

**National Quality Policy Report:
The United Kingdom**

James Northen, Spencer Henson and Jim Burns

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QUALITY POLICY AND CONSUMER BEHAVIOUR TOWARDS FRESH MEAT

Project coordinator:

Tilman Becker

*Institut für Agrarpolitik und Landwirtschaftliche Marktlehre,
University of Hohenheim*

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Section I

Introduction

This report is one of six national reports prepared by participating countries in the EU funded project 'Quality Policy and Consumer Behaviour' which is co-ordinated by Professor Tilman Becker of the University of Gottingen, Germany. The participating countries are:

1. Germany
2. United Kingdom
3. Ireland
4. Italy
5. Sweden
6. Spain

The aim of this report is to present the findings from research into the national quality policies for cattle, pigs and chickens pre-slaughter, and for fresh beef, pork and chicken post-slaughter in the United Kingdom. The report is mainly descriptive in nature; an analysis of quality policy in the partner countries will be carried out in Summer and Autumn 1997.

Section II of the report focuses on the background to quality policy, specifically: the structure of the fresh beef, pork and chicken supply chains in the UK, the key features of the structures, and the major quality policy issues which have had an effect on the market and influenced quality policy for each of the three meats. Section III summarises the institutional forms involved in quality policy. Section IV presents the quality policies, both public and private which are in place within the three sectors, in terms of policy relating to product only, process only, and product and process quality. In conclusion, Section V highlights the key factors associated with quality policy for the three meats in the United Kingdom.

Section II

Industry Structure and quality policy issues

2.1. Overview

Food and Drink in the National Economy

Table 1 gives data on the importance of the UK's food sector and its main components in Gross Domestic Product (GDP) terms. The sector as a whole declined in significance between 1984 and 1994, the decline being particularly severe at the farm level, while manufacturing and catering have maintained their previous levels.

Table 1: Contribution To GDP 1984 and 1994

Contribution to GDP %	1984	1994
Agriculture	2.1	1.4
Food and Drink Manufacturing	3.0	2.9
Food Distribution	3.0	2.6
Catering	1.8	1.9
Total Food Sector	9.8	8.8

Source: MAFF (1996^a)

2.1.1. Supply by Source

Overall supplies of the three meats covered in this report, including stock changes, are shown in Table 2. While total combined supplies have risen by more than 20% between 1980 and 1995, poultry has grown by over 100% during the period and pork by 10% while beef supplies have fallen by 25%. Hence while in 1980 beef accounted for 45% of the total supplies of these three meats, with poultry making up 29% and pork 26%, by 1995 poultry had risen to 49% of the total, pork edging down to 23% and beef falling to 28%.

Table 2: Meat Available for Consumption 1980-95 ('000 tonnes, carcass weight)

	1980	1985	1990	1991	1992	1993	1994	1995
Pork	707	709	768	781	778	814	806	763
Beef and Veal	1200	1132	997	1014	999	903	920	895
Poultry*	762	902	1091	1331	1422	1481	1561	1581
Total Supplies	2669	2743	2856	2908	2953	2876	2968	3239

*Revised figures from 1991 onward.

Source: MLC (1996^a) and MLC (1997^a)

2.1.2. Farm Production

In agriculture, livestock production makes up a significant part of the farming industry with the pork, beef and chicken sectors accounted for almost 30% of the value of UK farm output in 1995 (including subsidies [non-BSE] on beef). However, in 1996 the loss of sales from cattle and calves, especially exports, due to the problems resulting from BSE have cut back the returns to just over one quarter of farm output (before BSE compensation and over thirty month scheme).

Table 3: Value of Livestock Production 1995 and 1996 (Provisional)

	1995 (£m actual)	1996 (£m provisional)
Cattle & calves [<i>including subsidies, except BSE compensation and over thirty month scheme</i>]	2098 [2614]	1288 [1962]
Pigs	1153	1316
Poultry	1325	1497
% of total UK farm output	26 [29]	23 [26]

Source: MAFF (1997^a)

2.1.3. Meat Industry

Relative Size of Meat in UK Food Industry

Meat production, processing and preserving (Group 15.1 in the SIC 1992 Revision) is one of the largest groups within the UK food and drink industrial division, in 1993 accounting for 20.2% of total industry employment, 16.7% of sales, and 13.9% of gross value added (Office of National Statistics, 1997^b). Previously published statistics (Business Statistics Office, 1994) suggest that in 1992 the meat slaughtering & processing industry (based on the SIC 1980 Revision) spent above average for the food and drink industry on labour and below average on capital (expressed as a proportion of gross value added). With 1460 businesses in 1993, the meat group is the most numerous now specified, although the bread group (not identified separately in SIC 1992) is likely to have more businesses within the group. The meat slaughtering & processing industry in 1992

was amongst the least concentrated in terms of five-firm concentration ratios (Business Statistics Office, 1994) or of Herfindhal Indices (Ennew and McDonald, 1995).

2.1.3.1. Slaughtering/Processing

Over the past 15 years slaughtering volume has presented a contrasting picture across the three meats in this study. Poultry slaughtering would appear to have risen by 100% between 1980 and 1995, although the recent substantial revisions to the 1991 and subsequent figures make long term comparisons hazardous. Pork slaughtering also rose but by a modest 14%, but beef slaughtering declined by more than 11% over the period.

Table 4: Slaughtering Production ('000 tonnes, carcass weight)

	1980	1985	1990	1991	1992	1993	1994	1995
Pork	685	718	740	778	781	801	827	782
Beef and Veal	1102	1155	1001	1010	960	859	916	974
Poultry*	754	867	1027	1289	1319	1399	1470	1510

*Revised figures from 1991

Source: MLC (1996^a) and MLC (1997^a)

The overall picture of carcase meat slaughtering (beef, lamb and pork) is of approximately constant throughput, with declining abattoir numbers leaving an increasing average size of those that remain. It is estimated that total abattoir numbers had fallen from over 1500 in 1975/6 to around 500 in 1996, with the largest 70 accounting for 85% of the throughput (Bansback, 1996). Chicken slaughtering continues to be dominated by large scale vertically integrated organisations.

In volume terms, under 40% of the total market for meat in the UK is for carcase meat, while over 60% the total market is for meat in further processed or catered forms. The processed sector accounts for in excess of one-third of this total meat market, amounting to some 1.4m tonnes of meat in 1995.

2.1.3.2. Slaughtering and Processing Companies

A major change in the industry structure has been the withdrawal from slaughtering of larger companies, especially in England, such as two leading companies in the early 1990s: Hilldown Holdings and The Sims Group. The industry has for years been typified by first stage low-

margin commodity production bedevilled by excess capacity, but problems were exacerbated in the 1990's by the need to comply with the EU Fresh Meat Directive, initially by the beginning of 1993. Major companies undertook large investment programmes in order to meet the requirements of the Directive, only to find themselves financially disadvantaged by derogations which have allowed non-complying operators to continue. Hence many have withdrawn to second stage processing of value added products or to specialist production or distribution.

2.1.4. Retail Sales

Broad structural changes that have occurred in food retailing show the decline of small grocery and most specialist retailers, including butchers, many of whom have gone out of business; and the rise of the large grocery multiples who have grown organically or by merger and acquisition, and in the process closed small outlets and opened superstores (outlets in excess of 2,500 sq m). Superstores numbered 1017 in 1995 (Institute of Grocery Distribution, 1996) and account for around one-third of UK food retailing. The importance of major multiple grocers in the grocery trade has continued to grow in the 1990s, with the top two vying for supremacy and tending to draw away from the rest.

Table 5: Market Shares: Grocery Multiples & Discounters

	1987 (Dec) %	1990 (Dec) %	1993 (Dec) %	1994 (Dec) %	1995 (June) %	1995 (Dec) %	1996 (June) %
Tesco	8.4	10.0	10.7	11.7	11.7	13.7	14.2
Sainsbury	10.0	11.3	12.4	12.6	12.6	12.5	12.3
Safeway	6.8	7.3	7.7	7.8	7.8	7.5	7.7
Asda	4.9	7.0	6.7	6.7	6.9	7.4	7.7
Somerfield	7.6	5.2	4.4	4.4	4.5	4.3	4.2
Total 5	37.9	40.8	41.9	41.9	43.5	45.4	46.1
Kwik Save	2.0	2.8	4.2	4.2	4.1	4.3	4.3

Source: The Grocer (1997)

In addition to those stores shown in Table 5, the IGD's top ten stores include, Marks and Spencer food operations in the UK (3.2%), Wm Morrison (2.5%), Waitrose (1.8%) and Iceland (1.7%), giving a ten-firm concentration ratio (CR10) for 1995 (December) at 58.9% of the £78.2bn retail grocery market. This compares with a CR10 of 51.5% in 1990. The IGD data excludes the Co-op, which taken as a whole is estimated with 6.7% in 1995.

2.1.5. Wholesaling

With the increasing links between large slaughterers and multiple retailers, the traditional wholesalers have declined in function and numbers.

2.1.6. Consumer Demand

In real terms, UK food household consumption grew only slowly over the period 1985-1995, averaging a little over 1% per year, while meat and bacon failed to reach 1% pa. By comparison, consumers' total spending on all goods and services rose by almost 3% per year. While meat remains the largest single category in consumers' current household expenditure on food, its proportion has been declining over many years, representing 22% in 1995, in comparison with almost 26% in 1985.

In terms of all forms of consumption, the UK total meat market in 1995 amounted to 3.9m tonnes carcase weight, of which some 2.9m tonnes represented household consumption and the remaining 1m tonnes representing catering sales. At around 65 kg/person/year total meat consumption, the UK lies in the lower band of international consumption levels across developed countries, approximately two-thirds of that found in Germany, Spain, Ireland, and little over half that of the

USA or France. However the total consumption has been in slow decline over the 1990s after some modest increases from 1975 to 1990.

2.2. Pork

2.2.1 Supply by Source

Pork availability has increased steadily since 1980, with slaughtered production in 1995 some 15% above the earlier figure. While the cyclical nature of supply makes individual year comparisons limited in value, the general trend has been upward.

Table 6: Meat Balances: Pork 1980-95 ('000 tonnes, carcass weight)

Pork	1980	1985	1990	1991	1992	1993	1994	1995
Slaughtered Production	685	718	740	778	781	801	827	782
Imports	39	34	77	80	91	115	111	131
Exports	17	43	49	77	95	100	133	150
Supplies Available for Consumption (including stock changes)	707	709	768	781	778	814	806	763

Source: MLC (1996^a) and MLC (1997^a)

The pork position on supplies in 1996 is forecast to show some improvement on 1995, with an upswing in production to meet a certain degree of switching from beef in the home market.

Table 7: Meat Balances: Pork Forecasts for 1996 and 1997 ('000 tonnes, carcass weight)

	1996	1997
Slaughtered Production	801	825
Imports	147	147
Exports	146	142
Supplies Available for Consumption (including stock changes)	806	826

Source: MLC (1997^a)

2.2.2 Farm Production

At the beginning of the 1990s pig production had fallen from the generally higher levels in the 1980s, but up to 1994 had staged a steady recovery. At that stage lower prices and profitability turned numbers down again, but 1995 saw another upturn. The well known influences of the 'hog cycle' are apparent, although the latest rise in prices and sales in 1996 is clearly influenced by consumers switching from beef.

Table 8: Pig Numbers ('000 head at June)

Pigs	1985-7 average	1990	1991	1992	1993	1994	1995	1996
Total Pigs	7917	7450	7597	7609	7754	7882	7534	7496
Breeding Herd								
<i>of which sows in pig</i>	716	660	678	672	687	680	644	639
<i>gilts in pig</i>	109	109	107	108	115	102	100	105

Source: MAFF (1997^a)

The increasing scale of production is apparent in the size of breeding and fattening herds. In 1990 75% of breeding pigs were in herds of 100 and over, and by 1996 this proportion had risen to 83%. For fattening herds 65% of the total in 1996 was in herds of 1000 pigs or more compared to 58% in 1990.

Table 9: Farm Enterprises: Pig Size Distribution ('000)

Pig Breeding	1990		1996	
	No. of holdings	No. of livestock	No. of holdings	No. of livestock
Herd Size				
1-49 breeding pigs	9.0	96	6.3	61
50-99	1.4	97	0.9	63
100 and over	2.3	573	2.1	618
Total	12.6	766	9.3	742
Average size of herd		61		80

Source: MAFF (1997^a)**Table 10: Farm Enterprises: Pig Fattening Size Distribution ('000)**

Pig Fattening	1990		1996	
	No. of holdings	No. of livestock	No. of holdings	No. of livestock
Herd Size				
1-199 fattening pigs	8.1	360	5.7	232
200-999	3.1	1511	2.7	1368
1000 and over	1.2	2640	1.3	2979
Total	12.3	4511	9.8	4579
Average size of herd		367		469

Source: MAFF (1997^a)

2.2.3 Meat Industry

2.2.3.1 Red Meat Slaughtering

Many of the UK's slaughterhouses are multi-purpose and this section begins with review of the general position in red meat abattoirs. In 1992/3 abattoir numbers were 40% of those operating in 1972/3, but the average slaughterhouse had a throughput two-and-a-half times as great as twenty years previously. The numbers of the small and medium-sized units have continued to fall significantly in recent years.

Table 11: Abattoirs Numbers and Size in Great Britain (April/March year)

Year	Numbers of Abattoirs	Throughput ('000 total cattle units)	Average Cattle Units per Year
1975/6	1554	12655	8150
1980/1	1135	13159	11594
1985/6	1000	13574	13574
1990/1	779	13620	17483
1991/2	709	13588	19165
1992/3	647	13205	20409

Source: MLC (1994^c)

Many of the 242 smallest operations slaughtering under 1000cu per year are connected with a retail butcher's operation (Gunthorpe, Ingham and Palmer, 1995). Over the years most of these small scale abattoirs near centres of population have been replaced by larger operations closer to farm supplies. Given suitably good temperature controlled distribution, transport costs are significantly lower for carcasses rather than live animals.

Table 12: Abattoirs: Distribution by Size of Operation in Great Britain

	Abattoir Numbers		Throughput (cattle units)			
Size in cattle units per year	1991/2	1992/3	1991/2			1992/3
			'000	%	'000	%
1-1000	261	242	97	0.7	84	0.6
1001-5000	126	122	316	2.3	323	2.4
5001-10000	79	66	546	4.0	494	3.7
10001-20000	76	71	1110	8.2	1028	7.8
20001-30000	38	31	961	7.1	773	5.9
30001-50000	52	40	2059	15.2	1606	12.2
50001-100000	47	41	3398	25.0	2904	22.0
100001 and over	30	35	5101	37.5	5991	45.4
Total	709	647	13588	100	13205	100

Source: MLC (1994^c)

Even with the recent rapid fall in abattoir numbers, excess capacity remains around 40-50% of normal production levels. This situation has arisen due to the limited impact on output of the departure of smaller operators and the improvement in efficiency by those remaining in the sector. In addition, the requirement that plants achieve EU approval by the end of 1996 prompted companies to undertake new investments, frequently enlarging capacity. Indeed many companies have seen expansion as the way to justify this capital expenditure. [Small plants slaughtering under 1000cu's are able to obtain permanent derogations from the

structural aspects of the regulations, but not the hygiene requirements. Larger abattoirs may obtain temporary derogations.]

Table 13: Numbers of Abattoirs and Percentage Throughput, 1993/4

	Plant Numbers	% of 1993/4 throughput
Closed during the year	51	4
EU approved	97	63
Temporary derogations	198	32
Permanent derogations	206	1
Total	552	100

Source: Gunthorpe, Ingham and Palmer (1995)

Changes have continued with some fifty plants closing during 1993/4; 1996 estimates put the total number at around 500, with the largest 70 accounting for 85% of the throughput (Bansback, 1996). Despite the increasing degree of concentration in the industry, the market power exercised by producers would appear to remain relatively modest. Profitability has been considered low, with especially poor margins relative to other food producers, although high labour intensity leads to relatively better returns in terms of capital employed. As will be detailed further in the section there has been a tendency for companies to withdraw from red meat slaughtering (beef, pork and lamb) and concentrate on the processing of value-added products.

2.2.3.2 Pig Slaughtering

Pig slaughtering volume over the past 15 years has risen by 14%, although with some cyclical fluctuations.

Table 14: Pig Slaughtering 1980-95 ('000 tonnes, carcass weight)

	1980	1985	1990	1991	1992	1993	1994	1995
Slaughtered Production	685	718	740	778	781	801	827	782

Source: MLC (1997^a)

However, this general increase has been accomplished with fewer and larger slaughterhouses. By 1994/5 the number of abattoirs slaughtering pigs has fallen by over 40% from 609 in 1989/90. This has become the most concentrated of the red meat slaughtering industries: the 35 specialist pig abattoirs slaughtered 65% of the total in 1994/5 and had a throughput six times the average for pig slaughterers in general. Again in 1994/5, the 68 EC approved

abattoirs slaughtering pigs accounted for 75% of total throughput. Basic overcapacity, at around 40% in 1993, is lower than other red meat sectors.

Table 15: Pig Slaughtering, 1994/5 (numbers and average throughput)

	Numbers	Average throughput per year (head)
Abattoirs slaughtering pigs	354	41366
of which specialist pig abattoirs	35	266282
EC approved	68	152063

Source: MLC (1996^a)

2.2.3.3. Slaughtering Companies

Overview Early 1990s

Despite the large number of firms and low concentration ratios, red meat slaughtering had a number of very significant companies. In the early 1990s major companies in the sector were: Hillsdown Holdings, with integrated slaughtering, processing and distribution in red meat and chicken; Northern Foods, fresh and processed meats; Union International, slaughtering, processing, storage and distribution; Hazlewoods, mainly pork; Sims, fresh meat, poultry and game; Bernard Matthews, turkey and red meat; Newmarket Foods (formerly Haverhill Meat), a bacon processor owned by Sainsbury's; Tulip International, Danish owned cooked meat and bacon company.

Developments over past 5 years

A major change in the industry structure took place when Hillsdown Holdings sold off all red meat slaughtering in 1993 and the company has continued making disposals through 1996. Its FMC slaughtering and processing operations were split, a number going to ANM (Aberdeen and Northern Marts) which had previously been primarily a wholesaler, (ANM now claims to be the largest Scottish red meat processor). Of Hillsdown's remaining slaughtering capacity another Scottish plant went to the Beck Group (Lincolnshire) and its North Devon Meat company to St Merryn. Other sections of Hillsdown's business have been subject to management take-overs, and by 1996 Hillsdown's only interest in red meats was through Fairfax Meadow Farm Ltd which processes and supplies meat to catering outlets.

Pork

In 1996 Hillsdown's pork processing business C&T Harris (Calne) was bought by Unigate to add to its Malton pig operation, to make it the biggest in the UK. Other major firms in pork slaughtering include: the Scottish company, and Grampian Country Foods. Although primarily involved in poultry, Grampian Country Foods is also a major pork processor and its red meat interests have developed rapidly in the last two years. Dalehead Food Holdings produces, processes and packages fresh meat, especially pork; and Cranswick is another significant fresh pork producer.

Processing

Bacon and ham is the most important of the processed pigmeat markets and amounts to about 350 tonnes, or one-quarter of the 1.4 m tonnes total UK processed meat market.

2.2.3.4. Pork Processing Companies

Firms in the sector are numerous, but concentration has increased and some major companies are represented. In bacon and ham, Unigate is the premier UK supplier as a result of its acquisition of Harris. This market is 60% supplied by imports, largely from Denmark and Holland, Tulip International being the leading Danish supplier.

2.2.4 Retailing

Table 16: Number of Retail Outlets by Type

	1990	1992	1995
Butchers	14,100	12,900	11,500
Retail Co-operatives	2,671	2,395	2,400*
Major Supermarkets	4,295	4,757	4,937
Independent Grocers	35,360	32,663	31,000

Source: IGD (1996)

The large multiple retailers' dominance has been achieved not only by internal growth and acquisition in the grocery market, but also through the take-over of specialist retailers' areas including meat. Hence, the share of fresh meat sales through major supermarket chains has increased, as has the retail concentration ratio in this commodity.

Table 17: Retail Sales by Source: Percentage of All Household Meat Purchases by Volume

<i>Sources of Total Meat Purchases</i>	1992	1994	1995
Butchers	27.8	22.0	18.9
Retail Co-operatives	3.9	3.0	2.5
Major Supermarkets	50.1	60.1	65.1
Independent Grocers	2.7	1.7	1.4
Freezer Centres	6.5	6.3	5.7
Other Retail Outlets	9.1	6.9	6.4
Total	100	100	100

Source: MLC (1997^b)

The specialist meat retailing business has also undergone major change through the lengthy rationalisation and final collapse into receivership of the leading chain owned by Union International (Dewhurst, Matthews, Baxter, etc.). From in excess of 1000 outlets in the early 1990s, the final 200 outlets in this chain were subject to a management buy-out in 1995.

Pork Retailing

Pork retailing retains a slightly higher percentage of sales through butchery outlets than is shown in the overall meat picture. Nonetheless the fall in butchers' share of the market from over 50% in 1980 to little more than a quarter in 1995 reflects the trend towards one-stop convenience shopping, price consciousness, and choice offered by the multiple supermarkets. These stores have developed both in-store butcheries, (which compete more directly with the traditional butcher), and self service pre-packed meats.

Table 18: Retail Pork Sales by Source: Percentage Shares

<i>Sources of Pork Purchases</i>	1992	1995
Butchers	35.4	27.4
Retail Co-operatives	3.0	1.7
Major Supermarkets	47.3	61.9
Independent Grocers	1.7	0.9
Freezer Centres	3.8	3.2
Other Retail Outlets	8.8	4.9
Total	100	100

Source: MLC (1997^b)

2.2.5. Trade

Trade has become much more significant in the 1990s, with the fresh pork industry typically in positive balance, with self sufficiency around 100%. (This contrasts markedly with bacon and ham, where the declining market is dominated by imports, and UK self sufficiency has remained around 40-45%). In 1995, Denmark was the largest source of pork imports in the UK, providing some 35% of the total. Exports of pork, whilst not as significant as in the beef sector, still reached some 18% of slaughtered production in 1995. EU markets took over 90% of the trade, with Germany accounting for almost half of UK exports to Member States.

2.2.6 Inter-relationships along the chain

Not surprisingly the red meat industry has a comparatively poor bargaining power relative to its major retail outlet, the leading supermarket chains. To deal with their supermarket customers, large slaughterers have vertically integrated into cutting, boning, packing, and pricing. Improved cold chains, including the use of multi- temperature transport has facilitated this development. Integrated procurement chains are more able to ensure quality, welfare and traceability requirements. Pigs are sold mostly on dead-weight contract, with very little going through livestock sales or markets.

2.2.7 Consumer Demand

General Overview

Broad trends indicate that the main meat groups have shown considerable change over the last 15 years, particularly the decline in beef to just over 50% of its 1980 consumption level, and mutton and lamb to less than 45% of that in 1980. Falls in pork, bacon and ham have been less substantial, while poultry has been a sector of continuous growth, showing a 30% increase in the tonnage consumed since 1980. The three meats in this report (fresh pork, beef and poultry) together account for 45% of the UK market for all household consumption of meat. The other main carcass meat, mutton and lamb, adds some 6% to this. The remaining market in processed meat products, including bacon and ham, currently takes slightly under half of the total household volume, but has been steadily increasing its share. In addition there is the growing catering market for meat, which in 1993 was responsible for 26% of the broader market for all meats: a rise of six percentage points over the decade since 1983 (MLC, 1994^c).

Table 19: Volume of Main Carcass Meat and Poultry, and Total Meat ('000 tons)

Household Consumption	1990	%	1993	1994	1995	%
<i>Pork</i>	253	12.8	243	235	217	11.9
<i>Beef & veal</i>	446	22.5	402	399	370	20.3
<i>Poultry</i>	676	34.2	723	699	724	39.6
<i>Sub-Total</i>	1375	69.5	1368	1333	1311	71.8
<i>Mutton & lamb</i>	248	12.5	200	165	165	9.0
<i>Bacon & Ham</i>	355	17.9	338	353	351	19.2
Total of Above Meats	1978	100	1906	1851	1827	100
Total Household Consumption of All Meat & Meat Products,				2873	2887	

Source: MLC (1996^b)

In value terms, the pork, beef and poultry total has remained a constant proportion of the five main carcass meats plus bacon and ham, but has fallen relative to all meat and products from 45% to 41% over the period 1990 to 1995.

Table 20: Value of Main Carcass Meat and Poultry, and Total Meat (£m, current prices)

Household Consumption	1990	%	1993	1994	1995	%
-----------------------	------	---	------	------	------	---

<i>Pork</i>	841	12.4	799	772	756	11.0
<i>Beef & veal</i>	1850	27.4	1870	1876	1787	26.0
<i>Poultry</i>	1727	25.6	1868	1913	1977	28.7
<i>Sub-Total</i>	4418	65.4	4537	4561	4520	65.7
<i>Mutton & lamb</i>	829	12.3	799	681	680	9.9
<i>Bacon & Ham</i>	1509	22.3	1558	1586	1677	24.3
Total of Above Meats	6756	100	6894	6828	6877	100
Total All Meat & Meat Products, including household and catering consumption	9823		10676	10708	10927	

Source: MLC (1996^b)

Table 21: Main Carcase Meat and Poultry Groups Household Consumption
(grams per person per week)

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996
Beef & veal	238	231	185	149	152	141	133	131	121	101
Mutton & lamb	120	128	93	83	86	71	66	54	54	66
Pork	78	117	98	84	82	72	80	77	71	73
Poultry, uncooked	155	182	186	211	202	216	222	209	215	233

Source: MAFF (1997^b)

2.2.8. Quality Policy Issues

2.2.8.1. Human Safety

Some consumers in the United Kingdom are deeply concerned about food safety, and have begun to question production methods both on farm and in factories. The Government has lost some credibility over perceived mis-information concerned with food safety, especially in relation to its handling of *Salmonella* and BSE. In one recent survey, responses to a question regarding attitudes to food safety indicated that 41% of the UK population did not trust government guidelines about food, and that 40% of adults are concerned about the safety of food today; of these concern appears to be greatest amongst those aged 25 years and older (Mintel, 1996).

The recent history of food scares has seen botulism in tins of salmon and corned beef (1970s and 1980s), and in the late 1980s and early 1990s, problems with E-coli in meat, *Salmonella* enteritis in poultry and eggs, and Lysteria in soft cheeses.

There have been several recent outbreaks of food poisoning within the UK fresh meat sector:

E.coli 0157

Verocytotoxic *Escherichia.coli* 0157 (VTEC) is a bacterium, growing aerobically and anaerobically, which is commonly found in human and animal intestines. Although usually a normal and harmless inhabitant of the intestine, certain strains are enteric pathogens in vulnerable groups, and in certain conditions are able to produce highly virulent toxins. One mechanism of infection is through contamination of meat for human consumption by faecal matter during the slaughter process. Relatively few organisms need to be present to cause harm in humans which, added to the severity of the disease, makes *E-coli* potentially a more dangerous form of food-borne infection than *Salmonella*.

In November 1996 an outbreak of *E-coli* 0157 was discovered in an area of central Scotland, and traced to a local independent butcher, who at the time was involved in substantial wholesale and retail trade involving the production and distribution of raw and cooked meats. The customer base of the shop was wide and complex, amounting to approximately 85 outlets. The proprietor of the butchers had claimed derogation from the Meat Products (Hygiene) Regulations 1994 and was subject, therefore, only to the Food Safety (General Food Hygiene) Regulations 1995. 496 cases of infection with *E.coli* O157 were linked to the outbreak, of which 272 have been confirmed, with 60 others probable and 164 possible. As of April 1997, there have been 18 deaths (all adults) associated with the outbreak.

The annual numbers of laboratory-confirmed cases of human infection with *E.coli* O157 in Great Britain are detailed in Table 22. Although the figures indicate a rising trend in infection, it must be recognised that the number of confirmed cases are, on the whole, dependent on a relatively small number of outbreaks, and as such it is not possible to estimate whether the number of outbreaks has increased, or just the number of infections caused in each outbreak.

Table 22: Number of Laboratory-confirmed cases of E.coli infection in Great Britain 1990-1996.

Year	Scotland		England and Wales	
	No. of cases	Rate ^a	No. of cases	Rate ^a
1990	173	3.39	250	0.49
1991	202	3.96	361	0.71
1992	115	2.25	470	0.92
1993	119	2.32	385	0.75
1994	242	4.71	411	0.80
1995	247	4.8	792	1.52
1996	488 ^b	9.5 ^c	660 ^b	1.26 ^c

^aRate of infection per 100,000 population

^bProvisional

^cProjected Rates based on 1995 mid-year population estimates

Source: The Pennington Group (1997)

The Pennington Group was formed the week after the outbreak with a remit "to examine the circumstances which led to the outbreak...and to advise on the implications for food safety and the general lessons to be learned" (The Pennington Group, 1997), as well as making priority recommendations. The recommendations are varied and cover many aspects of the meat supply chain. The most important are as follows:

- **Farms and Livestock:** Education of farm workers should be undertaken to ensure awareness of: a) existence and nature of *E.coli* O157; b) potential for spread of infection on farms, and means of spread; c) need for care in use of untreated slurry or manure; d) the absolute requirement for animals to be clean when sent for slaughter. The above measures must be enforced by the Meat Hygiene Service at abattoirs.
- **Slaughterhouses:** The Meat Hygiene Service (MHS): a) must implement its scoring system for clean/dirty animals; b) should identify and promote good practice in slaughterhouses; c) must enforce rigorously regulations regarding slaughter and subsequent handling of carcasses; d) should be given additional powers to enforce abattoir standards for the transportation of meat and carcasses between licensed and un-licensed premises; e) should target effort and resources at higher risk premises. The Hazard Analysis and Critical Control Point system (HACCP) should be legislated for, to cover slaughterhouses and the transportation of carcasses and meat.
- **Meat Production Premises and Butchers' Shops:** The government should seek to: a) have HACCP enshrined in a review and consolidation of vertical EU Directives; b) have all

of the HACCP elements negotiated within the Horizontal Directive; c) review the application of the Meat Products (Hygiene) Regulations 1994. HACCP should be adopted by all food businesses, and should be negotiated into EU and UK legislation. Pending HACCP implementation, selective licensing arrangements for premises not covered by the Meat Products (Hygiene) Regulations 1994 should be introduced by new regulations. In relation to physical separation requirements of licensing, there should be separation between raw meat and cooked meat/meat products (and other ready to eat foods). This should include separate storage, production, sale and display, and the use of separate refrigerators and production equipment, utensils and (wherever possible), staff.

Other Food poisoning agents:

As Table 23 indicates, the main food poisoning agents are *Campylobacter* and *Salmonella*. *Campylobacteriosis* is a food-borne disease leading to enteritis or colitis, but is almost never fatal in developed countries. *Campylobacter* is present in the gut of poultry, cattle, pigs and sheep, and infection normally arises due to consumption of meat infected with gut contents. Slaughtering methods in the poultry sector (where meat is packed and remains moist) allow for high levels of *Campylobacter* survival.

Table 23: Numbers of Laboratory Confirmed Cases of Food Poisoning (by agent) in England and Wales, 1983-1996

Year	S ^a	C ^b	E ^c	H L ^d	C P ^e	SA ^f	B ^g
1983	15,155	N/A	6	111	1624	160	134
1986	16,976	24,809	76	129	896	76	65
1989	29,998	32,526	119	237	901	104	164
1990	30,112	34,552	250	116	1442	55	162
1991	27,693	32,636	361	127	733	61	95
1992	31,355	38,552	470	106	805	112	182
1993	30,650	39,422	385	102	562	28	31
1994	30,411	44,414	411	112	449	74	87
1995	29,314	43,876	792	91	342	59	87
1996	29,111	43,240	660	116	N/A	N/A	N/A

^a*Salmonella*, ^b*Campylobacter* SP, ^c*E-Coli* O157, ^d*Human Listeriosis*, ^e*Clostridium perfringens*, ^f*Staphylococcus aureus*, ^g*Bacillus*.

Source: CDSC (1997^a)

Salmonella, in contrast to *Campylobacter*, is an infection-type food poisoning agent¹. Two principle types of disease are caused in humans: a) enteric fever - from infection with *S. typhimurium* (and *S. paratyphimurium*), leading to typhoid; and b) *salmonella* food poisoning - from infection with *S. enteritis*, leading to enteritis.

Table 24 shows the increase in *S. enteritidis* as a proportion of total confirmed cases of Salmonellosis in England and Wales.

¹ Infection-type food poisoning occurs due to the multiplication of organisms in the food, sufficient to give an infective dose. This is in contrast to food borne diseases which do not multiply on food.

Table 24: Confirmed cases of Salmonella in Humans, by type, in England and Wales 1982-1996.

Year	<i>S. typhimurium</i>	<i>S. enteritidis</i>	Other serotypes	Total
1982	6,089 (49)	1,101 (9)	5,132 (42)	12,322
1984	7,264 (49)	2,071 (14)	5,392 (37)	14,727
1986	7,094 (42)	4,771 (28)	5,111 (30)	16,976
1988	6,444 (23)	15,427 (56)	5,607 (20)	27,478
1990	5,451 (18)	18,840 (63)	5,821 (19)	30,112
1992	5,401 (17)	20,094 (64)	5,860 (19)	31,335
1994	5,522 (18)	17,371 (57)	7,518 (25)	30,411
1996	5,573 (19)	18,296 (62)	5,242 (18)	29,111

(percentage of total shown in brackets)

Source: CDSC (1997^a)

In relation to meat, Salmonella is prevalent in both chicken and eggs. In addition to infecting eggs, the mechanical nature of evisceration in poultry slaughterhouses causes the spread of contamination from one bird to many others.

Residues:

The Veterinary Medicines Directorate (VMD) is required by law to operate a residue surveillance programme for pigs, cattle, horses, sheep and goats. The programme is designed to monitor whether residues of veterinary medicines are passing into meat for human consumption in unacceptable concentrations. The programme was established to fulfil obligations under EC Directive 86/469/EEC which sets down detailed rules requiring Member States to carry out large-scale random sampling on-farm and at slaughterhouses to look for a wide range of veterinary products. The number of samples taken in 1995 was some 47,000, taken for a range of 82 veterinary residues. In 1996 some 39,000 samples were taken, of which 93 (0.002 per cent) were found to contain residues above the Maximum Residue Limit (MRL).

Samples are taken from carcasses at randomly selected slaughterhouses by the Meat Hygiene Service, and from live animals on farms by the State Veterinary Service (SVS)². Where analysis indicates a positive result with respect to a prohibited substance, follow-up action is taken by the SVS in the form of a thorough on farm-investigation; and where there is evidence

² Similar arrangements are undertaken in Northern Ireland by the Veterinary Service of the Department of Agriculture for Northern Ireland.

of abuse, the farmer is prosecuted. Where residues for legal substances are found above acceptable limits, farmers are visited in an attempt to establish the source of the residue.

Table 25: National Surveillance Scheme (Selective) Results for Residues in Pigs, 1991&1996

Substance Tested	Year	
For		
	1991	1996
Hormones		
No. sampled	304	305
No. >MRL ^a	0	0
Pesticides		
No. sampled	152	92
No. >MRL	0	0
Heavy Metals		
No. sampled	-	46
No. >MRL	-	0
Antimicrobials		
No. sampled	13,380	12,344
No. >MRL	87	64
Sulphonamides		
No. sampled	1322	1107
No. >MRL	48	18

^aMRL = Maximum Residue Limit

Source: Veterinary Medicines Directorate (1996)

Table 25 indicates surveillance results for selected substances in pigs in 1991 and 1996. It can be seen that the presence of Antimicrobial, and especially Sulphonamide residues are a problem for the pig industry. Antimicrobials are substances that kill or suppress the multiplication or growth of bacteria (and other micro-organisms). Sulphonamide is a particular antimicrobial used to treat bacterial infections such as respiratory conditions, enteritis, mastitis and foot rot.

Growth promoters:

Prior to 1981 the use of hormonal growth promoters was permitted in the UK. However, following concerns expressed by consumers that the use of hormonal growth promoters might be dangerous to human health, and might adversely affect the quality of meat, the use of most growth promoters was banned, the exceptions being those which were used for therapeutic purposes. In 1988 most of these exceptions were also banned, and at the same time measures were put in place to monitor the presence of banned substances, and for residues of authorised

compounds. There has been much debate and disagreement between member states and third countries over the potential damage which growth hormones in food producing animals may cause. This has led to restrictions on some imports, and retaliatory restrictions for EU exports into third countries. In response to these disagreements, and the continued concerns of the general public in member countries, The Scientific Conference on Growth Promotion in Meat Production was held at the end of 1995. The results of the conference, published in 1996 confirm that there is no evidence of human health risk arising from the use of natural or synthetic hormones when used in accordance with prescribed conditions³.

2.2.8.2. Human Health

As awareness has grown of the serious health problems associated with poor diets, there has been an increased demand for healthy foods, and a greater attempt to consume a balanced diet (with less fat content). The Government response to such concerns has been 'The Health of the Nation' a white paper setting out (*inter alia*) targets for Diet and Nutrition; specifically:

- To reduce the average percentage of food energy derived by the population from saturated fatty acids by at least 35% by 2005 (to no more than 11% of food energy).
- To reduce the average percentage of food energy derived from total fat by the population by at least 12% by 2005 (to no more than about 35% of total food energy).
- To reduce the proportion of men and women aged 16-64 who are obese by at least 25% and 35% respectively by 2005 (to no more than 6% of men and 8% of women).
- To reduce the proportion of men drinking more than 21 units of alcohol per week and women drinking more than 14 units per week by 30% by 2005 (to 18% of men and 7% of women). (Department of Health, 1995).

³ The EU wide ban on the use of hormonal growth promoters within the Community, and the ban on importation from third countries of meat and meat products from treated animals remains intact.

Figure 1 gives an indication of the resulting fall in Coronary Heart Disease. Reasons for this fall include a better diet, and an increase in awareness of the benefits of exercise, and the dangers of smoking.

Figure 1: Standardised Mortality Rates for Coronary Heart Disease, by sex, under 75 years of age, in England, 1969-1992

Source: Department of Health (1995)

A recent survey asking for attitudes towards healthy eating found that 60 per cent of adults in the UK thought it important to eat healthily, whereas 46 per cent replied that they were trying to reduce the amount of fat in their diet, and 29 per cent trying to eat less red meat.

Table 26 demonstrates that in the ten years to 1995 there has been a fall of 18 grams of total fat consumed per person per day, and a reduction in saturated fatty acids of 9.8 grams per person per day. These reductions have resulted in the average proportion of food energy

contributed by total fat decreasing to 39.8 per cent, which is the first time since 1962 that it has been below 40 per cent (MAFF, 1996^b).

Table 26: Contribution of food types to fat content from 1985 to 1995

Year	Milk/Milk Products	Meat/Poultry/Products	Fats and Oils	Cereal/Cereal Products	Other Foods	Total
1985	17.4	25.1	33.5	10.6	9.1	95.7
1986	17.1	25.2	34.4	11.4	10.0	98.1
1987	16.8	24.6	32.8	11.4	10.1	95.7
1988	16.3	24.0	31.9	11.2	9.7	93.2
1989	15.6	23.8	30.3	11.1	9.4	90.2
1990	14.5	22.4	28.7	11.1	9.7	86.4
1991	14.4	22.0	27.7	11.2	9.7	84.9
1992	14.4	21.4	27.2	12.1	10.9	86.0
1993	13.8	21.3	25.4	12.2	11.2	83.9
1994	13.7	18.7	24.9	12.2	10.8	80.3
1995	13.4	18.1	23.9	12.3	10.8	78.5

Source: MAFF (1996^b)

2.2.8.3. Animal Health

The British pig herd has a high health status. This is as a result of Britain's island situation coupled with specific government policy and a skilled veterinary and scientific base. Great Britain has remained free of Aujeszky's disease since 1989, however, there are some diseases within the UK pig industry worthy of mention:

Blue Ear Disease

Blue Ear Disease, also known as porcine reproductive and respiratory syndrome (PPRS) is a virus which causes abortion, stillbirth, and weak piglets. The disease was first recorded in Britain in May 1991 (following confirmed reports in Germany, the Netherlands, Belgium and Spain in 1990). Government legislation⁴ has been only partly successful in abating the spread of the disease due to the epidemiological characteristics of the viral disease.

Swine Fever

Great Britain has remained free of classical swine fever since 1987; African swine fever has never been recorded in Britain.

2.2.8.4. Meat Quality

The term 'meat quality' can be used to describe a variety of characteristics which are demanded either explicitly or implicitly by the down-stream supply chain or final consumer. The Meat and Livestock Commission have carried out extensive work in regard to different aspects of meat quality. Feeding patterns have been altered to test the effect on tenderness and juiciness of pig meat. Electrical Stimulation (ES) of pig carcasses has been used to test the effect on meat tenderness - leading to a more tender, more consistent eating quality of pigs. Aitch-bone hanging of carcasses has produced leg roasts of greater tenderness than those which have been hung in the traditional way (by Achilles). Experiments are even being carried out on feed ingredients to see if the odour of pigmeat can be altered so as to appeal to the maximum number of consumers. The results of some of these, and other, experiments have been included as product quality advice in the 'Blueprint for Lean and Tender Pork' publication (see also section 4.4.2.).

In terms of fat content of pigmeat, Table 27 gives the average fat depths across weight ranges for the years 1987-1994. It can be seen that for all weight categories, the levels of fat have diminished over the time period.

⁴ The Blue Ear Disease Order, 1991 and Amendment 1991)

Table 27: Fat Depths (in mm) of pig carcasses (by weight) 1987-1994.

Average Fat Depths ^a at Weight Range	1987	1988	1989	1990	1991	1992	1993	1994
<60kg	10.9	10.6	10.5	10.4	10.1	9.6	9.3	9.6
60-80 kg	12.8	12.4	12.2	12.1	11.5	11.1	11.1	11.3
>80kg	20.0	17.2	16.1	15.2	14.2	13.5	13.5	13.5
All Carcasses	12.4	11.9	11.8	11.7	11.3	10.8	10.8	11.1

^aFat depths taken at P₂ position on carcass

Source: MLC (1988^b-1995^b)

2.3. Beef

2.3.1. Supply by Source

Beef availability has declined consistently since 1980, the key features being:

- slaughtered production down by some 10%, this fall occurring over the last ten years;
- lower imports, especially in the first half of the 1980s;
- increased exports, especially in the 1990 up to 1995 (but sharply declining in 1996).

Table 28: Meat Balances: Beef and Veal 1980-1995 ('000 tonnes, carcass weight)

	1980	1985	1990	1991	1992	1993	1994	1995
Slaughtered Production	1102	1155	1001	1010	960	859	916	974
Imports	260	179	174	192	198	203	148	173
Exports	159	185	124	136	143	188	235	274
Supplies Available for Consumption (including stock changes)	1200	1132	997	1014	999	903	920	895

Source: MLC (1996^a) and MLC (1997^a)

Forecasts for 1996 and 1997 are significantly influenced by the results of the BSE measures, in particular the cull of older cattle reducing slaughtered supplies for consumption, and the export restrictions, which have curtailed deliveries to markets accounting for over 25% of production in recent years. A small recovery in production of 7% is anticipated in 1997 over 1996.

Table 29: Meat Balances: Beef and Veal Forecasts for 1996 and 1997 ('000 tonnes, carcase weight)

	1996	1997
Slaughtered Production	701	694
Imports	180	162
Exports	58	10
Supplies Available for Consumption (including stock changes)	733	786

Source: MLC (1997^a)

2.3.2. Farm Production

The beef sector has relied heavily on the dairy herd for beef supplies, which in recent years has provided over 50% of home requirements.

Table 30: Sources of Home Produced Beef (Percentage)

	1994	1995
UK bred steers, heifers and young bulls	78	76
<i>of which: beef herd</i>	36	35
<i>dairy herd</i>	42	41
Cull cows	20	22
<i>of which: beef herd</i>	7	6
<i>dairy herd</i>	13	16
Adult bulls	1	1
Irish cattle	1	1

Source: MLC (1996^a)

Since beef supplies rely on the beef and dairy herds, both farm structures will be considered.

Table 31: Cattle and Calves Numbers ('000 head at June)

	1985-7 average	1990	1991	1992	1993	1994	1995	1996
Total	12559		11885	11804	11729	11834	11733	11913
<i>of which dairy cows</i>	3110		2770	2682	2667	2715	2602	2587
<i>beef cows</i>	1332		1669	1699	1751	1775	1805	1829

Source: MAFF (1997^a)

Overall cattle numbers have remained remarkably stable during the first half of the 1990s.

Table 32: Farm Enterprises: Dairy Size Distribution ('000)

Dairy Cows Herd Size	1990		1996	
	No. of holdings	No. of livestock	No. of holdings	No. of livestock
1-49 dairy cows	21.6	564	16.3	439
50-99	15.5	1094	13.5	959
100 and over	8.0	1188	7.9	1186
Total	45.1	2846	37.7	2584
Average size of herd		63.1		68.6

Source: MAFF (1997^a)**Table 33: Farm Enterprises: Beef Size Distribution** ('000)

Beef Cows Herd Size	1990		1996	
	No. of holdings	No. of livestock	No. of holdings	No. of livestock
1-19 beef cows	48.7	341	41.8	323
20-49	16.6	512	18.2	566
50 and over	8.4	736	10.2	919
Total	73.7	1588	70.2	1809
Average size of herd		21.6		25.8

Source: MAFF (1997^a)

Once again we see an already large scale farm sector growing more concentrated: Average dairy herd of over 68 cows in 1996, and almost 46% of the herd accounted for by farms with over 100 head, just 21% of the total number of holdings. While beef farms are smaller in cow number terms, concentration is again increasing, and in 1996, 51% of the beef herd were in the largest 14% of enterprises (50 head or more).

2.3.3 Meat Industry

2.3.3.1. Slaughtering

Beef and veal slaughtering fell by over 11% which has been especially pronounced since 1985. As noted above, the 1996 BSE crisis is thought to have brought about a significant fall in terms of beef killed for human consumption, although slaughterings under the cull programme will have enhanced abattoir throughput.

Table 34: Beef and Veal 1980-1995 '000 tonnes, carcass weight

	1980	1985	1990	1991	1992	1993	1994	1995
Slaughtered Production	1102	1155	1001	1010	960	859	916	974

Source: MLC (1997^a)

Table 35: Cattle Slaughtering 1994/5

	Numbers	Average throughput per year (head)
Abattoirs slaughtering cattle	436	6271
of which EC approved	78	24623

Source: MLC (1996^a)

Abattoirs slaughtering cattle have decreased by 40% since 1989/90 when there were 741 in operation. EC approved plants accounted for 70% of total throughput of cattle slaughtering abattoirs in 1994/5, with a mean throughput four times that of the all cattle slaughtering average. Basic overcapacity, at around 50% in 1993, is higher than in the pig sector (although much less than in sheepmeat).

2.3.3.2. Slaughtering and Processing Companies

Early 1990s

Despite the large number of firms and low concentration ratios, at the beginning of the 1990s the beef slaughtering industry included a number of very significant companies (some of which were diversified into meats). Major beef companies were: Hillside Holdings, with integrated slaughtering, processing and distribution in red meat and chicken; Union International, slaughtering, processing, storage and distribution; Sims, fresh meat, poultry and game; Bernard Matthews, turkey and red meat.

Developments over past 5 years: Beef

Hillsdown sold off all red meat slaughtering in 1993 and has continued making disposals through 1996. Its FMC slaughtering and processing operations were split, a number going to ANM (Aberdeen and Northern Marts) which had previously been primarily a wholesaler, and now claims to be the largest Scottish red meat processor. Of Hillsdown's remaining slaughtering capacity another Scottish plant went to the Beck Group (Lincolnshire) and North Devon Meat to St Merryn. Sims Food Group has withdrawn from non-added value products, selling its fresh meat business, in order to concentrate on turkey products and cooked meats. Its retail activities consist of integrated plants mainly for exports and meat packing for retail multiple stores.

The largest UK beef and lamb slaughterer is thought to be ABP (Anglo Beef Processors), owned by the Irish Goodman Group, and based on the former red meat operations of Dalgety. Another Irish Group, Kepak, purchased the Union International abattoir and cutting activities (The British Beef Company) after UI went into receivership in 1995. A third Irish company, Avonmore, acquired the Barrets and Baird family owned operation in 1995. Other larger beef companies include Perkins, Cavaghan & Gray (merged with Dalepak). Medium sized companies include George Adams & Son, Cheale Meats, McIntosh Donald and Midland Meat Packers. While the English businesses have largely fragmented, the Scottish slaughtering and processing industry has tended to consolidate, and Irish meat interests have become a major force in England.

2.3.3.3. Processed Products

Excluding bacon and ham, the remaining 1m tonnes of the UK meat market consists of a huge variety of products, many of them beef based. These include: canned meat (including corned beef); sausages; frozen convenience meats, including burgers; meat pies, pasties and puddings; ready meals. The first two categories are traditional products which have shown significant decline in recent years: the former market is led by Campbell's Fray Bentos and the latter by Unilever's Bird's Eye Walls, although retailer own-label sausages predominate. In the frozen convenience meats and ready meals sector, Bird's Eye Walls (Steakhouse, MenuMaster, World Quisine, Healthy Options, etc), United Biscuits', Ross Young's, and Nestle's Findus (Lean Quisine, Red Box, etc.) are the main suppliers. Bird's Eye Walls has dominated the frozen red meat burgers, but in red meat grills Dalepak has taken lead position after acquiring United

Biscuits' red meat business at the end of 1994. Similarly in the meat pies, pasties and puddings sector, Bird's Eye Walls heads the frozen pies and puddings market, with Campbell's, Walter Holland and Tiffany Sharwood's (Tomkins) being other large players.

2.3.4 Beef Retailing

Supermarket sales of beef have grown rapidly from 35% in 1989 to almost 60% in 1995. Some, such as Sainsbury's and Marks & Spencer, have developed more in-store butchery and meat service counters, while Tesco has moved towards greater centralisation of preparation and packing, to give a more consistent product. The outcome of these changes was, by 1995, a continued swing to prepacked beef, which accounted for over 60% of the retail market (volume and value) by the beginning of 1995 (Retail Business, 1995^a).

Table 36: Retail Beef Sales by Source: Percentage Shares

<i>Sources of Beef Purchases</i>	1992	1995
Butchers	38.7	28.7
Retail Co-operatives	3.2	1.8
Major Supermarkets	44.7	59.2
Independent Grocers	1.7	0.9
Freezer Centres	4.6	3.9
Other Retail Outlets	7.2	5.5
Total	100	100

Source: MLC (1997^b)

Table 37: Supermarket Percentage Shares of Beef Sales

<i>Sources of Beef Purchases</i>	1990	1995
Tesco	27	28
Sainsbury	21	27
ASDA	9	14
Safeway (Argyll)	14	13
Somerfield	12	7
Other	17	11
Total	100	100

Source: MLC (1997^b)

2.3.5. Trade

The beef industry has been near or above self-sufficiency over this period. Imports consist mostly of beef and veal, the Irish Republic being the largest single source (about 35%), with only a limited number of live animals imported (14,400 head in 1995, 86% from the Irish Republic). As noted above, the export trade had by 1995 risen to account for one-quarter of the market for UK beef by volume: the fall in domestic consumption being largely offset by the growth in trade. Over three-quarters of beef and veal exports in 1995 were destined for other EU Member States, France accounting for almost one-third of the entire export trade. The BSE restrictions in 1996 appear to have reduced exports to less than 20% of 1995. Export markets for live animals, almost entirely calves, had also grown to 450, 000 head by 1994, falling back to 370, 000 the following year. The trade was adversely affected by welfare concerns, particularly relating to journey times and the use of veal crates. In value terms the beef exports yielded £520m in 1995, with live exports a further £60m.

2.3.6. Inter-relationships along the chain

Large abattoirs and their supermarket customers have developed bilateral relations. However, the excess capacity situation, the importance of individual retailers to producers (for whom a significant proportion of output may go to one customer), leads to relatively low margins and profitability, particularly in beef. Paradoxically, because of the investment costs involved, EC approved abattoirs have suffered financially in comparison with those obtaining temporary derogations. The falling sales in beef have tended to exacerbate the situation, although subsidies in 1996 for the cull programme may disguise the true situation.. Smaller producers tend to supply local retailers and catering outlets.

Whilst a reduction in the role of wholesalers has resulted from these developments, traditional wholesalers are still needed for specialist meat product distribution (slaughterer to meat product manufacturer to retailer) and for the growing catering trade. Two major companies remain in beef wholesaling: Tower Thompson, part of Hillsdown Holdings, and Weddel Swift, which was part of Union International until it went into receivership in 1995, and is now part of the Randall Parker Food Group.

Similarly there are now fewer wholesale markets, where traditionally cattle were sold live through markets. Some supermarkets favour electronic auctions, with advantages of minimising animal journeys and stress problems.

2.3.7. Consumer Demand

Considering the household consumption on an average per head basis, the decline in beef (along with mutton and lamb) is clearly significant, 1996 giving a further 20% drop over 1995, when consumption was already only 52% of its 1980 level.

2.3.8. Quality Policy Issues

2.3.8.1. Human Safety

Creutzfeldt Jakob Disease (CJD) is a rare human disease, of which little is known. There is no conclusive scientific proof of a connection between BSE (see below) and new variant CJD (nvCJD), however, Government advisers have said that the most likely cause is exposure to BSE before controls were introduced on the use of specified bovine offals⁵.

2.3.8.2. Human Health

For a brief description of the Statutory Surveillance Programme for beef see section 2.2.8.

⁵ In England and Wales: The Bovine Offal (Prohibition) Regulations 1989 (SI 1989 No 2061). In Scotland: The Bovine Offal (Prohibition) (Scotland) Regulations 1990 (SI 1990 No 112). In Northern Ireland: The Bovine Offal (Prohibition) Regulations (Northern Ireland) 1990 (SI 1990 No 30).

Table 38 reports some surveillance results for selected substances in cattle in 1991 and 1996. Of the substances indicated, hormones and antimicrobials are most frequently tested for, and hormones are most frequently discovered.

Table 38: Selected Results from National Surveillance Scheme for Residues in Cattle, 1991 and 1996.

Substance Tested	Year	
For		
	1991	1996
Hormones		
No. sampled	2827	2300
No. >MRL ^a	17	0
Pesticides		
No. sampled	162	102
No. >MRL	0	0
Heavy Metals		
No. sampled	-	42
No. >MRL	-	0
Antimicrobials		
No. sampled	4021	2305
No. >MRL	2	1
Beta-agonists		
No. sampled	-	1016
No. >MRL	-	0

^aMRL = Maximum Residue Limit

Source: Veterinary Medicines Directorate (1996)

2.3.8.3. Animal Health

Bovine Spongiform Encephalopathy

Bovine Spongiform Encephalopathy (BSE) is a disease in cattle believed to be caused by prion infection. A prion is a transmissible pathogen which causes a degenerative disease of the central nervous system in animals and humans. Prions are highly resistant to heat, and are composed largely of an abnormal form of protein from the host (Harrigan and Park, 1991). Until recently, the best known example of prion infection in animals was scrapie in sheep. Although BSE has been widely reported since the joint statement by the Minister of Agriculture and Secretary of State for Health on March 20 1996 regarding the possible link of BSE to nvCJD, BSE was first identified in 1986.

Table 39 reports the confirmed cases of cattle infected with BSE from 1994 to present in the UK, indicates that BSE infection was on the decline in 1995/1996.

Table 39: Total Number of Confirmed BSE cases in UK after 1988 restriction on ruminant protein in cattle food

Year	England	Wales	Scotland	Nth Ireland	United Kingdom
1994	20,322	2,296	1,326	344	24,288
1995	12,305	1,322	671	173	14,471
1996	6,955	626	295	75	7,949
1997	529	47	27	10	613
Cum. Total ^a	143,451	15,643	7,940	1,753	168,787

^aCumulative total (from 1988-to April 1997)

Source: MAFF (1997^c)

The major reaction to the March 20th statement was an immediate reduction in sales of beef in the UK market, down by 40%, the main reduction being in lower value cuts from the forequarter (such as stewing steak and mince); demand for cuts from the hindquarter, mainly roasts and steaks held up well. In total, UK beef sales of beef are estimated to have fallen by 19% in 1996. In addition a ban on UK beef exports⁶ was imposed, which as of May 1997 is still in place⁷.

UK government measures to enable the lifting of the ban on exports were agreed at the Florence Summit. These were fivefold: improved methods for removing specified bovine material (SBM) from carcasses; effective implementation of the Over Thirty Month Scheme (OTMS); introduction of an effective animal identification and movement recording system with official registration; legislation for removing meat and bonemeal from feedmills and farms and subsequent cleansing of the premises and equipment concerned; and implementation of a selective slaughter programme. The UK government is currently working to meet these pre-conditions.

Other measures to increase consumer confidence in beef (especially forequarter cuts) included the MLC Minced Beef Quality Mark, reassuring consumers (on the label) that the meat is from cattle under 30 months old, and containing no banned offals.

⁶ Exports accounted for approximately 30% of UK production in previous years (MAFF, 1997a)

The EU, in recognising the serious threat to the EU beef industry has introduced financial help for marketing beef, in the form of The European Quality Beef scheme.

As of May 1997, beef consumption is down only two per cent by volume compared with the same period in 1996 . However, the shock to the beef industry of the last 14 months has ensured that quality assurance is at the forefront of industry initiatives across the meat sectors.

2.3.8.4. Meat Quality

As for pork, the Meat and Livestock Commission have produced 'A Blueprint for improved consistent quality beef' (see section 4.4.2.), which represents a package of measures which, if applied consistently, should help to ensure that beef is of a consistently good eating quality. Components include aitch-bone hanging for increased tenderness. Other recent research on beef eating quality by the MLC has included rearing suckler bulls to a series of ages on two diets to check if and at what age the expected decline in eating quality occurs; and assessing eating quality of beef from a range of beef breeds crossed with Friesian/Holstein cows. Research has also been carried out on the role of embryo transfer in enhancing beef eating quality.

Table 40 details the trend in carcass fat classification over the period 1986-93.

Table 40: Percentage distribution of clean beef carcasses by fat class, 1986-1993

Year	Fat Class ^a					
	1&2	3	4L	4H	5L	5H
1986	5.5	24.7	43.9	22.3	3.0	0.6
1987	6.4	26.6	44.1	20.6	1.9	0.4
1988	6.5	24.8	43.6	22.3	2.3	0.6
1989	5.6	23.9	44.6	22.4	2.7	0.8
1990	5.1	23.9	45.0	22.2	2.9	0.9
1991	4.8	23.7	50.7	17.5	2.6	0.6
1992	4.7	22.9	47.9	21.0	2.9	0.6
1993	4.8	23.5	48.0	20.8	2.4	0.5

^aFor a description of the fat classes, see section 4.2.2.

Source: MLC (1988^a-1995^a)

⁷ The export ban has been lifted for bovine semen, gelatine and tallow (produced to specific standards).

The target fat classes are 3 and 4L, and it can be seen that while over time the percentage of the MLC classified kill in class 3 has remained relatively constant, the percentage in 4L has increased by approximately 4 per cent.

Table 41 details the trend in carcase confirmation over the period 1986-93. The percentages in each class have remained relatively stable over time although there has been a reduction in the proportion of carcasses in the U+ and -U classes, and an increase in O+ and -O classes. These figures compare to a sector-level target of classes E, U+ and R, and therefore indicate less success in meeting targets than for fat.

Table 41: Percentage distributions of clean beef carcasses by confirmation class, 1986-1993

Year	Conformation Class ^a						
	E	U+	-U	R	O+	-O	P
1986	0.3	3.2	12.0	37.5	35.7	10.0	1.3
1987	0.6	3.4	14.2	36.4	32.9	11.1	1.4
1988	0.6	4.4	14.9	34.2	31.3	12.4	2.2
1989	0.5	3.8	15.1	36.4	29.2	13.2	1.8
1990	0.6	3.0	14.0	38.5	27.6	14.2	2.1
1991	0.3	1.8	10.2	37.8	29.5	18.0	2.5
1992	0.2	1.4	8.4	37.4	34.7	15.2	2.6
1993	0.3	1.8	9.5	38.3	33.9	13.7	2.5

^aFor a description of the fat classes, see section 4.2.2

Source: MLC (1988^a-1995^a)

2.4. Chicken

2.4.1. Supply by Source

Table 42 indicates that poultry availability has increased rapidly over the period 1980-1995, supplies standing over 100% higher in 1995 than in 1980. Increases in both production and imports have been significant, although self-sufficiency remains high at 94% in 1995. France provided over 50% of UK imports in 1995.

Table 42: Meat Balances: Poultry ('000 tonnes, carcase weight)

Poultry	1980	1985	1990	1991	1992	1993	1994	1995
Slaughtered Production	754	867	1027	1289	1319	1399	1470	1510
Imports	28	61	135	137	170	159	186	212

Exports	20	31	62	77	79	77	95	138
Supplies Available for Consumption (including stock changes)	762	902	1091	1331	1422	1481	1561	1581

Source: MAFF (1997^a), MLC (1996^a), MLC (1997^a)

About 80% of the poultry supplies are of chicken (broilers making up 96% of these).

2.4.2. Farm Production

Overall numbers in the total flock have remained fairly constant during the 1990s. Table fowl production operates on a large and increasing scale. The largest 200 holdings, with broiler flocks of over 100,000 birds, account for 55% of the total flock, and average 210,000 birds per holding. Average flock size in the whole broiler industry increased by over 30% between 1990 and 1995.

Table 43: Fowls ('000 head)

	1984-6 average	1990	1991	1992	1993	1994	1995
Total	119,699		127241	124,013	130,175	125,718	125981
<i>of which table fowls including broilers</i>	61,486		75701	73,298	79,451	75205	76621

Source: MAFF (1997^a)

Table 44: Poultry Enterprises Size Distribution ('000)

Broilers	1990		1995	
	No. of holdings	No. of livestock	No. of holdings	No. of livestock
Flock Size				
1-9999 broilers	1.9	1,257	1.2	921
10000-99999	0.8	31308	0.8	33457
100000 and over	0.2	41005	0.2	42199
Total	2.9	73569	2.3	76577
Average size of flock		25751		33869

Source: MAFF (1997^a)

2.4.3 Meat Industry

2.4.3.1. Slaughtering

As noted above, poultry slaughtering volume would appear to have risen by 100% over the past 15 years, although recent revisions to the figures produced by MAFF may make caution necessary in long term comparisons.

Table 45: Meat Balances: Poultry ('000 tonnes, carcass weight)

	1980	1985	1990	1991	1992	1993	1994	1995
Slaughtered Production	754	867	1027	1289	1319	1399	1470	1510

Source: MAFF (1997^a), MLC (1996^a), MLC (1997^a)

In this sector, it is more difficult than with red meat to disentangle slaughtering and processing. Official figures indicate 67 businesses engaged in 'production and preservation of poultry meat' in 1993 (Office for National Statistics, 1997), with a further 291 involved in 'other meat and poultry meat processing'. These figures might suggest an industry structure of small firms and relatively low concentration. In practice the industry is dominated by eight or nine large companies which are vertically integrated through breeding flocks, hatchery, rearing, slaughter, processing and distribution (with some contracting out).

2.4.3.2. Companies

Early 1990s

In the early 1990s major companies in the sector included: Hillsdown Holdings, with integrated slaughtering, processing and distribution in red meat and chicken; Sims, fresh meat, poultry and game; Bernard Matthews, turkey and red meat.

Developments over past 5 years

Hillsdown Holdings has retained major interests in poultry processing, although about one-third of its capacity was sold in 1993. Businesses include Premier Poultry (obtained from the acquisition of J B Wood, and the merger of Hermanns Poultry and Buxted Foods in 1992) , Buxted Chicken, Devon Crest Poultry, and Ross Poultry. Hillsdown has reduced its operations in the frozen sector, and is concentrating on the faster growing fresh portions market. Most of its products are sold under retailer own-labels.

Marshall Food Group is another Scottish-based enterprise and the UK's second largest chicken processor, specialising in fresh whole birds and portions and in further processed products, having virtually abandoned frozen primary chicken.

Other major companies in the sector include: Grampian Country Foods, which expanded its chicken interests, especially fresh portions and frozen added value across England and Wales with the acquisition of Mayhew Chicken from Northern Foods in 1994; Sun Valley Poultry, owned by Cargill, is the largest fresh convenience poultry manufacturer in the UK and has interests in fresh chicken and turkey; Faccenda Chicken, is a low cost producer of fresh and frozen primary chicken; Bernard Matthews integrated turkey business, which supplies fresh frozen and value-added products, and with both investment and acquisitions in the 1990s has retained its leading position; Moy Park is another fully integrated chicken operation, based in Northern Ireland, and specialising in fresh and further processed products; and Padley's, which is another integrated slaughtering and processing operation.

2.4.4 Retailing

Poultry retail sales are the most concentrated of the fresh meat markets considered here, and butchers account for the lowest proportion. Once again the rate of increase in supermarket sales has been very rapid, and at the expense of butchers and all other outlet types.

Table 46: Retail Poultry Sales by Source - Percentage Shares

<i>Sources of Poultry Purchases</i>	1992	1995
Butchers	15.4	9.8
Retail Co-operatives	4.8	3.2
Major Supermarkets	57.2	70.2
Independent Grocers	2.9	1.1
Freezer Centres	10.1	8.6
Other Retail Outlets	9.6	7.1
Total	100	100

Source: British Chicken Information Service (1996)

2.4.5 Trade

Increases in imports have been significant in recent years, although self-sufficiency remains high at 94% in 1995. France provided over 50% of UK imports in 1995. Exports of poultry meat have risen steadily during the 1990s to reach about 12% of production by 1995. Less than two-thirds of the trade goes to the EU, but Germany and The Netherlands have been the largest markets for UK poultry meat.

2.4.6 Inter-relationships along the supply chain

Poultry is extremely vertically integrated, and while this does not include the ownership of retailers, contractual relationships with large retailers and fast food outlets are typical. The combination of concentration in processing, with 8 or 9 companies handling 80% of output, and in retailing, with 70% of chicken sales through six retailers, bilateral company links are inevitable. Examples include Buxted Chicken with Marks & Spencer, Hilldown Holding's Premier Poultry with KFC. Many of the main producers sell retailer own-label products mainly or totally.

2.4.7 Consumer Demand

Poultry has been the highest consumption sector in the UK meat market for over a decade, with images of healthiness, versatility and cheapness. These factors reflect in both the primary and processed markets for chicken, which makes up 80% of the consumer market, and turkey, which accounts for almost all the remainder. (Retail Business, 1995^b)

Table 47: Household Consumption (Volume of Carcass Poultry Meat ('000 tons) and Percentage Total Meat)

Household Consumption	1990	%	1993	1994	1995	%
<i>Poultry</i>	676	34.2	723	699	724	39.6

In 1994, primary chicken retained four-fifths of the retail market by volume and two-thirds by value, although added-value products have been rapidly increasing their share. The primary market was split three-fifths whole birds and two-fifths portions, with noticeable relative growth in the latter. The primary market may also be divided into fresh and frozen, with again roughly a 60/40 split by volume in favour of fresh, and with fresh chicken taking an almost two-thirds proportion by value.

2.4.8. Quality Policy Issues

2.4.8.1. Human Safety

Since the 1960s there has been a marked increase in notifications of food poisoning, of which poultry meat has become one of the most frequently suspected vehicles. The national Public Health Laboratory Service is of the opinion that poultry meat and eggs are the most commonly reported suspect vehicles of infection in general outbreaks of salmonellosis (House of Commons Agriculture Committee, 1994).

Table 48: Number of food poisoning outbreaks in the United Kingdom (1988-1994) where chicken meat was suspected as the vehicle of infection. (Figures in brackets are numbers of persons taken ill).

Agent	1988	1990	1992	1994
Salmonella spp.	18 (435)	19 (414)	32 (1094)	12 (402)
Campylobacter spp.	1 (6)	1 (4)	1 (21)	2 (9)
Salmonella and Campylobacter	-	-	-	-
Clostridium perfringens	7 (165)	7 (127)	3 (94)	2 (34)
Staphylococcus aureus	-	3 (33)	2 (60)	-
Bacillus spp.	1 (2)	1 (2)	-	1 (4)
E-coli O157	-	-	-	-
Small Round Structured Viruses	-	1 (67)	-	-
Rotavirus	-	-	-	1 (23)
Unknown	2 (28)	-	-	-

Source: Advisory Committee on the Microbiological Safety of Food (1996)

Whilst *Salmonella* and *Campylobacter* are thought to be the major bacterial pathogens associated with poultry meat, Table 48 indicates that the most frequently reported agents (1988-1994) were *Salmonella* spp. (65% of outbreaks) and *Clostridium perfringens* (20% of outbreaks). *Salmonella enteritidis* (in particular PT4) appears to be particularly associated with poultry, accounting for 48% of poultry meat-associated general outbreaks (and 90% of general outbreaks involving eggs) (ACMSF 1996). Campylobacteriosis from chicken consumption, whilst not accounting for many outbreaks or cases in Table 48 is underestimated since the food vehicle is frequently not identified.

2.4.8.2. Human Health

The State Veterinary Service (SVS) carries out surveillance of veterinary residues in poultry meat to satisfy the export requirements of certain countries and to meet residue testing requirements of Council Directive 92/116/EEC. Samples are collected quarterly from licensed slaughterhouses in Great Britain. In 1995, none of the 299 samples tested for antimicrobials or the 80 tested for stilbenes was positive.

The Veterinary Medicines Directorate (VMD) carry out a non-statutory programme⁸ of national surveillance for residues in poultry. Table 49 indicates the residue testing results for

⁸ Under Council Directive 96/23/EC, member states are obliged to include poultry (and fish) in their statutory surveillance from 1 July 1997.

1996. As can be seen from the table, residues in excess of the Maximum Residue Limit (MRL) are rare.

Table 49: VMD Poultry Residue Testing Results, 1996

Substance	No. of Samples	% Positive ^a
Antimicrobials	1141	0.0009
Sulphonamides	191	0.005
Stilbenes	117	0
Pesticides	112	0
Heavy Metals	130	0
Ionophores	134	0
Dimetridazole	58	0

^aA positive result is one where the concentration found is above the Maximum Residue Limit (MRL)

Source: Veterinary Medicines Directorate (1996)

2.4.8.3. Animal Health

The UK poultry industry sustained substantial losses from poultry disease in the early and mid-1990s. The two main diseases over this time have been Marek's Disease and Gumboro (Infectious Bursal) Disease, both viral conditions.

Marek's Disease normally affects birds of between 12 and 24 weeks, leading to tumours and progressive paralysis. Depending on the variant, mortality rates are between 10 per cent and 80 per cent. Gumboro Disease is most common in young broiler chicks, with mortality being as high as 60 per cent. Survivors may exhibit stunted growth, anorexia, depression, diarrhoea and lack of co-ordination. (House of Commons Agriculture Committee, 1994).

The National Farmers' Union estimates that Gumboro Disease and Marek's Disease has cost the broiler industry £15 million and £3 million respectively. The British Poultry Meat Federation claim that Gumboro Disease cost the industry in excess of £16 million in 1992 alone.

Although Newcastle disease has not been confirmed in Great Britain since 1984, the disease has broken out recently in Northern Ireland. Following several outbreaks, thought to have been introduced by migrating birds, the European Commission suspended Northern Ireland's status as an area not requiring compulsory vaccination for Newcastle Disease. From the beginning of

1997 to April 1997, 23 flocks in Northern Ireland were affected by the disease with over a million birds having died or been compulsorily slaughtered. Knock-on problems from the outbreak include a shortage of chicks, and an increased fear of employment, the poultry processing sector being one of the region's biggest employers.

2.4.8.4. Meat Quality

The growth in demand for poultry has to a certain extent occurred due to the growing interest amongst consumers in healthy eating, and concerns about red meat. In a recent survey, 50 per cent of respondents regarded poultry as healthy, with the same percentage considering that poultry is low in fat (Mintel, 1995).

Section III

Institutional arrangements

3.1. Government

All legislation in the United Kingdom is promulgated by the two Houses of Parliament in London: The House of Commons (Lower House) and The House of Lords (Upper House); however, administration of legislation may not necessarily be controlled from central government in England; area specific legislation (specific to Northern Ireland, or Scotland), although decided in London, may be administered by the Northern Ireland Office or Scottish Office (respectively). Therefore, with regard to food, it is possible that legislation may apply to one or two of the four countries in the UK only, and be administered locally by the national government's representative Department of Agriculture in that area. The two principle aims of UK government legislation regarding food are:

- the protection of the health of the consumer;
- the prevention of fraud.

These aims are achieved by a combination of primary legislation and secondary legislation. The primary legislation (the Acts) contain general rules and prohibitions which, by enforcement through the courts, provide consumers with general protection. The Acts also contain enabling sections, which authorise the appropriate Minister(s) to issue detailed regulations. These secondary regulations (or orders) contain more specific and technical requirements for food production, and several regulations may be implemented under a single Act. Depending upon the requirements of the Act, the secondary legislation may be issued as 'Regulations' or 'Orders'⁹. In England, Wales and Scotland such secondary legislation is published as Statutory Instruments. However, Regulations/Orders and certain primary legislation for Northern Ireland are issued under a separate series - Statutory Rules for Northern Ireland. Before regulations are passed by government, Ministers are required to consult with those organisations which may be affected by them; the proposed regulation is sent for consultation to interested groups within the industry, or in cases where a formal scientific opinion is required, several independent

⁹ Depending on the Act, statutory instruments (regulations, orders), may require only no 'negative resolution' in the Houses of Parliament before becoming law.

committees advise the government. Codes of Practice, issued by the Government, give guidance to interested specific parties on how to comply with regulations, and on how the regulations will be enforced.

In England and Wales, two government ministries have major roles in ensuring food safety and quality: The Ministry of Agriculture, Fisheries and Food; and The Department of Health.

3.1.1. The Ministry of Agriculture, Fisheries and Food (MAFF)

MAFF is the central government department dealing with most legislation relating to food production and quality, correct labelling, the absence of adulteration and unapproved ingredients in food (Hobbs and Roberts, 1993), and with all legislation dealing with meat hygiene. Within the Ministry two directorates undertake most of the relevant functions:

I. Food Safety Directorate

The MAFF Food Safety Directorate, formed in 1990, acts separately from the other divisions, and consists of:

Food Safety Group:

Consumer Protection Division

Functions include food labelling; EC food law harmonisation; food composition; EC Food Quality Schemes, Codex Alimentarius Commission; Food Safety Act 1990.

Microbiological Safety of Food Division

Functions include co-ordination and development of the Ministry's policy interests in matters relating to the microbiological safety of food.

Chemical Safety of Food Division

Functions include dealing with food irradiation, novel foods, chemical contamination of food, fertilisers and feeding stuffs standards, food additives.

Animal Health and Veterinary Group:

Animal Health (Disease Control) Division

This division is responsible for control and eradication of notifiable and other diseases of livestock and poultry, spongiform encephalopathies, and brucellosis and tuberculosis.

Animal Health (Zoonoses) Division

Responsible for control of salmonella and other non-notifiable zoonotic diseases in animals.

Animal Health and Welfare - Veterinary Section

Responsible for notifiable diseases and animal welfare health schemes.

Animal Welfare Division

This division has responsibility for animal welfare on farms and animal welfare in markets and during transport. The division also contains the Secretariat of the Farm Animal Welfare Council (FAWC).

Meat Hygiene Division

The division is concerned with, amongst other things, meat inspection and hygiene, public health and animal health aspects of imports and exports of meat and animal products, welfare of livestock at slaughter, poultry meat hygiene, red meat and game meat hygiene, approval and monitoring of fresh meat plants, and welfare of livestock at slaughter.

The national Meat Hygiene Service (MHS) is the national enforcement agency for the legislation in appendix 1, It was established in April 1995 as an executive agency of The Ministry of Agriculture, Fisheries and Food. The MHS's main function is to provide a meat inspection service to all of the 1,875 *licensed*¹⁰ fresh meat plants (slaughterhouses, cutting plants, cold stores) in Great Britain and to ensure that legal standards are achieved and maintained. The MHS has the following specific functions and responsibilities:

- The enforcement of hygiene rules in licensed fresh meat premises, cutting plants and cold stores;
- Meat inspection and health-marking in licensed red and poultry meat premises;
- The enforcement of welfare at slaughter legislation in licensed red and poultry meat slaughterhouses;

¹⁰ Licensed under the Fresh Meat (Hygiene and Inspection) Regulations, 1995.

- The collection and despatch of samples on behalf of the Veterinary Medicines Directorate (VMD) and the State Veterinary Service (SVS);
- The enforcement of all regulations applying to specified bovine material controls to ensure 100% compliance in all licensed fresh meat premises;
- The provision of export certification as required either by the importing country or by European Union rules.

Authorised Vets and Meat Inspectors are responsible for all ante-mortem, hygiene and construction inspections, and licensed fresh meat premises cannot produce meat for human consumption unless it has been health-marked by MHS inspectors under veterinary supervision.

The MHS has taken over the role previously undertaken by approximately 300 separate local authorities. Its employees are, in the main, either Meat Hygiene Inspectors (MHIs) or Official Veterinary Surgeons (OVSs). As of March 1996 the MHS employed 1019 operational staff and 71 administrative staff.

The MHS has the advantage of being a centralised system, thus allowing a more successful co-ordination of nation-wide consistent standards which is expected to be more acceptable to both EU and third party trading partners. Inspection charges are transparent. There is regular consultation with industry representatives from all sectors.

Meat Hygiene -Veterinary Section

Responsibility for veterinary aspects of meat hygiene, including slaughter and residues in meat; implementation of meat hygiene and welfare policy in meat premises (both red and white meat).

State Veterinary Service

The State Veterinary Service (SVS) is an executive arm of the Animal Health and Veterinary Group. The SVS comprises the Veterinary Field and Investigation Services, and has a wide range of responsibilities, many of a statutory nature, including - notifiable disease control,

control of importation of animals, enforcement of farm animal welfare legislation, and meat hygiene monitoring.

Food Science Group:

Food Science Division I

Responsible for the development and provision of the scientific basis for food policy in relation to food additives, contaminants (other than microbiological) and emergency action under the Food and Environment Protection Act.

Food Science Division II

Responsible for the development and provision of the scientific basis for food policy and consumer protection in relation to food composition (other than food additives and contaminants), nutrition, food technology and food hygiene.

II. Agricultural Commodities, Trade and Food Production Directorate

The Directorate includes the following groups:

Livestock Group:

Beef Division

Oversees UK policy for cattle and beef, EU Beef regime, meat supplies.

Pigs, Eggs and Poultry Division

Oversees UK policy for pigs, eggs and poultry meat and derived products, and the operation of the Common Agricultural Policy for these commodities, also UK policy for small farmed livestock.

3.1.1.1. Executive Agencies

The Ministry of Agriculture, Fisheries and Food has delegated responsibility for certain day-to-day operations to Executive Agencies, within a specified general framework of policy objectives and resources. The following agencies perform relevant functions:

Central Veterinary Laboratory

The main purpose of the Central Veterinary Laboratory (CVL) is to provide consultancy, research, services and products to promote animal health and welfare to minimise hazards associated with animals which are important to public health and the environment.

Pesticides Safety Directorate

The Pesticides Safety Directorate (PSD) aims to protect the health of humans, creatures and plants by controlling the sale, supply, storage, advertisement and use of pesticides.

Veterinary Medicines Directorate

The Veterinary Medicines Directorate (VMD) is responsible for all aspects of licensing and control of animal medicines and medicated feedstuffs including the protection of consumers from potentially hazardous residues in food.

3.1.2. The Department of Health

The Department of Health is responsible for health and personal social services, including the safety of food with regard to the health of the consumer. It sets overall policy on all health issues, including public health matters and health consequences of environmental and food issues. It oversees *general* food safety and hygiene, but has no direct responsibility for meat hygiene.

Public Health Group

The Public Health Group within the department is responsible for the development and implementation of policies to prevent disease, prolong life, identify emerging public health issues, and promote and protect the health of the public. Regarding food safety, its key objective is to improve knowledge of the safety of food, implement ways to reduce risk and develop a sensible risk-related approach to deregulation, and minimise adverse effects by co-ordinating, where necessary, outbreak management.

3.1.3. Other Government Departments

Scotland:

The Scottish Office Agriculture, Environment and Fisheries Department is responsible *inter alia* for the protection of the public and the health and welfare of animals in Scotland; it also administers UK-wide legislation in Scotland, and Scotland-specific legislation.

The Scottish Office Department of Health is responsible for spending on health in Scotland, and has as its fundamental aim the improvement of the health of people in Scotland by assessing need, promoting health, preventing illness and improving the quality and effectiveness of health care interventions.

Wales:

The Welsh Office Agriculture Department comprises three main divisions which carry out a range of work relating to agriculture, fishing and food industries in Wales. The Fisheries and Animal Health and Welfare Division administers animal health and welfare, and meat hygiene matters. The Agriculture Department is responsible for the majority of Government policies and legislation as they apply to Wales.

The Welsh Office Health Department comprises six divisions of which the Public Health division is responsible *inter alia* for food safety, health promotion and disease prevention in Wales.

Northern Ireland:

The Department of Agriculture Northern Ireland (DANI) carries out most national government administration in Northern Ireland, and any legislation specific to Northern Ireland. The Agri-food Development Service (AfDS) is one of five management units within DANI which *inter alia* enforces health and safety legislation on farms, and has responsibility for food quality assurance.

The Department for Health and Social Sciences for Northern Ireland administers general UK food policy as it applies to Northern Ireland, and general food policy in relation to specific Northern Irish legislation.

3.1.4. Local Government

Local government authorities are responsible for the enforcement of a wide variety of Acts and Regulations (including food). The two types of enforcement officer involved in food work are Trading Standards Officers (TSO) and Environmental Health Officers (EHO). TSOs are involved in the enforcement of controls on a wide range of trading. In relation to food they enforce regulations relating to labelling and composition and inspect weights and measures legislation. EHOs usually enforce those aspects of food law which have a hygiene or health basis and, therefore, in the main they enforce food hygiene regulations¹¹. Owing to potential

¹¹ Note that as from 1995 the Meat Hygiene Service took over responsibilities from local authorities regarding businesses licensed under the Fresh Meat (Hygiene and Inspection) Regulations, 1995.

problems of uniform interpretation of regulations and enforcement obligations across 300 local authorities (in Great Britain), there exists a national body representing both EHOs and TSOs - the Local Authorities Co-ordinating Body on Food and Trading Standards (LACOTS); this body is a forum of discussion for EHOs and TSOs and allows for the law to be applied in a uniform way (Jukes, 1993).

3.1.5. Quasi-Government Bodies

The *Farm Animal Welfare Council* was established by the government in 1979 as an independent advisory body on farm animal welfare. The terms of reference of the Council are, "to keep under review the welfare of farm animals on agricultural land, at market, in transit and at the place of slaughter, and to advise the Minister of Agriculture, Fisheries and Food, and the Secretaries of State for Scotland and Wales of any legislation or other changes that may be necessary" (FAWC, 1995).

The *United Kingdom Register of Organic Food Standards* was set up by Food from Britain in 1987 at the request of the Minister for Agriculture in recognition of i) the need for unified United Kingdom Standards for the production of organically produced foods; ii) a framework by which production methods could be assessed and for verification that the food is actually produced according to these standards. UKROFS, an independent body, was established to be the UK certifying authority for organic food, to set production standards for organically produced foods (including livestock), to introduce a certification system for determining conformity, and to keep a register of all approved producers. However, its role is neutral in terms of the advantages or otherwise of organic farming; it exists strictly to regulate the production and marketing of those foods which would be organic.

3.2. Non-Governmental Bodies

3.2.1. Meat and Livestock Commission

The Meat and Livestock Commission (MLC)¹² was set up by statute under the Agriculture Act, 1967, to help the meat and livestock industry to be more efficient, whilst taking account

¹² The Livestock and Meat Commission for Northern Ireland is the analogous body in Northern Ireland.

of the interests of consumers. The Commission took over the activities of the Pig Industry Development Authority and the Beef Recording Association and has subsequently developed those activities in pig and cattle production, together with sheep production.

The primary tasks of the MLC are:

- to ensure that meat remains the centre of the British diet both as a separate food and a major ingredient;
- to encourage the industry to produce the required products of consistent quality;
- to provide the industry with technical and marketing support to ensure that it can compete successfully with imported products and that export opportunities are fully exploited.

The MLC is funded by general and species specific promotion levies; a levy is paid by producers on all cattle, sheep and pigs which are slaughtered for human consumption in Great Britain, including those partly condemned as unfit for human consumption (MLC 1994).

Tables 50 gives an indication of MLC expenditure and income over time. Table 51 shows the recent levels of species-specific levy imposed on producers.

Table 50: MLC Income and Expenditure, 1992/3-1994/5

	1992/93	1993/94	1994/95
	£m	£m	£m
Net Levy ^a	27.4	28.6	31.2
Fees/other income ^b	10.0	9.3	8.4
HM Government agency ^c	5.0	3.9	2.4
Total operating income	42.4	41.8	42.0
Operating expenditure	42.7	40.7	42.4
Operating surplus	(0.3)	1.1	(0.4)
Other net income/(expenditure)	(1.5)	(1.9)	0.3
Surplus/(deficit) for the year	(1.8)	(0.8)	(0.1)

^aGross expenditure minus expenses of collection, ^bIncome from marketing, industry development/services,

^cIncome from agriculture departments/Intervention board for price reporting/market support measures respectively

Source: MLC (1995^c)

Table 51: MLC levy for individual species, (year beginning April 1995)

Species	General Levy	Species Promotion Levy
Pigs	38p/head	50p/head
Cattle	166p/head	190p/head
Sheep	28p/head	28p/head
Calves	8p/head	

Source: MLC (1995^c)

Within the MLC, the British Meat Quality Assurance Department (BMQA) advises companies (including abattoirs, cutting plants, and retail butchers), on the design and implementation of quality management systems and Hazard Analysis Critical Control Point (HACCP) systems. The BMQA inspection service monitors major purchasers' (including caterers, retailers and cash and carry) premises for compliance with food safety requirements. The BMQA Meat Product Inspection Service is used by meat purchasers in order to ensure that the purchased meat complies with: i) their specifications; and ii) their customers' specifications and expectations. The auditors within this service are also involved in the joint MLC/ Campden Chorleywood Food Research Centre third party accreditation scheme - European Food Safety Inspection Service (EFSIS) - see section 4.3.3.2.

3.2.2. Trade Organisations

There are many trade organisations operating within the Great Britain¹³ fresh meat sector:

- British Meat Manufacturers Association

The British Meat Manufacturers Association (BMMA) represents meat manufacturers - including slaughterers, cutters, and further processors- in Great Britain. As of the end of 1996 the BMMA had approximately 120 members. The main role of the Association is to represent members' interests in relation to proposed legislation, both EU and UK. The BMMA also runs an accredited standard to which members must conform, which is based largely on the EFSIS standards, and is externally audited.

- Scottish Federation of Meat Traders Association

The Scottish Federation of Meat Traders' Associations (Inc.) is the trade association which represents Scotland's independent retail butchers. Some 600 butchers' shops throughout Scotland are affiliated to the Federation through membership of seventeen local associations, which accounts for approximately 60% of all independent butchers in Scotland.

The role of the SFMTA is to represent the members interests, in terms of employment advice, legal guidance, and trade representation to Government and other bodies. The SFMTA also manages a promotional programme to reinforce customer awareness of the independent retail trade.

SFMTA has a training organisation which develops craft training in the retail sector of the meat industry, and is involved in business development.

¹³ The analogous trade bodies operating in Northern Ireland are listed in Appendix 2.

- Scottish Association of Meat Wholesalers

The Scottish Association of Meat Wholesalers (SAMW) represents the majority of the slaughtering, wholesaling and boning operations in the Scottish meat industry. Currently representation is being extended to primary processing and other value added activities. The main purpose of the association is to represent industry views in Edinburgh, London and Brussels, specifically in regard to legislative changes affecting the Scottish industry.

The SAMW currently has 39 trade members, representing approximately 85% of the Scottish wholesale trade (along with 8 associate members from allied trades).

- British Poultry Meat Federation

The British Poultry Meat Federation (BPMF) is a voluntary trade association which represents the interests of the poultry meat sector. The BPMF was formed in 1991; previous to this it existed as the British Poultry Federation, and included the interests of egg producers.

The BPMF is an umbrella body which has as association members the following bodies: British Chicken Association; British Turkey Federation; Duck Producers Association; British Goose Producers Association; Hen Packers Association; British Chicken Association Co-op and Export Ltd, British Poultry Breeders and Hatcheries Association; Association of British Breeders and Exporters. Members of these organisations contribute to the membership of the BPMF.

The main role of the BPMF is to act in the interests of its members in influencing and interpreting legislative requirements affecting the sector. Members come from all parts of the supply chain, from primary (pedigree) flocks through hatchery, feed, farm, transport, slaughter, processing, and further processing. However, contract growers (representing 20-30% of production) tend not to be members of the BPMF, rather, members of the National Farmers Union.

The BPMF has approximately 200 firm members, with approximately 30 members covering most poultry meat production. It represents (firms producing) 95% of poultry meat produced in the United Kingdom; in terms of chicken production it represents a similar

figure, where 75-80% of poultry production is chicken. BPMF funding comes from membership fees, where the fee is based on the number of employees. Membership is not based on any official audits or inspection from the BPMF.

- Federation of Fresh Meat Wholesalers

The Federation for Fresh Meat Wholesalers (FFMW), represents the interests of fresh meat wholesalers and slaughterhouse operators of all sizes in England and Wales. The Federation aims to ensure that its members' interests are represented at Government level whenever regulations or schemes are proposed which would affect the meat industry - and as such the FFMW maintains links with other trade organisations within the meat industry (e.g. SAMW), and producer organisations in order to harmonise industry's response to changing market conditions and proposed legislation.

Of the 430 slaughterhouses operating in Great Britain, 85 are members of the FFMW. These plants account for 85% of the total throughput of red meat (cattle, pigs, and sheep) in England and Wales. The turnover of members is approximately £2.5 billion/annum.

- National Federation of Meat and Food Traders

The National Federation of Meat and Food Traders (NFMFT) was formed in 1888 with the main aim of representing the views of independent butchers and other small businesses engaged in slaughtering, wholesaling or manufacturing in England and Wales. Currently, representation is undertaken at both the national and EU level to lobby for the interests of members. The Federation is a member of the International Butchers Federation, a Brussels based lobbying group. The Federation also provides an advisory service on legal and technical matters, and the Shop with Assurance scheme (recently subsumed into the 'Guild of Q Butchers' - see section 4.3.4.1.).

Members are mostly retail butchers; the breakdown of membership (as of 1995) being: 3700 shops of which: 2670 have 1 shop; 413 have 2-5 shops; 23 have 5 or more shops. Other members include: 135 small slaughterhouses; and 119 other premises (wholesalers, manufacturers, factories).

- National Association of Poultry Suppliers

As of 1996 The National Federation of Wholesale Poultry Merchants (NFWPM) became The National Association of Poultry Suppliers (NAPS). The association represents those businesses in England and Wales engaged in any aspect of wholesaling of poultrymeat and poultry products, game or rabbit meat (excluding exporting and importing). The NFWPM was formed approximately 50 years ago, the change in name has been combined with a change in qualifications of membership - to allow a wider membership. The Association is recognised by the Government for formal consultation on new legislation and other matters; other services include providing members with access to due diligence reports for many suppliers, and providing a forum for discussions relating to meeting HACCP requirements of recent legislation.

- National Farmers Union (of England and Wales)

The National Farmers Union (NFU)¹⁴, established in 1908, represents farmers and growers in England and Wales. Its central objective is to promote the interests of its members both in the UK and overseas, and therefore works with politicians and officials in the UK and internationally to lobby on major pieces of international and national legislation. In addition, the NFU attempts to develop access to new markets for its members, and encourage food buyers to purchase home grown food; while attempting to inform the general public about farming and rural life.

In addition to representing its members' interests, the NFU provides a range of services to them, including legal, planning and taxation, marketing and promotion advice. Membership of the NFU currently runs to approximately 120,000, which includes approximately 70% of full-time farmers and growers in England and Wales. Finance is through an annual subscription based on a flat fee and a payment based on the size of the holding. Corporate membership is available for farmer controlled businesses, currently there are 70 corporate members. Third, Countryside members, of which there are approximately 37,000 are small holders with limited livestock numbers or small cropping areas.

The main NFU role in regard to quality policy in the UK is its drive to integrate farm assurance (both livestock and arable) into the farm routine. As such, the NFU is working closely with the Meat and Livestock Commission in regard to a proposed integrated

¹⁴ The National Farmers' Union of Scotland, and Farmers' Union of Wales perform similar functions.

assurance scheme, covering individual sectors of British farms. However, the NFU also encourages environmentally-friendly and welfare conscious farming practices.

- International Meat Trade Association

The International Meat and Trade Association (IMTA) has existed in a variety of forms since 1895, with the aims improving the position of its members through attempting to safeguard the status of imports of meat from third countries, provide close liaison with other associations, keep members informed on matters of interest, such as legislative developments (both EU and UK), and lobby Government at EU and UK level on behalf of its members.

Members of the IMTA include exporters, importers, international traders, and wholesalers, and distributors. The IMTA is also a member of the European Meat Wholesalers' Association, and a member of the Meat Industry Liaison Group - made up of the IMTA and four other major UK meat trade Associations.

Section IV

Quality Policy

Section IV considers quality policy in the United Kingdom for food in general and for specific types of meat. Both public and private quality policies are presented for product and process controls separately, and for joint product and process controls.

4.1. Overview of Quality Policy

The policy environment surrounding food safety and quality in the United Kingdom is currently in a state of flux. On the one hand there is the demand for regulation of the food system to protect public health. On the other are concerns that too much regulation will burden the food industry. In recent years, the fundamental role of government in regulating markets has been questioned as part of a general discourse on the merits of deregulation. The concept of deregulation is simple - the abolition or simplification of Government regulations to allow markets to operate more freely.

Quality Policy in the United Kingdom fresh meat sector can be split into two main institutional forms: public regulation - in the form of direct government intervention; and private regulation - in the form of either i) market regulation, or ii) self-regulation.

4.1.1. Public Regulation

Public regulation of food may take a number of forms which differ in the degree to which they impede the freedom of activity. At one extreme, information measures require suppliers to disclose certain facts about their products, but do not otherwise restrict behaviour. At the other extreme, suppliers may require prior approval of a product from an official agency before being permitted to release it onto the market.

In the case of food safety, government regulation normally takes the form of standards which correct market failures, in particular, information deficiencies and externalities. Public regulation of food safety is generally more effective than less interventionist measures, for example, redress through private law, or requirements for information disclosure.

Public regulation is generally taken to be a 'catch-all' term for government regulation, although this tends to mask the different administrative forms government regulation may take:

- Standards may be written into the formal regulatory code which governs the activity. For example, a requirement that a product is produced using specified practices as part of an overall standard governing the composition of a product and how it is produced.
- The regulatory code can contain a general principle to prevent certain outcomes. This general principle may then be accompanied by guidelines as to how it should be interpreted in particular contexts. For example, there may be a general principle that food offered for sale must be safe and of the quality demanded.
- Power can be conferred on an agency to create formal differentiated standards for individual firms or groups of firms. This normally works through a system of permits. For example, a food manufacturer may require a licence before being permitted to trade.
- The regulatory code may contain uniform standards detailing basic principles, but enforcement agencies have the power to impose differentiated more detailed standards on particular suppliers. For example, there may be a basic principle that food offered for sale must be safe, but enforcement agencies are empowered to apply more precise standards governing how this will be achieved.

In the UK, regulation of food safety has traditionally relied on general target standards, the main provisions of which impose liability on anyone who renders food intended for human consumption injurious to health. However, as foods have become subject to a greater variety of processes, the health risks have become more uncertain and as a result, the information costs to food suppliers, and the costs to enforcement agencies have increased, creating a need for more detailed standards. Consequently, alongside these general target standards are a wide range of specification and performance standards including: horizontal standards covering parameters which are salient to all foods, for example basic principles of food hygiene and vertical standards specific to particular food products, for example fresh meat.

4.1.2. Private Regulation

Private regulation, in general, is not used as a substitute for government action, rather in tandem with public policy. Although the key characteristic of private regulation is that responsibility for formulation and enforcement rests with a private agency (and not the government), this does not imply that firms operating in the market have greater freedom to choose whether or not to comply with the standards than is the case with publicly set and enforced standards. In reality, the pressures of market forces acting on firms to comply with private standards may be just as high as the threat of legal action taken by government.

Private regulation of food quality and safety may take one of two main forms:

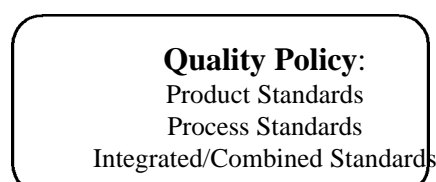
- Self-regulation: where standards are adopted voluntarily, and are set and enforced by a non-governmental industry body, for example a trade association;
- Market-regulation: where requirements are imposed on food companies by the market.

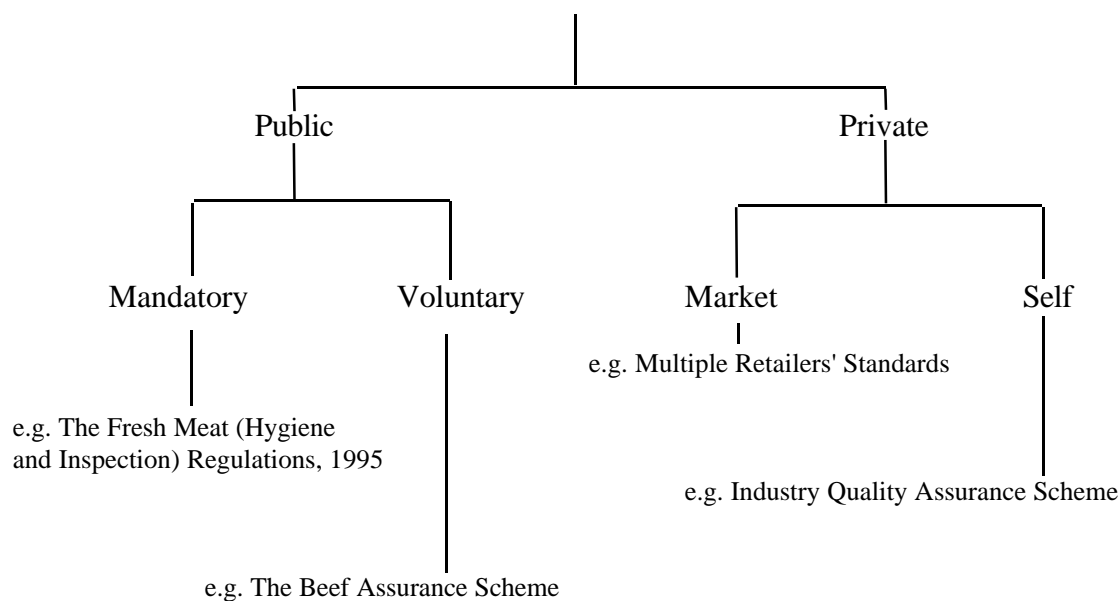
Self-regulation may take the form of generic voluntary quality assurance schemes or systems (e.g. ISO-9000), or product specific voluntary quality assurance schemes or systems (e.g. FAPigs, FAPBL).

Market regulation of food quality and safety commonly takes the form of specifications imposed on firms by their major customers. For example, in the UK, multiple retailers impose strict product and process standards on suppliers of their own-label products. In the case of hygiene standards, accreditation to ensure the standard has been attained is regarded by the retailer as an entry requirement which must be satisfied before trade can take place.

Figure 2 indicates the general structure of quality policy in the UK fresh meat sector. European Regulations and Directives have not been included within the diagram.

Figure 2: Overview of Quality Policy in United Kingdom





4.2. Product Standards

Product standards relate to the products themselves, rather than to the manner in which they are produced. Product standards may be either intermediate or end-product standards. As a guide, Table 52 indicates those United Kingdom product standards which are classed as public, and private.

Table 52: Public and Private Product Standards Relevant to Fresh Meat in the United Kingdom

Product Standard	Private/Public	If Private - Administrator	Objectives	Level of chain affected
Food Labelling Regs	Public	N/A	Lay down requirements for information on food labels	Manufacturer/Retailer
MLC Carcase Classification Scheme	Private	Meat and Livestock Commission	Carcase classification service -fat and conformity	Abattoirs
Animals, Meat and Meat Products (Residues) Regs	Public	N/A	Requirements for examination for residues	
Pesticides (Max. Residue Levels in Food) Regs	Public	N/A	Specify maximum levels for pesticide residues	
Meat (Treatment) Regs	Public	N/A	Define acceptable treatments for raw meats	
Colouring Matter in Food Regs	Public	N/A	Permitted colouring matter in foods	

Definitions:

The Meat (Treatment) Regulations 1964, defines meat as "the flesh or other part of any animal (but not including birds or fish)". This definition is extended in the Meat Products and Spreadable Fish Products Regulations 1984 as "the flesh, including fat, and the skin, rind, gristle and sinew in amounts naturally associated with the flesh used, of any animal or bird which is normally used for human consumption and includes [certain] offals but does not include any other part of the carcass". Within the same regulations, lean meat is defined as "meat free, when raw, of visible fat".

Offals are defined for mammalian species as : diaphragm, head meat (muscle meat and associated fatty tissue only), heart, kidney, liver, pancreas, tail meat, thymus, tongue (and for avian species - gizzard, heart, liver, neck), and brains, feet, large intestine, small intestine, lungs, oesophagus, rectum, spinal cord, spleen, stomach, testicles, udder. (Jukes, 1993).

Meat products are defined¹⁵ as "any food which consists of meat or has meat as an ingredient except: a) raw meat with no added ingredient except proteolytic enzymes; b) uncooked chickens, hens, cocks, turkeys, ducks, geese, and guinea fowl (or their cuts or offals) with no added ingredient except additives permitted by the additive regulations, flavourings, smoke and smoke solutions, water, self-basting preparations or seasonings" (Jukes, 1993).

4.2.1. Labelling requirements

General labelling requirements for food exist under The Food Labelling Regulations 1996 (1996/1499)¹⁶, which state that all food must be marked with: a) the name of the food; b) a list of ingredients; c) the appropriate durability indication:- i) a 'use by' date in the case of food which, from a microbiological point of view, is highly perishable and in consequence likely after a short period of time to constitute an immediate danger to human health; ii) the minimum durability for any other foods; d) any special storage conditions or conditions of use; e) the

¹⁵ In the Meat Products and Spreadable Fish Products Regulations 1984 (1984/1566) as amended by Meat Products and Spreadable Fish Products (Amendment) Regulations 1986 (1986/987).

¹⁶ Other non-product labelling requirements exist for Food Additives:- Food Additives Labelling Regulations (as amended), and Organic Foods:- Organic Products Regulations 1992 (as amended).

name and address of the manufacturer or packer, or a seller established within the EC; f) particulars of the place of origin if necessary to avoid misleading the purchaser to a material degree; g) instructions for use if necessary.

Labelling requirements for fresh meat come under the recent Council Regulation (EC) No. 820/97 establishing a system for the identification and registration of bovine animals¹⁷ and regarding the labelling of beef and beef products. Under the regulation the decision to label is voluntary, but if used must be in accordance with the regulations. The regulation on labelling beef and beef products lays down the necessary requirements for a system which it is hoped will (in combination with the identification and registration requirements) contribute towards restoring confidence in beef. The proposed mechanism is that each operator/organisation will submit specification for approval from a competent authority in each member state. Such a specification will indicate the information to be included on the label, the measures to be taken to ensure the accuracy of information, the control systems to be applied at all stages of production and sale (including controls to be carried out by an independent body), and (in the case of an organisation), the measures which would be taken in relation to any member which failed to comply with the specification.

The information which will be allowable on the label will include:

- the member state or region of birth of the animal
- sex of the animal
- the method of fattening
- information on slaughter - where, age at slaughter, date of slaughter
- information on methods of boning and cutting
- information in relation to feeding
- other information which the operator/organisation wishes to put on, and which is accepted by the relevant competent authority.

4.2.2. Conformity

The MLC Carcase Classification Scheme is an intermediate product system providing independent authentication to the meat industry for carcase conformity and quality. The

scheme classifies cattle, pig and sheep carcasses into different categories depending on specific attributes.

Beef Carcase Classification:

The MLC method is based on the standard EC beef carcase classification scale. Mandatory Beef Classification was introduced under EC legislation¹⁸ at the beginning of 1992 in EC-approved abattoirs slaughtering over 75 cattle per week; the main aim being to reference the quality of carcasses for standardising price reporting systems across member states. The MLC classification incorporates all those mandatory requirements¹⁹ and in addition identifies subdivisions within conformation and fat classes. Specific information recorded includes:

- Cold carcase weight
- Sex (heifer, steer, young bull, cow, mature bull)
- Conformation -see below
- Fatness - see below
- Age (option)

The conformation category is split into five classes - E,U,R,O,P. In the MLC scheme classes U,O and P are divided into upper and lower bands. The fatness category is also split into five main classes - 1-5 - according to fat cover. In the MLC scheme, classes 4 and 5 are divided into high (H) and low (L). Both conformation and fat categories are incorporated into a grid system for ease of understanding, as shown in Table 53.

Table 53: MLC Classification grid for conformation and fatness:

		FAT CLASS						
		Increasing Fatness →						
CONFORMATION CLASS		1	2	3	4L	4H	5L	5H
	E							
	U+							
	-U							
	R							
	O+							
	-O							

↑
Improving

¹⁷ See section 4.2.3.2.

¹⁸ Council Regulation 1186/90.

¹⁹ Included within Statutory Instrument 2242, 1991.

Conformation
|

P+							
-P							

Source: MLC (1995^a)

Targets for conformation and fatness are E,U, or R and 4L (or leaner) respectively (MLC 1995^a).

To ensure standardisation and consistency of the MLC scheme, various procedures including training, in-service checks, national standardisation exercises and processing of results of checks are undertaken (MLC 1995^a)

Table 54 indicates the proportions of steer, heifer and young bull carcasses classified under the MLC Beef carcass classification scheme from 1990 to 1994. The figures in Table 54 indicate that the relative proportions have remained relatively constant over the early 1990s, with steers being by far the most important category of carcass tested.

Table 54: Steers, heifers and young bulls as a percentage of all clean beef carcasses classified, 1990-1994

Year	Steers	Heifers	Young bulls
1990	53	29	18
1991	52	31	17
1992	53	30	17
1993	51	32	17
1994	51	33	16

Source: MLC (1995^a)

Pig Carcase Classification:

The MLC Pig Carcase classification scheme is designed to meet all obligations under EU pig carcase classification regulations²⁰, and UK regulations²¹. Classification of pig carcasses is compulsory for abattoirs slaughtering more than 200 clean pigs per week (whether EU licensed or not). In 1994, the MLC classified 1.2 million cattle, which accounted for 46% of the national kill. The MLC general method involves the following steps:

- Identify carcase

²⁰ European Council Regulations 3220/84 and 3530/86.

- Check that EU dressing specification is correctly applied²²
- Ensure carcase is weighed correctly (to calculate cold carcase weight)
- Take appropriate carcase measurements with EU-approved probe
- Calculate the estimated carcase lean meat percentage (or EU grade)
- Visually assess carcase for faults
- Identify boar carcasses
- Record information collected

Table 55 indicates the lean meat percentages required for different categories under the EU system.

Table 55: Lean meat percentage and EU grades

EU Grade	Lean Meat Percentage
S	60% or more
E	55-59%
U	50-54%
R	45-49%
O	40-44%
P	Less than 40%

Source: MLC (1995^b)

Table 56 indicates the actual distribution of MLC classified carcasses within the lean meat percentage categories outlined in Table 55 above.

Table 56 Distribution of MLC classified pig carcasses in EU grades, 1988 and 1994

EU Grade	Distribution (%)	
	1988	1994
S	17.7	29
E	57.4	56.9
U	20.2	12.3
R	3.5	1.4
O	0.8	0.2
P	0.4	0.1

Source: MLC (1995^b)

²¹ Statutory Instrument 1180/88 as modified by SI 2155/94.

²² In late 1994 the new EC pig carcase dressing regulations came into force in Great Britain. Pigs must now be dressed without the kidney, flare fat and diaphragm.

Table 56 shows that, over time, the percentage of carcasses classified in the two most lean groups (S and E) has increased markedly. However, this indicates a general trend to producing lighter animals, (heavier animals tending to be fatter).

Table 57 indicates the proportion of carcasses classified under the MLC Pig Carcase Classification scheme as a percentage of the total national clean pig slaughter. It can be seen that during the early 1990s, the proportion of carcasses classified under the scheme has declined. It must be noted that an abattoir may classify their own animals; classification through the MLC scheme is not compulsory. Independent inspection and auditing of all classifications is undertaken by the Intervention Board for Agricultural Produce, therefore the decline in MLC classification can be seen in the light of an increase in abattoir's own classification.

Table 57: MLC Pig Carcase Classification as Percentage of Total National Clean Pig Carcasses classified, 1990-1994

Year	% of total classified
1990	80
1991	78.3
1992	79.4
1993	77.3
1994	72.3

Source: MLC (1991^b-1995^b)

4.2.3. Origin

4.2.3.1. Geographical Origin

Council Regulation (EEC) No 2081/92 (as amended) regarding the protection of geographical indications and designations of origin for agricultural products and foodstuffs replaces the national system of protection for designations of origin and geographical indications. 2081/92 serves to reserve particular names for exclusive use by producers and/or processors established in the regions or places designated by the names; i.e. when a geographical indication is registered at Community level, only producers established in the area defined are able to use it; use by others is prohibited. However, in view of the economic consequences of those who have not registered, (and will therefore be affected) a five year derogation was introduced, allowing those producers not established in the area defined to continue using registered names until July 1997.

During the five year period since the Council Regulation came into force, the Commission has been criticised for failing to register any geographical indications or designations of origin. Therefore, as a response the Commission has put forward a Proposal for a Council Regulation on the registration of geographical indications and designations of origin²³ (as laid down in article 17 of regulation 2081/92). The United Kingdom fresh meats for which an application for registration has been made are:

- Orkney Beef (PDO)
- Orkney Lamb (PDO)
- Scotch Beef (PGI)
- Scotch Lamb (PGI)
- Shetland Lamb (PDO)

Products can be granted two different forms of protection:

- Protected Designations of Origin (PDO): open to products produced, processed and prepared within a particular geographical area, and with features and characteristics which

²³ Commission Document COM (96) 48 final

must be due to the geographical area. The methods used to produce the product must be unique to that area;

- Protected Geographical Indications (PGI): open to products which must be produced or processed or prepared within a geographical area and have a reputation, features or certain qualities attributable to that area.

Allied to the above is a Proposal for a Council Regulation²⁴ amending Regulation 2081/92 to allow the five year derogation to continue for a further five years, in light of the length of time taken to register the names for PDO or PGI.

Council Regulation (EEC) No 2082/92 on certificates of specific character for agricultural products and foodstuffs is open to products which are traditional or have customary names and have a set of features (specific character) which distinguish them from other similar products. These features must not be due to the geographical area in which the product is produced and not entirely based on technical advances in the method of production.

A third classification has recently been added, that of Traditional Speciality Guaranteed (TSG), which allows products of a specific character to be granted a Certificate of Specific Character. Either the method of production, or the composition of the product may be classified.

4.2.3.2. Traceability

Council Regulation (EC) No. 820/97 establishes a system for the identification and registration of bovine animals and regards the labelling of beef and beef products²⁵. The recent BSE crisis has demonstrated that both identification and registration systems for bovine animals are in need of improvement. In order to allow efficient and rapid tracing of animals the following measures have been proposed: a) eartags to identify animals individually; b) computerised data-bases; c) animal passports; d) individual registers to be kept on each holding.

4.2.4. Contaminants

²⁴ Commission Document COM (96) 266 final

²⁵ See section 4.2.1.

4.2.4.1. Residues

Council Regulation (EEC) No. 2377/90 (as amended) lays down a Community procedure for the establishment of maximum residue limits of veterinary medicinal products in foodstuffs of animal origin.

In UK law, The Animals, Meat and Meat Products (Examination for Residues and Maximum Residue Limits) Regulations 1991 (1991/2843)²⁶ lay down detailed requirements for the examination for residues and maximum defined residue limits within meat. General points include: prohibited to sell meat (or meat product) in which there is: a) any prohibited hormonal substance - unless administered by a veterinary surgeon for certain specified purposes; b) an unlicensed substance c) beta-agonist; d) an authorised substance - at a concentration exceeding the maximum residue limit. The regulations also include details of inspection, analysis and related requirements (Jukes, 1993).

4.2.4.2. Pesticides

The Annexes of Council Directives 86/362/EEC and 86/363/EEC (as amended) fix maximum levels for pesticide residues in and on cereals and foodstuffs of animal origin. The Pesticides (Maximum Residue Levels in Food) Regulations 1988 (1988/1378)²⁷ specify certain maximum residue levels (MRLs) on certain foods. For products of animal origin, the MRLs are specified for named pesticides. For meat, fat and preparations of meat, the pesticide levels are measure on fat unless the food has a fat content of less than 10% (by weight), in which case the residue is related to the total weight of the boned foodstuff. General points include: a) no person may leave, or cause to be left in any specified food a level of residue exceeding that specified, b) the substances which are regarded as comprising the specified residues are listed in the regulations, c) levels of residues should be determined using procedures recommended in publications of the *Codex Alimentarius* (Jukes, 1993).

4.2.5. Additives

²⁶ As amended by: Animals, Meat and Meat Products (Examination for Residues and Maximum Residue Limits) Regulations 1994; Animals, Meat and Meat Products (Examination for Residues and Maximum Residue Limits) Regulations 1994.

²⁷ See also Pesticides (Maximum Residue Levels in Crops, Food and Feedingstuffs) Regulations 1994 (as amended).

The Meat (Treatment) Regulations 1964 (1964/19) require that no raw or unprocessed meat may contain: any added ascorbic acid, erythorbic acid, nicotinic acid, nicotinamide or any salt or other derivative of these (Jukes, 1993).

For colouring foods, the Colouring Matter in Food Regulations 1973 (1973/1340) (as amended) lay down permitted colouring matter for use in foods. However, the regulations state that meat and poultry (amongst other foods) shall have no added colouring matter except for marking purposes.

No preservatives (substances capable of inhibiting, retarding or arresting the growth of micro-organisms of any deterioration of food due to micro-organisms or of masking the evidence of any such deterioration) are permitted in fresh meat. However, preservatives are permitted in some cured meats (and products), and some uncooked bacon and ham.

4.3. Process Standards

Process standards may be defined as those affecting the process by which the end product is produced. As a guide, Table 58 indicates those United Kingdom process standards which are public, and Table 59 indicates those which are private.

Table 58: Public Process Standards relevant to Fresh Meat in the United Kingdom

Process Standard	Objectives	Level of food chain affected
PUBLIC		
Food Safety Act	Enabling legislation..	All levels
Food Safety (General Food Hygiene) Regs		
Food Safety (Temperature) Regs	Require certain temperatures..	Transport, Processing, Retail
Beef Assurance Scheme	Extend age for human consumption of certain cattle..	Producer
Welfare of Livestock Regs	Animal welfare..	Producer
Organic Products Regs	rules for production of `organic' foods..	Producer
Fresh Meat (Hygiene and Inspection) Regs	Hygiene requirements for slaughterhouses..	Processor
Fresh Meat (Beef Controls) Regulations	Control age that beef sold for human consumption..	Processor
Poultry Meat..(Hygiene and Inspection) regs	Hygiene requirements for chicken slaughterhouses..	Processor

Table 59: Private Process Standards relevant to Fresh Meat in the United Kingdom

Process Standard	Administrator	Objectives	Level of food chain affected
PRIVATE			
ISO-9000	Various - LRQA, SGS..	Quality Management System	Any
Third party accreditation	Various - EFSIS, TLC, Lawlabs, RSSL, National Britannia	Quality Management Standards	Producers, Processors
Multiple Retailers' Standards	Various Multiple Retailers	Quality Assurance for products and suppliers	Any supplier
Independent Retailers' Standards: <i>The Guild of Q Butchers</i>	SFMTA/NFMTA/MLC	Quality Assurance scheme for butchers	Retail
FABPIGS	FABPIGS	Integrated pig quality assurance system	All
FABBL	MLC	Integrated beef and lamb quality assurance system	Producers, Transporters, Abattoirs
SQBLA F.A. scheme	SQBLA	Animal welfare, food safety	Producers, Transporters
Scotch Quality Assurance	Guild of Scotch Quality Meat Suppliers	Meat quality, food safety standards	Processors
Freedom Food Scheme	Freedom Food Scheme Ltd	Animal Welfare	Producers, Transporters

4.3.1. General Food Standards

Primary Legislation:

The Food Safety Act 1990 came into force on 1st January 1991. The Act is the enabling legislation which provides a framework for all other national food law. The main provisions of the Act describe:

- what is meant by food, food business, and food premises
- the offence of rendering food injurious to health, and set out the offence of selling or possessing for sale food that does not comply with food safety requirements
- who is to enforce the law and how it should be enforced, giving details of the authorised field officers special prohibition powers in the case of emergency.

A major change in UK government policy was introduced with the Food Safety Act 1990; the defence of 'due diligence'. Previous to the Act, food safety standards invoked a so-called "warranty" defence whereby suppliers were required to show that the food did not enter into a state which contravened the standard while it was under their control. Food that was purchased from others was deemed to be "warranted", meaning that the seller assumed legal responsibility for ensuring that the food conformed to the standard at the time of sale. The new due diligence defence may be defined as:

"a defence for the person charged to prove that he took all reasonable precautions and exercised all due diligence to avoid the commission of the offence by himself or by a person under his control".

Where 'due diligence' is defined as²⁸:

"Such a measure of prudence, activity or assiduity, as is properly to be expected from, and ordinarily exercised by, a reasonable and prudent man under the particular circumstances; not measured by any absolute standard but depending on the relative facts of the special case."

²⁸ Black (1996)

Under this defence, suppliers must demonstrate that they have been proactive; i.e. that they have exercised 'due diligence' in ensuring that the food they handle and any food obtained from upstream suppliers conforms to the standard. This requires that the firm has a quality assurance system which is adequate given the products being produced, the nature and range of potential problems and the perceived and actual risks of failure²⁹. The due diligence defence allows an enforcement authority to buy-pass a secondary offender in order to prosecute the real offender. However, it must be noted that the defence is not available to a defendant who manufactured or imported the food.

In terms of overall food hygiene, EC Directive 93/43 lays down general rules of hygiene and procedures for verification of compliance with the rules. The Directive covers the preparation, processing, manufacturing, packaging, storage, transportation, distribution, handling and offering for sale of foodstuffs not covered elsewhere by product-specific hygiene Directives. Directive 93/43 has been translated into British law³⁰ through The Food Safety (General Food Hygiene) Regulations 1995 (which also implements EC Directive 80/778/EEC); of relevance also is The Food Safety (Temperature Control) Regulations 1995, requiring food businesses to observe certain temperature controls on the holding of food, where otherwise there would be a risk to health.

²⁹ Fidler (1990)

³⁰ The majority of legislation from the national government covers England, Wales and Scotland, but not Northern Ireland which has its own (similar) statutory instruments.

4.3.2. Agriculture

The process standards which are included in this section are those which are *predominantly* related to the *production of animals* (for slaughter). However, owing to the inter-linkages along the supply chain, it is recognised that most process standards will have parts which are relevant to more than one level of the supply chain.

The Beef Assurance Scheme, set up in 1996, has been legislated for³¹ in response to the BSE crisis to enable specific cattle to be sold for slaughter for human consumption up to the age of 42 months³². The aim of the scheme is to identify and register specialist beef herds which meet the following criteria:

- the herd must be a specialist beef herd managed separately from any other herd and with no dairy cattle in the herd for the past seven years
- the herd must have been established for at least four years
- there must have been no case of BSE confirmed in the herd
- there must have been no case of BSE confirmed elsewhere in animals originating from the herd
- the herd must contain no animals originating from herds in which BSE has been confirmed
- animals in the herd must not have received any feed containing mammalian meat and bone meal during the past seven years
- animals in the herd must not have been fed any compound other than home mixed feed (using no mammalian meat and bone meal) or feed from a mill which over the previous four years has not stored or used mammalian meat and bone meal

A large proportion of eligible herds have joined the scheme (approximately 3,000 herds), however, animals accepted onto the scheme may be sold on the UK domestic market only. Up the end of 1996, the response from UK multiple and independent retailers has been negative. Two main fears are i) that with so few herds likely to qualify, the supply of beef will be insufficient for retailers to stock exclusively meat from the scheme in which case selling both 'under 30 month' meat and scheme meat could create a two-tier market; ii) retailers fear that

³¹ through The Fresh Meat (Beef Controls) (No.2) Regulations 1996 (as amended).

consumers will not respond well to older beef being re-introduced. Large multiple retailers also oppose the scheme as it would mean amending existing 'in-house' beef assurance schemes.

Proposal for a Certified Herd Scheme

In December 1996 the UK government proposed a UK Certified Herds Scheme. The scheme has been proposed in order to satisfy the European Commission and member states' requirements³³ for a resumption of bovine animal export. The proposed eligibility criteria are as follows:

- the animal has been clearly identifiable throughout its life
- the animal was not over 30 months old at the time of slaughter
- the animal was born in a herd which had never had a case of BSE and in which no suspect BSE case is under investigation; and the animal had not entered or moved through any herd in which a case of BSE had been confirmed in the six years prior to the animal's slaughter
- the animal has been slaughtered separately from animals which cannot be certified to meet the conditions above

Slaughtering, cutting and associated storage and handling would be carried out under veterinary supervision and would be subject to the UK's stringent controls on the removal of Specified Bovine Material (SBM). Currently the proposal is being considered in Brussels.

4.3.2.1. Animal Welfare

The earliest Community legislation on animal welfare was brought into being in 1974 (EC Directive 74/577/EEC) concerning the stunning of animals before slaughter. Since that time the Treaty of Maastricht has included a declaration on the protection of animals which called the Community and member states, when drafting and implementing Community legislation, to pay full regard to the welfare requirements of animals.

The following European Council Directives concerning the welfare of specific animal species have been issued: 88/166/EEC laying down minimum standards for the protection of laying

³² Members of the Beef Assurance scheme are exempt from The Fresh Meat (Beef Controls) Regulations 1996 (see section 5.2.1.2.)

hens kept in battery cages; 91/629/EEC laying down minimum standards for the protection of calves; 91/630/EEC laying down minimum standards for the protection of pigs; 91/628/EEC³⁴ laying down guidelines for the protection of animals during transport.

In 1993 the Commission published a communication to the Council³⁵ on the results of a detailed study of the Community legislation on the protection of animals, including those kept on farms, during transport and at the time of slaughter. The intention of the study amongst other things was to ensure that the legislation adequately covered the requirements of animal welfare.

The EC Directives for pigs, laying hens, and calves have been incorporated into UK legislation through the Welfare of Livestock Regulations 1994 (Statutory Instrument 2126). These regulations revoke and replace several earlier regulations:

The Welfare of Livestock (Intensive Units) Regulations 1978 (SI 1800);

The Welfare of Battery Hens Regulations 1987 (SI 2020);

The Welfare of Calves Regulations 1987 (SI 2021);

The Welfare of Livestock Regulations 1990 (SI 1445);

The Welfare of Pigs Regulations 1991 (SI 1477);

and amend The Protection of Animals (Anaesthetics) Act 1954.

The 1994 regulations make specific provision for the welfare of laying hens in battery cages, calves, and pigs, and general provisions for other livestock. The existing requirements applying to intensive systems are extended to all systems of animal husbandry in which animals are kept in such a way as to require frequent human attention (so as to comply with the Council of Europe Convention on Animals kept for farming purposes, as amended by the Protocol of Amendment of 6th February 1992). Specifically, regulations are given for areas to which pigs and calves must have access, and the size of cage required for laying hens.

The FAWC publishes Codes of Recommendations for the welfare of livestock, including those for pig, cattle and chicken. The codes have an interesting place in law; although not legislation,

³³ as stated in the position paper prepared by the European Commission for the Florence Summit

³⁴ amending Directives 90/425/EEC and 91/496/EEC.

³⁵ COM (93) 384.

the codes have the approval of Parliament, and embody the latest scientific advice and best current husbandry practices. The Agriculture (Miscellaneous Provisions) Act 1968 explains the status of the Codes in relation to the law of the land, in that although failure on the part of a person to observe a provision of a code shall not render the person liable to proceedings of any kind, such a failure may, in proceedings brought under the Agriculture (Miscellaneous Provisions) Act, be relied upon as tending to establish guilt.

4.3.2.2. Organic Production

The EC Council Regulation 2092/91(as amended) is the European legislation on organic production of agricultural products and lays down harmonising rules on labelling, production and inspection of agricultural products bearing or intended to bear indications referring to organic production methods. It applies to unprocessed agricultural crop products and to products intended for human consumption composed of one or more ingredients of plant origin. However, to date, the Regulation covers crop products only.

The proposal for a Council Regulation supplementing 2092/91 to include livestock production was presented to the Commission by the Council in July 1996. The general principles of the supplement include laying down a framework for organic livestock farming to achieve balanced agricultural production which takes account of the environment by the following means: recognition of the interdependence between stock farming and the land with a view to ensuring responsible management of effluents and favouring feed produced on the holding; consideration for the welfare of the livestock, in particular by eschewing systematic mutilation and eliminating stress during transport and slaughter; choice of breeds which are adapted to local conditions, search for biological diversity and use of natural service; and an obligation to manage the whole livestock production unit in accordance with the principles of organic production. The proposal is currently in the committee phase, and as of February 1997 has achieved the (qualified) support of the Economic and Social Committee of the European Communities.

It is hoped that the new regulation, when introduced, will maintain the objectives of 2092/91, that is: lay down fair conditions of competition between producers of organic farm produce in the European Union; ensure free movement of organic products in the European Union;

enhance consumer confidence in such products; encourage a type of agriculture which is in line with consumer demand and which also has a beneficial impact on the environment.

Following the introduction of EC regulation 2092/91, the UK government introduced The Organic Products Regulations 1992³⁶ to give effect to the UK obligation to provide for the administration, execution and enforcement of 2092/91, and specifically to set rules for the production of food to be sold as 'organic'. It is illegal in the UK to use the term 'organic', in relation to food sold as organic, unless it has been produced in accordance with the Regulation, and by a registered producer. Within the regulations the appropriate Minister acts in consultation with the board of the United Kingdom Register of Organic Food Standards (UKROFS).

The UKROFS standards were first published in 1989, and have since been reviewed and updated, with the organic crop standards conforming to the requirements of 2092/91. The regulatory nature of 2092/91 and the associated UK statutory instruments requires that any person who produces, prepares or imports food to be sold as organic, must be registered and subject to annual inspection. In the United Kingdom this is administered through the seven approved organic certification bodies (including UKROFS), of which UKROFS is the overseer (see Appendix 3).

The UKROFS livestock standards include standards for production and transport, guidance on the origin of stock, animal health, diet and welfare, conversion periods (from conventional to organic), housing, livestock diet, and handling and transport and livestock records.

4.3.3. Slaughter/Processing

4.3.3.1. Species Specific Safety/Hygiene standards

Fresh Beef and Pork:

³⁶ As amended by: The Organic Products (Amendment) Regulations 1993; the Organic Products (Amendment) Regulations 1994; the Organic Products (Amendment) Regulations 1997.

With respect to European guidelines on meat hygiene specifically, the European Council Directive 64/433/EEC³⁷ introduced guidelines regarding health requirements for intra-Community trade in fresh (red) meat³⁸. Specifically, the Directive standardised the public health rules applicable to meat produced in slaughterhouses and cutting premises, and during storage and transportation, but only for meat intended for export for human consumption to another Member State of the Community; meat intended for sale within Member States was covered by national standards.

Directive 64/433/EEC was updated and the earlier amendments consolidated in 1991 by the adoption of Directive 91/497/EEC, which from the beginning of 1993 extended the current rules for intra-Community trade (contained in 64/433/EEC) to all red meat slaughterhouses, cutting premises and cold stores including those trading solely on national markets.

The implementation of Directive 91/497/EEC in Great Britain was achieved through the introduction of the Fresh Meat (Hygiene and Inspection) Regulations 1992. These regulations comprised most of the existing red meat hygiene regulations in Great Britain and harmonised them to include the demands of the Directive. The Fresh Meat (Hygiene and Inspection) Regulations replaced the following national regulations:

In England and Wales:

The Slaughterhouses (Hygiene) Regulations 1977 (as amended)

The Meat Inspection Regulations 1987 (as amended)

The Fresh Meat Export (Hygiene and Inspection) Regulations 1987 (as amended)

In Scotland:

The Slaughterhouse (Hygiene) (Scotland) Regulations 1978 (as amended)

The Food (Meat Inspection) (Scotland) Regulations 1988 (as amended)

The Fresh Meat Export (Hygiene and Inspection) (Scotland) Regulations 1987 (as amended)

³⁷ Various amendments and updates to this Directive have been introduced over the years (85/323/EEC; 85/325/EEC; 86/587/EEC; 91/497/EEC; 91/498/EEC; 95/31/EC), not including poultry

The main provisions of The Fresh Meat (Hygiene and Inspection) Regulations 1992 are as follows:

- from the beginning of 1993 it is prohibited to sell or offer for sale for human consumption any fresh meat unless it has been obtained from a licensed premises, and has met the hygiene requirements specified in the schedules and is accompanied by a commercial document or health certificate
- structural and hygiene requirements are laid down (with different structural requirements for low throughput slaughterhouses, cutting premises and farmed game processing facilities)
- supervision of all licensed premises must be by an official veterinary surgeon (OVS) or inspector under his supervision and appointed by the local authority to act in relation to the examination and seizure of meat
- medical certification of staff handling fresh meat is required on recruitment
- prohibition of the sale of fresh meat from animals which have been treated pre-slaughter with tenderiser, or has been irradiated
- powers to be given to the OVS to vary licenses to prohibit the use of equipment or use of part of the premises, and to inhibit the slaughter or dressing of a dirty animal in slaughterhouses
- requirements introduced for operators of licensed premises to keep certain records in order to ensure compliance with the regulations
- slaughterhouse operators required to give notice of slaughter, and local authorities given power to control times of slaughter, cutting up, and admission to and dispatch from licensed premises
- certain premises to receive temporary or permanent derogations from compliance.

The Fresh Meat (Hygiene and Inspection) Regulations 1995³⁹ have amended and replaced those of 1992. Although the main thrust of the new regulations are the same as those of 1992, a number of amendments have been made, the most important being a transfer of responsibility

³⁹ Amended by: The Colours in Food Regulations 1995; The Fresh Meat (Hygiene and Inspection) (Amendment) Regulations 1995; The Fresh Meat (Hygiene and Inspection) (Amendment) Regulations 1996; Food Safety (Temperature Control) Regulations 1995; Wild Game Meat (Hygiene and Inspection) Regulations 1995; Food Safety (General Food Hygiene) Regulations, 1995.

for enforcing the Regulations from local authorities to government Ministers, who will carry out the functions through the National Meat Hygiene Service.

The Fresh Meat (Beef Controls) Regulations 1996 replace the provisions of the Beef (Emergency Control) Order 1996 (S.I. 1996/961) by creating an offence of selling meat derived from bovine animals (with more than two permanent incisors erupted) slaughtered on or after 29th March 1996 for human consumption, unless it can be shown that the animal at the time of slaughter was no more than two years and six months old⁴⁰.

The Fresh Meat (Beef Controls) (No.2) Regulations 1996⁴¹ increase the exemptions from the prohibition to include meat from bovine animals which belonged to a herd registered under the Beef Assurance Scheme.

Fresh chicken:

EC Directive 71/118/EEC considered the health problems affecting production and placing on the market of fresh poultrymeat, and established the health conditions to be met for the purpose of trade in poultrymeat; 71/118/EEC has been updated and amended by 92/116/EEC.

The British government have implemented 92/116/EEC through The Poultry Meat, Farmed Game Bird Meat and Rabbit Meat (Hygiene and Inspection) Regulations 1994 as amended and replaced by The Poultry Meat, Farmed Game Bird Meat and Rabbit Meat (Hygiene and Inspection) Regulations 1995⁴² (the main reason for the change from the 1994 to 1995 regulations is the transfer of enforcement responsibility from local authorities to Agriculture Ministers acting through the Meat Hygiene Service). The regulations describe the conditions which must be satisfied for the production, cutting up and storage of such meat intended for sale for human consumption. Specifically, the regulations:

⁴⁰ Meat from bovine animals which were born, reared and slaughtered in any of the countries listed in Appendix III is exempt from the prohibition of sale.

⁴¹ These regulations have been amended by The Fresh Meat (Beef Controls) (No.2) (Amendment) Regulations 1996, altering two conditions of eligibility for exemption, and one condition for continued membership of the Beef Assurance Scheme.

⁴² As amended by: Food Safety (General Food Hygiene) Regulations 1995; Food Safety (Temperature Control) Regulations 1995.

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- prohibit the use of premises as a slaughterhouse, cutting premises, cold store or re-wrapping centre unless they are licensed
 - require the Minister to arrange for the carrying out of pre-slaughter health checks and post-mortem health inspections, and also to make provision in relation to the application of the health mark
 - specify the conditions to be complied with in relation to the sale of fresh meat for human consumption and, subject to specified exceptions, prohibit the sale of such meat unless those conditions are complied with
 - specify the documents necessary when transporting fresh meat and require veterinary surgeons to keep specified records
 - specify the duties of the occupiers and producers
 - create offences and prescribe penalties
 - enable the Minister to recover specified costs from producers
 - require food authorities to supply specified information to the Minister
 - specify the enforcement authorities and make provision for the application of various provisions of the Food Safety Act 1990.

4.3.3.2. General Process Standards

ISO 9000:

The International Standards Organisation (ISO) 9000 is the most widely applied form of self-regulation. The ISO 9000 series of standards detail internationally accepted procedures and guidelines to maintain a consistent quality in product design, production, installation and servicing; as such, ISO 9000 standards specify the elements that a quality management system must have in order to produce final products that meet required standards.

Application of ISO 9000 in the UK beef and pork sectors has been low. The reasons are that successful acceptance to ISO 9000 accreditation requires that the quality management system in place is able to produce final products that consistently meet required specifications. However, ISO 9000 certification concerns system quality only, rather than end product quality specifically, and as such ISO 9000 certification in no way ensures that a firm produces products that satisfy external standards. As such, ISO 9000 systems only take into consideration meat hygiene and safety requirements if they are specified by the customer;

however, in order to satisfy the legal requirements of the 'due diligence' defence, producers must ensure that accepted good hygiene practice has been adhered to - something ISO 9000 is unable to do. Allied to this problem UK food firms, whilst acknowledging the principles of ISO 9000, consider the standard to be lacking the flexibility necessary to deal with the great variety (in type and quality) of raw food materials and products which are found in the beef and pork sectors.

Accreditation:

As described in Section 4.1., multiple retailers impose strict product and process standards on suppliers (slaughterers and processors) of their own-label products. Such accreditation to ensure the attainment of standards can take several forms. It may be through a self-regulating mechanism (e.g. trade association), or through market regulation, i.e. at the insistence of a customer.

Accreditation may be achieved in several ways:

- First party accreditation: A *trade body*/**customer** inspects their *members/suppliers* and audits against their own standard.
- Second party accreditation: A *trade body*/**customer** instructs a third party to inspect their *members/suppliers* and audit against the *trade body's/customer's* standard.
- Third party accreditation: A *trade body*/**customer** instructs a third party to inspect their *members/suppliers* and audit using the third party's standard.
- Self-accreditation: The supplier inspects themselves using the customer's audit manual

European Food Safety Inspection Service (EFSIS)

EFSIS is the largest food third party accreditation company in the United Kingdom. In addition to industry-specific standards laid down by schemes such as British Quality Assured Pork (see below), the general hygiene standards required for third-party accreditation are important in the fresh meat sector. Third party accreditation is regarded as an effective mechanism for providing a 'due diligence' defence under the Food Safety Act 1990. In addition, third party accreditation is now required by many of the major food retailers as a substitute for their own hygiene standards.

In the UK, five organisations are generally accepted by the major food retailers as third party accreditation agencies. Currently, the dominant accreditation agency, particularly in the meat sector, is the European Food Safety Inspection Service (EFSIS), a joint venture between the Meat and Livestock Commission and Campden & Chorleywood Food Research Association (C&CFRA). The EFSIS standard lays down detailed standards for different production situations covering structure and procedure in the following areas:

- Quality policy
- Quality manual
- Management responsibility and authority
- Product design and development
- Plant design
- Equipment design
- Plant hygiene and housekeeping
- Maintenance
- Pest control
- Waste disposal
- Catering facilities
- Site
- Transport
- personal hygiene

These standards are more detailed and wide-ranging than those laid down by current public regulation but are more flexible in a number of respects:

- Plants which are audited under the EFSIS standard can achieve one of three results: 1) failure; 2) acceptable; or 3) accredited. The majority of plants do not achieve accreditation with their first audit, but are given a detailed list of improvements which are required to achieve accreditation. Thus, the results is not simply compliance or non-compliance as is the case with standards laid down under public regulations.
- Although the standards are highly detailed, there is significant scope for interpretation and flexibility according to the particular plant being audited, for example allowing for differences in the level of risk associated with particular types of product and the history of the plant.
- The individual conducting the audit tends to be more highly qualified and experienced than public enforcement officials and better able to take account of the particular circumstances of the plant and to advise on which improvements are required to achieve accreditation..
- Third party accreditation is a positive feature which can be used in marketing to the company's advantage. This contrasts with compliance with public regulations which is regarded as a minimum requirement to which all operators must comply.

The standards laid down by third party accreditation agencies are fast becoming *de facto* standards within the UK food sector. Indeed compliance with such standards is now widely regarded as an entry requirement to many markets, in particular the major multiple food retailers. Thus the fresh meat sector has effectively become sub-divided into two quite separate markets:

- Slaughterhouses and processors which comply with third part or retailer standards and supply the major markets for fresh meat, for example the major multiple retailers and caterers. Operators in this segment of the market automatically comply with public regulatory requirements.
- Slaughterhouses and processors which do not conform with third party accreditation or retailer standards and supply minor markets, for example small retail outlets and caterers.

Some operators in this segment of the market may not even comply with public regulatory requirements.

Because of the high entry costs associated with the first group, these two market segments effectively operate quite separately from one another. The structure of each segment differs markedly from one another. The first segment is composed of large and some medium sized enterprises (as well as some small specialised companies producing high value products) which have the resources to invest in compliance with stringent *de facto* industry hygiene standards. The second segment is composed of small and some medium sized enterprises with limited turnover, which lack the resources to comply with any standards exceeding current public regulatory requirements.

There is currently a debate over the further development of third party accreditation in the UK. There are suggestions that, if accreditation agencies become accepted by public enforcement officials, third party accreditation could become part of the mechanism through which public regulation is enforced in the UK. The problem with this system is that no standards currently exist for the control of the accreditation agencies themselves. The system is therefore entirely market driven with the legitimacy of a particular standard entirely dependent on its acceptance by the dominant operators in the sector.

4.3.4. Retail

The retail sector of the UK comes under the rules and regulations of the general food hygiene regulations, for example, Hazard Analysis requirements.

The retail sector trading in meat and meat products in the United Kingdom has several categories, however, the majority of sales for red and white meat come from two main types of outlet⁴³: a) independent retailers. b) multiple-retailers. The quality policies adopted by the two categories are stated below.

4.3.4.1. Independent retailers

⁴³ Section II has indicated that although the majority of sales are through multiples, three other sources (including butchers) are responsible for 25% of sales.

Independent retailers (butchers) have a diminishing market share of meat sales in the United Kingdom. One problem is that they are generally individual units, with no central standard of trading (over the standard legally required); this is in contrast to multiple retailers which have consistent quality assurance standards across all stores. As a way of providing increased quality assurance in butchers, several Q.A. schemes have been introduced.

Q Guild

Administered through the Meat and Livestock Commission, Q Guild Limited, formed in 1986, is a marketing group of independent retailers with the objectives of:

- developing new retailing and processing skills and exchanging technical information among members
- extending the range of products on sale in members' shops, and ensuring that the products are of the highest quality
- creating public awareness of the Q Award and gain its national recognition as a mark of excellence for quality, service and expert advice
- placing emphasis on good marketing and strong promotion.

In order to be accepted onto the scheme (Q Award), detailed standards and procedures must be adhered to in addition to legislative regulations; the following gives a summary of areas specifically taken into consideration by Q guild:

- Outside appearance of shop
- Inside appearance of shop
- General hygiene
- Product displays
- Meat and meat products quality
- Meat preparation areas and equipment
- Processing areas and equipment
- Chill room, freezer and display area temperature control
- Dry goods stores
- Staff amenities
- Staff knowledge, attitude and appearance

- Site curtilage

Inspection of Q Guild premises is carried out by the technical staff of British Meat Quality Assurance (BMQA).

Shop with Assurance

The Shop with Assurance scheme⁴⁴ is run by the National Federation of Meat Traders and has been developed in liaison with the Meat and Livestock Commission. The aims of the scheme are two-fold: i) to provide consumers with reassurance about quality and safety standards; and ii) to provide a framework of controls as the basis for a 'due diligence' defence for the independent butcher. Specifically, the scheme allows demonstration that a comprehensive system is in place, enables considered inspection of suppliers and top down control, and, of most importance is independently assessed by a recognised third party accrediting company. Standards are set through the use of a Shop with Assurance manual (which provides advice and information on technical and legal aspects of meat and food retailing), and maintained through an annual inspection.

⁴⁴ Currently only available for independent retail butchers shops in England and Wales whose proprietors are full-time members of the National Federation of Meat Traders.

Shop with Confidence

The Shop with Confidence scheme⁴⁵ is similar to that of Shop with Assurance. It was devised in collaboration with the Meat and Livestock Commission, launched in November 1991 and is run by the Scottish Federation of Meat Traders' Association. Currently the scheme has over 200 accredited members. The scheme aims to ensure that scheme members comply with the demands of current food hygiene legislation, in particular the Food Safety Act 1990, and in doing so aims to set and maintain good standards of retailing practice among independent Scottish butchers. Standards are set through the use of a manual, together with independent inspection.

The Guild of Q Butchers

The Guild of Q Butchers is a new national Quality Assurance scheme designed to improve upon and replace the three existing schemes (Q Guild, Shop with Confidence, Shop with Assurance) in the independent sector of the retail meat industry.

The new Guild of butchers will be exclusively for independent retailers, i.e. supermarkets (and franchise operations within supermarkets) will not be admitted membership.

Entry to the scheme is by subscription, inspection and accreditation, and is open to all independent butchers in the UK who are members of a national federation. The main aim of the scheme is to develop and reinforce customer confidence in the independent butcher by providing high standards of food safety, hygiene, retail practice and product quality. There are three membership levels:

1. Standard Membership: qualification will be by annual inspection to ensure compliance to statutory requirements and Guild standards.
2. Product Evaluation: members may submit products made on their premises for independent evaluation. Products meeting the Quality standards will be awarded certificates and members may then display the appropriate symbol.

⁴⁵ Currently only available for independent retail butchers shops in Scotland whose proprietors are full-time members of the Scottish Federation of Meat Traders' Association.

3. Business and Marketing Club: the aim is to promote the exchange of information amongst independent butchers through regular meetings of regional groups.

4.3.4.2. Multiple retailers

As section II has indicated, multiple retailers have, by far, the largest share of retail meat sales in the United Kingdom accounting in 1995 for 61.9% of pork sales, 59.2% of beef sales, and 70.2% of poultry sales, with the five largest multiples accounting for nearly 50% of overall sales. As such, multiple retailers in the United Kingdom enjoy a dominant relationship with suppliers, supported by a majority of U.K. consumers who place trust in the multiples to provide them with safe, high quality food. Multiple retailers therefore specify detailed process (safety and hygiene) and product (specific quality characteristics) to suppliers which are generally higher than those for private regulation; as such, some multiples may not always accept food produced under private schemes (e.g. Tesco, Sainsbury, Safeway, Marks and Spencer), preferring instead to impose their own standards. Presumably, given the high costs associated with maintaining the necessary staff of food technologists to audit prospective suppliers, these companies perceive a competitive advantage in imposing their own standards over and above those that are accepted by the industry as a whole. On the one hand, superior hygiene standards can be used to market high levels of food safety to consumers; on the other, stringent hygiene standards, with high initial entry costs for suppliers, may be a source of competitive advantage for the retailers over their suppliers. The cost for the sector as a whole is that a number of hygiene standards persist within the market place, all of which are well above the minimum laid down by public regulations.

In the UK, multiple retailers impose strict product and process standards on suppliers of their own-label products. In the case of hygiene standards, accreditation to ensure the standard has been attained is regarded by the retailer as an entry requirement which must be satisfied before trade can take place, as described in Section 4.3.3.

Industry voluntary quality assurance schemes may be accepted by multiple retailers but only in as much as they form part of an overall quality assurance system developed by retailers for meat sourcing. For instance, multiple retailers' interest in animal welfare (through consumer interest), has dictated that all multiples have animal welfare requirements within their quality

assurance standards. However, not all multiples source from Freedom Food produced meat. Those retailers that do not accept such sourcing have developed their own animal welfare requirements. Retailers that do source from Freedom Food suppliers include Tesco, Co-op, Safeway and Somerfield. To these retailers it is seen as a viable way of fulfilling customer demands for animal welfare assurance within a commercial framework. As of November 1996, Freedom Foods could be purchased from retailers as stated in appendix 4.

Multiple retailer standards are perceived as one of a series of factors in securing a competitive advantage, and as such are not available for public scrutiny. However, the power of the large multiple retailers in dictating their terms to suppliers should not be under-estimated. The following lists some of the major multiple retailers in the UK and adds what is known about individual multiple retailer's quality policy for meat. Although each retailer has their own method of achieving standards (where some retailers use third parties to carry out basic hygiene audits, and others use in-house technologists), the majority have similar *general* requirements to each other. Sainsbury's is used as an example of how the requirements for meat fit into the *general* requirements for food (and non-food) own-label products.

- Sainsbury's

The Sainsbury's (J.S.) Product Management System (PMS) incorporates all the key elements of the JS quality system. The manual is used as a general 'framework policy document' for all J.S. procured own-label products, and operates at two levels: 'Partnerships with Suppliers', and 'Management of Products'. 'Codes of practice' are supporting documents which expand on the PMS, giving a guide to compliance; 'Horizontal technical policy' lays down legislative requirements; 'Vertical technical policy' lays down requirements for specific products; and 'Specifications' (the most specialised documentation), lays down specific instructions as to how a specific product should be produced, cut, packed etc.

The key components of 'Partnership with Suppliers' include:

- *Vetting*: Before supplying begins, the supplier must be vetted to assure the principles of the PMS are operating. Vetting covers facilities, systems and Good Manufacturing Practices;
- *Process*: It must be demonstrated that the supplier has developed and implemented an effective Hazard Analysis Critical Control Point (HACCP) system;

-
- *Audits*: Regular audits of suppliers are undertaken by Sainsbury's technologists, which include all aspects of management and manufacturing control, and a review of the supplier self-audit findings;
 - *Laboratory Accreditation*: Supplier laboratories must undergo independent assessment and accreditation to assure accurate and reliable analysis;
 - *General Codes of Practice*: Suppliers must demonstrate compliance with Good Manufacturing Practice; standards of operation for hygiene, safety and legality.
 - *Supplier Self Audit*: Suppliers are encouraged to assume responsibility for self auditing as part of a Quality System - by demonstrating compliance with the Product Management System.

The key components of 'Management of Products' include:

- *Product Specification*: Each product is manufactured with a detailed specification, covering details of product, process control, packaging, quality assurance, storage and distribution;
- *Product Safety Approval*: Based on Hazard Analysis Risk Assessment, the approval ensures the safety of product;
- *First Production*: An initial production run is required to ensure compliance with specifications and codes of practice;
- *Specific Technical Policies*: These are detailed quality parameters for specific products and practices to ensure their safety;
- *Customer Complaints*: A computerised system allows trends in quality and safety to be updated frequently and accessed easily;
- *Product Surveillance*: An on-going analytical programme designed to monitor all the quality assurance systems.

Sainsbury's system for procuring fresh meat follows the general system outlined above, with product specific vertical policy and specifications. As with many large multiple retailers, Sainsbury's has additional requirements for the sourcing of fresh meat; the main requirement being that all fresh meat sold throughout the chain must be farm assured. The Sainsbury's farm assurance scheme 'Partnership in Livestock' lays down standards and specifications in addition to the general safety and quality requirements for Sainsbury's own-label products.

Requirements are laid down at both the farm, and processor levels: animal welfare, traceability, diet, medicines and handling at the farm level; and specifications for slaughter and post-slaughter handling, cutting and packing at the processor level. Several private industry schemes are accepted as being consistent with Sainsbury's assurance requirements: The larger ones including: An Bord Bia, FABBL, SQBLA, and FABPigs.

- Safeway

As for Sainsbury's, Safeway have general quality and safety requirements for sourcing own-label requirements; the requirements are mainly aimed at the abattoirs and processors. For fresh meat, Safeway require general food safety and quality assurance procedures to be carried out, but, like Sainsbury's, have additional requirements, in the form of a farm assurance scheme 'Safeway Farm Assurance and Animal Welfare Standards'. The standards cover stock replacement, feed, medicines, handling, habitat, transport, markets, and traceability, as well as dictating specific requirements for abattoirs. Unlike the Sainsbury's scheme. Safeway do not deal specifically with the producers, as such, all the requirements on the producers must be dictated indirectly, through approved abattoirs. Safeway accept stock from most larger UK farm assurance schemes, for example: FABBL, SQABLA, and FABPigs.

- Marks and Spencer

Marks and Spencer run the 'Select Farm Scheme' for Aberdeen Angus and traditional beef. Developed over 5 years in conjunction with the Agricultural Development and Advisory Service (ADAS) and M&S specialist beef supplier Scotbeef, it covers stockmanship, traceability, health, feed and housing, and in seeking attain consistent eating quality, the breed, sex, age and pre- and post-slaughter rules are stipulated. For pork, M&S is reticent in endorsing FABPigs believing that, despite the full traceability and residue testing, FABPigs is not stringent enough to satisfy M&S brand requirements.

4.4. Integrated standards

Integrated standards are defined as those which a) encompass the whole, or multiple parts of the production chain; b) encompass both product and process requirements, c) both a) and b). As such, there are a wide variety of standards which are identified as integrated.

4.4.1. Integrated Process Standards

A number of private, industry-level integrated quality schemes exist for fresh meat in the UK. Historically, the operating standards and procedures for most early red meat product quality assurance schemes (those developed in the mid- 1908s) concentrated on hygiene, process control, structures and finishes within either the abattoir or processing plant. More recently scheme standards have reflected increasing consumer and retailer concerns about food safety and animal welfare, and have also considered new information on factors affecting meat quality. As a result of the 'Due-Diligence' clause in the Food safety Act 1990, a particular concern for retailers has been the traceability of meat, and therefore there has been a demand for schemes which integrate different levels of the meat supply chain. Retailers have also seen opportunities in segmenting the market based on the level and content of quality assurance schemes.

Quality Assurance schemes may be seen as superior to ISO 9000, in as much as being more flexible and therefore able to meet the demands of the particular industry and selected parts of the supply chain, whilst incorporating similar quality management procedures to ISO 9000.

Integrated quality assurance schemes cover standards for more than one part of the meat supply chain, for instance, covering farm production and transport, or slaughtering and processing. Integration is perceived as the only way to ensure quality, however, quality assurance schemes integrating the whole supply chain do not at present exist, but are being seen by industry and government as a logical way of increasing transparency and traceability. The following schemes integrate parts of the supply chain.

Farm Assured British Pig Scheme

Within the UK pig meat sector the Farm Assured British Pig Scheme (FABPIGS) has been designed with the aim of providing assurance to the purchasers of pigs (from registered herds) on specific aspects of animal husbandry and herd management on farm. The scheme achieves

this by laying down quality standards for the farm production and transport of animals up to slaughter⁴⁶. The most important aspects of the first part of the scheme 'on-farm' are: i) traceability - in light of the growing recognition of the importance to the purchasers of full supply chain traceability of the final product, FABPIGS, works in conjunction with the BMMA's Charter Quality British Bacon and Ham Schemes, and the British Quality Assured pork Scheme, to provide traceability at every level of the food chain. ii) medication - members are required to meet the recommendations of the codes of practice relating to medicines, over and above the current relevant legislation. iii) welfare - members are required to meet the recommendations of the FAWC 'welfare of livestock - Pigs', over and above the current legislation. iv) monitoring - assurance is reinforced by monitoring of members' premises, stock, records and carcasses; approved Veterinary Officers, overseen by the MAFF State Veterinary Service carry out these duties. Other detailed requirements include:

- stock sourcing
- housing
- fire and other emergency precautions
- ventilation and temperature
- lighting
- mechanical equipment and services
- feed and water

The second part of the scheme concerns the transport of animals to the slaughter house. All pigs within FABPIGS may only be transported by livestock hauliers who are members of the FABPIGS Transport Scheme⁴⁷. As with the 'on-farm' part of the scheme, membership requires that relevant legislation and codes of practice are adhered to. Additional to this however, detailed standards must be maintained with regard to:

- drivers
- training
- driving
- livestock transporters

⁴⁶ FABPIGS has replaced the British Quality Assured Pig Initiative (BQAPI), which did not have a *compulsory* transportation element.

-
- loading/unloading of animals
 - stocking densities
 - separation
 - fitness of pigs
 - ventilation
 - roadside checks
 - vehicle cleansing
 - records
 - planning
 - despatch notes
 - monitoring

FABPIGS links directly into the two processor schemes for pigs in UK: British Quality Assured Pork for fresh pork, and the Charter British Bacon and Ham Schemes for processed pig meat. Currently approximately 60% of UK pigs are produced and transported under FABPIGS. Forecasts suggest that this will increase to 80% by the beginning of 1999.

Recent recognition of FABPIGS by SPII (and visa versa) has enabled FABPIGS to be accepted by England, Wales and Scotland, thus becoming a national quality assurance scheme.

Farm Assured British Beef and Lamb

The Farm Assured British Beef and Lamb scheme (FABBL), administered by the Meat and Livestock Commission, was created in 1992 in response to consumers' increased concerns regarding the quality of meat they buy, farm animal welfare, and husbandry and feeding practices, and hence retailers demands for higher standards of both end product and process. Although several smaller farm assurance groups had been formed it was felt necessary to create a nation-wide scheme which would ensure consistent standards and avoid the proliferation of many different schemes with differing standards (causing confusion to both retailer and consumer and ultimately damaging the meat industry).

FABBL scheme standards for beef production cover:

⁴⁷ This scheme takes over from and updates the voluntary BQAPI's Transport Scheme.

-
- Origin of Stock
 - Husbandry and Welfare
 - Feed Composition and Storage
 - Housing and Handling Facilities
 - Medicines and Veterinary Treatments
 - Movement Records and Medicine books
 - Identification and Marking

The scheme may be joined directly or through the corporate membership system.

The major benefits to producers from joining the scheme appear to have been in meeting the requirements of existing customers, and developing new sales opportunities, while gaining assistance in complying with the Food Safety Act. Major benefits to retailers appear to have been satisfying consumer demand and assistance with a 'due diligence' defence. Indeed, from the retailers point of view such assurance is becoming compulsory with some UK supermarket chains, including Tesco and Sainsbury informing both deadweight and liveweight suppliers that from May 1996 they demand all red meat supplies are sourced from FABBL producers.

Table 61. Numbers of farmer members of FABBL 1993-1997

Year	Number
March 1993	500
March 1994	1,000
March 1995	2,000
March 1996	4,000
July 1996	10,271
March 1997 ^a	20,000

^a = estimate

Source: Farmers Weekly (1997)

Scotch Quality Beef and Lamb Association (SQBLA)

SQBLA, set up in 1974, promotes the qualities of Scotch Beef and Lamb to wholesalers, retailers and consumers. Currently SQBLA is responsible for the administration of a) SQBLA Farm Assurance scheme; b) Guild of Scotch Quality Meat Suppliers.

SQBLA Farm Assurance scheme

Farm Assured Scotch Beef was launched in 1991, and subsequently integrated with Farm Assured Scotch Lamb under the direction of Farm Assured Scotch Livestock. (1991-1994). Since 1994 the scheme has been run under by SQBLA, and recently under contract to Scottish beef farmers are required to meet strict standards of production by law via a number of government schemes, for example: Beef Special Premium; Suckler Cow Premium. Farm Assured Scotch Beef requires that standards over and above those legally required are undertaken in order to meet the criteria of the scheme. The scheme standards concern 'on-farm' and transport animal welfare and food safety issues, specifically:

- Origin of Stock
- Stockmanship and Welfare
- Feed Composition and Storage
- Housing and Handling Facilities
- Medicines and Veterinary Treatment
- Movement and Record Keeping
- Traceability
- Livestock Loading and Transport

Specific codes of practice relating to the handling, selling and dispatch of livestock have also been developed with auctioneering companies, leading to increased animal welfare, reduced stress and ultimately, better eating quality. Currently, Scottish farm assured livestock accounts for over 85% of the Scottish kill.

Guild of Scotch Quality Meat Suppliers

Formed in 1988 by a group of Scottish meat wholesalers, The Guild of Scotch Quality Meat Suppliers provide the retail market with Quality Assured Scotch Beef (and lamb), and currently comprises 20 major meat wholesalers accounting for over 85% of processed Scotch Beef and Lamb. The Guild runs a quality assurance scheme - Scotch Quality Assurance, which produces Specially Selected Scotch Beef (and lamb).

The scheme rules include:

- Sourcing: from SQBLA farm assured animals only

-
- Quality: carcass fat and conformation specifications; carefully controlled chilling and maturation
 - Appearance: no bruising, blood splash or dressing blemishes
 - Plant Inspection: Regular, unannounced inspection by the Meat and Livestock Commission covering standards for temperature and process control, and equipment and structure.

Scottish Food Quality Certification Ltd.

Certification and control procedures of the Scottish assurance schemes (covering among others, Beef, Lamb and Pork) are implemented by Scottish Food Quality Certification Ltd. This overseeing company has directors from SPII, SQBLA and the other organisations running individual assurance schemes.

Table 62. Number of members of Scottish meat assurance schemes

Year	Pigs	Beef
1990	50	----
1991	120	400
1992	150	700
1993	170	1,000
1994	200	1,000
1995	250	4,000
1996	N/A	8,000

Source: SFQC (1996)

Freedom Food scheme

The Freedom Food scheme, launched in 1994 and run by Freedom Food Scheme Ltd⁴⁸, is an animal welfare quality assurance scheme approved by the Royal Society for the Protection of Cruelty to Animals (RSPCA). The scheme is designed so that any element of the meat supply chain (farmer, haulier, abattoir, processor) upon satisfactory inspection and proven compliance with the relevant requirements of the scheme, may use the 'Freedom Food' mark.

The scheme is available for Pigs, Beef Cattle and Chickens (amongst others) and is based on the 'five freedoms' as defined by the Farm Animal Welfare Council (see appendix 5). The Freedom Food standards aim to ensure that throughout the life of an animal it is: properly fed; comfortably housed with appropriate shelter; receives regular and, where necessary, immediate veterinary treatment; is allowed to behave normally; and is transported and slaughtered with a minimum of suffering.

The key elements of the scheme relating to pigs are:

- Sows not to be tethered or kept in stalls
- Straw or equivalent bedding must be provided
- Farrowing crates are to be phased out as soon as practicable alternatives become available
- Critical stocking densities must not be exceeded for any age, size or purpose
- Pigs must not be sold at livestock markets
- No unnecessary mutilations (including castration)

The key elements of the scheme relating to beef cattle are:

- Provision of a wholesome diet which ensures full health and vigour
- A Veterinary Health Plan developed to cater for the needs of each individual farm
- Livestock attended by caring, knowledgeable stock-keepers
- An environment which provides thermal and physical comfort and protects from injury
- Minimal and considerate handling, transport and humane slaughter
- Animals sold through livestock markets lose their Freedom Food status

The key elements of the scheme relating to dairy cattle are:

- Straw or equivalent bedding must be provided in the lying area
- Stocking densities must not be exceeded for any age, size or purpose
- Cull dairy cattle must go direct to slaughter and not be sold at livestock markets
- No unnecessary mutilations
- No routine use of in-feed growth promoting substances in the lactating cow
- No ruminant animal protein in feed

The key elements of the scheme relating to chickens are:

- Generous space allowance
- Air quality, lighting levels and feeding patterns carefully managed to keep birds fit and healthy
- Environmental enrichment to stimulate activity
- Strict salmonella testing programme
- No growth promoting drugs in feed
- Veterinary health plan

4.4.2. Combined product/process standards

Combined product and process standards lay down specifications for the processes through which the meat goes through, and for the end product quality and how it is produced.

Table 60 indicates public and private process and product standards in the United Kingdom.

Table 60: Public and Private Integrated Process and Product Standards relevant to Fresh Meat in the United Kingdom

⁴⁸ Freedom Food Ltd is a wholly owned subsidiary of the Royal Society for the Protection of Cruelty to Animals (RSPCA); it has been formed to implement and monitor the RSPCA approved humane rearing and handling standards (in the Freedom Food scheme)

Integrated Process and Product Standard	Administrator	Objectives	Level of food chain affected
PRIVATE			
Scottish Quality Pork	SPII	Quality standards for process and product	All
British Quality Assured Pork	MLC	Quality standards for process and product	Processors/ Retail
MLC Blueprints	MLC	Improve eating quality of meat	All
European Quality Beef Scheme	In UK: Intervention Board for Agricultural Produce	Promote consumption of beef and veal	All

Scottish Quality Pork

The Scottish Quality pork scheme was developed by the Scottish Pig Industry Initiative (SPII) and was launched in June 1990. The scheme, on which FABPIGS is part based, lays down quality standards for production, transport, slaughtering and processing of pigs. 'On-farm' regulations cover :

- origin of stock
- management, stockmanship and welfare
- veterinary medicines and health supervision
- stock accommodation and handling facilities
- feeding and water provision
- air temperature
- farm cleanliness

Standards for the loading and transport of live pigs include:

- driver training in welfare standards
- vehicle design
- vehicle cleanliness
- stocking density

Standards are also laid down regarding slaughter and processing of the meat, as well as final product standards regarding specification. Quality Assurance on pigmeat covers approximately 80% of Scottish producers.

British Quality Assured Pork

The British Quality Assured Pork scheme, administered by the MLC, lays down industry-wide standards and monitoring procedures for the unloading, lairage, slaughtering and processing of pigs. The British Quality Assured Pork Quality Mark may only be applied to cuts from pigs which have been supplied through FABPIGS; this is necessary to ensure full traceability throughout the supply chain. All approved abattoirs and cutting plants approved by BQAP, or those which market the meat as British Quality Assured Pork, are therefore required to operate a documented traceability system.

Detailed specifications are enforced which cover all aspects of meat quality:

- Quality analysis critical control point in abattoirs and cutting plants
- Handling of live pigs
- Slaughter of pigs
- Dressing of carcasses
- Carcass side specification
- Quality marking of sides
- Chilling of meat
- Configuration of primals and cuts
- Storage and labelling
- Product selection and traceability
- Consumer acceptability

Not only is the process subject to quality standards, but the end product (sides and cuts) are subject to specifications within the scheme. Consumer acceptability also requires organoleptic testing of the end product.

Monitoring of the scheme includes Official Veterinary Surgeon (OVS) monitoring of abattoir hygiene standards, including checks on live animals and carcass meat. Approved abattoirs are

externally audited against the operator's Quality Analysis Critical Control Point document (QACCP) by the Quality Assurance Department of the MLC.

The standards laid down by the Scheme satisfy current regulatory requirements and codes of practice and can be used as a 'due diligence' defence under the Food Safety Act 1990, but in addition lay down more stringent requirements; for example, abattoirs and cutting plants must conform to the Fresh Meat (Hygiene and Inspection) Regulations 1995, but also operate a HACCP-based quality control system which is not a regulatory requirement. Further, pork produced under the Scheme must be stored at between 0°C and 3°C, whilst the current regulatory requirement is for storage under 7°C.

To date, the majority of the retailers have accepted or are considering the standards laid down by the British Quality Assured Pork scheme and the expectation is that the majority will adopt it as their own standard. This reflects the generally held view that the only reliable mechanism for ensuring the safety and quality of pork is through industry-wide standards which incorporate and are generally accepted by all operators in the production system.

MLC Blueprints

The Meat and Livestock Blueprints for Beef and Pork (and lamb), first introduced in late 1991 and 1992 respectively, are the output from three years research into the factors which influence eating quality of the meats. The development programme has included reviews of world scientific literature on the different meat qualities, in association with in-house trials. The Blueprints lay down guidelines which build on and extend best industry practice. Each blueprint represents a package of measures which should ensure that the meat is of consistently good eating quality. Standards have been specified for the following process areas:

- Procurement
- Farm Production
- Loading and Transport of Live Animals
- Abattoirs and Cutting Plants

Recommendations are also in place regarding both the intermediate and end product:

- for Carcasses and Sides specifications
- for Primals and Retail Cuts specifications
- for labelling

The effects of the Beef Blueprint throughout the industry have been considerable. The objective of the Blueprint (to improve average eating quality and so encourage a growth in consumer confidence) appear to have been met with evidence of improved consistent eating quality; it is estimated that in 1994, some 60% of beef sold through the top five retailers was Blueprint produced (MLC, 1994^a). Abattoirs have reviewed their operations, in terms of cutting techniques, and in some cases additional chilling capacity, however, measurement of the volume of Blueprint beef passing through abattoirs is difficult. In terms of benefits it appears that the consumer has benefited the most, in terms of i) improved eating quality; ii) range and extension of greater choice. The two major effects on retailers have been i) that those offering two varieties of beef adopted the Blueprint specification for their premium product; and ii) with their suppliers they developed a secondary product which sold at a premium over their standard offering, and encompassed the Blueprint specification (MLC, 1994^a); appendix 6 gives examples of existing product specifications reviewed and examples of

new ranges developed. Indeed, between 1992-1996 a number of major retailers have given unconditional guarantees regarding the eating quality of the beef they sell.

European Quality Beef Scheme

The 'European Quality Beef' Scheme has been put into operation through European Council No 2067/92 (as amended) on measures to promote and market quality beef and veal, and European Commission Regulation No 1318/93 on detailed rules for the application of EC 2067/92.

The main aims of the scheme are to part-finance⁴⁹ measures undertaken by trade and inter-trade organisation to promote and market quality beef and veal. Such measures may include the control of meat quality throughout the chain of production, from the producer to consumer. The main reason for the scheme development is the recognition (at Community level) of the long-term decline in member states' consumption of beef and veal, and a need to try and stimulate demand, thus reducing surpluses.

Community part-financing is subject to the following requirements:

Origin: Specific breeds and first crosses of those breeds only;

Health Monitoring: Registration and additional checks on-farm;

Residues: Additional checks for illegal substances on live animals, carcasses and feed;

Welfare: Application of national and international standards;

Identification: Individual animal identification system;

Transport and pre-slaughter: application of European standards and stress elimination

Product: Fresh meat only;

Type of Carcase: Bulls (A); Steers (C); female animals less than 48 months;

Category: Conformation - SEUR; Fat cover - bulls (2 and 3), Cows and castrated animals (2, 3);

Hygiene: Application of Community standards;

pH: less than six;

Maturing: At least seven days from slaughter to placing on sale to consumer;

⁴⁹ To a maximum of 60% of the actual cost of a measure.

Wholesale and retail marketing: Monitoring and checks to establish whether meat does lose quality as result of inappropriate handling and storage;

Traceability: By means of the individual animal identification system covering carcasses up to the point of retail sale and from point of sale back to the animal.

The UK the authority with powers to oversee proposals, and to distribute any monies forthcoming is the *Intervention Board for Agricultural Produce*. To date, the main beneficiary in the UK of the European Quality Beef scheme is the Meat and Livestock Commission.

Section VI

Conclusion

The most striking feature of the UK quality policy for meat in the United Kingdom is the growth in both self- and market *private* regulation, where such standards may be general (e.g. ISO 9000) or product specific (e.g. FABPIGS). Although detailed product and process standards remain the dominant approach to food safety regulation, there is evidence of a shift to more flexible and performance based standards.

The position of a few major multiple retailers, as guardians of consumers' trust, enable them to impose their own standards and regulations on the rest of the supply chain which are, in many cases, more stringent than public regulations. As a result, many industry voluntary quality assurance schemes will survive only if accepted by the major retailers. This market regulation has occurred as a direct result of the introduction of the 1990 Food Safety Act, and in particular the 'due diligence' clause. By making retailers liable for their 'own' products, pressure has been exerted on retailers to audit their own-label suppliers against standards which the retailer felt would assure a 'due diligence' defence. Such auditing is time consuming, and therefore second party auditing became more common, but with the standards provided by the retailer. Third party accreditation companies grew up in response to a perceived demand that retailers would find cost savings in redeploying their technical staff away from auditing suppliers, whilst being seen to employ an independent authority to check the safety and legal status of the food supplies. The advantages to suppliers were evident in that many which supplied several retailers were having to undergo audits from each one; an independent audit, accepted by all their customers would save on technical staff time.

The growth in private self-regulation can be seen as a response to the growing concerns of consumers and retailers for increased traceability and transparency in the wake of several food scares, most notably the BSE scare in 1996. Whereas some self-regulating schemes, both at the producer/processor level, and retail level, were initiated in the 1980s or early 1990s for reasons other than a response to food scares, the focus of most of these schemes has changed over time to assure traceability and animal welfare. Such self-regulation is becoming closer to market regulation, with many retailers, both independent and multiple, now demanding that all meats

are sourced through schemes which allow traceability, and lay down standards for production on farm, and animal welfare up to slaughter, and standards for slaughter and processing.

Of particular interest is that the majority of process standards for the selected meats in the UK are concerned purely with safety and hygiene of the meat, rather than with the quality of the meat. i.e. there do not appear to be many process standards which consider quality characteristics such as colour. The obvious way to ensure that the product is not only safely and hygienically produced, but also attains a high standard of quality characteristics, is to implement combined product and process standards. Although there seem to be a relatively large number of private/integrated process standards, and combined product and process standards, the numbers of private product standards remains negligible.

In comparing the extent of quality policies in place for the three fresh meats: beef; pork; and chicken, it is obvious that the former two have a much more complicated and extensive quality structure than the latter. The chicken sector in the United Kingdom is a highly vertically integrated sector; with retailers purchasing large proportions of chickens direct from small numbers of large, vertically integrated production/processing companies. As a result, retail requirements dominate the quality of fresh chicken. To a lesser extent, generic quality assurance schemes play a role in maintaining quality systems, but private voluntary industry quality assurance schemes appear to be non-existent; therefore, the chicken sector does not play a major part in the quality policy section of this report.

The major challenge to the United Kingdom fresh meat sector appears to be convincing the consumer to purchase more fresh (especially red) meat. In light of recent food scares, adverse publicity relating to slaughterhouses and independent butchers, a wide perception of meat as unhealthy, and an increasing concern over the welfare of animals for human consumption, it is necessary that the meat industry co-ordinate efforts to lift the image of the industry, and the image of the product. As this report shows, great efforts are being made to assure the quality and safety of the meat produced, however, as the numbers of quality assurance schemes in operation today indicate, the approach to assurance is fragmented. The consumer also is faced with a plethora of quality assurance 'stickers' at point of sale, which would appear to confuse rather than inform. A co-ordinated approach, based on one major quality assurance system would be to the benefit of industry, and the consumer.

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APPENDICES

Appendix 1.**List of regulations enforced by the Meat Hygiene Service⁵⁰**

The Food Safety Act 1990

The Animals, Meat and Meat Products (Examination for Residues and Maximum Residue Limits) Regulations 1991

The Animals, Meat and Meat Products (Examination for Residues and Maximum Residue Limits) (Amendment) Regulations 1996

The Animal By-Products Order 1992

The Animal By-Products (Amendment) Order 1996

The Meat Products (Hygiene) Regulations 1994

The Fresh Meat (Hygiene and Inspection) Regulations 1995

The Fresh Meat (Hygiene and Inspection) (Amendment) Regulations 1995

The Poultry Meat, Farmed Game Bird Meat and Rabbit Meat (Hygiene and Inspection) Regulations 1995

The Wild Game Meat (Hygiene and Inspection) Regulations 1995

The Welfare of Animals (Slaughter or Killing) Regulations 1995

The Minced Meat and Meat Preparations (Hygiene) Regulations 1995

The Animal By-Products (Identification) Regulations 1995

The Meat (Hygiene, Inspection and Examination for Residues) (Charges) Regulations 1995.

Bovine Offal:

The Specified Bovine Material (No2) Order 1996

The Bovine Offal (Prohibition) Regulations 1989 (as amended)

The Bovine Spongiform Encephalopathy Order 1991 (as amended)

The Beef (Emergency Control) Order 1996 (as amended)

⁵⁰ As of July 1996.

Appendix 2.

Summary of Trade Bodies operating in Northern Ireland

Livestock and Meat Commission for Northern Ireland

Northern Ireland Meat Exporters' Association

Northern Ireland Poultry Federation

Ulster Curers' Association

Appendix 3**United Kingdom approved organic certification bodies:**

- Biodynamic Agricultural Association
- Irish Organic Farmers and Growers Association
- Organic Farmers and Growers
- Organic Food Federation
- Scottish Organic Producers Association
- Soil Association Organic Marketing Company
- United Kingdom Register of Organic Food Standards

Appendix 4.
Freedom Food: Availability and Distribution (November 1996)

<u>Retailer</u>	<u>Product Availability</u>
Tesco	Nature's Choice Fresh Pork (chops, loins, ribs, chump steaks boneless leg and boneless shoulder) Pork sausages, gammon and roast ham prepack Free range eggs Fresh Meat Counters in selected stores selling: Beef, veal, lamb, pork, chicken, sausages, rindless back bacon
CWS/CRS	Branded barn and free range eggs Branded whole fresh chicken Branded bacon Moy Park premium whole fresh chicken (CRS) Beef, lamb and pork (CRS) Mature English ham (from deli counter and pre pack)
Safeway	Branded barn and free range eggs
Somerfield	Branded free range eggs
Asda	Free range and barn eggs in Scotland
Independents	Eggs and bacon
EH Booths ^a	Snugburys Dairy Ice Cream (30 flavours)

^a chain of independent Cheshire based supermarkets

Source: Freedom Food Ltd

Appendix 5.**Farm Animal Welfare Council 'Five Freedoms'****◆ Freedom from hunger and thirst**

- by ready access to fresh water and a diet to maintain full health and vigour

◆ Freedom from discomfort

- by providing an appropriate environment including shelter and a comfortable resting area

◆ Freedom from pain, injury or disease

- by prevention or rapid diagnosis and treatment

◆ Freedom to express normal behaviour

- by providing sufficient space, proper facilities and company of the animal's own kind

◆ Freedom from fear and distress

- by ensuring conditions and care which avoid mental suffering

Appendix 6.
A Blueprint for improved consistent quality beef

Examples of existing product specifications which were reviewed:

<i>Retailer</i>	<i>Product</i>
J.Sainsbury	Traditional Beef
Tesco	Nature's Choice

Examples of new ranges which have been developed:

<i>Retailer</i>	<i>Product</i>	<i>When launched</i>
Safeway	Heritage Beef	September 1993
Somerfield/ Gateway	Farm Assured Beef	September 1993
Asda	Scotch Beef	September 1993
Tesco	Scottish Beef	January 1994
Asda	Yorkshire Beef	September 1994

Source: MLC 1994