

Meeting Environmental and Animal Welfare Requirements through On-Farm Food Safety Assurance & the Implications for International Trade

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Abstract

Over the last decade, the UK agri-food industry has been subjected to significant scrutiny in relation to food safety. Food scares are causing consumers to lose confidence in the industry to supply safe food and in the Governments' ability to protect the public health. In response to this, food safety legislation has been tightened and the industry has developed food safety systems that often exceed the minimum requirements of trading partners. At the same time some in the supply chain have sought to include additional animal welfare and environmental dimensions in farm level quality and safety assurance systems. This paper explores the implications of these developments from the perspective of primary producers and discusses the implications the international trade in food.

Introduction

Consumers in the UK have lost confidence in the food industry to supply safe food; in the UK Governments' ability to protect public safety; and in science to adequately explain the nature of some of the current food problems (McKechnie 1997; Baines & Davies 1997: 1998). Related issues such as the BSE crisis; the use of growth hormones in livestock systems; and the potential adoption of genetically modified organisms have further encouraged consumer concerns. They have also led to conflicts over food import and export between the UK and Europe, and between the European Union and other trading blocks especially the USA. Several factors have clearly contributed to this problem including the implementation of new more risky technologies, Government policies and legislation, but perhaps the most important factor has been a real breakdown in food safety – and greater risks to public health.

Assuring customers and the consumer has currently become a priority issue in food chain management. At the farm level assurance in the UK is mainly concerned with - demonstrating that the systems of agricultural production undertaken do not compromise food safety. Recent research into the equivalence of farm assurance schemes (Baines 1999) has shown that UK schemes generally address risk at the farm level through following production protocols that are 'considered' to ensure safe food. Within mainland Europe, similar schemes have evolved though several included some form of risk assessment at the farm level. This aspect of assurance will be particularly important in the future as the European Commission are proposing to introduce Hazard Analysis & Critical Control Points (HACCP) to all stages of food supply (COM(99)719). On a recent visit to Australia, where the political debate is about how risk assessment should be implemented at the farm level, it was noted that current schemes either addressed safety by following production protocols e.g. Cattlecare, Flockcare or required on farm risk assessments to be made e.g. SQF2000, Great Grains. Food safety legislation in Australia requires HACCP for the whole supply chain and the EU can learn a great deal from their experiences.

Against this background of demanding and demonstrating safe food production practices, some retailers, consumer groups and organisations are also demanding assurance in relation to animal welfare, farming approaches and the environmental consequences of production. Furthermore, the environmental and animal welfare debates are key issues in the current round of World Trade Organisation (WTO) negotiations. In response to these pressures,

many of the schemes operating at the farm level in the UK include reference to various environmental and welfare conditions. The conditions covered, however, are not consistent across schemes and do not address all of the relevant legislation in these areas (see later).

It is for this reason that the UK's Department of Environment, Transport and the Regions (DETR) commissioned a study into the environmental conditions of farm assurance schemes in order:

- ❑ to better understand the impetus behind the development of assurance schemes,
- ❑ to have an evaluation of the environmental conditions included in current and proposed assurance schemes, and
- ❑ to receive recommendations as to how such market-driven measures could be best encouraged in association with the industry.
- ❑ to evaluate whether such market driven mechanisms could be used as part of a wider strategy to deliver environmental policy and legislative requirements.

This study has just been published (Baines *et. al.* 2000a). While undertaking this study, Baines (1999) also applied the above objectives to a study of farm animal welfare in order to evaluate:

- ❑ whether animal welfare measures are considered in a similar way to those of the environment, and
- ❑ whether UK animal welfare and environmental dimensions have wider implications for domestic and international trade.

In this paper, we summarise the findings of these studies and assess the implications for international food trade relationships, using the United Kingdom as a case in point. These arguments will be set against the existing frameworks for the international trade in food products in terms of food safety, environment and animal welfare.

Environmental & Animal Welfare Standards & Trade in Food

International trade in agricultural and food commodities and the increasing number of disputes over barriers to more free trade are major factors contributing to the need for the harmonization of standards in global markets. However, the knowledge of and interpretation of 'Standards' at present is generally lacking (Busch *et. al.* 2000). The impact of the relationships between the activities of two international bodies, the World Trade Organisation and the Codex Alimentarius Commission, have been reviewed in terms of food safety (Baines *et. al.* 2000b). This paper will focus primarily on the environmental and animal welfare aspects of these and other organisations. In addition, the wider issues of sustainable development will be considered.

The World Trade Organisation evolved out of the GATT agreements of 1994, which also included the Sanitary and Phytosanitary (SPS) and the Technical Barriers to Trade (TBT) agreements. The WTO is the only international body dealing with rules of trade between nations. The three principal objectives of the WTO are to help trade flow as freely as possible, to achieve further liberalization through negotiation, and to facilitate dispute settlements. Since the Uruguay Round of GATT, there has been intense debate over the relationship between trade, social and environmental standards (Wiemann 2000). This arises from the preamble of the WTO that included an objective for sustainable development. As a result, the Committee on Trade and Environment (CTE) was set up to resolve contrasting opinions on trade disputes with environmental complications. Three areas of debate have ensued: First, the repercussions of environmental and resource conservation measures of international trade; secondly, the environmental impacts of trade liberalisation policies; and thirdly, the use of trade policies as tools for the achievement of environmental policy objectives. Wiemann (2000) discusses the implications of these in relation to WTO dispute settlement and the implications for world trade, social and environmental standards.

The WTO relies heavily on co-operation with other international bodies in order to implement agreements that may affect the environment or animal health. The SPS agreement references the International Plant Protection Convention (IPPC), the purpose of which is to prevent the introduction and spread of pests of plants and plant products and to promote control measures. International standards for phytosanitary measures are developed collaboratively by regional and national plant protection organisations under the convention. The WTO recognizes these standards under the SPS agreement. Similarly, the Office International des Epizooties (OIE) informs governments and organizations of the occurrence, causes and control of animal diseases throughout the world. The OIE also seeks to harmonize regulations for the trade in animals and animal products and enjoys permanent working relations with the WTO, World Health Organisation (WHO), the Food & Agriculture Organisation (FAO) and participating governments.

The TBT agreement covers regulatory areas not covered in the SPS agreement, and includes product composition or specification and labeling, including 'eco-label' claims. The CTE have yet to reach a conclusion on the use of environmental labels and the implications on trade barriers; however, they recommend that any criteria used in such labeling should be based on clearly defined standards that are transparent to both importing and exporting countries.

The FAO/WHO Codex Alimentarius Commission, established in 1962, is probably the most important international body concerned with food safety standards. The main objectives of Codex are to protect the health of consumers while ensuring fair trading practices. Although Codex Standards are not compulsory, they are increasingly being embraced in national rules and guidelines. Indeed Codex Standards are the only SPS reference for the WTO in arbitration during trade conflicts

Two main approaches to developing Codex standards are evident from member countries and the Codex regional committees. The first is based on scientific evidence that the product is 'safe' if it conforms to toxicological and microbiological limits set by expert committees. The second approach is more aligned to the WHO definition of human health which includes 'additional factors' such as consumer expectations and information, risk management, cultural and religious beliefs, the preservation of social and economic balances, the health and welfare of animals and protection of the environment. With the exception of animal welfare, these 'additional factors' embrace the key areas of sustainable development, namely economic, social and environmental objectives. Furthermore, these two approaches reflect different cultural attitudes and hence regulatory policies for international trade in food. Moreover, these approaches are often the origin of disagreement between North American countries and Europe, where the latter has sought to include 'other factors' in order to meet the social, rural development and environmental objectives as defined under Agenda 2000 and supporting measures. This cultural divide is currently most clearly demonstrated in the issues raised over the introduction of genetically modified crops into the food chain and the environment.

It can be seen from this overview that both the WTO and Codex address the human food safety, and to a degree also consider sustainable development, animal welfare and environmental dimensions. Such international rules and standards have had a major impact on national governments and trading blocks, both in terms of the regulatory framework for food trade and in the restrictions imposed on agricultural support mechanisms as part of a wider rural strategy. The implications for the UK primary production industry are considered below.

Regulation of UK Agriculture

UK primary producers are operating within an increasingly regulated national framework on the one hand and a more open and global food supply network on the other. This policy and legal framework embraces food safety, sustainable development, environmental objectives and animal welfare. The implementation of this framework has significant implications for producers in terms of domestic trade, exports and imports.

Food Safety in the UK is defined under various legislative instruments. The main force behind the development of food safety systems has been, and remains, the Food Safety Act (1990). This Act effectively implemented the EU Directive 89/397, which required member states to draw up national legislation to ensure that:

- ❑ Food would be inspected regularly at the point of production to avoid the need for border controls,
- ❑ Inspection procedures would be harmonized between member states, and
- ❑ There would be mutual recognition of standards within the EU.

The process of harmonization within the EU is ongoing with current proposals outlined in the recent White Paper on Food Safety.

In terms of **Sustainable Development**, the UK's response to Agenda 21 of the 1992 Rio conference was to produce a sustainable development strategy (UK Government 1994) in which the framework for agriculture was to:

- ❑ provide adequate good-quality food efficiently,
- ❑ minimise resource use,
- ❑ safeguard soil, water and air quality, and
- ❑ preserve or enhance biodiversity and landscape quality.

This was essentially a political statement supporting, yet constrained by, the Fifth Action Plan of the European Commission and its aims for agriculture (CEC1992). The strategy report was also influenced by the turmoil over the MaSharry proposals to reduce commission subsidies to meet WTO rules (Winter 1996). In 1995 an UK CAP Review Group undertook a fundamental review of agricultural policy in order to establish what would be required for a competitive and sustainable agricultural industry in Europe (CAP Review Group 1995). This group clearly advocated a distinction between social, environmental and agricultural (economic) aims. In other words policy integration as opposed to any single policy. The relationship between these three aims dominate European rural politics. They will also impact on the current round of WTO negotiations, in particular, whether forms of support will be considered as trade distorting or not.

Although the implications for developing more sustainable agricultural systems within a wider sustainable rural development framework are important to this debate they are not specifically considered in the remainder of this paper, further information on the interpretation of sustainable agriculture in the UK may be found in Cobb *et. al.* (1999).

The **Welfare of farmed livestock** is addressed by the Agriculture (Miscellaneous Provisions) Act (1968) and supporting Regulations (see Annex 2). The 1968 Act provides for the drawing up of codes of recommendations for farm animal welfare. Employers are required by law to ensure that those attending to livestock have access to, and are familiar with, these codes. Although non-statutory, failure to comply with the provisions of the codes may be used to establish guilt. Enforcement is by the State Veterinary Service, though MAFF would be responsible for initiating any prosecution.

Current legislation brought in under the above Act includes the Welfare of Livestock Regulations (1994). These consolidated much of the legislation relating to welfare of livestock on agricultural land and set general welfare requirements relating to the prevention of injury, inspection, provision of feed and water, and the provision and testing alarms on automatic ventilation equipment. Schedules applying these welfare requirements have been developed for laying hens in battery cages, calves, pigs and other livestock. These Regulations also implement, and in some cases exceed, various EC Directives. In summary, UK animal welfare legislation generally exceeds, or pre-dates EC Directives and legislation of many member states.

The **Environmental constraints** on UK farming are significant (see Annex 1), and includes legislation aimed at pollution abatement as well as wildlife and landscape protection. This framework of legislation generally implements, but does not exceed, the UK's obligations to European Directives and international conventions for the environment.

Although this legislation is now in place, supported by the Codes of Good Agricultural Practice, producers do not always understand its scope and coverage. Specifically, many producers are still unaware of the detailed consequences of legislation for their farms. Those who are aware may still not comply with many small factors.

The various agri-environment measures under the Common Agricultural Policy reforms of 1992 are the main financial means of encouraging farmers to maintain and improve the agricultural landscape and its wildlife. The main schemes include:

- ❑ Environmentally Sensitive Areas (ESAs) throughout the UK;
- ❑ Countryside Stewardship Scheme (CSS) in England;
- ❑ Countryside Premium Scheme (CPS) in Scotland; and
- ❑ Tir Gofal in Wales.

Other measures include the Habitat Scheme, the Organic Farming Scheme and non-state aid measures including management agreements under section 15 of the Wildlife and Countryside Act (1981). The level of support for the agri-environment measures where they affect the intensity of production or land use, generally provide financial support equivalent to the income forgone by producers as a result of complying with schemes – an important concept when considering compensating private costs vs. public goods.

Supply Chain Pressure for Food Safety, Welfare and Environment

The Food Safety Act (1990) has greatest effect where consumers and the food supply chain interact i.e. at the retailer stage. In response, food retailers have developed their own quality and safety (QS) systems and, as a logical development, retailers require their suppliers to meet the retailer's own QS requirements along with those of the Act.

During the evolution of these food safety schemes along the supply chain, some processors, retailers and other organisations took the opportunity to generate competitive advantage by adding additional packages to the basic condition of supply. These packages have covered animal welfare and nature conservation. The justification for this is often cited as demands from some consumer groups and other lobbying organisations for assurances in relation to animal welfare and the environmental consequences of production. These additional conditions, however, are generally seen by many producers to be measures to provide competitive advantage for actors further up the supply chain and an additional cost to the producers who supply them.

In response to these demands from the supply chain, producers in a number of industry sectors and in particular regions initially developed their own farm assurance schemes. They saw these as counter measures to the retailer schemes. As a result the industry, the supply chain and consumers became confused, as to what was being assured and by whom (Baines & Davies 1997). In addition, farmers and growers became, and still are, increasingly vocal in their objections to the additional conditions imposed by the supply chain. In an attempt to end the confusion, the National Farmers Union (NFU) sought to facilitate a compromise between the demands flowing down the supply chain and the schemes developed by producers to counter them. Farm assurance schemes are now effectively national schemes (Figure 1). Many of the sectoral or regional producer schemes have been absorbed into their national equivalents.

Farm assurance schemes also consider environmental and animal welfare issues where they relate to existing environmental legislation. However, the scope of legislation covered varies between schemes and none specifically address wildlife and countryside legislation. In response to this Baines et. al. (2000a) have proposed a set of core environmental and welfare modules to provide a consistent approach to these issues in current schemes.

Scheme Objectives	Selected UK Producer Schemes							
	AP	ACCS	FABBL	SQBLA	FABpigs	Milk	Sun Valley	Organic produce
Food Safety 'diligence'	✓	✓	✓	✓	✓	✓	✓	✓
Environmental Aspects								
Legislative compliance	✓	✓	✓	✓	✓	✓	✓	✓
Other Benefits	✓	✓						✓
Animal Welfare	NA	NA	✓	✓	✓	✓	✓	✓
Traceability	✓	✓	✓	✓	✓	✓	✓	✓ ✓
Membership [1998]	3,029	5,081	18,000	8,500	2,800	99*	182	700
% of Market	68	50	40	65	80	99*	20	100

Figure 1: Main objectives of farm assurance schemes considered. Note AP= Fresh produce, ACCS= Cereals and combinable crops, FABBL & SQBLA= Beef and lamb, FABpigs= Pigs, Sun Valley= Poultry. Source Baines et. al. 2000a

Implications of UK Schemes on Trade

Many producers believe that compliance with UK legislation and market driven farm assurance schemes makes production more expensive. It does this directly, via capital works, as well as indirectly, through increased management and inspection costs. In particular, higher animal welfare standards often have an economic consequence on producers and can affect competitiveness especially if resulting products are sold alongside similar products produced to lower welfare standards. This would not be a problem if the products were identified accordingly to allow consumer choice or if the higher welfare product is able to command a higher market premium. Generally, this is not the case, or where products are identified, there is no premium flowing back to the producer who provided the higher standards. Consider the following three examples:

- ❑ The close confinement of calves in veal crates was banned in the UK in 1990 and the UK has maintained pressure on the EU to address this across Europe. As a result, those countries still using close confinement crates will have to phase these out by 2006. In the meantime UK producers have higher production costs while European veal is available at similar prices to UK veal on the supermarket shelf.
- ❑ The use of close-confinement sow stalls and tethers was prohibited in the UK from January 1st 1999. This was in advance of any European wide agreement and this adds cost to the systems of production while not commanding any added value in the marketplace nor separate identification on the shelf.
- ❑ As a result of public pressure, the UK Government implemented EU rules relating to animal welfare in transit. However, the level of public protest and attacks on livestock transporters at the channel ports has effectively stopped the transport of UK farm animals for slaughter in the Continent. The Government would prefer meat transport as opposed to live animals; however, the markets in Europe have traditionally preferred live animals for local slaughter.

In the first two examples we can see that production costs have increased for UK producers without any benefits flowing back from the market place. In the last example, the cost of transport to markets has increased and the rest of Europe has been effectively denied to livestock producers by animal rights protests in the UK

As previously stated, some processors and retailers have taken the opportunity to add animal welfare and environmental conditions to the basic requirements of supply and in addition to the national farm assurance schemes, this may be seen in the following two examples:

- ❑ The Tesco/RSPCA Freedom Food scheme is an example of additional animal welfare requirements; it sets out to assure consumers, through independent inspection, that Tesco's suppliers meet more stringent animal welfare conditions. Tesco promotes the Freedom Foods in its stores as having no extra cost. However, the producer has to meet both the direct cost of inspection fees and the indirect cost of less intensive production.
- ❑ A scheme set up to reward producers for meeting additional environmental conditions is the dairy company Unigate's Forage Plus. Under this scheme, producers were to receive a premium for milk if they meet wider environmental and conservation objectives. Some of these conditions may be considered as additional environmental benefits i.e. the conservation management plan. Others may be viewed as environmental conditions that should be met under current legislation, such as the use of organic wastes and pesticides. This scheme has now been shelved due to lack of support along the supply chain, or perhaps no market advantage to the Dairy Company?

Additional animal welfare and environmental conditions in market-driven assurance schemes are currently seen by producers as a means of gaining competitive advantage at some stage in the supply chain, not as a way of delivering welfare and environmental benefits for the public good. Introducing such conditions to gain market advantage could lead to more welfare and environmentally friendly farming if the market-driven initiatives are successful and some of the value flows to those delivering the goods in question. If, however, the producer does not share in any added market value then the system of production simply becomes more expensive.

This is an important concern for UK producers who believe they incur greater costs than their overseas competitors. This is not a problem as long as compliance also gives producers either preferential market access or a premium price. Clearly, where an assurance scheme delivers neither of these benefits, producers are sceptical of its purpose. Farmers would like a level playing field for production costs but are entitled to demand a level field when it comes to the minimum standards for the trade on food. It is of primary importance to UK producers that imports should be subject to the same standards for supply.

Implications for International Trade

Differences of opinion, and adherence to majority agreements, in the European Union still do not ensure common compliance. This can be witnessed in the ongoing controversy between the UK and France over the safety of UK beef and the practice of including animal and human wastes in some French livestock feeds. Different farming systems; cultural perceptions and experiences can result in significant differences in the need and requirements for assuring consumers, for example Spriggs *et al* (1999) noted that producers in Canada and the UK considered that their beef assurance schemes were in place for different purposes. In the UK it was to assure consumers that beef was safe, while in Canada it was to ensure the highest quality beef was sold. In reality both are probably required.

How can fair and equitable standards for international trade evolve out of this system of varying national legislative instruments and market driven assurance schemes? Furthermore, how can animal welfare and environmental dimensions be embraced within the evolution of standards? There may be an argument for integrated policy; however, it is important to ask the questions – should trade standards for the environment, animal welfare and sustainable development also be integrated or separately identified? And, should industry schemes reflect such integration? As a result of our research, we would argue that the following should be considered:

At International and Government level - We have an opportunity to harmonize international standards during this round of WTO negotiations. The relationships between WTO and Codex will be critical. What should be on the Agenda?

- ❑ First, there needs to be international agreement on the minimum legal standards for food safety before commodities are allowed to enter international markets. This should be

based on the potential risks to human health and would require agreement on appropriate methodologies and protocols to measure risk.

- ❑ Animal welfare and environmental conditions should only be included in international food safety standards when they have an impact on the safety of the food produced and entering international markets. This would mean that, animal welfare and environmental legislation linked to food safety would be a sub-set of any national framework of legislation for welfare and environment.
- ❑ Where additional legislation or policies (animal welfare, environmental, social or alike) have an economic impact on the competitiveness of those in the domestic supply chain, then there is a case for compensation from the 'national' public purse. In other words, if higher welfare standards were demanded within a country or trading block producers should be compensated for those extra production costs if no added value is attached to the product – in other words, a similar approach to the payment of environmental goods under current agri-environment schemes.

The Food Supply Chain - needs to be able to demonstrate that systems designed to address food safety are transparent to both suppliers and customers and indeed the consumer. This may be achieved through independent verification. Thereafter:

- ❑ Food quality and safety schemes should be based on harmonized international standards for food trade and should use similar methodologies for risk assessment such as HACCP.
- ❑ Co-recognition of schemes along the chain is important and there may be a case for developing whole chain and even trans-national schemes.
- ❑ Where different schemes have common areas, for example use of pesticides, environmental compliance or animal welfare, there is a case for rationalizing inspection across the different schemes in order to harmonize these standards and reduce inspection costs.
- ❑ Where higher standards are demanded as a condition of supply in the market, then this has to be identified and identifiable by the end consumer to allow choice. Any price premium achieved should then flow to those in the supply chain responsible for adding value to the product. If this is not the case, then there is no case for the higher standard.

Partnerships between governments and industry should be explored with a view to harmonizing state and private inspection regimes. One of the criticisms of state inspection is the limited coverage compared to market driven assurance systems. If state and private schemes inspect to the same standards, then a far greater coverage of the industry would be achieved. Private schemes would not replace statutory inspection; indeed, a state inspection of a business that has previously been privately inspected would serve as a public check on the standards of the private inspection service.

Finally, while many view the food industry as a global business, it is important to recognise that consumers do not exhibit homogenous behavior throughout the world or even within the EU (Askegaard & Masden 1995). There is evidence, however, of a convergence of food marketing conditions and practices in Europe (Gracia & Albisu 1997) and beyond, especially in terms of food quality and safety. In developing fair and equitable standards for the trade in food commodities we should not forget the final customer. Consumers are demanding information and they are entitled to be able to make informed choices. We cannot expect consumers to have a detailed knowledge of the standards and the legislation that affects food safety, animal welfare and environmental protection. Both Governments and the food chain have to build relationships with consumers based on confidence in the systems in place and trust in the food supply chain as a whole. Part of this trust will come from clear unambiguous product labeling of what is being assured (i.e. safety as a given with additional assurances for environment etc); however, building consumer trust will only work if we are prepared to trust each other in agreeing and setting standards.

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Annex 1: Environmental Constraints on UK Farming

The farming industry is subject to controls designed to reduce pollution and protect the environment. These are laid down in the Environmental Protection Act (1990) and revised in the Environment Act (1995).

- Part I of the EPA (1990) relates to atmospheric pollution and integrated pollution controls. The Environment Agency and local authorities are responsible for authorising certain processes detailed in the Environmental Protection (Prescribed Processes and Substances) Regulations (1991). Those which may relate to agriculture include: waste incineration; combustion of waste oil, straw, wood and poultry manures; animal carcass incineration; and treatment or processing of animal or vegetable matter (including as part of fur breeding, animal feed compounding and mushroom compost production).
- Part II of the EPA (1990) deals with the management of controlled wastes. The rules governing their disposal and recovery are in the Waste Management Licensing Regulations (1994). Agricultural wastes are not currently controlled wastes. However, the forthcoming agricultural waste regulations will change this. Under the 1994 Regulations, operators need a licence for the recovery and disposal of wastes. Some recovery operations are exempt from this. These include the recovery of certain wastes and materials by land spreading on the condition that they provide agricultural or ecological benefit. Materials exempted include: soil and compost; wood, bark or other plant matter; food and drink; blood and guts from abattoirs and tannery wastes; lime or lime sludge and gypsum; waste paper, paper sludge and textile sludge; and septic tank sludge and sludge from biological treatment.
- The agricultural use of sewage sludge is covered by the Sludge (Use in Agriculture) Regulations (1989) and accompanying code of practice (DoE 1989). They ensure harm is not caused to agricultural land as a result of heavy metal contamination or pathogenic micro-organisms. MAFF and DETR are currently reviewing these regulations. They are likely to contain a decision matrix available from ADAS.
- Part III of the EPA (1990) deals with clean air and statutory nuisance. Statutory nuisance is the responsibility of local authority environmental health departments who may take action on: smoke; odour; noise; accumulation of deposits; or animals kept so that they risk human health or cause a nuisance.
- Air pollution is also covered by the Clean Air Act (1993), especially in relation to dark smoke. There are certain exemptions under the Clean Air (Emission of Dark Smoke Exemption) Regulations (1969) that apply to agriculture and horticulture. Under these, poultry and animal carcasses may be burnt along with pesticide containers under certain conditions. Crop residue burning is also banned under the Crop Residues (Burning) Regulations (1993). However, odd broken bales and linseed residues are exempt. Other residues may be burnt if a plant health order has been served.

- ❑ The provisions of the Water Resources Act (1991), that replaced the corresponding sections of the Water Act (1989) address general water use and pollution. This Act governs access to water for agriculture through the abstraction licencing system. The Government has recently announced changes to the licencing arrangements. Under the 1991 Act, the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 (as amended 1997) sets standards for the storage and handling of these substances on farms and provides guidance on disposal procedures. The Water Resources Act (1991) also designated and regulated Nitrate Sensitive Areas (NSAs). This was a voluntary scheme to restrict the use of nitrate from organic and non-organic sources. The scheme has been closed to new applicants since July 1998. Nitrate Vulnerable Zones (NVZs) have also been designated in parts of England and Wales under the Protection of Water Against Agricultural Nitrate Pollution Regulations 1996. These were made to give effect to the provisions of the EC Nitrates Directive (91/676/EC). Further regulations (the Action Programme for Nitrate Vulnerable Zones (England & Wales) Regulations 1998) restrict both how long nutrients may be applied for and in what quantity. Free advisory visits and grants for improving waste handling and storage facilities are supporting their introduction.
- ❑ Part III of the Food and Environment Protection Act (1985) and the Control of Pesticide Regulations (1986) control the use of pesticides in agriculture. It is also covered by the Control of Substances Hazardous to Health Regulations (1994), FEPA (1985) and the above Regulations address pesticide storage, use and disposal along with operator training and competence.
- ❑ Farmers are allowed to dispose of animal carcasses on their farms under certain circumstances specified in the Animal By-Products (Amendment) Order (1997) and further referenced under the Specified Risk Material Regulations (1997). Burial pits must be far enough away from watercourses, boreholes or wells.
- ❑ The Groundwater Regulations (1998) include regulations covering registration of sheep dip disposal sites with EA. The regulations also apply to other materials such as pesticide wastes.
- ❑ In addition to these operational factors, new developments in agriculture may be subject to planning legislation where environmental aspects may be important. For most developments, planning officers will assess environmental considerations under the Town & Country Planning (General Permitted Development) Order (1995). The Town and Country Planning (Assessment of Environmental Effects) Regulations (1988) sets out the requirements for environmental impact assessment where certain major developments need planning permission.
- ❑ There is similar legislation in Scotland and Northern Ireland. Various Codes of Good Agricultural Practice provide detailed advice.

The farming industry is also subject to wildlife and landscape legislation. Key legislation relevant to agricultural operations includes:

- ❑ The Ancient Monuments and Archaeological Areas Act 1979, which protects archaeological sites;
- ❑ The Wildlife and Countryside Act 1981;
- ❑ The Nature Conservation and Amenity Lands (Northern Ireland) Order 1985. This legislation, and subsequent amendments, brought together a range of conservation measures that had evolved over a lengthy period. They are the foundation of wildlife conservation in the UK, establishing the statutory framework for the protection of plant and animal species, and for the conservation of habitats and natural features;
- ❑ The Planning and Compensation Act 1991 strengthened local planning authorities' enforcement powers and control over developments;
- ❑ The Protection of Badgers Act 1992 increased the protection of badger setts;
- ❑ The Conservation (Natural Habitats, etc.) Regulations 1994 implemented the Habitats and Species Directive (92/43/EEC);
- ❑ Hedgerow Regulations (SI 1997 No 1160) introduced under the Environment Act 1995 protect countryside hedgerows of significant historical, wildlife or landscape value; and
- ❑ The Forestry Act 1967 gave the Forestry Commission powers to control tree felling. Under the Town and Country Planning Act 1990, Planning authorities can make tree preservation orders to protect individual trees or areas of trees.

Annex 2: Animal Welfare Constraints on UK Farming

General animal welfare legislation relating to cruelty to animals, including causing them unnecessary suffering, is contained in the Protection of Animals Act (1911- 1988), as amended. In response to increasing public concern about intensive methods of keeping livestock the Government in 1964 set up a technical Committee to examine the conditions in which livestock are kept for agricultural purposes on agricultural land. The recommendations of this Committee formed the basis of current farm animal welfare legislation.

The welfare of all farmed livestock on agricultural land is protected by the Agriculture (Miscellaneous Provisions) Act (1968) which makes it an offence to cause or allow unnecessary pain or distress. In order to decide whether livestock come under the 1968 Act two tests are applied. First, the land the animals are being kept on must be agricultural ie being used agriculturally for a trade or business; and secondly, the animals are being kept for the production of food, wool, skin or fur, or in the farming of the land.

The 1968 Act also provided for the drawing up of codes of recommendations for farm animal welfare. These codes do not lay down statutory requirements. However, employers are required by law to ensure all those attending livestock have access to and are familiar with these codes. Failure to comply with the provisions of the codes may be relied on by the prosecution to establish guilt. Enforcement is carried out by the State Veterinary Service (SVS) who have the options of offering advice, giving warnings or recommending whether MAFF should initiate prosecutions. The SVS and MAFF also co-operate with other organisations such as local authorities and the RSPCA. The Ministry also runs a free advisory programme for farmers to encourage good welfare practices and workshops are held around the country on topics of farm animal welfare concern.

Legislation made under the Agriculture (Miscellaneous Provisions) Act (1968) and currently in force is as follows:

- ❑ The Welfare of Livestock Regulations (1994) consolidates much of the legislation relating to welfare of livestock on agricultural land and contains Schedules concerning laying hens in battery cages, calves, pigs and other livestock. Each schedule sets general requirements relating to the prevention of injury, inspection, provision of feed and water, and the provision and testing alarms on automatic ventilation equipment. They also prohibit the electro-immobilisation of livestock except as part of licensed scientific procedures. The Regulations also implement, and in some cases exceeds, various EC Directives. Schedule 1 implements Directive (86/113/EEC) which lays down minimum standards for laying hens kept in battery cages; Schedule 2 implements Directive (91/629/EEC) on minimum standards for calves; Schedule 3 implements Directive (91/630/EEC) which prohibits the use of the sweat box system from July 1995 and lays down minimum standards for pigs.
- ❑ The Welfare of Livestock (Deer) Order (1980) extends the definition of farmed livestock to include deer kept for production of antlers in velvet.
- ❑ The Welfare of Livestock (Prohibited Operations) Regulations (1982) prohibit a number of operations to livestock. Prohibited operations include: penis amputation, freeze dagging, short tail docking, tongue amputation, hot branding, devoicing cockerels and antler removal before velvet shedding. Certain prohibitions do not apply if it is necessary to perform the operation in order to relieve suffering or save an animals life.
- ❑ The Welfare of Livestock (Prohibited Operations)(Amendment) Regulations (1987) prohibit tooth grinding of sheep, while The Docking of Pigs (Use of Anaesthetics) Order (1974) prohibits tail docking of pigs older than 7 days without anaesthetic and The Removal of Antlers in Velvet (Anaesthetics) Order (1980) prohibits antler removal while still in velvet unless an anaesthetic is used.
- ❑ Farm animal slaughter for human consumption, including killing for private consumption, and for purposes of culling is dealt with under The Welfare of Animals (Slaughter or Killing) Regulations (1995).
- ❑ The Protection of Animals (Anaesthetics) Acts (1954, 1964 and Amendment Order 1982) along with The Veterinary Surgeons Act (1966) identify those minor operations and treatments that may be performed on farm livestock by competent persons other than registered veterinary surgeons.

Additional legislation is in place to address livestock transport and shipping and the welfare of stock in markets. As other business operators mainly carry out these activities, the legislation is not detailed here.