A CHEF'S GUIDE TO SCOTCH BEEF & LAMB

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SCOTTISH FOOD & DRINK

Scottish Enterprise

QMS QUALITY MEAT SCOTLAND representing the Scottish red meat industry

A CHEF'S GUIDE TO SCOTCH BEEF & LAMB FROM FARM GATE TO DINNER PLATE

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FROM FARM GATE TO DINNER PLATE

Source: David Chambers, Rules Restaurant, 'An abundance of rare ideas'

Introduction

The Scottish red meat industry enjoys a well-deserved reputation for producing excellent tasting Scotch Beef and Scotch Lamb. Scotland's livestock are raised on fine pastures in a pristine environment, by farmers with generations of livestock production expertise. These are just two of the reasons which make Scotch Beef and Scotch Lamb the consumer's choice.

Additionally, the Scotch red meat industry is supported by a fully integrated assurance programme. This assurance programme guarantees high quality standards and ensures complete traceability throughout the entire chain of production and processing.

The European Commission recognises that Scotch Beef and Scotch Lamb have unique regional characteristics, and fully recognises them as PGI (Protected Geographical Indication) products.

This book is aimed at helping chefs specify the right product for their needs and to appreciate the quality and flavour benefits of Scotch Beef and Scotch Lamb.

Each chapter is packed with information to help you fully appreciate and make the most of Scotch Beef Lamb, ensuring you impress and delight your dining customers.

About QMS

QUALITY MEAT SCOTLAND
representing the Scottish red meat industry

Quality Meat Scotland aims to support the Scottish red meat industry and to promote its products – beef, lamb and pork – to a global audience. Quality Meat Scotland is particularly pleased to place its expertise at the disposal of the chefs and caterers interested in the quality of the meat they serve to their customers.

About Quality Meat Scotland:

- All the different parts of the production and supply chains are represented in its board including consumer association
- Its activities are financed by levies raised on beef, lamb and pork slaughtered in Scotland
- Quality Meat Scotland is responsible for the product integrity and reputation of Scotch Beef and Scotch Lamb
- Its activities range from helping the industry to improve methods of production and the quality of the product, increasing customer awareness of the benefits of Scotch Beef and Scotch Lamb and to develop new markets in the UK and around the world

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Many of today's consumers are well informed about meat and want to know where and how it was produced. The trusted provenance of Scotch Beef and Scotch Lamb gives them reassurance and provides you with a premium addition to your menu.

In this section:

The requirements of today's consumers

The decisions consumers make about when, where and what to eat drive the industry, and never before has the UK dining customer been presented with so much choice. For the foodservice operator, increased consumer choice inevitably means more competition, but for the astute caterer it brings new opportunities too. For everyone involved in the food industry today, these are exciting and challenging times.

Today's foodservice consumer

Eating out has become a key part of the British lifestyle: **typically some 70% of the population claim to eat out once a fortnight, and a fifth of all UK consumers now dine out weekly.**

According to the Food Standards Agency Scotland, half of all adult consumers are concerned about the fat, sugar and salt content in the food they eat – Target Group Index (TGI) data suggest that around 28% of adults in the UK are trying to lose weight 'most of the time'. Such issues are unlikely to diminish the frequency of eating out, they are highly likely to influence what consumers choose to eat when they do.

Increasingly discerning and knowledgeable, today's consumers regard red meat as a key indicator of the quality of their eating experience

For more information, see **www.food.gov.uk/scotland**

Red meat is a major indicator of quality in foodservice

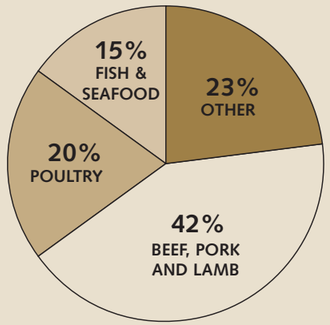
Red meat is one of the key products by which the increasingly discerning and knowledgeable consumer will judge the quality of their eating experience. Let's look at the facts:

- Over **720 million kg of red meat** is served to British consumers eating out in pubs, restaurants and canteens every year
- The amount of beef and lamb consumed out of the home is increasing
- Across the total foodservice market, approximately **26% of all protein purchased, by weight, is beef and approximately 7% is lamb,** with the proportions considerably higher in some sectors *(Source: Quarterly Protein Monitor October 2004)*
- **42% of main courses on UK menus feature red meat**, compared with 20% featuring poultry and 15% fish and seafood *(Source: Menurama January 2004)*

Consequently it is very important that the caterer buys, prepares and serves red meat of the highest quality.

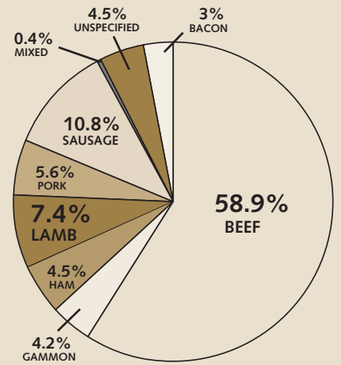
The Importance of Red Meat in Foodservice

Red meat market share – main courses



Red meat is the most popular main course choice in the UK
Source: Menurama January 2004

Species share of main course red meat



Beef and Lamb constitute two thirds of main course red meat
Source: Menurama January 2004

Consumer attitudes to red meat production

Most consumers are happy to think about animals on farms and about the meat they buy, but are uncomfortable and largely ignorant about the processes in between. Consumers are concerned about two key issues: animal welfare and the desire for 'humane' methods of livestock production and slaughter. Research by the Institute of Grocery Distribution (IGD) has shown that consumers seek reassurance in the form of assured standards which satisfy their 'top five areas of priority':

Consumer Top Five Priorities

1. Living conditions
2. Transport conditions
3. Humane slaughter
4. Safety of the animal feed
5. Hygienic handling of meat

Most participants in the research were generally confident in Scotland's red meat production standards and believed that there had been an improvement in the last few years in response to red meat scares. Additionally, a strong association was made to the environment when buying meat from Scotland. Clearly, as a caterer, it makes sense to offer your customers the reassurance that the meat you buy and serve is reared and processed to established quality assurance standards.

Source: Institute of Grocery Distribution (IGD)

For more information on Scottish specific assurance, see the Farm section, page 83

Scotland's red meat industry assured standards satisfy consumers' top five areas of priority

1

Scotland's environment is hugely beneficial to the animals and to meat production

2

Transportation is efficient and travel times minimised

3

Only highly skilled, licenced slaughter professionals are employed

4

Only the best feed is used to supplement Mother Nature's diet

5

Hygiene is a key priority along the supply chain

Ensuring quality

Scotch meat assurance standards – confidence for you and your customers

Quality Meat Scotland is committed to provide Assurance throughout the supply chain and embraces quality, safety, traditional husbandry and wholesomeness. Quality Meat Scotland research identified the following concerns that strongly influence consumer choice:

- "we are what we eat"
- "we need assurance that what we are feeding our animals will not harm us"
- "we want a transparent, clear system of assured quality we can trust"
- "we want standards policed in a way we can have confidence in"

Effective Assurance is a long-standing, integral part of the Scotch meat and livestock sector and Scotland was one of the first to recognise the market opportunity of offering assured products.

The Quality Meat Scotland Assurance Schemes mean that only animals from farms that can meet the assurance standards are eligible to be classed and called Scotch Beef or Scotch Lamb, and these farms are independently inspected annually.

The classifications **'Scotch Beef'** and **'Scotch Lamb'** are given only to cattle or sheep that have been born and raised on assured Scottish farms and then slaughtered at approved slaughterhouses in Scotland.

PGI and PDO status

The European Commission has developed the PGI (Protected Geographical Indication) and PDO (Protected Designation of Origin) systems. These qualifications protect foodstuffs across Europe and help consumers by giving them information about the specific character of products and a regional identity. Partly as a result of Scotland's excellent Assurance Schemes, but also due to satisfying the strict guidelines laid down, both Scotch Beef and Scotch Lamb have attained the important Protected Geographical Indication status from the European Union.

PDO takes this one step further and protects products that bear qualities and characteristics essentially due to a specific area, e.g. Orkney instead of Scotland.

So why are the PGI and PDO so important? Here are some key reasons:

- The PGI definition matches consumer expectations and so protects our industry from consumer misconceptions and misleading product claims
- Scotch Beef and Scotch Lamb generally carries a premium price in butchers, retail and restaurants which leaves it open for abuse to call meat and dishes 'Scotch' when they are not. PGI status makes this practice illegal
- PGI and PDO have common status in Europe – e.g. Parma ham, feta cheese and Parmigiano Reggiano cheese – and so this qualification for our Beef and Lamb enhances the profile of our industry in other markets as a quality product

Consumers hold Scotch red meat in high esteem

The Protected Geographical Indications (PGI) for Scotch Beef and Scotch Lamb have been in force since 21st June 1996 but the definition of Scotch Beef has been subsequently tightened on 21st July 2004 and the definition of Scotch Lamb on 11th August 2004. Ever since, any time the terms Scotch Beef or Scotch Lamb are used, it means that the meat has met the PGI specifications. It is a legal requirement that the consumer is not misled in the event that Scotch and non-Scotch product are being sold in the same premises.

In contracts you may consider using the following wording in any communication to your supplier: *"The beef and lamb you supply to my business must meet the definition of Scotch as defined under the EU PGI legislation."*

For answers to more specific PGI related questions, a comprehensive Q&A document can be downloaded at **www.qmscotland.co.uk/downloads/QA_for_PGI_rev2.pdf** *For PGI and PDO status, log onto* **www.defra.gov.uk/foodrin/foodname.uk.htm** *or* **www.europa.eu.int/comm/agriculture/qual/en/uk_en.htm**

EC Council Regulation on the Protection of Geographical Indications and Designations of Origin Reg No 2081/92

PROTECTED DESIGNATION OF ORIGIN	PROTECTED GEOGRAPHICAL INDICATION
Product must be produced and processed and prepared in geographical area (PDO)	The geographical link must occur in at least one of the stages of production, processing or preparation. Furthermore, the product can benefit from a good reputation.
Quality or characteristics essentially due to that area	Specific quality, reputation or other characteristics attributable to that area
ORKNEY BEEF ORKNEY LAMB SHETLAND LAMB	SCOTCH BEEF SCOTCH LAMB

Source: DEFRA

Meeting your customers' flavour needs

The flavour of meat develops during the cooking process through the effects of heat on the many compounds present and the reactions between them.

These include water-soluble compounds and fatty acids which are characteristic of the species' flavours. These elements may vary due to a number of factors, for example:

- Animal and breed
- 'Fatness'
- Diet
- Handling and processing
- Ageing and packaging

A number of factors impact on the final eating quality, in addition to how expertly you prepare it

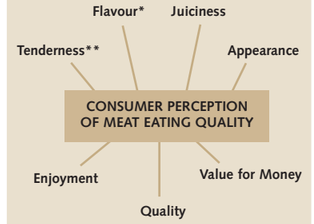
These factors will be looked at in more detail in other parts of this section but the chart below delivers a snapshot of their impact:

Relative effects of production and processing factors on beef flavour

FACTORS	SIZE OF EFFECT
Production	
Age	
Breed	
Gender	
Fat Content	
Diet	
Pre-slaughter handling	
Processing	
Electrical stimulation	
Ageing/conditioning	
Marinades	
Retail display conditions	
Cooking	

Source: Consumer Decision Tree, Meat and Livestock Commission 2004

What consumers look for in their meat eating experience



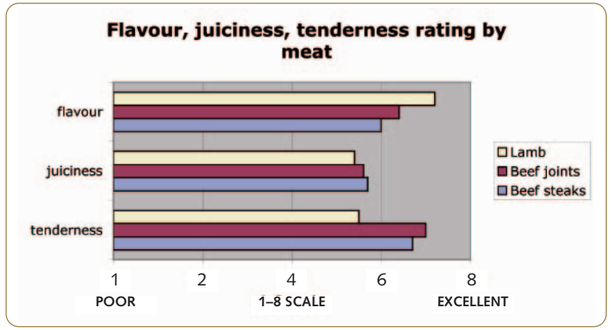
** Very important
* Important

For more information on diet, see the Farm section, page 83

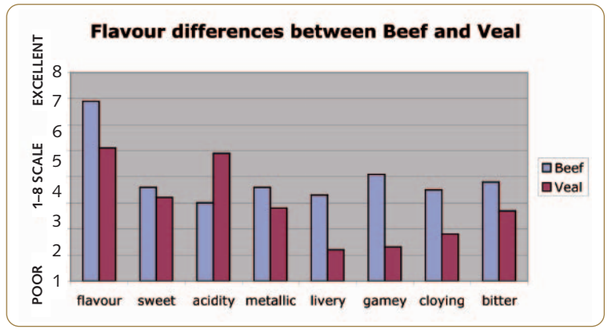
PLATE – WHAT ARE MY CUSTOMERS LOOKING FOR?

What are my customers looking for?

Tenderness, flavour and juiciness are generally considered to be the three key requirements that customers crave in meat eating, the former being of primary importance.



Overall the chart shows that there is little difference between beef and lamb in flavour, juiciness and tenderness



Source: Rodbotten et al, 2004

The chart shows how beef and veal flavours differ. Veal has a low impact of livery flavours whilst beef has a greater amount perceived and is a positive characteristic for the consumer

For more information on rare breeds and their contribution to flavour, contact Quality Meat Scotland or log onto: **www.qmscotland.co.uk**

Flavour is, however, very difficult to evaluate as it combines the senses of taste and smell (aroma).

Each meat has its own characteristic flavour and this will vary within a species as well as varying in the cooking procedure itself. During cooking, numerous chemical reactions occur and thousands of compounds are formed. Important compound activities occur with amino acids, lipids (fat), sugars and carbohydrates and amongst themselves. Such reactions give either pleasant or unpleasant flavour. Factors during animal production which could affect beef flavour are age, breed, gender, fatness, diet and production system.

Age

There are clear differences between veal and beef. Veal has a lower overall flavour intensity, a higher acidic taste and lower 'gamey' qualities (*see chart left*).

Breed

Significant speculation surrounds the role of breed in determining meat-eating quality and it is an area of research that is being looked at globally. It is generally felt that the **differences in breed flavour are small** and where they do exist, it is correlated to differences in fatness, with fatter animals tending to have higher intensity scores.

Source: University of Bristol August 2004

A review of scientific literature on beef tenderness, juiciness and flavour shows that there is little effect from breed and what effect there is would be deemed inconsistent. It is more important to ensure a correct and assured pathway of production that gives excellent quality rather than specify breeds which give inconsistent results. **Rare breeds generally have a higher flavour portfolio** which can possibly be attributed to slaughter at an older age and thereby a higher fatness to body ratio.

Gender

In the past, gender was a significant aspect of beef and lamb flavour. **Gender remains a factor but modern production methods have reduced the variability.** Bull beef from entire male cattle will give a more defined flavour.

Marbling and fatness

Another area of much speculation is the phenomenon of marbling (see also Kitchen section, page 64). **Juiciness and flavour desirability scores tend to increase with an increase in marbling intensity.** The difference of composition between muscles explains the difference of eating quality such as flavour and texture.

A more marked result can be seen in ground beef **patties/burgers**. In general, patties and burgers contain more fat than lean muscle, which has an effect on their tenderness, juiciness and beef flavours.

Animal diet

Animal diet certainly has a significant – some would say the most significant – effect on flavour and this is discussed more in the Farm section of this book. It is generally agreed that **animal diet is an important factor in fat type which in turn affects flavour.** Animal diet can bring positive and negative traits to meat.

Production system

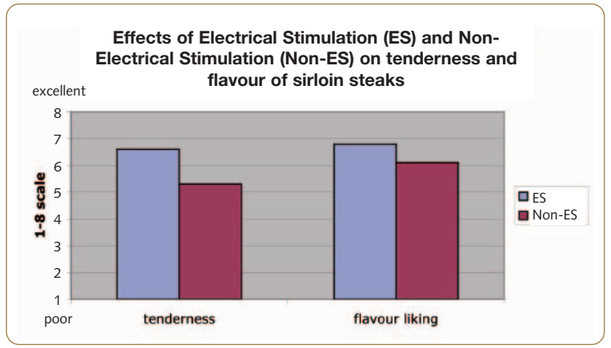
Stressed cattle, be it at the farm, in transit or abattoir release stress hormones. If this is just pre-slaughter, Dark, Firm and Dry (DFD) meat can be produced due to an abnormal change in the muscle's pH. This has an affect on desirable flavours released in the cooking process and therefore delivers an ultimately inferior final product to the consumer. Occurances of DFD however is very rare in the Scotch Assurance Scheme.

Post-slaughter, some abattoirs use Electrical Stimulation (ES) which can offer some improvement in tenderness and eating quality. Carcases can be chilled rapidly after ES, rather than waiting for the internal muscle temperature to cool naturally.

Lamb can be lean. This rack of lamb has been specified 'trimmed'

For more information, on the terms, see Abattoir section page 78

For more information, contact Quality Meat Scotland or log onto **www.qmscotland.co.uk**



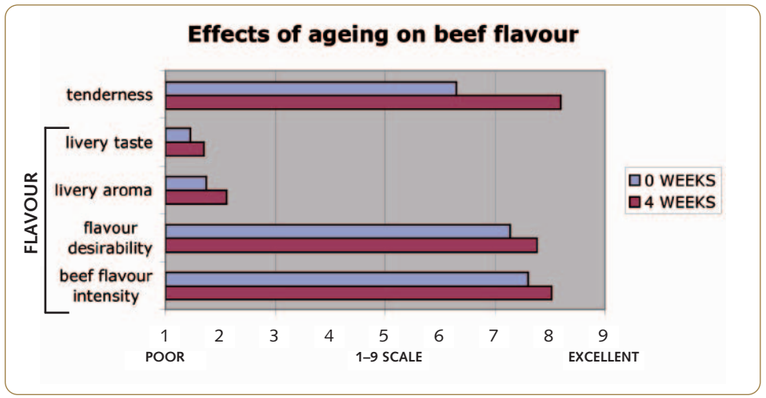
Source: Savell et al, 1979

Source: University of Bristol August 2004

Ageing

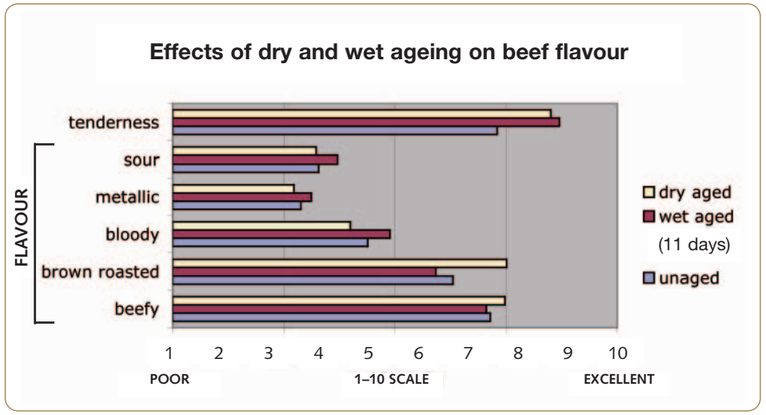
After slaughter, ageing and packaging of meat also play an important part in the final eating qualities. This is dealt with further in the Kitchen section of this book. However the following tables summarise these effects:

- ageing improves beef flavour (pooled results for all ageing treatments), particularly bone-in vacuum packing



Source: Jeremiah and Gibson, 2003

Overall appreciation of flavour improves with ageing although some 'inappropriate' flavour notes increase also



Source: Warren and Kastner, 1992

Steaks cooked to 70°C

For more information on dry ageing, see Abattoir section, page 74

- **ageing improves beef flavour** and dry ageing (although balanced by significant weight loss) is preferable to wet ageing. Ageing affects tenderness

Wet ageing occurs when meat is aged in a vacuum packed environment.
Dry ageing occurs when meat is exposed to the air.

Source: University of Bristol August 2004

Keep your customers informed and give them what they want

The retail sector is leading the way with meat labelling to show country of origin. Research by Quality Meat Scotland has shown that the consumer is increasingly demanding this when eating out of home:

- **71% of consumers believe that the meat they are eating in the out-of-home market is of UK origin**
- **But in fact UK-produced meat in the total foodservice market is only around 40%**

- 61% of diners wanted to know where meat eaten outside the home came from: an increase from 55% just two years ago
- 84% of respondents said they would like an easily recognised symbol on the menu
- 80% reported they would be happy to see the country of origin included in the menu description

As a caterer, you have an excellent opportunity therefore to satisfy consumer demand – make your menus proclaim your meats' origins and note that the same Assurance Schemes apply to all Scotch Beef and Scotch Lamb, including more economical cuts, minced and re-formed products.

Menu transparency is the way forward

Menu transparency is something I wholeheartedly support and we endeavour to apply it in all our restaurants. The reasons behind this are compelling. Number one is the recognition of the changing concerns of our customers regarding the ingredients they are eating. Secondly, menu transparency is the clearest demonstration of our confidence in the ingredients, and the faith we have in our suppliers.

The Gordon Ramsay name is synonymous with excellence and an uncompromising pursuit of the highest standards, and I believe that menu transparency is in keeping with these values. **Gordon Ramsay,** speaking at the launch of the Best Practice Guidelines for Menu Transparency in November 2002

For a summary of the Menu Transparency Best Practice Guidelines, go to page 16

TRACEABILITY ON THE PLATE

At the time of printing, the Scottish Executive has announced that in the months to come information on beef origin will need to be made available on menus. In the meantime, Quality Meat Scotland's Best Practice Guidelines for labelling the origin of meat on menus provides caterers with advice on how to notify consumers of their buying policy in the simplest possible terms, assisting both the supplier and the chef.

From top London restaurants to small, provincial pub kitchens… Scotch Beef delivers every time

Menu transparency: 8 simple guidelines

Examples of menu transparency:

How informative are your menus?

1. Country of origin details should be provided for all dishes on the menu where the major prominent ingredient is meat-based. The term 'meat' in this context includes red meat, poultry and offal
2. Information on the origin of meat should be made available either on the menu or clearly displayed on a poster, chalkboard or other point-of-sale material. Website information is not sufficient
3. The term 'origin' in this context refers to where the animal has spent the majority of its life. Where appropriate, more than one country should be specified (for example when meats of different origins are used)
4. Caterers may wish to provide reference to the specific region, or even the farm that the animal has come from
5. Caterers buying meat from more than one country should simply indicate their sourcing policy with a short explanation on the menu. For example: 'We source our meat from around the world or 'the meat served in this restaurant is of Scottish origin except where otherwise stated'
6. If it is the case that the origin of meat supplied will change before the menu is renewed, this should also be indicated. For example: 'the meat served in this restaurant is selected according to seasonal availability. Lamb is from Scotland or New Zealand, unless otherwise stated'
7. If reference to the breed is included on the menu, this should still be supported with country of origin details. For example Aberdeen Angus originated in Scotland but is now also reared throughout the world
8. Brand names implying origin of meat on the menu should also be clarified with origin details, for example: 'Highland Lambs from Scotland' or 'Scotch Premier Beef'

Satisfaction is simple

Scotch Beef and Scotch Lamb
+
PGI status
+
Quality Meat Scotland's menu transparency

→ Consumer satisfaction

= PRICE PREMIUM & PROFIT → Chef satisfaction

Meat eating limitations

Your dining customers will doubtless vary in their meat tastes but for some consumers their choice is based on adherence to religious faiths or to principles which by choice preclude them from eating products of animal origin.

Religious restrictions

Some religious faiths have particular requirements about the meat that they eat. In the UK this applies predominantly to members of the Muslim and Jewish religions amongst others:

- **Muslim:** 'Halal' means 'lawful' and this is the method used by Muslims. In the context of red meat it applies to lamb (and mutton) and to beef, but never pork. 'Haram' – 'unlawful' – is the opposite of Halal. Pork and unlawfully slaughtered beef and lamb are Haram. A slaughter man kills the animal by a single cut across the throat whilst saying "Bismilla Allah Akbar". Slaughter is generally very fast and efficient
- **Judaism:** The Jewish slaughter method is called Shechita, and the meat produced is Kosher meat
- **Sikhism:** Sikhs do not see beef as taboo. A non-vegetarian Sikh can take beef, lamb or pork as readily as any other meat
- **Hinduism:** States that Hindus have to be careful about food because what they eat decides physical wellbeing and mental makeup. Eating animal meat or heavy food may lead to the strengthening of animal qualities and lethargic nature in us. One belief suggests that killing innocent and helpless animals for the purpose of satiating hunger is bad karma with harmful consequences. However, not all Hindus avoid eating meat and Hindu law books do not prohibit the eating of meat in general, but only certain types of meat

Customer preferences

Vegetarians and vegans

The principle categories of vegetarians are:

- **vegetarians** – who do not eat fish, meat or poultry. Some however are selective and will eat fish or poultry or some specific meats like bacon but still call themselves vegetarians
- **vegans** – who will not eat any food of animal origin, including, for example, milk or eggs
- **ovolactarians** – who adhere to the same restrictions as vegans, but do include milk and eggs in their diet
- **lactarians** – who adhere to the same restrictions as vegans, but do include milk in their diet (but not eggs)
- **herbivores** – who will eat only plants
- **fruitarians** – who will eat only fruits
- **granivores** – who will eat only seeds and grain

Meat allergy

A very small number of people have an allergic reaction to a particular meat. Processed meats sometimes contain other ingredients, particularly milk, so it is possible for someone who is allergic to milk to react to a meat product. Beef allergy is extremely rare and there is no known allergy to lamb.

Organic and free range meat

The caterer should be clear about these terms:

- **Organic** meat should be produced by breeding and rearing animals with regard to their welfare and by 'traditional and natural' methods. The term is tightly controlled by legislation
- **'Free-range'** is a rather vague term which describes a wide range of systems of keeping animals in 'unconfined' groups. By definition, most Scotch Beef and Scotch Lamb, which has been allowed to roam and feed freely on the hillside pastures for much of the year, is free-range

For more information, contact:

British Society for Allergy and Clinical Immunology
www.bsaci.org
Allergy UK
www.allergyuk.org
SOPA
www.sopa.org.uk
The Soil Association
www.soilassociation.org
SEERAD
www.scotland.gov.uk/topics/agriculture

Talk to your butcher about whether he offers a source of organic and free range meats, and be sure that you are using accurate descriptions on your menus

It is important that you can identify all ingredients of animal origin in a particular dish and advise such customers accordingly: for example, vegetables may have been cooked in animal fat, or sauces may contain eggs.

Source: David Reading, Focus on Food

Nutrition – getting the balance right

Red meat makes an important contribution to a healthy, balanced diet

Lean red meat is healthy, delicious and relatively low in fat

There is much confusion today about the role of red meat in healthy eating, including a small number of polarised consumers avoiding red meat because they fear that it is bad for their health. The red meats (beef and lamb) have a high nutrition density, in other words, they contain a wide variety of nutrients in useful amounts. Meat is an important **source of B vitamins, including B-12, which is not found naturally in foods of plant origin.** Meat also contributes trace elements and minerals to the diet, particularly iron and zinc.

No single food contains all the nutrients needed for good health, so the aim should be to include a wide variety of foods in the diet: balance is the key.

Meat and fat

Fatty red meat and meat products are often cited as major contributors to excessive fat (particularly saturated fat) in the diet. However, over-simplistic advice that fat reduction can be achieved by simply eating less red meat is unnecessary and incorrect. The National Food Survey has estimated that **red meat products contribute only 22% of the total fat in the average diet** and with new initiatives in place, the fat content of red meat on average has decreased significantly over recent years. **Lean red meat is actually quite low in fat at 4–8g per 100g.**

Source: BNF

For information on 'marbling', see the Kitchen section, page 25

Healthier ways of cooking

- Choose lean cubes of beef or lamb for casseroles or kebabs
- Trim fat from meat before cooking
- Cut off any remaining fat on the meat before serving
- Try these healthier cooking methods:
  - Dry frying, grilling, roasting on a rack or stir-frying
  - Drain and discard fat from the pan before making gravy/sauce
  - Skim fat from casseroles and stews before serving
  - Dab or shake any grilled or fried food before serving

For more information log onto **www.nutrition.org.uk** *or* **www.food.gov.uk/scotland** *or* **www.bda.uk.com**

Meat and iron

The mineral iron is vital for red blood cell formation and is therefore essential at all stages of life. Too little iron in the diet can lead to the development of iron deficiency anaemia, which can make people tired, irritable and less able to concentrate. Average iron intakes in the UK have fallen over the last twenty years, due in part to lower consumption of red meat, which is the **richest source of easily absorbed iron.**

Offering customers responsible choices

There is no such thing as a 'good' food or a 'bad' food, there are only good or bad diets. It is widely accepted that there is a need to reduce the total fat content of the diet. Switching to lean meat, rather than reducing the number of red meat dishes on offer, can significantly reduce the contribution made by red meat.

How much iron?

On average, adult men need 8.7mg of iron a day, and women need 14.8mg. Here are some examples of how much iron various foods deliver:

FOOD	SERVING SIZE	IRON SUPPLIED PER 100g
thick slices of lean roast beef	90g	2.3mg
a boiled egg	50g	1.0mg
wholemeal bread (1 average slice)	36g	1.0mg
dark roast turkey meat (average serving)	120g	1.7mg
a portion of lamb's liver, fried	100g	10.0mg
canned sardines in oil	50g	1.5mg
spring greens, boiled	90g	1.3mg
an average bowl of fortified breakfast cereal	45g	3.0mg
beef, average, trimmed lean, raw		1.8mg
lamb, average, trimmed lean, raw		1.4mg

Source: supplement to McCance and Widdowson's The composition of Foods (Meat, Poultry and Game)
Source: Food Standards Agency Scotland, Meat and Livestock Commission

The facts about fat

Saturated – This type of fat can increase the risk of heart disease because it may raise blood cholesterol levels. So cut down on foods such as butter, cheese, cakes, biscuits.

- Beef fat cooked – 24.3g per 100g saturated fat
- Lamb fat cooked – 28.4g per 100g saturated fat

Unsaturated – Having unsaturated fat instead of saturated fat actually lowers blood cholesterol levels. There are two types of unsaturated fat – polyunsaturated and monounsaturated. Rather than saturated fat, try to choose more foods high in unsaturated fat.

To stay healthy we need to have some fat in our diet. What is important is the kind of fat we are eating. Use the following as a guide to what is a lot and what is a little fat per 100g food.

- Beef fat cooked – 1.8g per 100g unsaturated fat
- Lamb fat cooked – 2.4g per 100g unsaturated fat

This is A LOT of fat:
20g fat or more per 100g
5g saturates or more per 100g
This is A LITTLE fat:
3g fat or less per 100g
1g saturates or less per 100g

Source: Food Standards Agency Scotland December 2003

Matching Scotch Beef and Scotch Lamb to wine

For further information on wine and food combinations, log onto **www.qmscotland.co.uk**

Talk to your wine supplier and your butcher to discuss great combinations for your menu

The world of wine has always been very subjective, where arguments based on personal preference are as valid as 'rules' adhered to across generations.

If ever there was an occasion to bend rules, food matches with wine is it, but there are some guidelines which should certainly be considered before uncorking (even if they are subsequently ignored!).

The decision may be based on your mood, the climate where you are dining, accompaniments to the meats, the recommendations of your dining colleagues. Whatever the case, make sure you enjoy it!

The following guidelines offer wines that complement Scotch Beef and Scotch Lamb cuts, largely based on the flavours divulged by the meat characteristics in their own right and the method of cooking.

It's a matter of taste

Food and wine is such a personal choice. In fact it goes beyond wine. You may feel that a hop-rich bitter or a cold lager would go better with your meal. Perhaps a fortified wine to complement your dessert or how about a malt whisky to really marry that cranachan dessert…or it's Burn's Night!

Food is a celebration and anything that can augment that feeling – be it textbook combination or a fusion of flavours – should be your decision, and your customer's prerogative!

Wine choice is very personal but can enhance meal enjoyment

How to use these tables

The tables give a snapshot of the traditional wines suggested to be served with Scotch Beef and Scotch Lamb. However, in conversation with your customers, staff and suppliers, the list of possibilities will increase, as will your knowledge. Happy experimenting!

BEEF

DISH	COOKING METHOD	🍷	🥂	WINE STYLE	WINE SUGGESTIONS
Steak	Pan fried	16	NA	Rich and full-bodied, woody but not too much	Cabernet Sauvignon, Cahors, Côtes du Rhone – Cornas
Rib Steak	Grilled	16	NA	Rich, red tannins, not too woody, a little complex	Cabernet Sauvignon, Madiran, Bordeaux – Medoc, Côtes du Rhone – St Joseph
Roast Beef	Oven Roasted	16	NA	Nicely rounded, fleshy red wine to cut through the 'fatness' of the meat	Gamay, Pinot Noir, Côtes du Rhone – Gigondas, Beaujolais
Rumpsteak	Grilled	16	NA	Rounded, strong wines, fleshy but not too subtle	Cabernet Sauvignon, Bordeaux – St Estephe, Côtes du Rhone – Côte Rotie, Fitou
Braising Steak	Braised in oven	17	NA	Avoid overly tannin-rich wines and match the strength to the braising liquid and seasoning	Cabernet Sauvignon, Bordeaux – Côtes de Blaye, St Emilion, Red Loire wines (Chinon grape)
Boeuf Bourguignon	Oven	17	NA	Warm and generous red wines to stand up to the rich sauce	Pinot Noir, powerful southern Burgundies – Pommard, Gevrey-Chambertain
Pot-au-feu	Stove	16	NA	Subtle, rounded wines, able to counter the mellowness of the dish	Beaujolais, Bordeaux – Medoc, Côtes du Rhone – Vacqueyras
Oxtail	Stove	17	NA	Tannin reds or simple, generous wines, maybe even a dry white	Pinot Noir, Burgundy – Volnay, Mercurey

LAMB

DISH	COOKING METHOD	🍷	🥂	WINE STYLE	WINE SUGGESTIONS
Roast Lamb	Oven	16	NA	Reds offering freshness and not too much tannin	Pinot Noir, Merlot, Loire – Chinon, South West – Buzet, Rioja
Roasted Rack of Lamb	Oven	16	NA	Tannin reds to tackle the roast flavours, robust wines work well	Pinot Noir, Merlot, South West – Madiran, Burgundy – Mercurey, Rioja
Confit	Oven	16	NA	Silky reds with slight tannin, well built but not too acidic	Cabernet Sauvignon, Pinot Noir, Burgundy – Côte de Beaune, Loire – Chinon, Bordeaux – Pomerol
Lamb with White Sauce	Stove	NA	10	Quite rounded whites but not overpowering	Chardonnay, Chablis
Navarin	Stove	16	10	Favours less tannin-rich, acidic reds, big round whites	Côtes du Rhone blanc, Châteauneuf-du-Pape, Beaujolais

KEY

🍷 RED WINE

16 RECOMMENDED SERVING TEMPERATURE °C

🥂 WHITE WINE

10 RECOMMENDED SERVING TEMPERATURE °C

VEAL

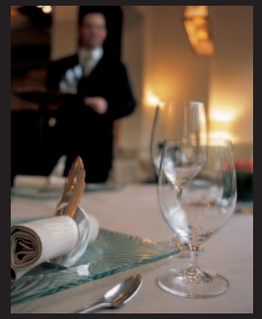
DISH	COOKING METHOD	🍷	🥂	WINE STYLE	WINE SUGGESTIONS
Escalope	Pan fried	16	10	Light tannin reds, fresh but not acidic, whites with some character but not overpowering	Pinot Noir, Cabernet Sauvignon, Burgundy – Givry, Côtes du Rhone – Gigondas Blanc, Alsace Pinot Gris, Vouvray
Rack of Veal	Spit roasted	15	10	Subtle reds, not too weighty or acidic. Avoid high tannins, fresh and light whites	Pinot Noir, Cabernet Sauvignon, Burgundy – Rully, Chardonnay – Mercurey Blanc, Alsace Pinot Gris, Vouvray
Casserole	Stove	NA	12	Big, dry white wines, powerful but not astringent	Côtes du Rhone blanc – Hermitage, Châteauneuf-du-Pape
Veal with White Sauce	Stove	14	10	Ample whites, rose or red wines with light tannins	Chardonnay, Mâcon Blanc, Gamay de Touraine
Casseroled Osso Bucco	Stove	14	10	Big dry whites, full bodied and powerful, reds with good acidity	Pinot Noir, Cabernet Sauvignon, Burgundy – Auxey-Duresse, Bordeaux – St Emilion

OFFAL

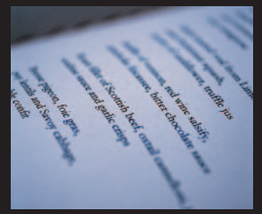
DISH	COOKING METHOD	🍷	🥂	WINE STYLE	WINE SUGGESTIONS
Veal and Lambs Liver	Pan Fried	15	NA	Big reds to counter the flavours of the liver, acidic wines will be metallic – avoid	Côtes du Rhone, Beaujolais
Kidneys	Pan Fried	16	10	Powerful wines to counter the strong tastes	Cabernet Sauvignon, Bordeaux – Pomerol, Vin du Jura
Veal and Lambs Sweetbreads	Pan Fried	NA	11	Rounded whites, not too woody	Languedoc, Burgundy – Saint Veran, Alsace – Riesling
Feet	Stove	9	10	Fruity reds and roses, light whites	Bandol rosé, Touraine blanc, Anjou rosé
Tripe	Stove	14	11	Southern whites, quite full flavoured	Gamay, Pinot Noir, Beaujolais, Mâcon Blanc

The recipe for restaurant success

The Scotch livestock industry continues to raise its game in driving global cuisines and delivering unsurpassed quality in its many restaurants. A key to maintaining its presence on this pedestal is the quality of products and an uncompromising approach to quality and sourcing only the finest ingredients.



Quality is the watchword front and back of house at Foliage



Foliage supports menu transparency

Chris Staines firmly believes in the integrity of Scotch Beef

To find the best ingredients requires a significant investment of time and good relations often, with small suppliers. This may mean that one week a product is excellent and the next week stocks are low or exhausted. Quality Meat Scotland's initiatives of traceability and farm assurance facilitate this process and have been widely regarded by key industry figures as some of the best.

Chefs understand that quality is vital and that means starting with the basics – cooking great food simply, with wonderful flavours and an excellent marriage of ingredients. It also requires a passion to deliver to the consumer something that will be a triumph. If the chef himself is not excited about what he is serving, it goes without saying that the customer will equally be indifferent.

Quality Meat Scotland has opened all the doors into red meat procurement and the integrity and quality that has resulted are heavily supported and encouraged by top chefs and businesses alike. The consistency of Scotch Beef and Scotch Lamb gives peace of mind to those preparing it and are also widely agreed to be faultless in delivering only great eating experiences to diners. It comes as no surprise then to see more menus proudly and actively demonstrating this 'Scotch' choice.

Beef and lamb are of course the foundation of many top menus and it is understandable that many markets are anxious to have their product featured. Buoyed by Quality Meat Scotland's powerful message and supply chain assurances, more and more chefs are preferring to choose Scotch Beef and Scotch Lamb over Welsh, Irish, English and French.

"There's something unique about Scotch Beef. If you go to South America, Australia or the States, everybody will claim theirs is the best in the world. What I can say categorically, in my opinion, is there's nothing as good as Scotch beef – I really mean that" **David Nicholls**

" We've done a beef tasting covering Wales, Scotland, Ireland, England and France and the Scotch Beef came out on top. Of all the beef we've tried it has been the best of them all" **Chris Staines**

Restaurants are also becoming more experimental with their choice of cuts. Fillet and sirloin dishes will always be popular but oxtail, osso bucco, rump and shoulder of lamb, as well as mutton, are finding their way onto the pass and delighting diners.

The communication message from Quality Meat Scotland has been well received – chefs are very well informed about the Scottish environment and climate, the great natural grazing habitat and the care and understanding demonstrated by its farmers, hauliers and lairage managers.

With thanks to David Nicholls (Director of Food and Beverage and Executive Chef) and Chris Staines (Head Chef) of Foliage at London's Mandarin Oriental Hyde Park

London's Mandarin Oriental Hyde Park is a member of the Scotch Beef Club. For more information, please refer to page 96

Only the finest ingredients such as this Scotch Beef fillet, make it into Chris Staines' Kitchen at award-winning London restaurant, Foliage. Here Chris shows a fillet and its fabulous marbling and promise of succulence

plate.kitchen.butcher. abattoir.farm.

Such fine quality products as Scotch Beef and Scotch Lamb are a delight to prepare, cook and serve. By understanding a little more about red meat quality and cooking methods, you can be sure of making the most of these supremely versatile ingredients.

In this section:

How to check the quality of the red meat you are buying | Meat management in the kitchen | Red meat cooking advice | Yield – are you giving your meat and your budget a roasting? | Carving techniques | Beef forequarter usage | Scotch Beef – the bigger picture | Steak secrets | Classic beef accompaniments | Complementing your lamb | Offal – not a thing of the past | Meat curing, drying and smoking | Supply chain focus

How to check the quality of the red meat you are buying

Storage is key to working effectively with your meat

The surest way to produce meals of excellent, consistent quality is to start with the best quality ingredients available. Red meat is one of the key ingredients on which dining customers base their assessment of the quality of the food served, and one of the most versatile products at the chef's disposal. The fine quality and established provenance of red meat from Scotland makes it a delight to cook and serve, and ensures that it will always be a premium addition to your menu. Over the following pages, we will look at key factors to be aware of – meat colour, drip loss, lipid oxidation, storing and handling – that affect the meat your customers will be served.

Developing a strong working relationship with your catering butcher will ensure that your expectations are met. But, as with all food ingredients purchased, as a chef it is your responsibility to check the quality and specification of the red meat coming into your kitchen.

In the Butcher section, labelling is discussed in close detail. You should also always ensure that all the specification criteria communicated to your butcher have been met, for example is it in the right form of packaging?; has it been trimmed correctly?; is the portion weight within your parameters?

Factors affecting weight loss in meat by drip and evaporation (and how to minimise them):

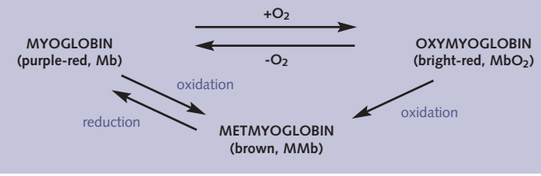
FACTOR	EFFECT	WHAT YOU CAN DO
Chilling rate	Considerate chilling reduces evaporative losses: cold shortening	Understand from your supplier(s) their chilling procedures – insist on considerate chilling
Pre-slaughter stress	Can lead to poor water retention/high drip loss can ensue	Visit your abattoir; Scotch Beef and Scotch Lamb should undergo heavily monitored pre-slaughter checks to reduce stress levels
Meat pH	High pH meat (>pH 6.0) has low drip loss	Many factors involved (see Abattoir section)
Electrical stimulation	In conjunction with considerate chilling, Electrical Stimulation (ES) can reduce evaporation	Understand from your supplier(s) their procedures (see Abattoir section)
Size of meat pieces	Drip loss in joints and roasts are 10 times lower than in steaks and chops (due to surface area)	Understand the benefits to you and write specifications accordingly
Packaging	Pressure exerted on meat by tight fitting films can increase drip loss	Understand the implications to you and write specifications accordingly; speak to your butcher and see what other packaging methods could be used
Freezing and thawing	Drip loss can double as a result of freezing	Manage your deliveries to reduce the volume of meat that needs to be frozen; minimise non-blast (rapid) freezing, or freezing completely

Source: Meat and Livestock Commission

Why does my meat colour vary?

Depending on certain atmospheric conditions, red meat can change colour quite significantly and appear anywhere between bright red and dark brown. This is due to concentrations in the air of various gases and the reaction the meat pigment myoglobin has to it. The following diagrams and images explain this:

Myoglobin and its equilibrium with oxymyoglobin and metmyoglobin



Development of colour at the surface of meat

The colour of meat is determined by the concentration of myoglobin and its chemical state. Myoglobin is the primary meat pigment existing as:

Myoglobin (Mb, purple-red) – myoglobin is favoured by zero oxygen concentration

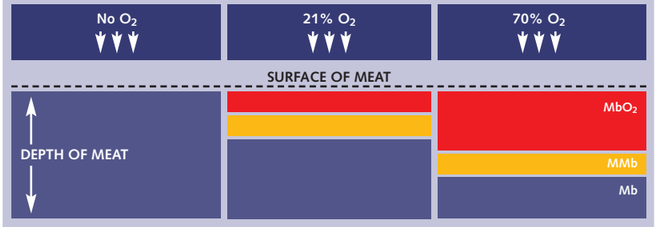
Mb predominates as no O_2 is present. This is the case with vacuum packing

Metmyoglobin (MMb, brown) – metmyoglobin is favoured by low oxygen concentration

MbO_2 predominates at the meat surface, MMb layer forms at lower levels where O_2 is low, Mb predominates at meat centre where no O_2 is present

Oxymyoglobin (MbO_2, bright red) – oxymyoglobin is favoured by high oxygen concentration

With time, MMb layer thickens and extends to the meat surface, 'browning' and discolouring it



- **myoglobin** *(Mb) a principle haem containing pigment in muscle tissue responsible for storing oxygen in muscle and associated with muscle colour*
- **haem** *the chemical group that contains iron. A greater haem concentration in the muscle will cause meat to look redder or darker and is likely to be an indication of more red oxidative fibres in the muscle which is characteristic of red meats*

Source: Meat and Livestock Commission

The implications of drip loss

Drip loss is officially defined as:

1. The discharge of exudates (mainly water) from the carcase
2. The loss of fluid from retail cuts whilst on display
3. The loss of fluid from meat on thawing following freezing

Essentially, 'drip' is a red, watery fluid which seeps from the cut ends of meat over time. Commercially, any weight lost as water by drip or evaporation has a repercussion on the bottom line – weight equals cost.

Understanding meat colour

The exterior of the sirloin has turned bright red as the presence of oxygen in the air has changed the myoglobin to oxymyoglobin. The steak which has just been cut from the same sirloin shows how the interior colour of the meat is still in its purple-red state of non-oxygenated myoglobin

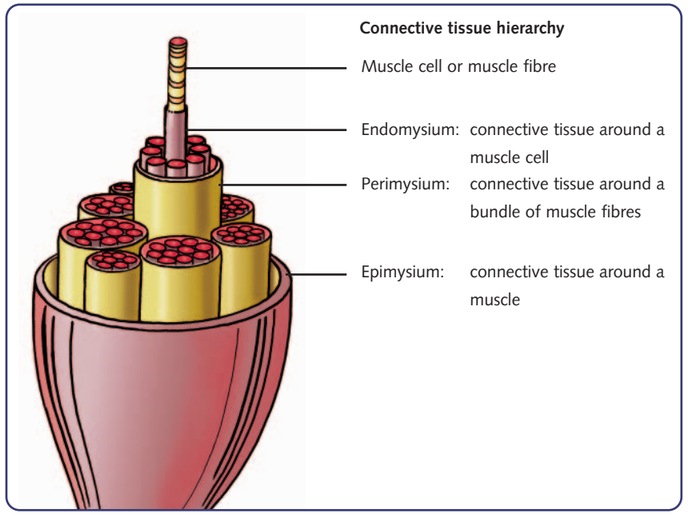
For more information, log onto **www.nutrition.org.uk**

Chef beware! *Temperature is a key factor in red meat safety. You should ensure that meat arrives to temperature specification from your suppliers and this should be logged. For more information, see Butcher section, page 51*

Muscle fibre

Meat is muscle tissue which is made up of bundles of long thin fibres. There are two main types of muscle fibres which can be described as being red or white. The proportions of the different fibre types vary between muscles. Red muscles tend to have higher proportions of red fibres. The muscle fibres are bound together in bundles by thin sheets of connective tissue.

Connective tissue is made up from proteins – collagen, elastin and reticulin. Each protein has specific characteristics and reacts differently during cooking. Most importantly, collagen is weakened by heat and forms gelatin, which is soluble. This change helps the meat to become tender.



Lipid Oxidation (rancidity and off – flavours)

Fat is the other accomplice to myoglobin in affecting the odour, flavour and shelf life of fresh, frozen and cooked meat and meat products.

The effect of various factors on the onset of oxidative rancidity in fat:

FACTOR	EFFECT
Initiators	Oxidation is catalysed (i.e. accelerated) by heat (see below), light and iron (haem pigments)
Oxygen	Packaging that excludes oxygen, delays oxidation
Fatty acid composition	Beef and lamb are less likely to suffer from fatty acid oxidation because the fats they contain are more saturated and therefore more stable
Temperature	Higher temperatures increase oxidation
Antioxidant	Vitamin E is an antioxidant in meat. Occurs naturally in grass and can be added to animal feed to reduce oxidation
Comminution ('mixing')	Increases oxidation reducing shelf life
Cooked meat	Cooking speeds up oxidation. Free iron from heat denatured myoglobin acts as a catalyst

Source: Meat and Livestock Commission, British Nutrition Foundation 2004

Meat management in the kitchen

Knowledgeable handling and responsible preparation of meat are vital stages even before cooking commences. This section tells you how to look after your meat, and customers.

Minced and chopped meats, rolled joints

'Proper' cooking requires the centre of the meat to reach a core temperature of at least 70°C for 2 minutes, or an equivalent, as follows:

INTERNAL MEAT TEMPERATURE	DURATION
60°C	45 minutes
65°C	10 minutes
70°C	2 minutes
75°C	30 seconds
80°C	6 seconds

Note: due to the 'mixing' that inevitably happens to produce these products, bacteria have a greater likelihood of finding their way into the meat whereas intact joints are internally protected by the meat's surface.

Whole cuts or joints?

Whole cuts or joints of lamb and beef are traditionally served pink or rare. However, if the meat is pierced or on the bone, you should adhere to the table above. Of course, different dishes need different cooking times. If you work out the temperature and time you need to cook a particular dish in your oven, you can use these settings and times to cook the dish in the future.

Reheating meat

When reheating meat, it needs to be piping hot all through and reach a core temperature of 82°C (rest of UK 75°C). It should not be reheated a second time.

Play it cool

Once cooked, meat that is not going to be served should be cooled as fast as possible. The safest way is to divide it into smaller amounts in shallow dishes. It should not be 'forced' by refrigeration as this could warm up other food in the fridge.

Storing food (hot and chilled)

Temperature control is essential to prevent risk to health and there is also a legal obligation to keep to standard.

By adhering to the following rules there will be one less thing to worry about and you can get on with serving great dishes to your customers:

HOT
Hot food must be kept above 63°C

CHILLED
Chilled food must be kept at or below 8°C: the coldest part of your fridge should be between 0°C and 5°C

Source: Food Standards Agency Scotland

More information can be found by logging onto **www.food.gov.uk/scotland** *or by contacting the Environmental Health Office*

Is your fridge 8°C or below?

For a more comprehensive guide to safe food handling and the legal requirements and their impact on your business, please call:

The Chartered Institute of Environmental Health on 020 7827 5830 or 020 7827 99288 or log onto **www.cieh.org**

The Food Standards Agency Scotland on 01224 285100 or log onto **www.food.gov.uk/scotland**

Great-looking sirloin steaks, but does your team store them properly?

Storage advice

- Stick to fridge layouts – raw and ready-to-eat should never be stored together
- Raw meat should be stored in a raw meat only fridge
- Salamis and other charcuteries can be stored in a general fridge
- In an operation where raw meat needs to share space with other items, it should always be at the bottom
- Raw meat should be stored in containers so it cannot drip
- Monitor your stock – overcrowding your fridge means it has to work really hard to keep things at the right temperature, and sometimes will not
- Label with 'Use by' or 'Best before' and storage details ('Chilling required'). Use the first in, first out rule so that food with a shorter shelf life is used first and never use after the date has passed
- Always check the labels – the time invested in sticking them on will be redundant otherwise
- Read the supplier labels too – there could be some valuable information on them
- If the packaging is opened or pierced in any way the information is no longer relevant

Source: Meat and Livestock Commission

Service and Display

Service and display is also a means of 'storing' food so avoiding risk of cross-contamination and inconsistent temperature control. The following guidelines must be ruthlessly applied when keeping food out of its temperature-controlled environment:

- **Hot foods can be kept below 63°C for a maximum of two hours** (and removed from their temperature controlled state only once)
- **Chilled foods can be kept above 8°C for a maximum of four hours** (and removed from their temperature controlled state only once)
- Separate raw and ready-to-eat foods in display and use separate utensils for handling product

After these times have elapsed, the food should be thrown away or chilled as quickly and safely as possible until final use.

Cross-contamination

If your customers suffer from food poisioning after eating food in your establishment, the consequences for your reputation and your business would be devastating.

Cross-contamination is one of the major causes of food poisioning and should be avoided at all times. There is no excuse for cross-contamination in any establishment!

Red meat cooking advice

Whichever method of cooking you choose, Scotch Beef and Scotch Lamb will always deliver beyond your customers' expectations. By using different cuts from the animal, the chef will be required to call on different cooking methods but the quality of the final dish will always be exemplary.

But what better way to enjoy Scotch Beef and Scotch Lamb than roasting? Regardless of advances and evolutions in cuisines and food, there is no doubt that the quintessential British dish is a Sunday roast.

Roasting

Roasting provides the catalyst to bring out the meat's attributes, its juices and aromas. This is 'browning' and is due to the Maillard Reaction.

Maillard Reaction – *the complex chemical reaction between protein and sugars which yields brown coloured products and aroma compounds on cooking, developing the flavour and colouring personalities of meat*

Gorgeous Scotch Lamb – a traditional dish is here contemporised by serving with roasted Mediterranean vegetables

The secret recipe for carving success

Ingredients:

Your choice of:

Scotch Beef	**Scotch Lamb**
Topside	Rack
Top rump	Saddle, boned and rolled
Sirloin, boned and rolled	Shoulder, boned and rolled
Brisket	Leg mini joints
Sirloin, larder trimmed	Whole leg
Sirloin, mini joints	
Fore rib, carvery cut	
Fore rib, oven prepared	
Leg of Mutton Cut	

Fantastic Scotch Beef is a timeless dish. Here it is served with roasted root vegetables and gravy

Equipment:

- Carving knife, a good sharp one
- Carving fork
- Hygienic gloves (optional: if not available, thoroughly washed hands)
- Serving spoons
- Scissors
- Ladles
- Serviettes
- Hot plates
- Steel/knife sharpener (partly for the theatre!)

Use forequarter cuts like Brisket and LMC and make great savings to your bottom line

Method:

- Start by browning the outside of the meat, either on the stove top or in the oven, at a high temperature, 220°C, for 15–20 minutes.
- Once the meat has been browned, lower the temperature to 130°C and complete the process so the food is tender on the inside.
- Serve and enjoy (and count the takings!).

Yield – are you giving your meat and your budget a roasting?

By understanding yield, profits and the number of satisfied customers will soar

Cook lower and longer for larger yield!

Yield – namely the amount of cooked product produced (and 'used') from the uncooked product – can primarily be affected by two things, loss of weight during cooking and wastage in carving and serving. Traditionally, there is a standard formula for cooking meat based on minutes per kilogramme or alternatively wait patiently, thermometer in hand. Both ways will cook your meat but also eat into potential profitability. The reason for this is that not all meat is the same.

Quality Meat Scotland recommends the recipe on page 31 that ensures very moist, flavour-rich meat. But here are the facts:

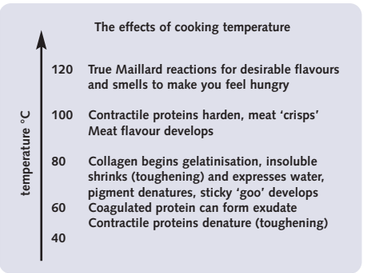
- 30–50% weight can be lost at the traditional 200°C or above that has always been deemed standard
- the lower roasting temperature of 130°C offers a weight loss of just 14–25%

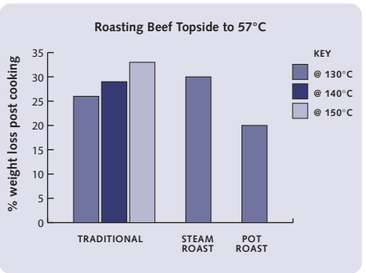
The reason meat loses so much moisture at 200°C or above is simple. Meat can violently contract at high temperatures due to the denaturisation of the fibres. This action squeezes the meat and causes moisture to be lost.

By cooking meat more gently, such violent reactions do not occur and so more moisture is maintained in the meat and more 'weight' remains.

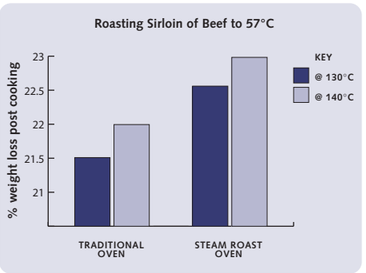
Source: Meat and Livestock Commission

The following examples will demonstrate the differences:





Different joints will have a different yield depending on cooking method and temperature



The graph shows a slight increase in the yield of roasted sirloin which is cooked in a traditional oven rather than steam roasting

Work out your profits

Roasting Scotch Beef and Scotch Lamb joints at lower temperatures ensures succulence and flavour. This can also save you money, thanks to significant improvement in yield.

Correct management and preparation of your meat delivers excellent food for your customers, while also keeping you within budget.

The following example uses a sample price. Substitute your own actual figures to calculate the savings you can achieve.

Sirloin example

A 5kg piece of raw sirloin is £18.00* per kg, making our joint £90.00. If this is prepared using the traditional cooking method i.e. 200°C, we can expect a loss of between 30% and 50% to the yield, i.e. we lose approximately 2kg so our cooked joint comes in at 3kg!!

If we serve our customers with a portion size of 150g, we can expect to get **20 portions from our 3kg of cooked sirloin.**

Using the recommended low cooking method, the yield loss is only 21.5%, so we lose approximately 1kg during cooking and so our finished joint weighs approximately 4kg. So, if we have 150g portions, we can **expect to serve nearly 27 customers from our 4kg** cooked sirloin. **That's 7 more portions!!**

Let's say we make a £2.00 gross profit per portion on the sirloin meal. In this case, **the extra 7 portions give you £14.00 extra to your bottom line!**

Try it yourself using this table:

Weight of raw meat (kg) A	Price per (kg) B	Cost of raw meat C (A x B)		
			Yield using traditional cooking method D (C x 0.60)	Yield using recommended low cooking method E (C x 0.80)
			No. of Portions Possible F (D/portion size in gms)	No. of Portions Possible G (E/portion size in gms)
			Gross profit to you H (F x £ gross profit)	Gross profit to you I (G x £ gross profit)
				Extra to your bottom line I-H

NOTE: The values for moisture loss are approximate and will differ with cut, oven type and 'doneness'

*Prices are purely for this exercise

Are your specifications providing the yield you need?

Please feel free to use and copy this chart!

Or use the formula:

$$\frac{a \times b \times 1.27}{1000} = \text{uncooked weight needed (kg)}$$

where a = number of covers
b = portion size in grams

eg. $\frac{250 \times 150g \times 1.27}{1000} =$ **47.625kg**

As well as providing unsurpassed flavour, Scotch Beef and Scotch Lamb deliver great yields and profits

How much do I need to order?

This does depend on a number of things – cut, 'doneness' – but the following calculation for 250 covers of sirloin will get you off to a good start:

250 covers, 150g cooked meat each		**37.5kg**
Add 22%* to get the yield for cooked meat	+	**8.25kg**
Add 5% for error/end slices	+	**1.875kg**
Uncooked weight	=	**47.625kg**

* 22% for rare, 26% for medium, 33% for well done

Carving out profit

Yield is a great way to instantly improve and sustain a good cash Gross Profit (GP) on your carvery. In addition, correct carving techniques will not only look professional, but also reduce carvery waiting time and most importantly, minimise wastage. Quality Meat Scotland suggests you ensure that:

- The meat that is to be used on a carvery is specified correctly
- An even layer of fat over the meat's surface is present to help heat transference and flavouring during cooking
- Trim levels are good – no bone (if you choose this), cartilage or gristle
- The joint is 'regular', i.e. the same approximate dimensions throughout to facilitate even cooking
- The joint is about 20cm in length (approximately 8")
- You use an appropriate sized tray to cook the meat – an overly cramped environment will affect cooking times
- The correct tools are to hand – butchers' twine or roasting bands; a thermometer probe; a heavy board to carve on
- Your knife is sharp (and stays sharp)
- The meat is positioned for carving so it can be cut across the grain of fibres

A note on queue management

It's Sunday lunchtime, the restaurant is filling up nicely with customers, it's going to be a profitable day. With good planning, your meat will be cooked to perfection, be it rare or well done. Medium and medium rare are easier to carve but either way, let your meat rest for 10-15 minutes prior to carving. Meat juices offer an excellent indication of the 'doneness':

- Rare – juices are red (30°C-51°C)
- Medium rare – juices are light red (57°C-63°C)
- Medium – juices are pink (63°C-68°C)
- Well done – no released juices (77°C or above)

The diagrams opposite give a more illustrative step-by-step account of carving both Scotch Beef and Scotch Lamb.

Carving techniques

Carving Lamb

- Position the joint as shown, steadying it by inserting the prongs of the fork. The pelvic bone should be on the underside and the position of the bones will dictate the slices. Make the first cut by inserting the knife on the far side and cutting through to the bone, then levelling the knife to be almost parallel to the board.
- Make a second cut a little over 1/4" to the left and by changing the knife to almost parallel with the bone, remove the first slice.
- Continue carving towards the knuckle, changing the angle for larger slices, removing after every 2 or 3.
- Turn over, steady with the fork and make a similar cut to the first cut you made, moving towards the knuckle as per the other side.

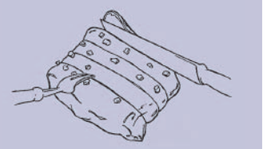
(Carvery Cut) Leg of lamb M.B.G. (Meat Buyers Guide) ref: 2051

This is how it will look once you have carved as many as you can.

Carving a Sirloin Roast

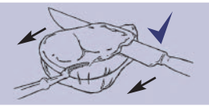
There are 2 methods of carving a sirloin roast or any other cut of meat of similar form, such as silverside or boned and rolled joints. Either lay the piece on its side and then cut slices from it almost as if it was a loaf of bread, or you may prefer to position it so that the round surface is horizontal and then carve across the grain.

Place joint so that round surface is vertical and insert fork into curved side nearest to you or, if particularly long, it might be easier to insert nearer the middle and carve from the far end. When remaining piece is too thin and 'wobbly' to carve, lay it down so that the round surface is horizontal, inserting fork into side nearest to you and carve slices across the grain, increasing the angle as you come to the end.



Two tips for carving success:

- Always reduce the size of the cut to make carving easier
- Always cut across the grain



KITCHEN – BEEF FOREQUARTER USAGE

Forequarter Beef Steaks Cutting Guide

Fillet, sirloin, rump – in recent times most chefs and catering professional have relied heavily on the hindquarter to deliver the majority of steak offerings on their menus. Great cuts of meat but how about the rest of the beast?

Consequently, unbalanced carcase utilisation has been prevalent and has prevented such beautiful cuts of meat such as onglet and blade of beef being presented on many of our foodservice menus. The forequarter offers some great opportunities to wow your customers (and it's very kind to the budget!).

For more information on forequarter usage email **info@qmscotland.co.uk**

10 RIB FOREQUARTER LATERAL

Relevant inspection stamps visible
Slaughter plant number visible

10 RIB FOREQUARTER MEDIAL

Taken from 451kg carcase
R4L grade, aged 10 days – Angus Crossbreed

- clean rib and spinal column
- discoloured neck meat (from 'sticking') to be removed

The following sequence illustrates the versatility and easy manipulation of several forequarter muscles to achieve chef friendly meal solutions.

KITCHEN – BEEF FOREQUARTER USAGE

NOTE: Some cuts have different names in Scotland:
2 top shoulder 3 shoulder steak 4 thin runner 5 nap 6 7 neck or lyre

NOTE: No traditional steaks are cut from 6 and 7 but they are excellent stewing and braising meats

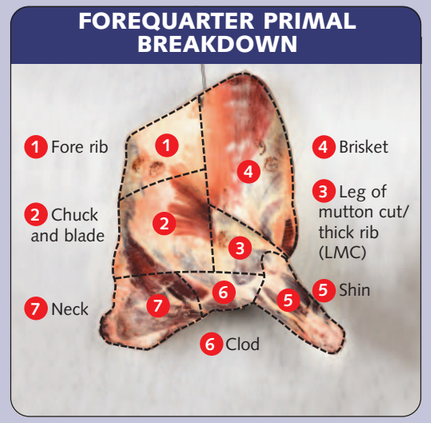
3 LMC Steak Primal

Fully trimmed of all fat and connective tissue
- weight guide – 3-4kg

3 LMC Slices

Sliced evenly to required portion weight
- weight guide – 300-500g, or as required
- cooking – braising, stewing, pot-roasting

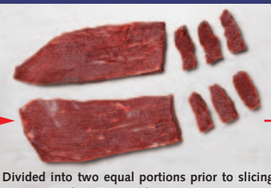
FOREQUARTER PRIMAL BREAKDOWN



4 Brisket Muscle

From brisket block, fully trimmed of all fat and connective tissue
- weight guide – 2-4kg

4 Brisket Steaks



Divided into two equal portions prior to slicing into required portion steaks
Steaks slice laterally across grain
- weight guide – 180-240g
- cooking – braising, pot-roasting

4 Brisket Steak Blocks

Brisket muscle can be cut as block steaks
Diamond scored for penetration of marinades
- weight guide – 150-250g
- cooking – braising, pot-roasting

1 Rib Cutlets

Prepared from fore rib
Fully chined and trimmed
- weight guide – 280-320g
- cooking – open texture muscle – grilling, frying, roasting, braising

1 Rib Eye

Prepared from fore rib
- weight guide – 230-280g
- cooking – open texture muscle – grilling, frying, roasting, braising

2 Chuck Steaks

Sliced from fully trimmed primal
- weight guide – 300-400g
- cooking – braising, pot-roasting

5 Shin Steaks (Osso Bucco)

Fully trimmed muscles, bone in
- weight guide – 250-350g
- cooking – braising, pot-roasting

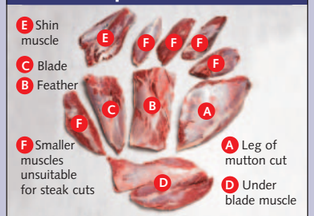
SHOULDER BLOCK PRIMAL

Removed from forequarter following natural seams

Shoulder Block Boneless

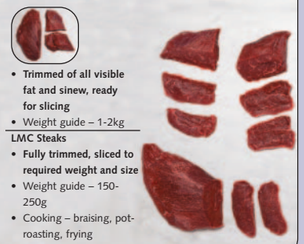
Bone removed, untrimmed internal view

Shoulder Block Boneless – Exploded View



Untrimmed, seamed to individual muscle blocks/groups

A LMC – Fully Seamed



- **Trimmed of all visible fat and sinew, ready for slicing**
- Weight guide – 1-2kg

LMC Steaks
- **Fully trimmed, sliced to required weight and size**
- Weight guide – 150-250g
- Cooking – braising, pot-roasting, frying

B Feather Muscle

- **Centre gristle removed**
- **Fully trimmed of external fat and gristle**

B Feather Steaks

- **Sliced to required weight**
- Cooking – frying, grilling, braising, pot-roasting

C Blade Muscle

- **Fully trimmed of external fat and gristle prior to slicing**
- Weight guide – 750g-1kg

Blade Steaks
- **Sliced from blade muscle to required weight**
- Weight guide – 180-230g
- Cooking – braising, pot-roasting

D Under Blade Muscle Steaks

- **Fully trimmed of all fat, gristle and connective tissue**
- **Sliced across grain into required portions**
- Cooking – frying, grilling, braising, pot-roasting

E Shin Boneless

- **Steaked to required weights**
- Weight guide – 180-240g
- Cooking – braising, pot-roasting

Scotch Beef – the bigger picture

In this section we look at simple cooking techniques to make the most of cooking and eating beef. Cooking meat is simple, as long as you get the basics right – ingredients, "heat" and equipment.

Ingredients

- With beef, the importance of fat depends on either you or your customer. When cooking steaks or roasts, a thin layer of fat enhances succulence and flavour. It also aids heat distribution through the meat. Excess fat can be trimmed prior to serving
- To maximise browning, pat steaks, cubes and pot roasts dry with kitchen paper before sealing
- Drain vacuum-packed beef thoroughly, to remove excess moisture

'Heat'

Obviously different cuts require different cooking methods. For example the tougher cuts benefit from being cooked at a moist, low heat.

- Do not pierce the meat during the cooking as piercing allows valuable juices to escape. When turning, use tongs, not a fork
- Turn burgers with a spatula. Do not compress, this also forces out juices
- Know your oven. Gas and electric cooking times are similar, but age and size of your oven can affect cooking times

Tip: Use thermometers that are calibrated regularly

Equipment

- Good cooking utensils are essential. Pans should be thick enough to heat evenly and take the extreme temperatures of a commercial oven. Use the appropriate pan for the cut size
- Non-stick pans are good when cooking with small amount of fat
- To avoid excess fat when roasting, use a rack, but baste frequently to ensure heat consistency and great roasting flavours
- Not sure of your oven? Check the temperature with an oven thermometer

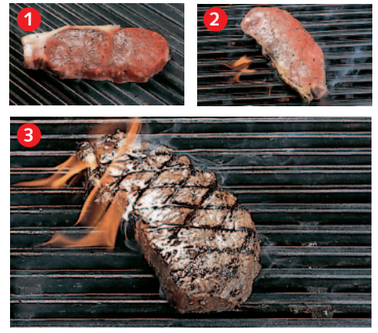
A thin layer of fat benefits large cuts during roasting: you can trim after cooking if required. See marbling, page 64, for more information

Steak secrets

Steak remains one of Britain's most popular dishes. The following guidelines will help to ensure you serve excellent steaks to your customers. Your first step is to specify the best - when buying steaks, either fillet, sirloin, T-bone or the less well known cuts, insist on Scotch Beef.

The trim specification you make to your butcher is important. The top right picture shows the same steak before and after trimming. The trimmed steak becomes more expensive per kilo, but will look more appetising when served.

How to char mark



Steaks can be trimmed before or after cooking. The latter option adds a little more flavour

Chef Beware! *Ensure tongs are washed at 82°C or above each time they are used to turn a steak to avoid cross contamination.*

The best way to cook great steak is on a chargrill, pre-heated to a high temperature, (this may take 30 minutes). Quality Meat Scotland recommends the following 3 steps to great steak success:

1. Lightly coat the steak with oil before placing on a grill at a 45° angle
2. Allow the meat to cook until the desired amount of browning occurs on the char marks, then rotate 45° to create a criss-cross effect on that side of the steak
3. Turn the meat and repeat step 2 until the steak has been cooked to customer requirements. Remove, drain excess oil (should be minimal) dress the plate and get it on the pass

It is important to ensure that all sides of any steak are sealed/subjected to sufficient heat to reduce to a safe level or kill harmful bacteria

When cooking 'Bleu', seal all six sides

The internal temperature of cooked steak is another indication of its 'doneness'

Steak tastes great flame-grilled on the barbecue

Which cut?

Steak offers a good deal of flexibility in terms of size, flavour, depth and tenderness. The following guide will help in choosing the right steak for your customers, your style of cuisine and your pocket:

CUT	WHERE FROM	COOKED STEAK CHARACTERISTIC
Hindquarter		
Fillet	Loin	Lean and tender, light in flavour
Porter house	From rump end of loin	Large steak, very flavoursome, variation in tenderness
Rump	Rump or hip	Very flavoursome, fat on outer edge, variation in tenderness
Sirloin	Loin	Tender and full flavoured, good marbling on steak, fat on outer edge
T-bone	Lower end of the sirloin and fillet	Large T-shaped bone, combination of textures and flavours
Tournedos	Fillet from the loin	Lean and tender, light in flavour, fine textured
Forequarter		
Rib-eye	From the fore-rib/wing rib	High marbling content, tender and full flavoured
Chuck steak	From the shoulder/chuck	High marbling content, multi-muscled cut. Best suited to slow moist cooking. Tender and flavoursome
Rib cutlets	From the fore-rib/wing rib	High marbling content, tender and full flavoured, contains rib bone
LMC slices (part seamed)	Shoulder/top/thick rib	Very lean, fine textured, best suited to slow moist cooking
LMC (fully seamed)	Shoulder/top/thick rib	Best suited for sandwiches. Flash fry, very lean, fine textured
Feather steaks (part seamed)	Shoulder/top of blade	Best suited to slow moist cooking, tender and flavoursome
Feather steaks (fully seamed)	Shoulder/top of blade	Best suited to slow moist cooking, tender and flavoursome
Blade steaks	Shoulder/top of blade	Slow moist cooking results in tender meat
Under blade steaks	Shoulder/under blade	Very lean, fine textured
Brisket steaks	Breast/flank	Very lean and coarse grained. Light in flavour
Brisket steak blocks	Breast/flank	Very lean and coarse grained. Light in flavour
Shin/shank boneless	Fore leg	Very flavoursome, coarse texture, very high in collagen that gelatinises
Shin/shank bone-in (Osso Bucco)	Fore leg	Very flavoursome, coarse texture, very high in collagen that gelatinises

Rare steak safety guidance

A much debated industry theory suggests that rare steak is not safe – although the surface is cooked, the inside is not and so cannot be fit for consumption. A study was commissioned at The University of Nottingham by the Meat and Livestock Commission in November 2003 to investigate whether steak could be cooked rare because the cooking procedure killed all vegetative cells on the meat surface. **After significant testing, it was concluded that if recommended handling and cooking practices are followed and hygiene levels are respected, there is no risk involved in consumption of rare steak.**

Source: University of Nottingham, November 2003

'Doneness'

There are six traditionally accepted cooking specifications for steak. The photographs show what each of these specifications should look like internally:

NOTE: The core temperature of the steak will depend on the temperature before cooking (e.g. straight from fridge)

1 Bleu
There must be careful consideration and strict hygiene assessments given to steaks that are to be cooked so lightly. The meat should be seared and sealed on each of its six sides. The meat should be totally raw internally. To touch, it should feel like a raw piece of meat.

Internal temperature: 10-29°C

2 Rare
Ensure that each of the six sides has an equal quantity of cooking and the temperature is kept above 175°C. The steak should have a 5-8mm depth of fully cooked meat around the exterior and a raw interior. To touch, the steak will feel slight resistance and then totally raw.

Internal temperature: 30-51°C

3 Medium Rare
Cook this as for the rare steak but it may be advantageous to finish the cooking in an oven to avoid over cooking one of the sides. The meat should be considerably more cooked than the rare steak but have a very pink/reddish colour and be very moist. To touch, the meat will be slightly resistant with some "give" in the middle.

Internal temperature: from 57°C to 63°C

4 Medium
This can be cooked in the same way to the rare. The look of the steak will be less pink in the middle and should be moist, but have less colour. To touch, the steak will resist but still have a small amount of 'give'.

Internal temperature: 63-68°C

5 Medium Well
This steak should look cooked through with no hint of colour and a slight dryness around the exterior. The middle should still have a little moisture. To touch, it should be firm.

Internal temperature: 72-77°C

6 Well Done
The steak should look fully cooked and have no pinkness whatsoever. The meat colour should be shaded quite grey on the interior. To touch, it will be very firm.

Internal temperature: 77°C or above

These measurements should be used as a guide only.

Classic Beef Accompaniments

The variety of beef cuts and ways of preparing the meat offer so many exciting dishes to trial

Beef and horseradish, steak and ale pie, boiled beef and onions – such classic dishes have been around for centuries. Given the trend for new global, ethnic and fusion cuisines, what are the new beef marriages to delight your customers?

Marinate

What it does – adds flavour
What to do – mix marinade ingredients. Place meat and marinade in a plastic bag. Refrigerate
What to use – horseradish, mustard, red wine, peppercorns, garlic, ginger, wholegrain mustard, brown sugar, allspice, cumin, paprika, wasabi paste, chilli, garlic salt

Glaze

What it does – adds flavour, enhances visual appeal of cooked meat
What to do – brush the glaze over the meat a few minutes before end of cooking
What to use – sugar is essential for glazing. So try blackbean glaze, barbecue sauce or a sweetened wasabi and horseradish

Accompaniments for Beef

What they do – enhance the meat's natural flavours, enriching each other and the eating experience
What to do – combine the ingredients and serve with your beef dish
What to use – for creamy blue cheese, combine natural yoghurt with a good blue vein cheese and chopped spring onions. For a hot chilli accompaniment, mix natural yoghurt, tomatoes and chillis. For the best of British, make some Yorkshire puddings and gravy and serve with horseradish and peppery watercress sauce

Get boozy! Beef laps up stouts and your favourite ales in pies and casseroles. Or pan fry and deglaze with Madeira. You can even poach fillet steaks in good red wine and serve with pomme purée and green beans!

Leftovers make great, high gross profit sandwiches!

Complementing Your Lamb

Many chefs see lamb as an expensive choice. Yet lamb offers as many dish opportunities as beef, while suiting any budget. Scotch Lamb is quick to cook, tender and succulent. When correctly specified and trimmed it also offers a healthy option.

Roast lamb is a great favourite and offers a number of options – leg and shoulder joints, on the bone or boneless and rolled for easy carving. Rack of lamb always looks impressive. Here are our tips on how to make the most of Scotch Lamb.

- Choose your joint carefully – if you and your team are not confident in carving, get a boned and rolled leg joint, it will taste as delicious as bone-in and will be easier for portioning
- Remove the joint from the packaging and dry it. If vacuum packed, do this well before cooking to allow the meat to breate. Seal the meat at a high heat in a frying pan to trigger the Maillard reaction. Roast on a trivet with roasting vegetables and lamb bones in the roasting pan, for a traditional jus
- Don't forget to baste and turn the joint every 20 minutes. Avoid piercing the meat during cooking

Try these fabulous ideas to make your lamb even tastier and more appealing to your customers:

Marinate

What it does – adds flavour
What to do – mix marinade. Place meat and marinade in a plastic bag. Refrigerate
What to use – curry paste, yoghurt and freshly chopped spring onion

Glaze

What it does – adds flavour, enhances visual appeal of cooked meat
What to do – brush the glaze over the meat a couple of minutes before end of cooking
What to use – sugar is essential for glazing, so try redcurrant or mint jelly, curry paste or your best taco sauce!

Accompaniments for lamb

What they do – enhance the meat's natural flavours, enriching each other and the eating experience
What to do – use these great combinations to make your Scotch Lamb a real winner
What to use – slivers of garlic, sprigs of rosemary and/or anchovies can be pushed into slits cut in the meat. Try grinding grated lemon rind, root ginger and garlic, or mint and rosemary, into a paste to fill the slits. Serve with mint sauce and red wine gravy for a delicious dish

Bake with aubergines, tomatoes, courgettes, olives and garlic for a Mediterranean twist. Or pot roast with root vegetables or butternut squash and red onions

Flavoured butters also work well with lamb steaks and chops. Make by simply softening butter and folding through the grated rind of a lemon or lime, some thyme and rosemary. Or try some chilli paste and a few leaves of freshly torn basil

More to it than mint: Lamb has the ability to work so well with many ingredients

For more information and recipe inspiration, log onto **www.qmscotland.co.uk**

In the 'pink'

Lamb should be served pink wherever possible although the choice is for your customer to make. The principles of 'doneness' for lamb are the same as steak. To be absolutely sure, check the internal temperatures with a meat thermometer and use the steak guidelines shown on page 43.

Chefs' myth

Resting allows the juices to go back into the meat…WRONG! Meat loses moisture as it cools. Try it for yourself – weigh a piece of meat just after you take it out from the oven… wait 20 minutes and then weigh it again. Weight after will be less than the 'just after' weight. Only texture will improve slightly after resting and the red 'doneness' is less apparent. *Source: Danish Meat Research Institute*

Source: Mark Hix, Caprice Holdings, 'An abundance of rare ideas'

Mutton is becoming a popular meat amongst even the most decorated chefs

Mutton

For centuries, mutton has been a significant part of the diet in many European countries and it does indeed make excellent eating. For some real menu innovation, see if your supplier can find some of these lesser known products:

Mutton: *meat from the carcase of an older sheep, especially that of a mature sheep*
Hogg or hogget: *(i) young sheep (male or female), slaughtered before any permanent teeth have erupted. The classification scheme terms hoggets as old season's lambs; (ii) a live sheep between the time of weaning and its first shearing*

Mutton can be prepared in the same way as lamb using the recommended guidelines. When choosing your dish and cooking style, bear in mind that some sinews may be more overdeveloped than for lamb – a result of age – which does suggest that slower, 'moist' cooking styles are preferable.

Talk to your butcher about whether he can supply quality mutton from Scotland and the cuts and cooking methods he recommends.

Offal – not a thing of the past

In the latter part of the 20th century, offal sales significantly diminished in the UK. However, today's chefs are staging a comeback for the more celebrated members of the offal category, especially liver and kidneys, but also sweetbreads, tripe and testes. Although not to everyone's taste, there is a growing consumer awareness of the importance of good nutrition, **and offal provides a very strong source of iron, vitamins A, D and C**. Preparation styles offer great flexibility, including grilling, frying, casseroling and braising, making offal a versatile addition to your menu. Talk to your butcher about the variety of offal he can supply, and remember that Scotch Beef and Scotch Lamb offal carries the same assured status as other Scotch red meats.

Steak and Kidney pie – one of the 'school dinner' classics now on so many fine dining menus

Edible Offal

By law, the parts of cattle and sheep most likely to carry BSE must be removed. These parts are known as Specified Risk Material (SRM) and include brain and spinal cord. See Abattoir section page 69.

However, the following offal has been deemed edible and gives a wide range of flavours and menu opportunities – offal is also a fantastic way of offering high gross profit dishes!

LAMB	
Heart	✓
Lung	✓
Pancreas (sweetbread)	✓
Kidney	✓
Liver	✓
Tongue	✓
BEEF	
Kidney	✓
Liver	✓
Lungs	✓
Heart	✓
Pancreas (sweetbread)	✓
Calves' sweetbreads	✓
Ox and calves' tongue	✓
Tripe	✓

Source: Meat and Livestock Commission; FSA

Meat curing, drying meat and smoking

- Drying is an early form of preservation. Products are usually immersed in salt for a number of weeks or days depending on the size and shape. The product is then hung in an atmosphere, which allows the meat to dry, and inhibits bacterial growth. Drying meat takes away the moisture necessary for microbial growth and so renders the product edible. Depending on what and how much is being dried the maturation of the dry cured meats can differ.

- Smoking is thought to have come about by hanging some meat for drying over hot fires for a speedier process. The resulting "smoked" effect was probably an accident. The process is similar to drying but the smoke can now be added to the product by either hot or cold smoking or by immersion into so called "liquid" smokes. Some chemicals from the wood-smoke have antibacterial abilities, notably formaldehyde (methanol).

Cured, dried and smoked meats offer further opportunities for variety and interest on your menus. Once again, discuss the possibilities with your butcher.

For more information, log onto **www.food.gov.uk/scotland**

Scotch red meat – no compromise

The variety of Scotch Beef and Scotch Lamb cuts available means that no catering facility needs to compromise on red meat quality. Careful planning, the right butchery specifications and yield-efficient preparations enable the cost sector caterer to satisfy thousands of hungry students, visitors and staff, every day.

Steak remains a winning formula for chef and customer alike

" Marbling's important. It looks good before you cook it but also keeps it moist, great for cook chill ",

Graham Crump

In an institutional catering environment such as a large university, the Group Executive Chef is responsible for a number of brigades that manage their own outlet on the site. These outlets can often range from a 24/7 snack proposition to silver service dining, meetings and conferences.

The businesses therefore need to operate independently and satisfy different eating occasions whilst maintaining the institution's overall high standards, profitability targets and consumer quality demands.

In large scale catering – often up to 800 or more diners in one sitting – Scotch red meat products are popular and reliable ingredients which the chefs agree do not have to be 'worked' hard to produce a great dish.

In order to meet such large-scale demand, a central production unit (CPU) is often the most efficient solution. The CPU's cook chill system typically works on a four-day pattern:

Day 1 – butchers prepare to specification
Day 2 – delivery to CPU, caged by 'batch'
Day 3 – batch cooking, blast chilled within 90 minutes, kept in holding fridge
Day 4 – delivered to unit, reheated and consumed

To facilitate ordering and planning the process often works to a 10-week menu cycle.

Preparation is simplified by providing user-friendly specifications to the butcher. For example, specify 5kg bags of Scotch mince – to make six trays of twenty portions of lasagne (120 portions in all), requires 20kg of Scotch mince. So four bags need to be ordered. This eliminates the need to pre-weigh the mince and minimises wastage.

Relations with the catering butcher are just as important for the cost sector as the profit sector. With such high annual red meat usage, butchers are required to tender for business, meeting specification, volume, pricing, invoicing and delivery criteria. A good catering butcher will liaise with the units recommending ideas, new and innovative cuts (at the right price) and offer in house butchery training to the brigades.

To keep within budget, the forequarter of Scotch Beef offers a number of profitable and delicious meal solutions. Blade of Scotch Beef can be gently braised and served with caramelised button onions and a red wine jus for special occasions, or simply braised and served on creamed potato. Likewise, shoulder of Scotch Lamb can be double roasted to extract maximum flavour at a good price point.

Scotch Beef makes great mince and dice, the foundations of many batch-cooked, cost-sensitive meals. For the cook chill process, the propensity for marbling in Scotch Beef and Scotch Lamb ensures that the meat will remain moist. Good butchers will even search out the best marbled cuts if this information is on the specification.

The other ally of the cost sector caterer is 'yield'. Quality Meat Scotland's recommended cooking practices counter the price premium of Scotch Beef and Scotch Lamb. The integrity and care that has gone into producing meat for a carvery roast ensures that the meat served is flavoursome, moist and a delight to the customers – for more formal dinners Scotch sirloin and Scotch rib of beef are ideal, or for a lower cost, Scotch topside of beef.

Quality Meat Scotland supports the cost sector catering industry by providing information and assists chefs by hosting guided visits to abattoirs, farms and butchers.

With thanks to Graham Crump, Group Executive Chef and Amanda Simpson of the University of Warwick

" For our blade of beef, we braise it gently for four to five hours and let it cool. It's then seared to colour and sliced into portions. We get about five or six portions out of the blade and we'll serve it with a red wine jus ", **Graham Crump**

Scotch Beef and Scotch Lamb more than satisfy the quality and consistency requirements of even the largest scale catering operations

Scotch Beef and Scotch Lamb are available across the UK from all reputable catering and retail butchers supplying the catering trade

plate.kitchen.**butcher.**
abattoir.farm.

The best catering butchers will provide a consistent and reliable service and excellent quality Scotch meat. By selecting wisely and developing a good working relationship, you will have a trusted and knowledgeable supplier.

In this section:

A trusted and knowledgeable supplier

A good relationship with an experienced butcher is fundamental to sourcing the best quality meat for your kitchen and your customers.

The catering butcher has developed from the retail butcher to meet the changing needs of the industry. The catering butcher requires significant training over a number of years and across a number of competencies – cutting, packing, ageing, health and safety are key – before accreditation can be granted.

A recent innovation in butchery technique is becoming more popular in the UK – 'seam' butchery. This process involves breaking down the carcase using nature's natural 'seams' between the muscles as the guides for cutting, rather than cutting across one or more muscles to produce a joint of meat. The cuts produced from seam butchery consist of single muscles and therefore prevent uneven cooking. More steaks for grilling or frying are made available and fewer cuts for stewing or pot roasting. Meat is put to better use with increased yields and less wastage all round.

First we explore in more detail the wonderful range of quality Scotch Beef and Scotch Lamb cuts which your butcher can supply.

The versatility of Scotch Beef is as infinite as your imagination

Due to the variety of cuts that Scotch Beef offers, the range of possibilities you can offer your customer is huge. However, because of this very flexibility, all beef is not the same: **different cuts require different treatment**. The information opposite is a comprehensive snapshot of the most commonly used and prepared cuts.

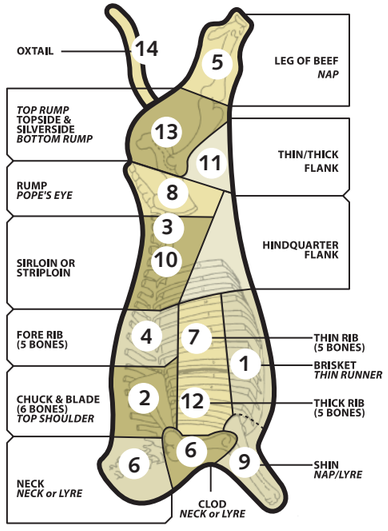
DO YOU KNOW YOUR CUTS?

9 **Shin**

11 **Thin/Thick Flank**

13 **Silverside**

Cut Chart: SCOTCH BEEF



More common Scottish names for cuts are italicised

Making the most of your Scotch Beef cuts

NO	CUT	CHARACTERISTICS	OPTIMAL PREPARATIONS	CLASSICAL USES
1	**Brisket, on the bone,** **rolled brisket,** *Thin Runner*	Flavoursome, high collagen joint	Moist slow heat – stewing, braising, curing and pot-roasting	Braised brisket à l'anglaise, à la française, à la mode
2	**Chuck, braising and stewing steak,** *Top Shoulder*	Collagen rich, flavoursome	Moist cooking, slow roasting, responds well to marinating	Hungarian goulash, daube provençale, bourguignonne
3	**Fillet** **Filet mignon** **Tournedos** **Châteaubriand steaks**	The most tender muscle meat Narrow end of the fillet Steak even in thickness, extremely tender Two per animal, thick in cut	Pan-frying, grilling, roasting Slice thinly and chop finely for preparations Slice thinly and butterfly Pan-frying, grilling Pan-frying, grilling	Grill garnish, pomme paille, gaufrette, tomatoes, mushrooms, watercress and flavoured butters. Andalouse (tomato half glaze). Steak tartare, fillet with morel mushrooms. Truffle oil
4	**Fore rib**	Tender rib meat; also location of rib eye steak	Roasting, sautéing, pan-frying, grilling	Rib-eye steaks with beef glaze
5	**Leg,** *Nap*	Flavoursome and collagen rich	All slow, moist cooking and slow roasting methods	Braised with tomato and garlic, beer, wine and root vegetables
6	**Neck, clod,** *Neck/Lyre*	Flavoursome and collagen rich	Stewing, casseroling, braising – slow cooking	Bitoks, Vienna steaks, meatballs, beef tea, consommé
7	**Rib steak, thin rib**	Seam cut, slices from between the bones provides the entrecôte	Roasting, grilling, frying	Grill garnish, pomme paille, gaufrette, tomatoes, mushrooms, watercress and flavoured butters
8	**Rump steak** *Pope's Eye*	Rump end of the sirloin, cut across grain; flavoursome;	Seam cutting removes top fat; grilling, pan-frying and barbecuing, roasting	Berrichonne potatoes, thickened with gravy
9	**Shin** *Neck or Lyre*	From the front leg, cheaper cut	Ideal for slow cooking and slow roasting – stews, casseroles and stocks	Beef tea, stocks, meatballs, soups, consommé
10	**Sirloin** **Entrecôte** **T-bone** **Porterhouse steaks**	From where the backbone connects to the hip bone; very tender Another name for sirloin (see above) The sirloin and fillet in one slice, divided by the bone; tender, textured and tasty Cut from the rear end of the short loin	Sautéing, pan-frying, and grilling; responds well to marinating (see above) Grilling or pan-frying Grilling and barbecuing	Grill garnish, pomme paille, gaufrette, tomatoes, mushrooms, watercress and flavoured butters, bouquetière
11	**Thick flank** **Thin flank**	Lean and muscular, full of flavour	Use as steaks or rolled steaks; cook medium rare; braising, casseroling and stewing	Estouffade, carbonnade
12	**Thick rib**	Also known as the seamed leg of mutton cut (LMC); all fat and gristle need removing	Thinly cut, ideal for frying	Served with hollandaise, Lyonnaise potatoes
13	**Topside and Silverside steak** *Top Rump, Bottom Rump*	Large joints, usually need to be seared for best results	Pan-frying or roasting	Horseradish, watercress, Yorkshire pudding, roast gravy or thickened gravy
14	**Oxtail**	Segmented at joints, very flavoursome	Great for moist cooking – casseroles and soups	Madeira Sauce

BUTCHER – SCOTCH LAMB CUTS

Lamb – the meat that foodservice forgot

Despite general foodservice appreciation of lamb, it has become one of the most infrequently used meats on menus across the whole foodservice market, with many customers perceiving lamb as 'fatty' and 'greasy', the 'pricey' choice on your menu. However, the solution is simple: deliver lamb in line with the customer's expectations – succulent, moist and full of flavour. To do so you need to choose the best quality available to you and there is none better than the lamb grown on Scotland's hillside pastures.

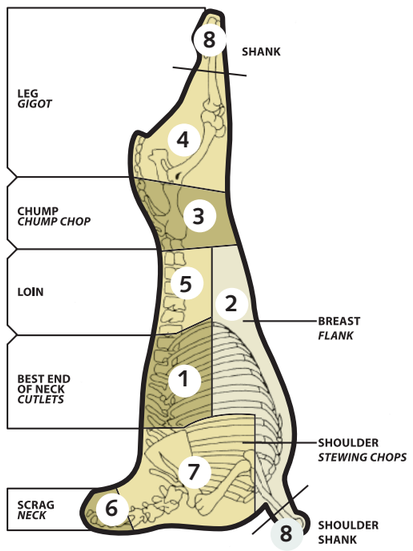
Scotch Lamb is the source of a large number of cuts that in themselves offer a range of taste experiences. When combined with complementary ingredients and flavours, and cooked in the most respectful way, the experience is sublime.

'…one of the most versatile meats…full of flavour and texture'
Willi Elsener, Development Chef

'The flavour and succulence and light textured flesh make it ideal for all occasions'
Marjan Lesnik, Development Chef

'…very delicate, sumptuous flavours…its inherent versatility; consistent quality and superb texture'
Tony O'Reilly, Development Chef

Cut Chart: SCOTCH LAMB



More common Scottish names for cuts are italicised

For additional cooking information, see pages 45–46

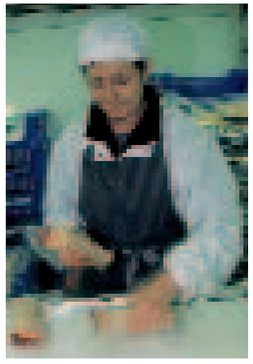
Making the most of your Scotch Lamb cuts

NO	CUT	ALTERNATIVE NAMES	OPTIMAL PREPARATIONS	CLASSICAL USES
1	**Best end of neck** *Cutlets*	Crown, cutlets, rack	Dice for stewing, chops for braising Rack of lamb-oven roasting, cutlets – pan-fry, marinating	Navarin printanière, boulangère, barbecue
2	**Breast** *Flank*	Flank	Long slow moist cooking	Pot roast, stuffed breast of lamb
3	**Chump** *Chump Chop*	Chump chops, chump end, chump steaks, gigot chops, saddle	Marinating, rolled (stuffed), roasted, pan-fried	Bretonne, flamande
4	**Leg** *Gigot*	Fillet end, gigot, knuckle half end, leg (mini) joint, shank half end	Pot roasted, roasting, stir fry	Daube provençale
5	**Loin**	Barnsley chops, best loin chops, lamb chops, saddle, medallions, noisettes, valentine steaks	Roll and tie for roasting, responds well to marinating	Crown of lamb, rack of lamb
6	**Scrag** *Neck*	Neck, stewing lamb	Diced and mince	Scotch broth, slow moist cooking
7	**Shoulder, middle neck** *Stewing Chops*	Bladeside, knuckle end, mince, neck (fillet), shoulder (mini) joint, stewing lamb	Dice, mince, stuffed and rolled for roasting	Moussaka, patties, kebabs, casserole, Irish stew
8	**Shank**	Shoulder shank	Braising	Braise with tomatoes and garlic for a Mediterranean feel, Lamb Kleftico

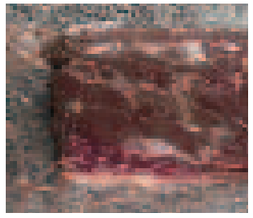
Scotch Lamb – far more than just chops and roasts

The importance of packaging

The film used in vacuum packaging ensures hygiene and a barrier to bacteria



Vacuum packaging is still a popular choice, despite the claims of a sour taste to the meat



Check with your supplier what type of film they use

The butcher can supply meat onwards to his customers packed in a variety of ways. Understanding these packaging options and the effects on the meat (beneficial and detrimental) will help the chef to specify his requirements clearly and correctly. Shelf life is a key factor in meat storage and usage. Let's examine in turn the options available to you.

1. Vacuum Packing

What is it?

- Seals cuts of meat in plastic bags from which air has been excluded
- Extremely hygienic – packs are leakproof and 'clean'

How does it work?

- The bags minimise both gas and moisture permeability, thereby acting as a barrier preventing the meat surface coming into contact with external oxygen and the meat's moisture from reaching the outside world
- The lack of oxygen is enough to inhibit any Pseudomonads (bacteria which would cause the meat to deteriorate)

Tips to manage your suppliers

- Ask how quickly meat is vacuum packed post-slaughter. Ensure this is as soon as possible to maximise shelf life or as long as possible after slaughter if you prefer the meat to be dry aged
- Understand the quality of the vacuum packs themselves. Inferior quality materials can cause surface discolouration of the meat
- Ensure a bone guard is used to prevent puncturing the membrane

Be aware of…

- Sour or cheesy odours – when objectionable spoilage takes over
- Colour change of the meat to 'bright red' on opening the pack through oxidation
- Meat sitting in an excessive pool of its blood

Note: some butchers do not like to vacuum pack because of claims that there is a 'sour' taste to the meat

Storage Recommendations

DURATION	PACKAGING TYPE	RATIONALE
Short term (< 2 weeks)	Lower barrier vacuum packaging is sufficient	Cheaper; organism activity not a significant threat
Medium term (< 4 weeks)	High barrier film may be required and/or CO_2 flushed outer packaging	Requirement to reduce longer term storage consequences
Long term (2–4 months)	Top of the range non-permeable packaging and/or CO_2 flushing	Greater need to reduce longer term storage consequences

Source: Meat and Livestock Commission, Shelf Life of Fresh Meat

2. Overwrapping and Modified Atmosphere Packing

a. Overwrapping

What is it?

- Before modified atmosphere packaging and centralised pre-packing, overwrapping was extensively used for the retail display of meat
- The film used for overwrapping is purposely permeable to external air

How does it work?

- The film facilitates oxygenation of the meat, causing the production of oxymyoglobin and the red 'fresh meat' that consumers tend to look for
- However, the meat soon oxidises further, changing colour to dull brown

Tips to manage your suppliers

- Ensure packing only occurs when the meat is less than 2°C as low temperatures favour deeper oxygen penetration

Be aware of…

- Meat that is >2 days old should not be overwrapped
- Meat that has been stored for long periods as it discolours more rapidly than fresh meat

b. Modified Atmosphere Packing

What is it?

- Meat is packed under modified atmospheres (MA) that contain higher levels of oxygen and carbon dioxide
- Microbial deterioration is retarded

How does it work?

- The uPVC or expanded polystyrene packs are formed to produce trays from a web of plastic
- The pack has its air evacuated, flushed with the higher gassed atmosphere and then the meat is sealed therein under a top web of laminated, low permeable barrier film
- At these higher oxygen concentrations (60-80%), oxygen is able to penetrate almost twice as far into the meat giving a deeper layer of the bright redness
- The carbon dioxide presence (at 20–40%) prevents pseudomonads from spoiling the meat

Tips to manage your suppliers

- Ensure pads are used in each tray as these absorb any released drip
- 'The colder, the better' (less than 2°C) – once packed, further cooling is difficult
- Good production standards should provide a colour shelf life of about one week at 1°C
- Ensure your supplier checks for seal integrity and gas compositions using a gas analyser

Be aware of…

- Shallow trays – the meat should not come into contact with the lid
- Meat that has been stored for long periods as it discolours more rapidly than fresh meat

NOTE: Some chefs believe that meat has been injected or dyed with colour to give a more appetising look for consumers, please see page 27 in Kitchen for more information. This has been countered by modified atmosphere packaging. The colour life of the meat can be extended by placing overwrapped packs in a 'master pack'

Overwrapping – a process inherited from retail

Modified atmosphere packaging offers a shelf life of up to one week

There are a number of factors pre-slaughter that can limit or increase the shelf life – see Abattoir section for more information

For more information on Quality Meat Scotland's Assurance Scheme regarding minced products, contact **info@qmscotland.co.uk**

Overwrapping or Modified Atmosphere Packing – the decision is yours

The summary below should assist in deciding:

OVERWRAPPING	MA PACKAGING
Uses inexpensive equipment and packaging materials	Needs expensive equipment and packaging materials
Requires in-store butchery	Allows centralised packing
Short shelf life (1–2 days)	Longer shelf life (up to 7 days)
Any released drip can leak out	No leakage due to hermetical seal

Source: Meat and Livestock Commission, Shelf Life of Fresh Meat

Note: Meat aged or stored for long periods before packaging significantly affects shelf life.

Mince ia a great way to introduce kids to Scotch Beef and Scotch Lamb

Mince packaging – a process within a process

The raw material for mince can be frozen meat or fresh meat which is then refined to meet particular specifications. It is derived from the forequarter cuts, hindquarter trim, or both.

What is the process and how does it work?

The manufacture of mince uses a combination of vacuum packing and MA. Prior to mincing, the temperature of the meat needs to be as low as possible (when mince is made from frozen meat, residual ice in the mince keeps temperatures relatively low). Using textbook practice and with MA packaging and transportation in trays allowing free circulation of cold air, mince can be expected to enjoy a shelf life of 7 days.

Tips to manage your suppliers

- Speak to your supplier if your product appears dull brown
- **Mince is a good base for offsetting the cost of expensive cuts** – always try and balance a menu with top price meat items and cost effective ones

Minced products are also covered by the same Assurance Schemes

3. Alternative packaging techniques

Technology is always innovating. Look out for:

• Captech process • Secondary packaging (masterpacks) • Hyperbaric Oxygen

Warning signs

The table below gives a quick reference for packaging problems, their symptoms and manifestations:

EFFECT	POSSIBLE CAUSE
RETAIL PACKS	
Reduction in colour shelf life	• Meat has been aged too long • Temperature abuse during supply chain • Poor quality packaging materials • Faulty seals • Incorrect use of gases (CO_2, O_2, N_2)
Localised browning in MA packs	Meat in contact with the film
Meat appears overly dark	DFD (dark, firm and dry)
Bulging MA packs (using Captech)	Release of carbon dioxide
High drip loss	• Use of frozen meat • Temperature abuse
High microbial numbers, spoilage	• Poor hygienic practice • Temperature abuse • Atypical spoilage bacteria
VACUUM PACKS	
Reduction in colour shelf life	• Using meat aged on bone prior to packing • Temperature abuse • Poor quality packaging materials
'Greening' (putrefaction in 2–3 weeks)	• High pH meat (pH > 6.0) allows hydrogen sulphite producing bacteria to grow • Packaging materials with relatively high oxygen permeability
Gas production through pack expansion	• Spore-forming bacterium, clostridium estertheticum

Vacuum packaging is extremely hygienic and 'clean'

Traceability – how does it work?

Chef Beware!
Upon receipt, check your meat and reject in case of doubt

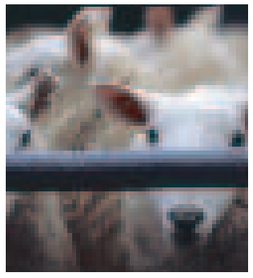
Traceability gives you and your customer the ultimate guarantee of complete safety from farm to plate. **You should consider recording some or all of the following as part of your own auditing process:**

- Intake date (of carcase, cut)
- Supplier details
- Delivery note data
- Kill date
- Weight
- UK ear tag, cattle passport number or reference code
- Product, i.e. the 'cut'
- Tray number or colour
- Country of origin
- Slaughter code number
- Batch code number
- Pack date

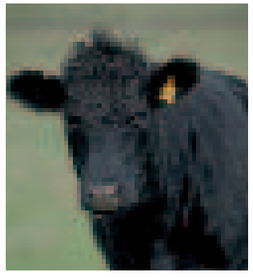
Products designated Scotch Beef and Scotch Lamb must be traceable to product that complies with the respective legislation for Scotch Beef and Scotch Lamb. These specifications include:

- Firm fat that is white and creamy
- Muscle and fat that is free of bruising and blood splash
- Firm muscle and of a good colour

See PGI in Plate section, pages 9–10



Ear tagging takes place just after birth and will be worn until slaughter



The Quality Meat Scotland assurance scheme guarantees complete traceability throughout the supply chain

Labelling – your at a glance guide

If you are carefully selecting Scotch red meat, it is in your best interests to let everyone know of your commitment to this quality. A recent survey showed more than two thirds of caterers are not identifying meat origin on their menus. **In fact, 71% of restaurant goers believed that the meat they were eating was British meat whereas the figure is actually 40%**. Labelling is therefore becoming more and more important as it provides:

- Assurance that your supplier is honouring your requirements
- Guarantee of assurance and full traceability
- The opportunity to thrill your customers and satisfy their ever-developing demands for only the finest products

Protecting every link of the supply chain

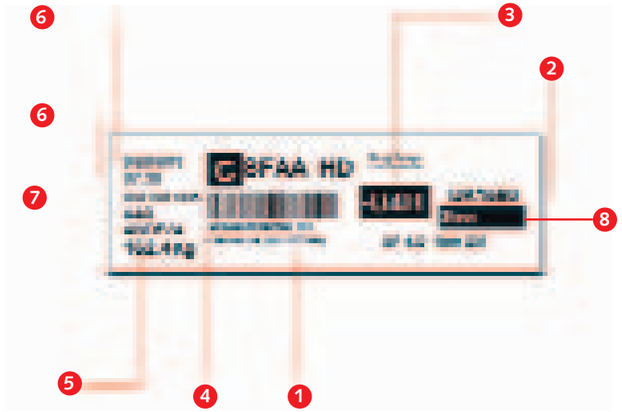
The following operators must comply with the processes in place for fresh and frozen beef (not mince):

- Slaughterhouse • Cutting plant • Cold store
- Re-packaging centre • Re-wrapping centre
- Catering butchers

For beef from animals born, raised and slaughtered in the United Kingdom there are a minimum of four compulsory 'fields' of information:

- **Reference code** – this code links the meat on sale
- **Origin** – UK (or British) – UK includes Scotland, England, Wales and Northern Ireland
- **Place of slaughter** – 'UK', plus Licence number of slaughterhouse
- **Place of 'cutting'** – 'UK', plus Licence number(s) of cutting plant(s)

How to read a slaughter tag on a carcase



KEY

1 *Country of Origin*
This tells you where the beef came from e.g. the UK (or another country e.g. BR = Brazil, AR = Argentina). UK includes Scotland, England, Wales and Northern Ireland

2 *Country of slaughter and licence number (EC Plant Code)*
Shows where the beef was slaughtered and licence number; Scotch Beef always starts with a '1' and must be a member of Quality Meat Scotland's Processor Assurance Scheme

Notes

- *If the country of origin ('birthplace'), rearing and slaughtering are the same (as it is with Scotch Beef), the labels may simply state 'country of origin' or 'Origin:UK'*
- *Pre-wrapped meat must be labelled on its packaging. However, if packages are grouped together in a carton, the carton only needs to show the mandatories discussed above*

For upto date information, log onto:
www.qmscotland.co.uk/members/directory/pgi-status.html

The current list of Quality Meat Scotland approved abattoirs who can supply Scotch Beef or Scotch Lamb are:

CODE	PLANT NAME
1101	ABP (Perth)
1103	Kepak Buchan
1106	McIntosh Donald
1108	Mathers (Inverurie) Ltd
1118	Stornoway Abattoir
1121	Scotch Premier Meat Ltd
1129	Grampian Country Pork Ltd
1144	St Andrews Abattoir
1156	Orkney Meat Ltd
1160	Millers of Speyside
1505	G D Vivers & Sons
1512	Grampian Country Pork Halls
1516	James Chapman (Butchers) Ltd
1517	Wishaw Abattoir Ltd
1535	Sandyford Abattoir
1538	R Y Henderson & Sons
1541	A K Stoddart Ltd
1542	John Robertson & Sons (Hamcurers) Ltd
1560	Scotbeef (Meat Packers) Ltd
1572	ABP (Bathgate)
1598	Highland Meats (A Division of Dawn Meats UK Ltd)
1679	Scotch Premier Meat (Dornoch) Ltd

This list correct at time of printing

3 *Carcase classification*
This code reflects the animal's conformation and fatness

4 *Ear tag number*
Butchers will be able to identify the movement history of the animal from its records. To be classified Scotch Beef or Scotch Lamb, the animals must have only spent time on assured Scottish farms. **On the passport, the holding number will start with a 66/ or greater, e.g. 84/568/0005**

On the ear tag, the code must begin with UK5 in order to be Scotch

5 *Side weight*
6 *Kill time and date*
7 *Kill number*
8 *Sex*

TRACEABILITY FOR THE BUTCHER

Scotch Beef and Scotch Lamb labelling is a guarantee of more than just location.
Scotch Beef and Scotch Lamb are not only from animals born and raised in Scotland's natural environment, it is from animals reared to exacting standards using only the highest quality feed, on farms that are independently inspected and Farm Assured. Finally, the animals must be slaughtered in an approved Scottish abattoir. These processes are tirelessly completed to assure you that there is traceability at each stage of the process.

Further claims can be made but only with prior approval by the Beef Labelling Scheme, including:

- Region – where the animal was born and reared
- Breed or cross-breed (e.g. 'Galloway', 'Galloway cross' or 'Galloway sired')
- Age
- Sex (male, female)
- Production method (e.g. organic, grass-fed)
- Slaughter method (e.g. Halal)
- Slaughter date
- Maturation time

Finally, criteria which can freely appear on labels include:

- Product name or cut e.g. rib eye, brisket
- Product weight
- 'Best before' and 'Use by' dates
- Storage conditions e.g. 'Keep refrigerated'
- Cooking instructions
- Names and addresses of suppliers
- Packaging statements
- Reference to the carcase classification grid
- The health mark required by the Fresh Meat Directive
- PDO, PGI status

The Scotch Butchers Club is run by Quality Meat Scotland and is committed to supporting independent butchers with advice and promotional material.

Quality Meat Scotland believes that independent butchers are a vital link in the ongoing success and health of the Scotch Beef and Scotch Lamb industry. Butchers are invited to join the Scotch Butchers Club with the requirement that top quality beef and lamb are sourced from an approved supplier, and that the applicant can confidently label these products "Scotch". A small membership fee offers the opportunity to drive business and to look forward to increased recognition from customers.

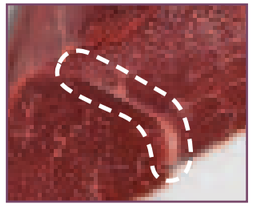
For more information on how to join the Scotch Butchers Club, see page 97

By law you are entitled to enquire as to the origin of the meat you are buying from your suppliers

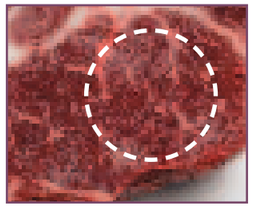
Some countries insist that foodservice operators inform their customers on the menu of the origin of the meat. Quality Meat Scotland has written guidelines which cater to consumer demands, see page 16 in Plate section

Tags of the trade – cattle (top), sheep (below)

Marbling



Intermuscular fat – fat between muscle



Intramuscular fat, 'marbling' – fat within muscle

Subcutaneous fat – 'under' skin

Whether working with your butcher, specifying meat or examining deliveries, marbling is a key visual identifier to the chef but does it affect the ultimate eating quality of your dish?

Fat is critical to the flavour of meat and helps differentiate one meat from another. In fact, research has shown that if all traces of fat are stripped from a piece of lamb and a piece of beef, it is almost impossible to set them apart. Aside from the external layer of fat just beneath the surface of the skin, there is another presence of fat in the animals – what we affectionately and descriptively call 'marbling'. This develops over time so is more predominant in beef than lamb, or in mutton than lamb. In short, **marbling is small streaks of intramuscular fat that are found in the muscle.** It has a beneficial effect on juiciness and flavour by 'melting' through its surroundings during the cooking process.

See graph below

Source: Meat and Livestock Commission 'A Glossary of Carcase and Meat Quality Terms', 1999

As described in 'Plate', fat is a complex and much misunderstood component in meat. The following definitions should help:

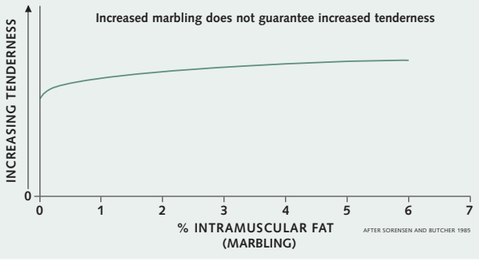
"The adipose (fatty) tissue found in the body. **Fat exists both within** (intramuscular fat and intramuscular fat) **and surrounding** (subcutaneous) the lean tissue of the carcase"

"Intermuscular fat is the fatty tissue formed by depots of fat cells **situated between the muscles**. Along with marbling, intermuscular fat adds to the juiciness and flavour of meat"

"Intramuscular fat is the fat found **within the muscles**. Visible depots of intramuscular fat are known as marbling"

"Subcutaneous means **beneath the layers of skin** (or rind) and is most commonly used to describe backfat"

Fat adds specific species flavour and aids the entrapment of moisture within the meat. During the cooking process, fat keeps meat moist and succulent.



For more information about flavour and fat see pages 11-15 in Plate

The increase of marbling in a steak or joint will not necessarily mean an increase in tenderness, although there may be some flavour enhancement

The importance of specifications

If you do not tell your butcher what you want, how can he get it right? Specifications are communication tools – it allows the chef to tightly detail what is required and leaves no uncertainty. It is vital that the supplier gives you what you want, every time, not what he thinks you want (and most certainly not what he thinks he can get away with).

The specification example below shows the type and level of information you need to be communicating to your butcher:

CUT: SIRLOIN STEAKS

COUNTRY OF ORIGIN – SCOTCH

1. Boneless 2 rib sirloin

2. Remove the chain

3. Remove visable gristle and connective tissue

CUT REMOVAL AND PREPARATION

4. Remove back strap (5cm wide) and trim the tail (2cm from the tip of the eye muscle)

5. Trim fat to a maximum depth of 15mm

6. Remove 3-4 steaks from the rump end until gristle in the centre of the steak has disappeared

7. Remainder of the sirloin to be cut into steaks 2cm thick

8. Steaks to be of even thickness (not wedge shaped)

9. To be vacuum packed a maximum of 2 days prior to delivery

Ageing: 14 days on the bone prior to slicing
Fat Level: Maximum fat depth not to exceed 15mm at any point
Portion Wt: 225g with a 15g tolerance
Packaging: Vacuum packed 4 steaks per pack
Labelling: To include: Name and address of the butcher, origin Scotland, slaghtered in the Scotland (plant number), cutting in Scotland (plant number), traceability code, product name

Waste management

This is the waste removed from the 2 rib sirloin. Either you, your butcher or your customer will have to trim off. Make sure you specify what you require

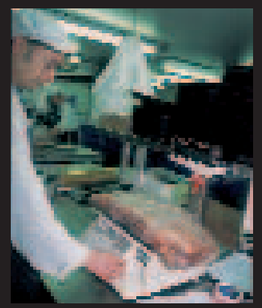
NOTE: Very precise specifications will involve additional labour and therefore cost to meet your requirements
NOTE: Forequarter and fillet cuts do not need the same maturation as hindquarter cuts
NOTE: Ageing meat carcases lose weight due to evaporation

Expertly cutting to order

The catering butcher is a vital link between the abattoir and the kitchen; a good butcher is an invaluable support to the chef.

The carcase is broken down by a team of expertly trained butchers according to the client's specification

Specifications are the key document for the catering butcher. They are computer generated and kept on file



Once cut to specification, each pack is verified and labelled accordingly

The best catering butchers are used to exacting and sometimes unique demands from their customers. Their range of services includes, of course, boning and trimming to Meat Buyers Guide specifications as well as a comprehensive range of fresh meat products prepared to larder chef requirements, but they should also be looked upon as a great source of advice and knowledge, a partner in the chef's drive for the best possible quality for his customers.

All meat is of course thoroughly endorsed by farm to table assurance schemes. Scotch Beef and Scotch Lamb are sourced from farmers with complete traceability, for example Ballindalloch Castle Farm, the original home of the pure Aberdeen Angus herd, and Scotch Lamb from Premier Lamb, raised in the Highlands around Dornoch.

Meat is hung to individual client specifications – beef can be for a minimum of 21 days but frequently up to 35 days and lamb is hung for 5 to 10 days depending on season.

Meat processing by the larger butchers may be carried out by teams and take place over shifts almost 24/7 to ensure that there is a delivery of fresh meat every day, yet with the best butchers this is never at the expense of quality. On arrival, the meat is weighed and sent to a holding fridge where it will subsequently be retrieved and broken down. The abattoir's tag will allow staff to trace each animal back to the farm, ascertain date of birth, breed and ownership in a matter of minutes should this information be required.

The specification is the key to good understanding between butcher and customer: many butchers record their clients' specification information – preferred packaging, cuts, quantities – so that the information can be readily retrieved for each new order. This saves time for the clients as well – telesales can understand buying patterns and do not need to re-key information. The client's file is updated as and when menu cycles change and new specifications are required. Once prepared to client specifications, the meat is dispatched, either in refrigerated vehicles to nearby customers, or for customers further afield, sent overnight to arrive first thing the following morning in carefully packed iced boxes.

A good catering butcher demands an excellent quality team and is committed to training its staff. The best butchers are also happy to impart their knowledge to their chef customers, so they can better understand meat eating quality and ultimately buy more wisely for their clientele. Above all, butcher staff should understand and respect the supreme quality of products such as Scotch Beef and Scotch Lamb.

With thanks to Alan Healey of Aubrey Allen Ltd, Coventry

" We only purchase the best. Scotch Beef is renowned throughout the world for its flavour. All discerning chefs expect this",

Alan Healey, Aubrey Allen

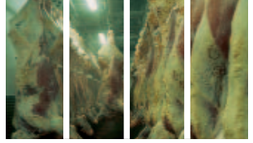
Good catering butchers are highly trained and highly skilled: chefs can make good use of their knowledge. A minimum training requirement needs to be reached by law before qualification can be given

plate.kitchen.butcher.
abattoir.farm.

The Scottish businesses involved in processing livestock for meat are highly skilled and committed to the highest standards of animal welfare, safety and hygiene.

In this section:

Animal welfare from farm to abattoir | Key assurance stages | Ritual slaughter methods in the UK | Carcase yield classification | Turning muscle into meat – the key factors influencing quality | The effect of ageing and the importance of temperature | Supply chain focus



ABATTOIR – ASSURANCE AND PROCESSING STAGES

Animal welfare from farm to abattoir

The Scotch Assured Processor Assurance Certification Scheme inspects over and above the statutory minimum requirements in particular monitoring closely record keeping and traceability

Only animals born and raised on farm assured farms in Scotland, but also slaughtered in approved slaughterhouses there, can achieve the prized designation of Scotch Beef and Scotch Lamb.

The majority of Scottish meat processors all participate in Quality Meat Scotland Assurance Schemes and are inspected three times a year. Scottish processors work closely together with the farms that supply them to ensure that the highest standards of animal welfare are maintained up to the point of slaughter. After slaughter each carcase is carefully checked at all stages of processing, boning, trimming, packing, chilling and maturation. The training, skill and care of the processors have a profound effect on the ultimate eating quality of the meat they produce.

Key assurance stages

STAGE 1 Approved processors

An Approved Processor is a business or person holding a valid Certificate of Approval for the production and/or processing of products specified on the Certificate. All abattoirs must be sited in Scotland, must fully comply with the requirements of the relevant Council Directive and must achieve upon inspection, on a regular basis, a pass for both slaughter and cutting operations.

STAGE 2 Animals eligible for slaughter

Beef for Scotch Beef sides is currently derived from cattle. Scotch Lamb is derived from male or female lambs. **New season lamb is born, slaughtered and marketed within one year, beginning 1st January.** In Scotland, every animal destined to provide Scotch Beef has a passport which records the essential details about the animal. In addition, Scotch Beef or Scotch Lamb must come from farms that are approved members of the Quality Meat Scotland Farm Assurance Scheme.

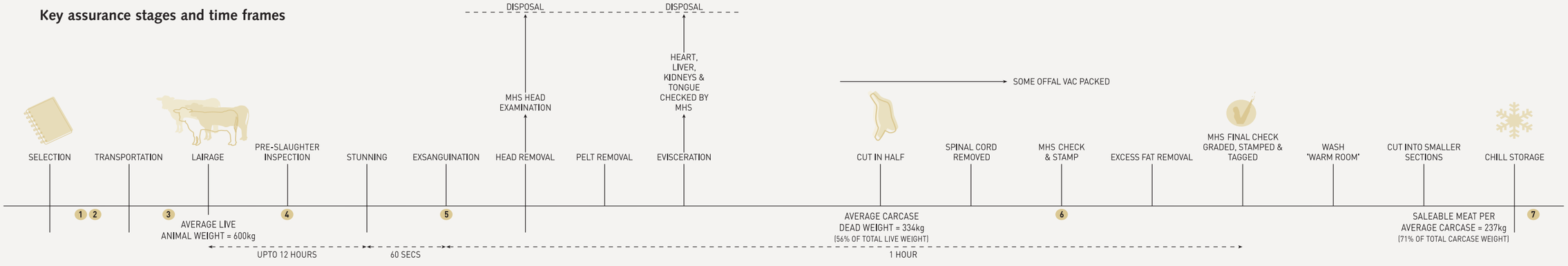
STAGE 3 Transport from farm to abattoir

Animals must be handled on the farm, in markets and during transport with proper care and concern for their welfare at all times, to comply with the requirements of all appropriate legislation and Codes of Practice. This is important both for animal welfare and because any stresses imposed can trigger the release into the bloodstream of hormones which can affect the final quality of the meat. **In Scotland, all animals must be transported to the abattoir by an approved Farm Assured member**. The vehicles used have non-slip floors and good ventilation. All loaders, drivers and auction market staff receive appropriate training, and cattle and sheep are transported in their farm groups wherever possible.

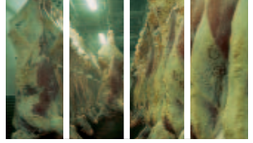
See also the ritual slaughter section in this chapter, page 75

Passport control – the vital documentation for each animal

Key assurance stages and time frames



* at R4L classification (71% of side weight); based on Scottish results



ABATTOIR – ASSURANCE AND PROCESSING STAGES

NOTE: In cattle the maximum permitted interval between stunning and sticking is 60 seconds, in sheep it is 15 seconds

Hygiene Assessment Scores (HAS) can be checked online at **www.defra.co.uk**

STAGE 4 On arrival at the abattoir

Animals are unloaded promptly on arrival at the abattoir and stored in an area called the 'lairage'. Lairage and abattoir staff are required to demonstrate competence in relevant welfare standards and adopt practices which ensure humane treatment and minimise stress. The use of goads is not permitted except under exceptional circumstances. The animals are maintained in the groups they were transported in and are given access to fresh drinking water. The period in lairage is usually short, but in the event that animals are lairaged for more than 12 hours, they are fed at appropriate intervals. **Farm Assured animals are kept separate from any animals from farms which are not assured.**

As part of the traceability process, the ear tag information of cattle and the lot numbers of sheep in lairage must be checked before slaughter and all animals undergo a rigorous pre-slaughter inspection by a qualified vet.

STAGE 5 The slaughter process

Slaughter can only be carried out by a trained and licensed slaughter-person. Immediately prior to slaughter, cattle and sheep are first stunned, rendering them insensible to pain and causing unconsciousness. In cattle a captive bolt pistol, which penetrates the skull, is the usual method of stunning the animal. Sheep may be stunned by captive bolt pistol, or by applying an electrical current through the brain. Immediately following stunning, the animal is suspended by its hind legs and cut across the throat, ensuring that at least one of the carotid arteries is severed and so terminating the blood supply to the brain. This is called exsanguination, bleeding or, commonly, sticking.

The animal is then given 30 seconds to exsanguinate fully at which point the head is 'demasked' by removing all of the head meat so it can be checked by the Meat Hygiene Service in due course.

Front hooves are also quickly removed (the hind hooves subsequently) and 'rodding' is also carried out at this point. With the animal suspended upside down and muscle control now redundant, to avoid the possibility of regurgitation, the oesophagus is skillfully sealed using the 'rodding' technique before moving on to be 'dressed'.

STAGE 6 Dressing the carcase

Soon after slaughter the animal's body is 'dressed', from which point it is generally referred to as a carcase. The animal's skin – hide for beef and pelt for sheep (which includes the wool covering) – is removed as is the head, and the internal organs are extracted in a process known as evisceration. **Evisceration is carried out within minutes of slaughter to reduce the risk of contamination from the organs to the meat.** Carcases are subjected to a rigorous post-slaughter inspection by a qualified Meat Hygiene Service inspector. Quality Meat Scotland safety controls are strictly applied and are probably the finest in the world, ensuring every carcase is inspected at several points during the process, not least the internal organs – the liver, kidneys and pluck.

Beef carcases are then split into sides (the vertebrae are split directly through the centre). The beef and lamb carcases are then classified to indicate their commercial value, normally related to the lean meat content, retail yield or quality attributes of the meat. At this point, Scotch Beef must be clearly identified, and bear as a minimum the slaughterhouse number, date of slaughter, classification and the weight of the carcase. Lamb carcases are left whole but must also be clearly identified as being certified and must bear the slaughterhouse number and slaughter date, classification and the weight.

On further processing, the carcase will be broken down so each side is now tagged in three places to ensure continued traceability through the supply chain with the barcode, weight and grade. **See slaughter tag, page 61.**

In both cases, the beef sides and lamb carcases must be clean and free from any extraneous matter or abnormal colour, the fat must be firm and white or creamy-white and the muscle must be of good colour and free of bruising and 'blood-splash'.

Specified Risk Material (SRM)

By law, the parts of cattle and sheep most likely to carry BSE must be removed. These parts are known as Specified Risk Material (SRM) and include brain and spinal cord. See below for details:

Cattle born, reared and slaughtered in the UK
All ages
- The tonsils and intestine from the duodenum to the rectum; and the mesentery

Over 6 months
- The entire head (excluding the tongue, but including the brain, the eyes, trigeminal ganglia), thymus, spleen and spinal cord

Sheep
All ages
- The spleen and the ileum

Over 12 months (or permanent incisor erupted)
- Skull including the brains and eyes, tonsils, spinal cord

Source: FSA Scotland, November 2004

For further information go to **www.food.gov.uk/scotland**

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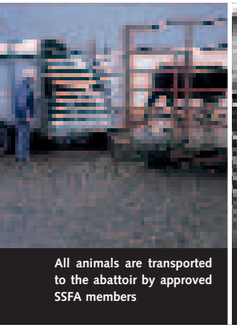

All animals are transported to the abattoir by approved SSFA members

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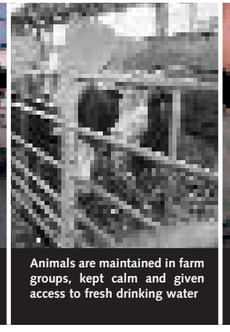
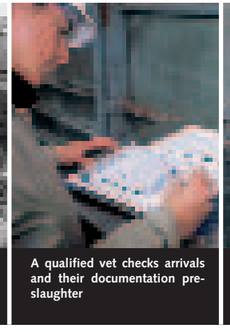
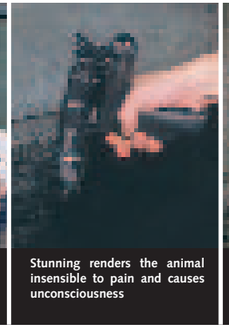


Animals are maintained in farm groups, kept calm and given access to fresh drinking water



A qualified vet checks arrivals and their documentation pre-slaughter



Stunning renders the animal insensible to pain and causes unconsciousness

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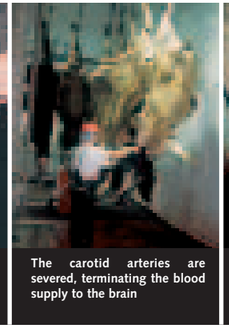
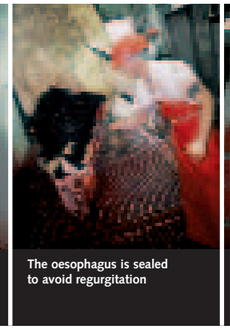
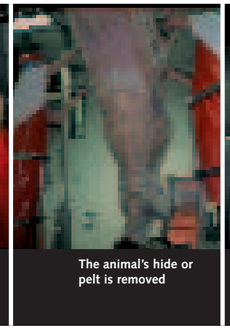


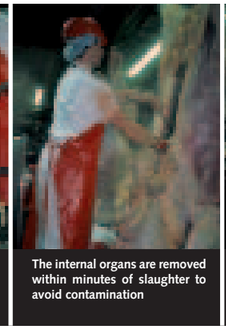
The carotid arteries are severed, terminating the blood supply to the brain



The oesophagus is sealed to avoid regurgitation

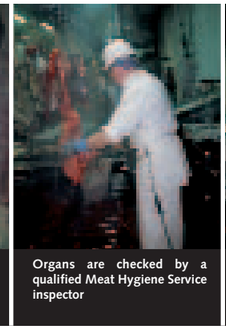


The animal's hide or pelt is removed



The internal organs are removed within minutes of slaughter to avoid contamination

6

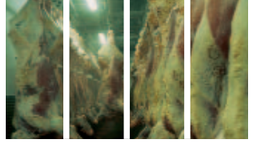


Organs are checked by a qualified Meat Hygiene Service inspector

Beef carcases are split into sides, lamb carcases are left whole. In both cases the spinal cord is removed

The carcase is stamped to identify it as Specially Selected Scotch Beef or Scotch Lamb

Each side of beef or whole carcase of lamb is tagged in three places with barcode, weight and grade



ABATTOIR – CHILLING, STORAGE AND PACKAGING

Carcase pH and Temperature

The temperature and pH of the carcase have a major impact on eating quality. The target scores for the carcase post-slaughter are as follows:

TIME	APPROX pH	AV TEMP
At slaughter	7.3	39°C
At 1hr	7.0	39°C
At 3hrs	5.9 – 6.2	38°C
At 10hrs	6.2	34°C
At 1 day	5.5	18°C
At 10 days	5.5	1°C
At 21 days	5.5	1°C

NOTE: Deep leg temperature

See also the section of this chapter called 'Turning muscle into meat', see page 77-79

NOTE: Forequarter and fillet cuts do not need the same maturation as hindquarter cuts
NOTE: Ageing meat carcases lose weight due to evaporation

Source: Meat and Livestock Commission

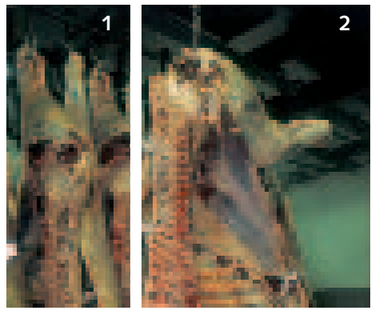
STAGE 7 Chilling and storing

Now the carcases are transferred promptly to a chilling environment, to restrict the growth of micro-organisms, reduce deterioration and eliminate the possibility of food poisoning. For beef sides and lamb carcases, **the chilling procedure must ensure that in the first 10 hours after slaughter the muscle temperature of the side does not fall below 10°C** to avoid over-contraction of the muscles (see cold shortening on page 79). Thereafter the deep muscle temperature of the sides must be reduced to between 0°C and 7°C as quickly as possible.

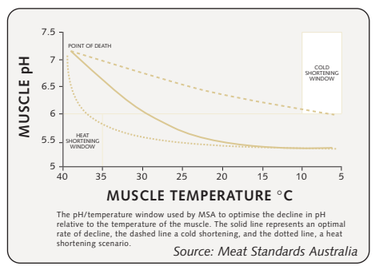
STAGE 8 Ageing and hanging

Carcases are held in refrigerated storage for varying periods of time to improve eating quality. Traditionally, sides of beef and lamb carcases were matured suspended on hooks by the Achilles tendon. More recently, suspending them from the hip via the hole in the bone called the aitch-bone has been recommended as it allows the commercially more important muscles of the carcase to be stretched. Aitch-bone hanging develops these muscles in such a way as to offer better meat eating qualities for the consumer.

Recommended time intervals between slaughter and retail sale for hindquarter beef with aitch-bone suspension are at least 7 days, up to 21 days for better eating quality products. For lamb the recommended interval between slaughter and retail sale is 7 days.

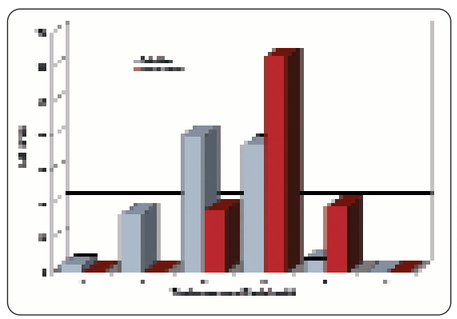


Traditional hanging (1), Aitch-bone hanging (2)



The pH/temperature window used by MSA to optimise the decline in pH relative to the temperature of the muscle. The solid line represents an optimal rate of decline, the dashed line a cold shortening, and the dotted line, a heat shortening scenario.

Source: Meat Standards Australia



Source: DFAS/MLC (1991)

Aitch bone hanging increases tenderness

STAGE 9 Cutting and packing

Once matured, the meat is supplied for the butcher to break down further, or broken down by the cutting room of the abattoir into primal cuts or joints. **The temperature of the meat must not rise above 7°C during meat cutting operations.** The meat must be labelled Scotch Beef or Scotch Lamb to indicate that it meets the requirements of these standards.

Some abattoirs have in-house butchery whereby the carcase can be broken down into primal cuts before further transportation

STAGE 10 Onward distribution to the butcher

Deep muscle temperature must be maintained throughout the period of onward transit from the processor. This is achieved by:

- Transportation in purpose-built, hygienic refrigerated vehicles
- No contact with vehicle floors during loading, transit or unloading
- Boxed products not being placed directly on the floor, or carried in the same vehicle as unwrapped carcase meat, unless the boxes are adequately protected

RITUAL SLAUGHTER METHODS IN THE UK

Some religious faiths have special requirements about the meat that they eat, and in particular the method by which the animal is slaughtered.

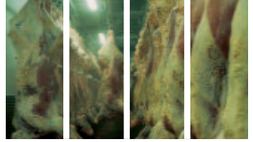
Halal slaughter (Muslims)

- The Islamic faith stipulates that only healthy and uninjured animals can be killed for human consumption
- Stunning prior to slaughter is considered injurious and therefore is not carried out in all cases
- Death is achieved by drawing a very sharp knife across the throat

Shechita slaughter (Jews)

- The animals are killed while still conscious
- The meat is called Kosher (which means 'fit' or 'proper') meat
- May only be carried out by an approved slaughter-man of the Jewish faith who is usually a Rabbi

For more information about meeting the needs of Muslim, Jewish, Sikh and Hindu customers, see the Plate chapter of this book, page 17



Carcase yield classification

Classification is a specialised job requiring years of experience

For further information on carcase classification log onto **www.qmscotland.co.uk**

After all the Meat Hygiene Service checks have been carried out, each carcase – both Scotch Beef and Scotch Lamb – is classified. The classification given to the carcase is vitally important as it will dictate the financial revenue for the supply chain.

The visual scales below are used to reflect the shape (conformation) of the carcase – E, U, R, O etc – and a fat class – 1, 2, 3, 4L etc. So for example an R4L has good conformation and a medium fatness – this is the most common classification for a beef steer.

This chart also displays the yield percentage that is to be expected from beef cuts, depending on the classification, for example an R4L will give a 71.1% yield (in other words, 71.1% of this carcase is saleable meat).

Guidelines for conformation and fat class

The following guidelines are considered in understanding the parameters within which 'good' Scotch Beef should sit:

- A minimum of O is widely adopted (to avoid toughness)
- Subcutaneous fat may help to limit cold shortening and so overly lean animals (<3) should be avoided
- Intramuscular fat may benefit flavour and juiciness but overly fat animals (5H) should be avoided

For Scotch Lamb, the important factor is driving the balance between 'dry' and 'fatty' meat, neither of which the consumer wants. By finishing Scotch Lambs to a minimum of fat class 2 will give an acceptable 4% or so fat in the meat.

How Scotch Beef and Scotch Lamb are classified

YOUR CARCASE GUIDE: SCOTCH BEEF

	(very lean) 1	2	3	4L	4H	5L	(very fat) 5H
(Good)							
E							
U+		74.4	73.3	72.0	70.6	68.4	
U		74.0	72.9	71.6	70.2	68.0	
R		73.5	72.4	71.1	69.7	67.5	
O		72.8	71.7	70.4	69.0	66.8	
O-		71.8	70.7	69.4	68.0	65.8	
P							
(Poor)							

R4L is the most common type of steer beef carcase classification

YOUR CARCASE GUIDE: SCOTCH LAMB

	(very lean) 1	2	3L	3H	4L	4H	(very fat) 5
(Good)							
E							
U							
R							
O							
P*							

NOTE: A traditionally cut lamb will offer the following saleable meat yields:
• Fat class 2 – 92.5% • Fat class 4 – 88.8%
Unlike beef, lamb cuts tend to have a higher proportion of bone-in cuts making it difficult for yield figures to be accurate

*P values for lamb are sometimes only reported as P with no number, ie. with no fat class sub division

Turning muscle into meat – the key factors influencing quality

Muscle tissue is composed of bundles of elongated cells, called muscle fibres that are densely packed and responsible for the contraction of the muscle in the live animal and for a short time after slaughter. In the living animal, a chemical compound called adenosine triphosphate (ATP) is produced with and without oxygen within muscle cells and acts as a source of energy.

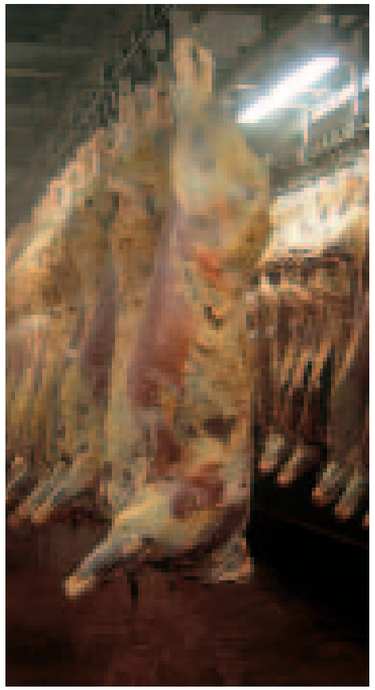
Changes in the muscle after slaughter

a. Rigor mortis

Skeletal muscle remains 'alive' after the slaughter of the animal until the process known as rigor mortis is complete. Following slaughter and exsanguination, the synthesis of ATP in the muscle initially happens and ultimately the ATP, reduced as glycogen (the tissue's energy store), is depleted. Freshly slaughtered 'pre-rigor' meat is tender and pliable, but becomes stiff and tough at the onset of rigor mortis, and then increases in tenderness again as rigor mortis passes and the ageing process begins. The rate at which rigor occurs and is completed is dependent upon a number of factors, such as species, muscle fibre type, temperature and slaughter procedure.

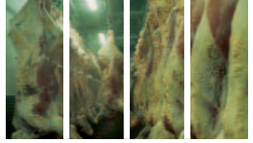
b. Post-mortem acidification

pH is a value used to represent the acidity or alkalinity of muscle and is recorded on a scale of 0 to 14, with values less than 7 referred to as acidic and greater than 7 as alkaline. **The pH of muscle in the live animal is approximately 7.3, but this declines rapidly following slaughter to about 5.5 in normal meat, following rigor.** This meat acidification is the result of an accumulation of lactic acid. It is generally accepted that a higher 'ultimate pH' (that is, the pH measurement taken after rigor mortis) is associated with increased tenderness and juiciness.



Even after slaughter, muscle contraction still occurs, visible as 'twitchings'

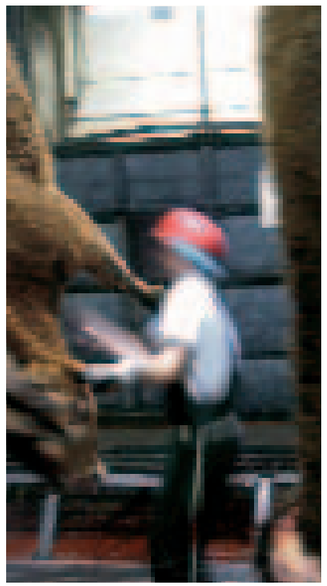
For further information on muscle structure, please see Kitchen, page 28



Quality assurance checks continue after slaughter

Stress induced 'DFD' meat

Stress induced by poor pre-slaughter handling can cause a limited pH fall, resulting in what is called DFD (dark, firm and dry) meat. DFD is a muscle defect seen in beef carcases but rarely in lamb. It is usually associated with long term stress or prolonged feed withdrawal. **An indication of DFD in a carcase is a muscle pH above 6**. In addition to its apparent abnormal colour, DFD meat has reduced keeping qualities and is prone to bacterial spoilage.



Quality Meat Scotland's scheme ensures that both the animals and the meat are conscientiously handled to minimise adverse effects and stress

The effects of ageing and the importance of temperature

Despite the differences between muscles, overall ageing increases meat tenderness. Ageing can also have a marked effect on colour and shelf life. Meat is usually aged by storing it at chill temperatures, either on the bone or in vacuum packed primals, to effect tenderisation. The toughness of meat decreases, quickly at first and then more slowly, due to naturally occurring enzymes in the meat resulting in protein breakdown and a weakening of the muscle structure.

The rate of muscle cooling within the carcase post-mortem is not uniform, even within the same muscle: the centre of a muscle can take a lot longer to cool than the outside edge of a muscle, and the position of a muscle within the body will also determine how quickly and to what degree chilling will take place.

Rapid or blast chilling – as low as -30°C for 30 to 90 minutes – can reduce evaporative weight loss and improve some aspects of carcase quality. However it can also lead to a phenomenon called cold shortening and, unless chilling follows electrical stimulation or pelvic suspension, a reduction in meat tenderness will probably occur.

Shortening and its effect on meat tenderness

Muscle will attempt to shorten if it goes into rigor mortis below about 10°C (called cold shortening) or above 20°C (called hot shortening).

a. Cold shortening

This phenomenon occurs when the muscles are cooled too rapidly after slaughter, while still in a pre-rigor mortis condition. This causes the contractile elements of the muscle fibres to shorten, which results in a very appreciable reduction in the tenderness of meat.

b. Hot shortening

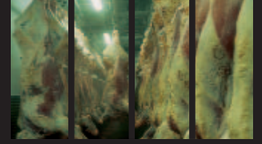
Hot shortening generally produces a lesser shortening and reduction in meat tenderness in comparison to cold shortening.

Electrical stimulation (ES)

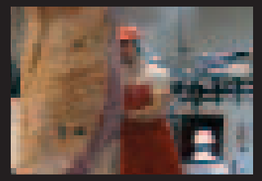
The application of an electric current to the carcase following slaughter lowers pH more quickly. The effect is to hasten the onset of rigor mortis in the carcase. Electrical stimulation not only prevents cold shortening but can cause an early tenderisation port mortem, so it can be used to reduce the ageing period – while still producing tender meat.

Chill room temperatures are regularly checked

As well as managing the animal prior to and during slaughter, the plant staff must be diligent with meat post-slaughter



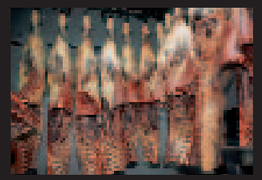
Skilled, safe and efficient



Evisceration involves the skilled removal of the intestine of the animal. This is done as quickly as possible after slaughter to avoid the risk of cross – contamination

The hide is mechanically removed from the beast and facilitated by two members of the plant's team whose responsibility it is to assist by making small strategic cuts whilst avoiding making any 'tears' to the fat or muscle

Visual as well as administrative checks are made throughout the slaughter process to ensure traceability and hygiene



At this plant, initial butchery can be carried out before the meat is onwardly transported. This will be to a specification provided by the customer

Scottish processors participating in the Quality Meat Scotland scheme employ highly trained, highly experienced staff that understand and are proud of their role in producing the highest quality product for their customers.

Efficiency, quality of staff, and constant emphasis on achieving and exceeding standards are the watchwords of the Scotch meat processing industry. Despite the unique nature of their operation, production at the plants is a model of speed and efficiency. Each week the abattoir will decide how many animals it needs and the procurers will go and buy that number, preferably spreading the intake evenly over the week. Some abattoirs also run farms of their own, breeding, feeding and finishing their own cattle or sheep.

It is vital that the exacting standards and industry demands are consistently met, all Scottish plants work closely with the Meat Hygiene Service and each is visited by an independent inspector on behalf of Quality Meat Scotland four times a year, including unannounced visits.

The strict requirements begin from arrival into lairage where animal welfare trained staff – both the hauliers' and the plant's – unload the animals. Here the animals, in their farm groups for familiarity and to prevent stress levels unduly rising, settle down after the journey. The abattoir's lairage manager ensures all animals are signed in and their passports checked off at reception and then safely segregated off by farm. Most plants receive animals from several different farms in a day and are capable of holding a number of animals in lairage.

Timings are critical: operators have only 60 seconds from the point of stunning to 'stick' each animal. From then on, highly skilled operators set to work in a seamlessly efficient series of stations to prepare the carcase for chilling. Each operator will be proficient in one or more station, requiring differing skills and abilities. The other key timing is that evisceration must have been actioned within 45 minutes of slaughter. After a final passport check each side of beef or lamb carcase is arranged uniformly in the anti cold shortening chiller.

Officials from the Meat Hygiene Service, the enforcing industry authority, thoroughly check the head, liver, tongue and pluck for contamination and procedures ensure that the head and body relating to these organs can be instantly identified in case of any issues. Likewise the vet is on site until the last animal of the day is killed and all abattoir staff are actively encouraged to closely scan the animal for any signs of cross-contamination. Attention to detail is so thorough that even the temperature of the knife sterilisation baths is checked as part of the quality assurance scheme and a day's clean down takes the best part of six hours.

Leaving their mark – traceability continues throughout the abattoir process

plate.kitchen.butcher. abattoir.farm.

Commitment to excellence begins here, on the farms, hillsides and pastures of Scotland, where Scotch Beef and Sheep farmers are dedicated equally to the welfare of their animals and to producing meat of the very finest, consistent quality.

In this section:

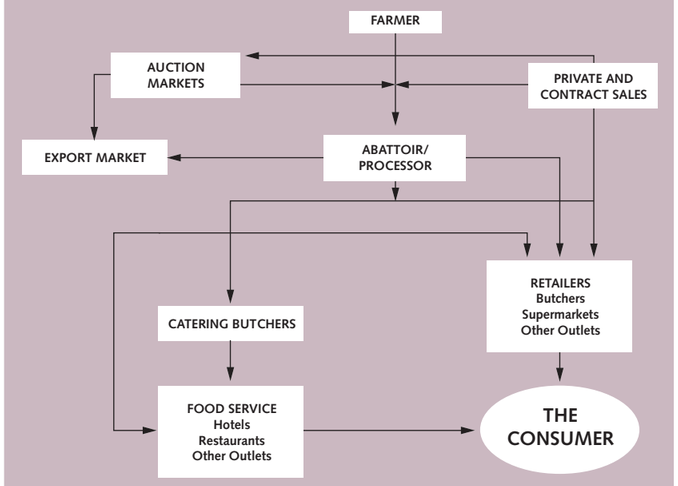
At the top of the supply chain

The farm is the vital first stage in the supply chain, and from the day the animal is born, key decisions are made here that will, during the course of its life, define the eating quality of its meat.

Quality Meat Scotland recommends that where at all possible, a chef should visit a farm to fully understand the importance of the farmer's role in the supply chain.

Quality Meat Scotland and Scotland's farmers are tirelessly committed to close adherence and constant review of the very best farming practices:

The supply chain of Scotch Beef and Scotch Lamb illustrated (from Farmer to Consumer)



- Feeding and management to achieve constant and acceptable growth rates
- Careful handling and transportation of animals
- Minimising mixing of unfamiliar animals
- Avoiding growth checks
- Avoiding slaughter soon after diet changes

Why animal welfare is good for meat quality as well as for the animals

Meat quality and subsequent shelf life can be affected by respect for the animals' welfare, in particular careful handling and transportation immediately prior to slaughter.

Stress triggers the release of hormones such as adrenaline into the bloodstream, stimulating the metabolism of muscles and ultimately meat quality problems in the carcase. There are three main factors that increase the amount of stress:

- Social, for example the mixing of groups of animals, leading to disruption of hierarchy and potential bullying
- Environmental, such as extremes of temperature
- Physical, which includes stresses imposed during movement, transportation and slaughter

What influence does breed have on meat?

There is considerable debate on the relationship between breed and eating quality. The majority of studies on beef have been carried out on cross-bred animals and tend to show small and/or inconsistent differences. However, significant differences have been found when evaluating beef from pure-bred cattle.

In Plate, fat is looked at in detail in the context of flavour delivery and nutrition, page 13

Scotch Beef Aberdeen Angus is renowned for providing meat that satisfies all three consumer demands of tenderness, flavour and juiciness

QMS INSIDE KNOWLEDGE

Who's the bos?

The majority of cattle grown in Scotland are from the group called **bos taurus**, which comprises both beef cattle and dairy breeds which are suited to European climates. Another group, **bos indicus** or oriental cattle, which have evolved to be able to withstand intemperate climates, are commonly grown in parts of South America and parts of Australia. **Bos indicus meat is generally accepted to be less tender than bos taurus,** deemed to be the result of the former's slower growth rate.

Source: Factors affecting beef eating quality, Quality Meat Scotland, 2004

Suffolk sheep…

…Belted Galloway cattle

The Black-face is one of Scotland's most prevalent sheep breeds

NOTE: Although Charolais, Limousin and Simmental are called 'continental' breeds they have been used in Scotland for decades to improve yield and productivity. These three breeds are successful meat producers and their characteristics complement well those of the traditional breeds. Other traditional Scottish cattle breeds such as Galloway, Luing and Shorthorns are available as pure or cross-breeds.

What's in a breed?

The majority of Scotch Beef and Scotch Lamb is sourced from a number of breeds which have over time, proved their ability thrive in the climate and conditions of Scotland's hillsides and pastures. For cross-breeding, a pure-bred sire is required. Some of the most popular breeds are briefly described below.

SHEEP

Scottish Blackface sheep are a traditional Scottish breed and are mainly farmed on the Scottish hills and mountains. Naturally hardy, they live and forage outdoors all year.

Cheviots are white faced sheep from the Scottish Borders, developed to graze hill pastures. Their faces and legs are covered in a fine, hard hair. The fleece is dense and firm. The rams may be horned, but the females are hornless. The Cheviot and its larger relation, the North Country Cheviot, which is farmed mainly in the Highlands, are hardy sheep which live outside all year.

Scotch Mule ewes are crosses sired by Bluefaced Leicester rams out of Scottish Blackface ewes. They are one of the main lamb producing females in Scotland.

Suffolk sheep are the most popular terminal sire breed in the UK. Their progeny, bred from lowland ewes, are early maturing, thanks to their ability to speedily convert milk and grass into meat.

Texel sheep originated from the island of Texel off the north west coast of Holland. Imported into the UK in the early 1970's, they are now the second most popular terminal sire breed. Texels cross well with Scottish breeds to produce lean carcases with excellent conformation.

Most lambs are born from March to May and are ready for processing from June onwards. Easter lambs are born in December.

CATTLE

Aberdeen-Angus cattle – one of the favourites with caterers, originated in North East Scotland, but can be found worldwide. In Scotland, Aberdeen-Angus bulls are widely crossed with other cattle breeds, producing a nice marbled meat, full of flavour.

Charolais cattle came from France and are popular in the UK thanks to their ability to grow quickly and produce more muscle as a result of larger bundles of muscle fibres.

Limousin, also originally from France, have been popular in the UK since the 1970's. Limousin is now the most popular cattle breed and gives a more delicate meat due to thinner "muscle" fibres and marbling.

Simmental cattle were imported from France, Switzerland and Germany in 1970. Originally bred in Europe for meat, milk and work, UK Simmentals are now bred exclusively for beef production.

Highland cattle are the distinctive hairy, long-horned, native Scottish breed. Their outstanding hardiness enables them to thrive where other breeds would fail. Pure Highland beef satisfies a niche market, thanks to its flavour, marbling and succulence.

Most beef produced in the UK is from crossbred cattle (90%). They grow quickly, and reared properly they give high quality beef.

Variety is the spice of life

Quality Meat Scotland is committed to developing recognition of the qualities and value of Scotch Beef and Scotch Lamb from both traditional and more rare breeds of Scottish stock. Why not **delight your customers by serving them with meat from these rare breeds – how does 'Hebridean Scotch Lamb Shank' or 'Belted Galloway Scotch Beef Sirloin' sound?** Probably interesting to your customers! Many of these animals have evolved to thrive in different environments and conditions which in turn instil enhanced, varied and often unique eating qualities. Although rare breed population growth is modest, consumer awareness and appreciation continues to increase. More importantly for you, consumer understanding and acceptance of the premium prices will increase, offering greater profit potential.

The rare breeds

Both beef and lamb have rare breed 'status'. Here are the Scottish rare breeds to look out for that are currently on the annually updated Rare Breeds Survival Trust (RBST) watchlist:

SCOTCH BEEF	SCOTCH LAMB
Belted Galloway – minor	Hebridean – minor
Shetland – minor	Shetland – minor
	Soay – minor

The chef's role in breed heritage

The chef – in conjunction with accredited butchers – is key in driving this message to the general public and to continuing these more obscure breeds. A significant number of top restaurants and chefs are already enjoying and promoting the benefits of meat from rare breeds and Quality Meat Scotland and RBST encourage you to champion the variety and quality such products offer.

A list of the accredited butchers and more rare breed information can be viewed by logging onto **www.rbst.org.uk**

Hebridean is an ancient and native Scottish sheep. A rare breed, this pure bred lamb produces a distinctive and exceptional flavour

NOTE: Breeds offer only a potential for quality, as grape variety does for wine. Scotland is famous for its traditional breeds but more importantly, Scottish farmers are known for their experience as they will know what is the best breed or cross-breed for their pasture and ways of working.

FARM – THE ROLE OF DIET IN ULTIMATE FLAVOUR

The role of diet in ultimate flavour

Scotland's unique mix of environment and natural grazing ensures great-tasting meat

The composition of the diet influences the products of digestion and hence meat odour, flavour and fat characteristics (and thereby eating qualities).

Within reason, there are only a handful of possible options for the farmer but in conjunction with handling, growth and general good husbandry, the meat can vary quite considerably.

For Scotch Beef, Quality Meat Scotland has published the following conclusions:

- Scotch Beef from grass fed animals may develop off flavours more rapidly than Scotch Beef from grain fed animals. Grass and grass silage fed animals generally produces a better quality of meat in terms of colour and lipid oxidation (rancidity) compared with beef from concentrate fed animals
- Feed can alter fatty acid composition, flavour and oxidative stability of meat. Forage based feeds tend to give higher levels of n-3 polyunsaturated fatty acids and conjugated linoleic acid and lower saturated fatty acid concentration in Scotch Beef
- Scotch Beef from pasture fed cattle has a lower ratio of n-6/n-3 polyunsaturated fatty acids than Scotch Beef from steers fed on concentrates

For Scotch Lamb, Quality Meat Scotland has published the following conclusions:

- Grass or forage fed Scotch Lamb has a more intense lamb flavour than grain fed Scotch Lamb
- Grass feeding increases muscle n-3 polyunsaturated fatty acid concentrations and improves flavour
- Concentrate feeding can produce 'abnormal flavours' probably due to low n-3 and higher n-6 polyunsaturated fatty acid concentrations
- Diets containing high levels of cereals can lead to off flavours and soft fat. If cereals are used they should be used whole not rolled or processed
- Grass fed Scotch Lamb has similar vitamin E levels to those in lamb fed a concentrate diet
- It has been suggested that 12 hrs feed withdrawal prior to slaughter may benefit eating quality
- For grass and foraging based diets, it is beneficial to assess vitamin and mineral levels and supplement as necessary

Source: Factors affecting eating quality, Quality Meat Scotland, 2004

A key responsibility of the Scotch Beef and Scotch Lamb farmer is to provide the right diet for the health and well-being of his animals, aligned with a commercial consideration for the final flavour of the meat. Although feed does have an effect on flavour and may affect the oxidative stability of meat (and therefore shelf life), it has little or no effect on tenderness.

Quality Meat Scotland farm assurance scheme

For more information about the complexity and diversity of controls at each stage of the supply chain, visit **www.qmscotland.co.uk**

Throughout the Scotch supply chain, comprehensive assurances ensure that the best quality product is available to the consumer, and that begins at the farm.

Scotland's red meat industry was one of the first to answer the market needs for offering assured products. For Scotch Beef and Scotch Lamb, Quality Meat Scotland has created specific farm assurance standards of its own which are developed by the industry for the industry.

On-farm assurance is independently audited to EN45011 standards

The Standards Setting Committee for the Cattle and Sheep Scheme consists of seven farmers on whose knowledgeable and experienced shoulders rests the establishment and upholding of required assurance measures. Industry organisations are actively invited to suggest changes and improvements and, if appropriate, they are presented to the Quality Meat Scotland Board. Assurance does not stop at the farm – the entire supply chain is closely assessed and managed.

TRACEABILITY ON THE FARM

Traceability starts right after birth when calves are tagged with a unique ID number, referencing where the animal is being kept. This number is sent to the British Cattle Movement Service (BCMS) and a passport for each animal created that includes data such as the sire, breed and farm assurance status and a barcode is created so, like ours, the passport can be read electronically. This passport will stay with its animal throughout its life and will play a fundamental role in its future – without this passport, the animal cannot be moved from the farm, sold, slaughtered or butchered.

Scotland's comprehensive assurances of quality and provenance begin at the farm

FARM – QUALITY MEAT SCOTLAND FARM ASSURANCE SCHEME

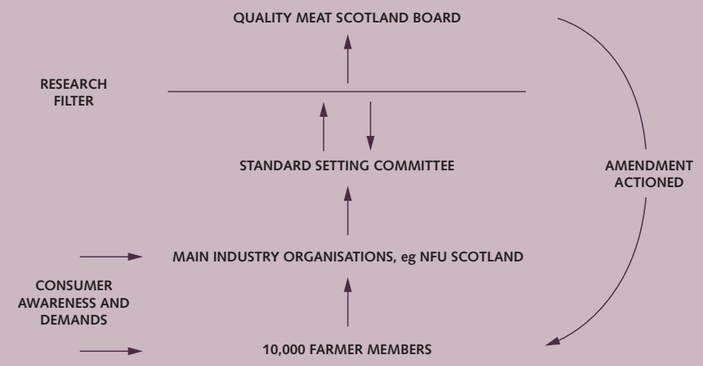
Where amendments are made it is largely due to one of four circumstances:

- Changes in legislation – generally consumer driven but constantly under evolution
- Industry best practice improvements
- Changing consumer needs – with food interest and knowledge ever developing, the consumer will continue to be the main driving force
- Changes that are of benefit to the industry and consumer confidence

Commercially it is very much in the farm's best interests to apply and achieve assured status. An assessor will inspect all businesses on an annual basis to ensure best practice continues and a number of spot inspections are also carried out each year.

It is in Scottish livestock farmers' best interests to achieve Quality Meat Scotland Assured status

How assurance standards are set for all stages of Scotch Beef and Scotch Lamb production



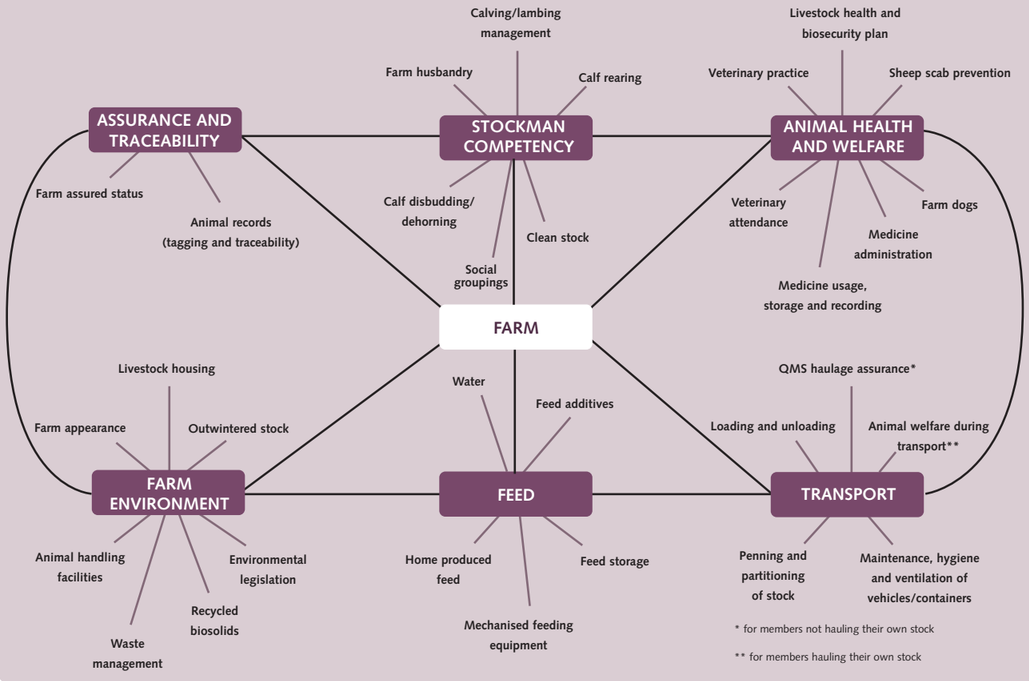
Scotch assurance: comprehensive and progressive

Stress-free transportation and handling shows respect for the animal and delivers finer meat

Through all stages of the animal's lifetime, significant processes and practices are adhered to and monitored to ensure the best quality of life and superior final product to your consumers. This chart shows how rigorous and fundamental the Scottish scheme is.

Animal welfare from calving to slaughter, is a priority to all involved in the industry

Portfolio of disciplines that are required to attain farm assurance



Scotch provenance

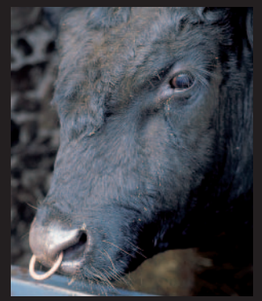
The power of the consumer can be seen in the treatment of 'Scotch Status'. Until recently it had been possible to call an animal 'Scotch' so long as it was only finished and slaughtered in Scotland. From Summer 2004, beef and lamb can only be labelled Scotch after it has fulfilled a number of regulations, all of which are thoroughly monitored and enforced by Quality Meat Scotland. The animals must be born and reared for the entirety of their lives on a farm that is part of an Assurance Scheme recognised by Quality Meat Scotland. In addition they must be slaughtered and dressed in Quality Meat Scotland approved abattoirs. Only meat which complies with all the above can be labelled and sold as Scotch, providing chefs with an absolute reassurance of its provenance.

QMS INSIDE KNOWLEDGE

Animals born in Britain, but outside of Scotland, are of course still able to be reared on a Scotch farm and slaughtered in a Scottish abattoir but, as the new legislation comes into practice, the meat from these animals will need to be clearly labelled to differentiate from the true Scotch products, for example 'British'.

Consumers are increasingly concerned about the source of the food they are served: chefs can have complete confidence in the provenance of Beef and Lamb labelled 'Scotch'

Only the best of nature's playground



The key to the unique quality of Scotch red meat is the farm's pasture land, the farmer's care and attention and the animals' overall welfare

It is in the beautiful countryside and often remote farms of Scotland that the story of Scotch Beef and Scotch Lamb begins: a story that starts with a passion and respect to produce the best in the world.

Scotland's farmers are justifiably proud to be at the top of the supply chain that produces two of the world's great products. Their passion for Scotch Beef and Scotch Lamb, both as producers and consumers, is unsurpassed. The farmers are part of a supply partnership in which every link depends on the other to maintain quality, so they have excellent relationships with the abattoirs they supply and all are part of Quality Meat Scotland's Farm Assured Scheme. Every year inspectors, independent from Quality Meat Scotland, visit each farm, carefully checking and supporting procedures in terms of husbandry and paperwork.

The recently introduced passport system is viewed by Scottish farmers as a major innovation, which adds provenance and reassurance to their product reinforcing their product integrity further. For generations, Scottish stockmen have used their knowledge and experience to breed, cross-breed and raise the finest beef cattle and lambs in the world, and today's farmers use their expertise to ensure that their stock's breeding and environmentally sound feeding regimes continue to produce the superlative products that are unique to Scotland.

A key moment for all farmers in the life of their stock is the move to the abattoir and so the way the beasts are selected, transported and handled on arrival at the abattoir by the staff is fundamental to delivering only the finest end product. But of course none of this happens until the animals are checked for having two ear tags and that these correspond to the passport, an assurance requirement that ensures traceability continues along the supply chain.

With thanks to Willie Ritch of East Fingask Farm, Aberdeenshire

" You don't get bored of eating good Scotch Beef, we have it two or three times a week and we feel especially good if it's ours from the local butcher", **Willie Ritch**

Like all Scotland's cattle and sheep farmers, Willie Ritch is completely dedicated to his herd

The Scotch Beef Club

HRH The Princess Royal – Princess Anne is the president of the Scotch Beef Club

Membership is something to aspire to. London's Mandarin Oriental Hyde Park is on the books

Re-launched in 2004, the Scotch Beef Club is not restricted to Michelin starred establishments or high profile venues. It is looking for members who embrace best practice and high levels of service and who wish to promote Scotch Beef because they know and believe in its outstanding quality. In return for this commitment members will be able to nominate young chefs or trainees, the stars of tomorrow, to come to Scotland and take part in a Scotch Beef Academy visit which will begin on the farm and will follow production and processing and show how breeding, feeding and handling really make a difference to ultimate meat eating quality.

Quality Meat Scotland aims to ensure that members of the Scotch Beef Club will be better informed about the meat they serve, will ask more of their suppliers and will, in turn, offer more information to their customers.

Firstly exceptional British establishments have been contacted and have agreed to become founder members. They have been selected for their commitment to Scotch Beef and traceability of products, for the high level of service to their clientele and their inspirational culinary expertise which is openly recognised by their peers.

Adam Street • Auberge du Lac • Chewton Glen • Cliveden • Heathcotes • One Aldwych • Intercontinental • Le Gavroche • Langan's Brasserie • Le Manoir • Le Talbooth • L'Ortolan • Mandarin Oriental • Merchants • Paris • Sharrow Bay • Slaley Hall • Star Inn • The Bentley • The Capital • The Connaught • The Guinea Grill • The Hare and Hounds • The Landmark • Waterside Inn • Winteringham Fields, are among the founder members.

How to apply for membership?

Firstly can you answer "yes" to the following 5 questions?

1. Is the origin of meat important to you and your clientele?
2. Do you currently purchase Scotch Beef?
3. Do you identify Scotch Beef on your menu?
4. Do you offer at least one Scotch Beef dish on the majority of your menus?
5. Do you want to know more about meat?

If you have answered yes then you need to email the following details to:
sbf@restaurantmagazine.co.uk

Name • Establishment Name • Address • Town • Postcode • Tel No • Email address • and finally current Scotch Beef dish on menu

Membership application packs will be sent to you directly from Quality Meat Scotland. Alternatively please contact Quality Meat Scotland directly for further information and membership details. Applications will be considered on merit and up to 20% of establishments will be subjected to a random traceability audit each year.

www.scotchbeefclub.org

Scotch Butchers Club

The Scotch Butchers Club is run by Quality Meat Scotland and is aimed at increasing the stockist availability for Scotch Beef and Scotch Lamb and in turn increasing sales, giving increased product demand.

Membership is open to any independent retailer sourcing beef and lamb from an approved supplier, and can confidently label product "Scotch". A small membership fee offers the opportunity to drive business and look forward to increased sales through this marketing advantage.

The benefits of being a member of the Scotch Butchers Club to an independent retailer include:

- Having a unique selling point – the Scotch brand
- For Scotland's butchers, the advertising campaigns which back the promotions and the recognition of "Glen", the Scotch Beef personality
- For English butchers, the caché of selling highly regarded Scotch Beef and Scotch Lamb as a niche market
- Inclusion in the Scotch Beef Guide (pictured right) with wide circulation around the country
- Four professional campaigns each year linked to seasons (e.g. BBQ, Christmas) with a consumer campaign linked to each
- Promotional material provided at any time at no extra cost including a range of useful and practical recipe cards
- Framed membership certificates provided which can be displayed prominently in your shop
- The opportunity to provide catering customers with framed certificates stating that the Scotch Beef and Scotch Lamb provided by them is sourced from a Scotch Butchers Club member
- The opportunity to have the shop merchandised with Quality Meat Scotland material and training given to shop staff on the benefits of Scotch
- Top quality material such as carrier bags available to buy at discounted rates
- Support for local advertising
- The opportunity to take part in two of the largest consumer shows in the country – the Royal Highland Show and the BBC Good Food Show
- Advice and help on legislation
- Training sessions and the opportunity to buy training materials
- An invitation to take part in the Scotch Meat Challenge event, which is the largest gathering of butchers in Scotland

If you want more support and recognition from your status as an independent butcher, please enquire about membership of the Scotch Butchers Club. Simply call June Lomax on 0131 472 4114 or email **jlomax@qmscotland.co.uk**

If you would like a list of all current members, please log onto **www.qmscotland.co.uk**

Ask for a copy of the Scotch Beef Guide!