almost flat
- **P** Flat with bones visible

Loin

- **E** Wide and very thick up to shoulder
- **U** Wide and thick up to shoulder
- **R** Still thick but less width at shoulder
- **O** Average to lacking thickness
- **P** Narrow with bones visible

Round

- **E** Very rounded
- **U** Rounded
- **R** Well developed
- **O** Average to lacking development
- **P** Poorly developed

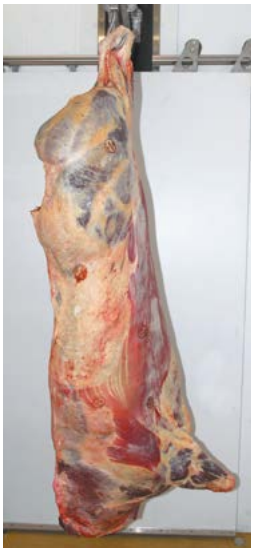
Selecting animals to market

At the same fat level, cattle with good conformation will yield more saleable meat. This reflects differences in the meat-to-bone ratio – a factor largely determined by breeding. Good conformation carcases also yield more high-priced cuts.

Good conformation

Lean cattle of good conformation have thickly fleshed, well-rounded contours. Viewed from the rear, they stand wide with convex hindquarters which are wider than their back.

From their front they are wide between the legs and thick through the shoulder, yet have a trim brisket.

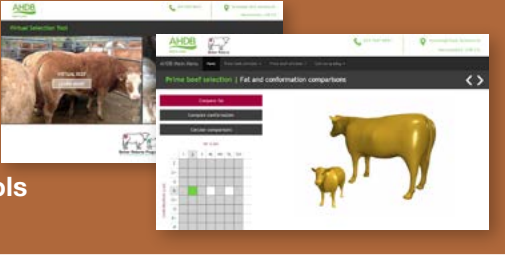


Poor conformation

Cattle of poor conformation have a relatively straight or, at some points, hollow appearance. They are often bony and angular, although excess fat may disguise this to some extent.

For more photos of finished cattle have a look at the AHDB Beef & Lamb BRP Virtual Selection programme, which shows how 'live' cattle look at different points in the classification grid.

Visit **beefandlamb.ahdb.org.uk/returns/tools** to access the program.



Assessing fatness

Whenever possible, handle animals over the loin on the left side as seen from behind. Kidney fat, under the tips of the transverse processes, on the right hand side can be misleading in assessing fat cover. Use just the tips of fingers, to feel fat depth over the underlying muscle and bone at each of the handling points.

As animals get fatter, the ends of the transverse processes (bones) over the loin and pin bones, as well as the shoulder blade ridge, become more rounded. The hollows between the ribs and shoulders fill up completely at the highest fat levels.

Hide thickness varies with breed. Consider this when assessing fatness, particularly over the tailhead, loin and ribs.

Fat class 2

Fat class 5H

Selecting animals to market

Feeling for fat

Tailhead

1&2 Skin is tight. Area around root of tail and over the pin bones is firm and unyielding.

3 Indication of very thin fat cover which yields slightly to moderate pressure.

4L Thin layer of fat felt when skin on either side of tail head is pinched between fingers and thumb. Thin soft layer is felt over the pin bones.

4H Looks slightly puffy; soft layer of fat felt using light pressure. Surface area around pin bones is soft and the fat tends to spread back towards the tailhead.

5L Looks puffy and feels spongy. Moderate fat cover over pin bones is felt as distinct soft layer.

5H Looks very puffy and feels very spongy. Thick and sometimes patchy layer of soft fat over the bones.

Loin

1&2 Ends of transverse processes very prominent. Individual bones felt as deep corrugations.

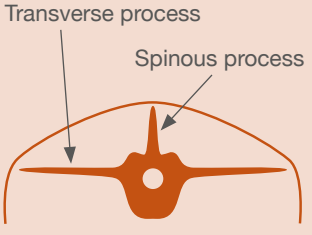
3 Ends of transverse processes prominent. Individual bones are felt as corrugations.

4L Ends of transverse processes slightly rounded by fat, felt with light pressure.

4H Ends of individual transverse processes are felt only with moderate pressure.

5L Transverse processes are felt only with firm pressure.

5H Individual transverse processes cannot be felt.



Skeletal structure of loin

Ribs

1&2 Ribs are prominent, clearly visible and are felt as deep corrugations.

3 Some fat cover is detectable over the bones but individual ribs are felt easily as corrugations.

4L Thin layer of fat is felt over the bones. Individual ribs felt with light pressure.

4H Distinct layer of soft fat is felt over the bones. Individual ribs are felt only with moderate pressure.

5L Thick soft fat covers ribs. Individual ribs are felt only with firm pressure.

5H Rib cage is smooth to the touch with a tendency to patchiness. Individual ribs cannot be felt.

Killing out percentage (KO%)

KO% is carcase weight as a percentage of liveweight.

Factors affecting KO% are:

- Breed
- Gender – young bulls have a higher KO%
- Feeding system – KO% is lower when cattle finished off grass rather than indoor fed
- Time when weighed – gut full or empty
- Clean or dirty
- Careful handling – bruising can lead to condemnation of parts of the carcase

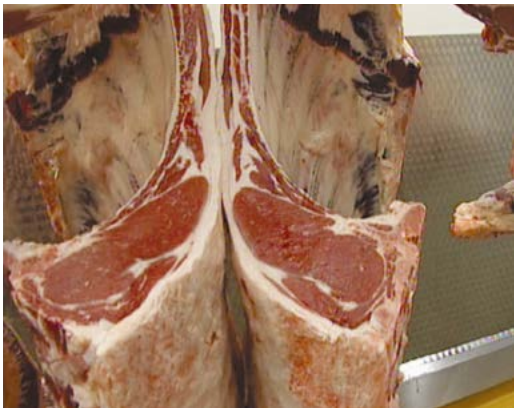
Meat yield

Meat yield is the total percentage of saleable meat from a carcase.

Better conformed carcases yield a greater amount of saleable meat.

Fat level has the greatest influence – the fatter the carcase, the less meat is available for the processor to sell.

See the table below.



Fat class 3 forerib

Fat class 5L forerib

Percentage yield of meat for different carcase classifications

Increasing fatness

Improving conformation

Conformation class	Fat class			
	2	3	4L	4H
-U	76.5	73.8	71.7	70.4
R	74.8	72.1	70.0	68.7
O+	73.1	70.4	68.3	67.0
-O	71.7	69.0	66.9	65.6
P	70.8	68.1	66.1	64.7

Beef BRP Manuals

Manual 1	Choosing bulls to breed for Better Returns
Manual 2	Marketing prime beef cattle for Better Returns
Manual 3	Improving cattle handling for Better Returns
Manual 4	Beef production from the dairy herd
Manual 5	Feeding suckler cows and calves for Better Returns
Manual 6	Improve beef housing for Better Returns
Manual 7	Feeding growing and finishing cattle for Better Returns
Manual 8	Optimising suckler herd fertility for Better Returns
Manual 9	Controlling worms and liver fluke in cattle for Better Returns
Manual 10	Better Returns from pure dairy-bred male calves
Manual 11	Managing replacement heifers for Better Returns
Manual 12	Better Returns from calf rearing

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