



Economics and Farm Animal Welfare

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Farm Animal Welfare Committee
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I have pleasure in submitting the Committee's Report 'Economics and Farm Animal Welfare'. It is part of a series that started in 2005 which has considered generic issues relating to the welfare of farm animals, regardless of their species; our previous reports covered farm assurance and labelling.

Work on the Report started under the Farm Animal Welfare Council, which was succeeded by the Farm Animal Welfare Committee in April 2011.

FAWC is mindful that while most citizens eat meat, many are concerned about the welfare of sentient animals that have to be killed to this end. In investigating our subject, we have found that issues in economics are just as complex as those in science. We recognise that political decisions about the welfare of farm animals have to account for economics – in its broadest sense – as well as sociological, technical and other factors.

Because of its complexity, we first introduce our subject before expanding on it in detail. The Report argues that economics can help to understand the relationship between animal and human welfare. It considers both micro- and macro-economic questions about livestock farming and the quality of life of farm animals, i.e. those relating to profitability on the farm and trade, respectively.

FAWC's advice is that Government has a crucial role to play in maintaining a standard of farm animal welfare that is acceptable. In other words, the quality of life of farm animals cannot be left to the 'free' market because economic forces are powerful and vested interests many-fold. This is not to say that standards do not change over time.

The Report argues strongly for the introduction of a 'Welfare Stewardship Scheme'. This will ensure that the Government's objectives for the welfare of farm animals match those of citizens, including many consumers and others in the food supply chain.

In common with similar analyses, the Report often uses money as a common currency in economic arguments. FAWC deplores the low profitability of livestock farming since it forces farmers to base many of their decisions on profit grounds. We advise that moral arguments are important too if each and every farm animal used for our benefit is to have a life worth living while a growing number is to experience a good life.

Professor Christopher Wathes
Chairman

PART I – INTRODUCTION

1. The Farm Animal Welfare Committee (FAWC)¹ is an expert committee of the Department for Environment, Food and Rural Affairs and the Devolved Administrations in Scotland and Wales. The Committee publishes its advice independently, see <http://www.defra.gov.uk/fawc> .

2. FAWC's terms of reference are: i) to provide independent, authoritative, impartial and timely advice, to Defra and the Devolved Administrations in Scotland and Wales on the welfare of farmed animals, including farmed animals on agricultural land, at market, in transit and at the place of killing; and on any legislative or other changes that might be considered necessary to improve standards of animal welfare; and ii) to provide independent scientific support and advice as required by Article 20 of Council Regulation (EC) No.1099/2009 on the protection of animals at the time of killing.

3. The aim of this Report is to explore the relationships between economics and farm animal welfare, and to identify mechanisms by which economic drivers might be exploited to enhance farm animal welfare.

FAWC's philosophy of approach

4. Animals are kept for various purposes and, in return, provision should be made for their needs. Farm animals are recognised as sentient beings within the EU Treaty of Amsterdam 1999. In addition, the Animal Welfare Act 2006 (applicable in England and Wales with similar legislation in Scotland) includes a duty of care to provide for the needs of protected animals for which humans have permanent or temporary responsibility. FAWC believes that our obligations include identifying and ensuring that certain serious harms never occur to farm animals, and minimising harms that are currently unavoidable by endeavouring to balance any harms to the animals affected and to other animals against the benefits to humans. At a minimum, each individual farm animal should have a life that is worth living and a growing proportion should have a good life².

5. There have been many attempts to define animal welfare. In our view, welfare encompasses both physical and mental health, and for farm animals is largely determined by the skills of the stock workers, the system of husbandry and the suitability of the genotype for the environment.

6. There is disagreement as to the moral significance of the quantity – i.e. duration – of life for farm animals. On the one hand it seems to many to be commonsense that healthy animals, experiencing a good quality of life, lose out by having their lives prematurely terminated. On the other hand, it is unlikely that farm animals can imagine the future to anything like the extent that humans can. In that sense, it is widely held that they lose little if anything by having their lives prematurely terminated so long, of course, as that is done humanely.

¹ The Farm Animal Welfare Committee succeeded the Farm Animal Welfare Council in April 2011; both use the same acronym, FAWC.

² FAWC. 2009. Report on farm animal welfare in Great Britain: past present and future.

7. In considering what provisions should be made for farm animals to avoid unnecessary suffering and to promote good welfare, the Committee is guided by the Five Freedoms.

Freedom from hunger and thirst, by ready access to 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 and disease, by prevention or rapid diagnosis and treatment.

Freedom to express normal behaviour, by providing sufficient space, proper facilities and appropriate company of the animal's own kind.

Freedom from fear and distress, by ensuring conditions and treatment which avoid mental suffering.

8. The Five Freedoms are the cornerstone of Government and industry policy and the Codes of Recommendations for the Welfare of Livestock.

9. Some pain and distress is unavoidable in livestock husbandry with current knowledge and farming practice but the goal should be to minimise its occurrence. Difficult ethical and agricultural decisions have to be made when dealing with suffering, sometimes by imposing a lesser act that may still cause short-term pain or distress but provide long-term relief for the individual or group. The long-term goal should be to eliminate the source of the problem through improved husbandry and breeding rather than simply to ameliorate the pain and distress, necessary as this may be when pain and distress occurs.

10. When assessing any welfare problem, it is necessary to consider the extent of poor welfare, the intensity and duration of suffering, the number of animals involved, the alternatives available, and the opportunities to promote well-being. Where welfare is poor, the more animals that are affected, the greater may be the concern. Equally important is the need to resolve any problems and improve welfare through sound husbandry: stockmanship is of great importance. Most problems are avoidable although some may be intrinsic to the production system.

11. To offer appropriate advice about the welfare of farm animals, FAWC takes account of scientific knowledge from scientists, veterinarians and others and the practical experience of those involved in agriculture. A broad-ranging approach, drawing on relevant views and attempting to take account of human interests with a concern to ensure that the animal's interests remain to the fore, is used in FAWC's advice. When such knowledge is inconclusive, the animal should be given the benefit of the doubt.

Scope and structure of this report

12. In 2007, FAWC established a working group to explore the interactions between economics and animal welfare. While this Report's purpose is to offer advice to Government, the Committee also hopes that it will stimulate discussion amongst farmers, the wider food industry, citizens and consumers of the complex issues around farm animal welfare.

13. A public consultation was carried out in 2007 and written evidence was received from 60 organisations and individuals. In addition, oral evidence was taken from the livestock industry, academic and research institutions, veterinary groups, retailers, consumers and animal protection organisations. We are grateful to all who participated in the study; those who gave evidence or assistance are listed in Appendix IV.

14. In this report we first provide an overview of economics (part II). We consider the drivers for decision-making at the farm level and how the financial environment of livestock farming has varied (part III). We next assess the extent to which welfare improvements at farm level can be self rewarding through improved animal performance or whether they require to be incentivised by other external drivers (part IV). One of the most significant external drivers will be enhanced product value. We consider the extent to which the market currently rewards welfare initiatives and identify the drivers and constraints in this process (part V). If welfare is considered as a public good, then the Government should intervene in the event of market failure and we consider the policy instruments available for such intervention (part VI). However, such intervention will have implications in the context of a global market in animal products and we therefore consider these international issues (part VII). Finally, we relate these considerations back to decision making at farm level in order to identify the effects that economic pressures have had on welfare in the past (part VIII) and the most effective drivers to future animal welfare improvement in different circumstances, with examples of successful models in current practice (part IX).

15. Where we refer in this Report to 'Government' we are addressing ourselves to the Department for Environment, Food and Rural Affairs in England, the Scottish Government's Rural Affairs and Environment Department, the Welsh Government's Departments for Environment and Sustainable Development and for Business, Enterprise, Technology and Science and other responsible Government Departments and Agencies.

PART II – AN INTRODUCTION TO ECONOMICS

16. Economics is a large and complex discipline. It is concerned with the allocation of scarce resources to alternative uses in the pursuit of human welfare including consideration of the fundamental drivers of human behaviour. It involves consideration of the profitability of the farming business (micro-economics) and national and international economic issues (macro-economics).

17. The discipline of economics grew out of the study of moral philosophy (in the 18th century) and the perennial question of how we should live. The fundamental dilemma for us in society and as individuals is that human wants are unlimited but the means to satisfy them (i.e. resources) are not. This leads to four basic questions that economics seeks to address. The first is what should we produce with the resources that we have available to us (i.e. what do we want)? The second is how much of each of these things should we produce? The third is what combination of resources is it best for us to use and, fourthly, how should we distribute the benefits of this productive activity (i.e. who gets these products/services and how much do they get)?

18. It should be recognised from the outset that economics is concerned with human wants/preferences and human welfare and not (directly) animal preferences or the welfare of animals. The economist's view is that animal welfare matters because it enters into a subset of human preferences. The satisfaction of human preferences (wants) is assumed to give rise to human 'utility' (pleasure), which determines human welfare. Figure 1 shows a simple model of how animals feature within an economic framework.

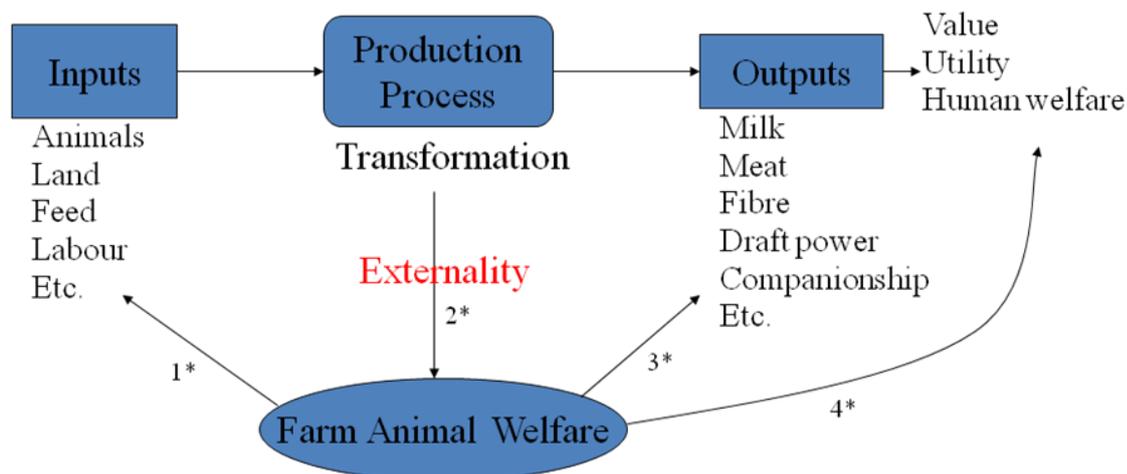


Figure 1. The place of farm animal welfare in an economics framework. Line 1 shows that poor farm animal welfare can affect inputs, for example animal mortality and morbidity. Line 2 shows that farm animal welfare is an externality resulting from the production process. Line 3 shows that poor farm animal welfare can have an effect on outputs both in terms of quantity and quality (i.e. poor farm animal welfare can reduce productive capacity and result in actual or perceived losses in output quality). Line 4 shows that human perceptions concerning farm animal welfare can impact directly on human welfare (for example, if people believe that farm animals are suffering).

19. Within this framework, animals are inputs alongside other resources that are then combined and transformed in some way to produce the various outputs that people want and value, such as food. The production processes involved in producing these outputs have effects on the welfare of animals that are used as inputs. These effects are unlooked for, and largely unwanted by-products of production and are generally thought of within economics as 'externalities', because they lie outwith the economic process of productive activity. Thus, farm animal suffering can be seen as a 'negative externality' of livestock production in much the same way as environmental pollution is considered by economists as a negative externality of industrial production. Externalities can be a major source of market failure in economies (i.e. they result in an allocation of resources such that the quantities of different goods and services produced are non-optimal from society's point of view, meaning that human welfare is lower than it might have been).

Glossary of economic terms

Cost – the monetary value of using a resource. Economists think of cost in terms of 'opportunity cost', which is the benefit forgone of a resource used in an alternative (usually the next best) way. In business terms, they are the expenses incurred in producing goods or services.

Externality – also referred to as a third-party effect, where an individual's production or consumption directly affects the production or consumption of others, other than through market prices.

Fixed costs – costs that do not vary as output varies, such as farm rent.

Variable costs – costs that vary with the level of output, such as livestock feed.

Gross margin – value of output minus variable costs.

Market – any set of arrangements where buyers and sellers exchange defined commodities.

Market failure – a term used to refer to circumstances in which resources are not allocated efficiently by markets.

Price – the exchange value (usually in monetary terms) of a defined good or service.

Profit – difference between revenue (value of marketed output) and costs.

Net margin – revenue minus variable costs and assignable fixed costs.

Net farm income – The return to farm operators for their labour, management and capital, after all production expenses have been paid (that is, gross farm income minus production expenses).

Public good – a class of good that once produced can be consumed by many people in society without exclusion, sometimes referred to as 'collective consumption goods'.

Revenue – quantity of marketed output multiplied by average price.

20. This negative effect imposes costs in different ways and on different people in society. First, poor farm animal welfare may make production less efficient so that it results in fewer outputs per unit of input, or greater inputs per unit of output (i.e. it may affect the productive value of animals as inputs). If these effects on production are reflected in the revenue, costs and profitability of livestock producers then they become 'internalised' and are taken into account in the market. It may also reduce the value of output by affecting product quality.

21. Secondly, the perception by some that animals may suffer as a result of producing our food and other goods and services may reduce human welfare because of empathy and concern for the animals used. The point is that the consumption (and associated production) decisions of some consumers impose a cost on others, who believe that these decisions result in animal suffering and feel less well off because of their concerns (the analogy of 'passive smoking' is sometimes used to explain this economic impact). Those who bear this cost have little or no control over the consumption of others, unlike their own consumption decisions. They are therefore restricted in expression of their preferences in markets with regard to this aspect of animal welfare (unlike preferences for their own consumption). This means that markets do not take account of these costs.

22. All of these effects impose real costs on human society by reducing human welfare. Conversely, positive animal welfare gives rise to a positive externality, a benefit which improves the human welfare of those in society concerned about the welfare of animals. Ensuring high levels of animal welfare may itself involve additional resource use and thus incur a resource cost. The economic decision that we have to make in society is where the balance of these various benefits and costs lies.

23. Within this framework, the effects on animal welfare (i.e. animal preferences and animal utility) are not directly taken into account but only indirectly via human preferences and human welfare. It is, in theory at least, possible to consider more directly the preferences and utilities of animals within a differently defined social value framework (e.g. one where animals are considered 'members' of society) but this concept lies outwith the scope of this Report and indeed outwith current economic thinking.

24. It is important in this discussion of animal welfare to be clear about the definitions involved, since these can differ between stakeholders. Three different perspectives on animal welfare can be distinguished which, whilst having some common attributes, are not identical in their implications for practice³. Welfare, as defined by affective state (feelings) of the animals themselves, is the aspiration of many farmers, although its objective assessment is still the subject of debate. Welfare defined by physical fitness is frequently the objective of farmers and veterinarians. However, welfare defined by 'naturalness' of living conditions is given greater emphasis by consumers and the wider society⁴. These perspectives

³ Fraser, D. 2003. Assessing animal welfare at the farm and group level: the interplay of science and values. *Animal Welfare* 12: 433-443.

⁴ Roex, J. and Miele, M. 2005. Farm animal welfare concerns: consumers, retailers and producers. Welfare Quality Report No 1. Cardiff University.

influence the value placed on different aspects of welfare (safeguards or improvements) by different stakeholders.

25. The economic environment in terms of both financial pressures and the drivers for animal welfare shows large variations between species, business sectors and countries. For this reason, it is sometimes difficult to generalise about issues and recommendations, and specific reference to species and regions has to be made to highlight such diversity. In this Report, the general principles apply to all farmed species, but we consider details of only the main terrestrial species, and have not given special attention to other species such as farmed fish.

Conclusions

26. The welfare of animals and that of humans are closely linked. It is a complicated relationship which is only in small part reflected in markets or by prices.

27. Economics can help to understand better the relationship between animals (and animal welfare) and human welfare. In particular, the presence of animal welfare externalities and the public good nature of animal welfare mean that intervention by government or other authorities is required to ensure that the level of farm animal welfare desired by society is achieved.

28. Economics can be used to analyse and appraise policy decisions concerning animal welfare to try to achieve farm animal welfare objectives as effectively and efficiently as possible.

PART III - FARMERS AND THEIR DECISION MAKING

29. Farmers keep livestock for commercial purposes and so have the greatest direct influence on – and a legal responsibility for – their welfare. Improvement in animal welfare must ultimately be mediated through changes in their strategic management decisions and day-to-day husbandry. Therefore, the drivers determining farmer decision-making must be understood. There has been relatively little study of this in the context of animal welfare compared with other policy issues such as environmental protection or biosecurity.

30. Most farmers are not simply profit maximisers (whether short or long term), but are influenced by a host of other considerations including attitude to risk, maintaining a way of life, farm succession, job satisfaction, peer pressure, concern for their animals, concern for the environment and pride in their farm, amongst others.

31. The importance of profitability in decision-making differs between traditional farmers and corporate enterprises and, in relation to this, between species. Pig and poultry production is more often managed by large, integrated companies. This contrasts with the smaller, traditional family stock farm, often comprising extensive ruminant production and where lifestyle issues have greater relative importance.

32. An EU survey has demonstrated that farmers' attitudes, beliefs and behaviour towards animal welfare show differences between production sectors which are more important than differences between countries or production schemes⁵. This can be explained by differences in farming practices, in farmers' contacts and relations with animals but also different experiences with public concern about animal welfare. In addition, there may be major differences in the factors that affect the relationship between welfare and performance in different livestock sectors, as discussed in part IV.

33. The financial environment in which livestock farmers operate shows large temporal fluctuation as a result of the influence of market forces and currency exchange rates on input costs and product prices. Fluctuations in these often have a much greater influence on sector profitability than the biological efficiency with which the farm operates. However, within a farming type, there are also large differences around the mean level of performance, which do contribute to relative financial success.

34. Profitability at farm level can be described by gross margin; the difference between income from sales and variable costs such as feed, bedding, power and veterinary inputs. It can also be described by net margin, which further takes account of fixed costs such as land, building investment and labour. Net farm income refers to the return to farm operators for their labour, management and capital, after all production expenses have been paid.

35. Over the last 20 years, the profitability of livestock farms has shown many years of low or negative net farm income in all livestock sectors (Figure 2). Note that the farm incomes are per farm and not per head of livestock or area of land.

⁵ Kjaernes, U., Miele, M. and Roex, J. 2005. Attitudes of consumers, retailers and producers to farm animal welfare. Welfare Quality Report No 2. Cardiff University

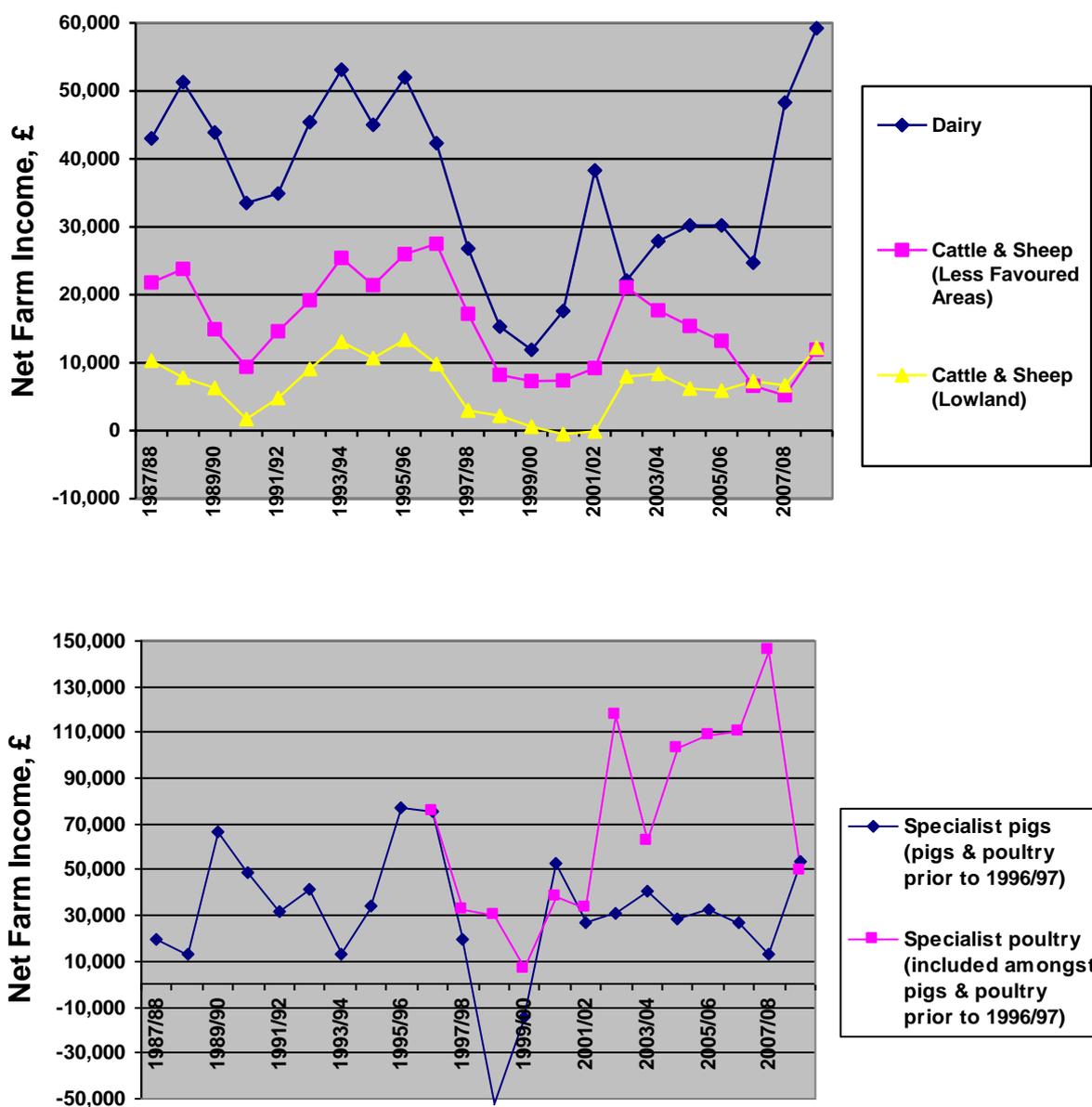


Figure 2. Net farm income (£/farm) adjusted to 2008/9 equivalents for different livestock enterprises. (source: Farm Business Survey, England)

36. The impact of low profitability on animal welfare is difficult to evaluate, as there are no good data on trends in welfare benchmarks over time to which profitability figures can be related. The relationships are complex. It may be that lack of profitability in the longer term leads to lack of investment in housing and other facilities that may constrain welfare improvements. Conversely, increased profitability for farmers such as can arise from incentive payments from food chain operators or others to produce at high levels of welfare can improve animal welfare.

37. Volatile farm gate prices for the different livestock commodities (Figure 3) have been behind much of the variation in profitability, although cost fluctuation in major inputs such as feed have also contributed.

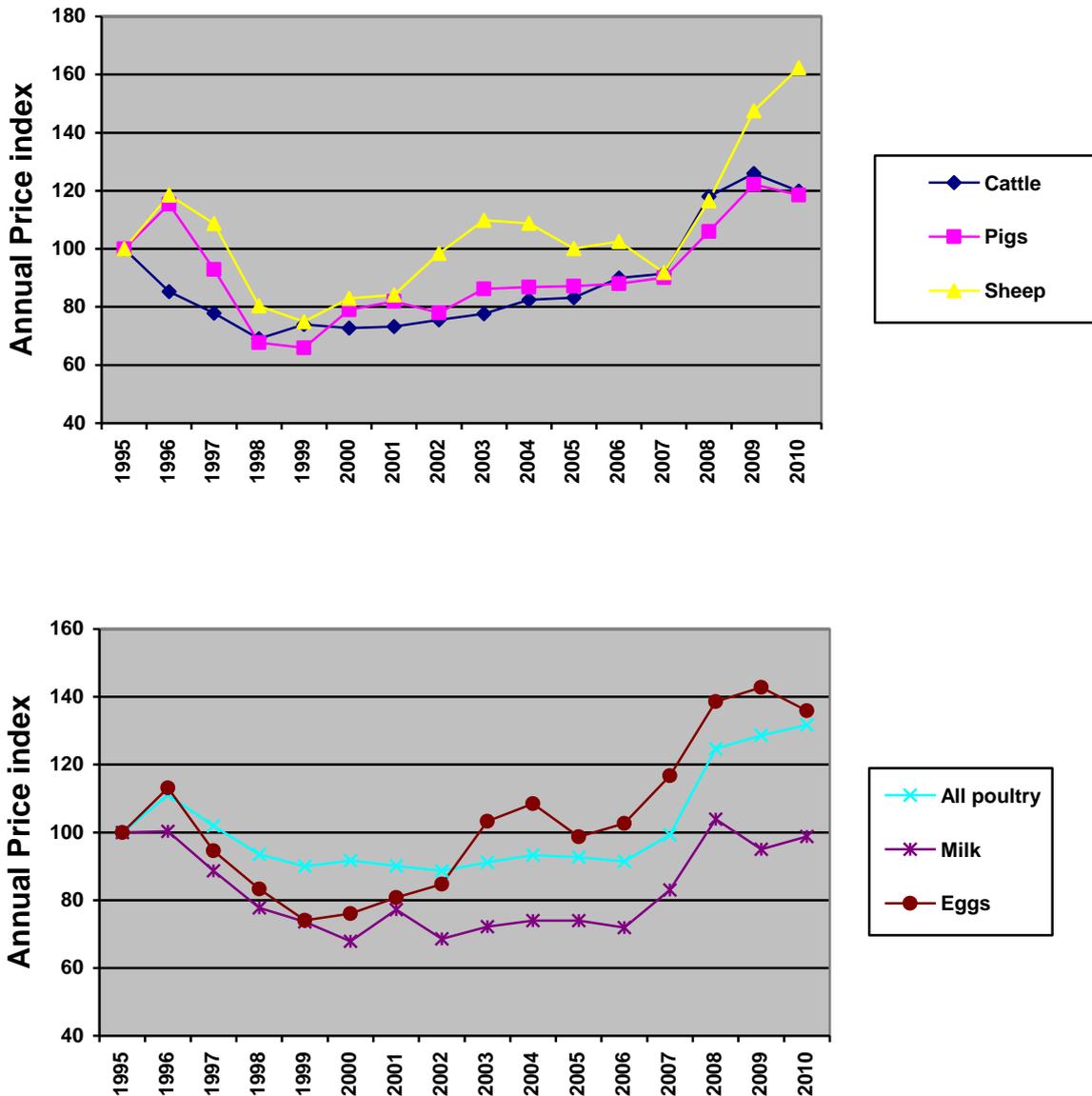


Figure 3. Prices received by producers for agricultural products (The index of prices, excluding subsidies, is shown for each commodity with 1995=100). (source: Defra)

Conclusions

38. Most farmers are not simply profit maximisers and their decisions, which will determine the welfare of their animals, are subject to many other influences. Thus, there is no clear relationship between farm profitability *per se* and animal welfare.

39. Livestock farm incomes show large annual fluctuations, with several years of low or negative profitability since 1987/8. This income fluctuation has arisen from volatility in both product farm gate price and input costs.

40. Many influences on profitability are outwith the immediate control of the farmer, although levels of biological performance and degree of market responsiveness give rise to important differences in profitability within the prevailing circumstances.

Recommendations

41. *Research should be carried out to provide a better understanding of the financial and other drivers for farmers to safeguard and improve animal welfare, with a specific need to highlight drivers in relation to different farm types.*

42. *It is likely that the most effective means to protect and improve farm animal welfare that is linked to farm profitability is to provide some form of incentive payments to farmers to do this; These should be paid according to the delivery of welfare outcomes.*

PART IV – RELATIONSHIP BETWEEN WELFARE AND PERFORMANCE WITHIN THE FARM

43. The relationship between welfare and an animal's performance (productivity) determines the extent to which welfare improvement will be incentivised on farm by increased profitability, in the absence of external market drivers, or by improved ease of management and workload.

44. Over a decade ago, the agricultural economist, John McNerney, proposed that there is a non-linear relationship between welfare and productivity (Figure 4). The assumption is that as humans start to use animals, improvements in welfare and productivity coincide due to the inputs of feed, housing, protection from predators etc. that is afforded them. However, as levels of productivity increase, welfare may show no further improvement and then be increasingly impaired by the higher metabolic demands or environmental constraints placed on the animals.

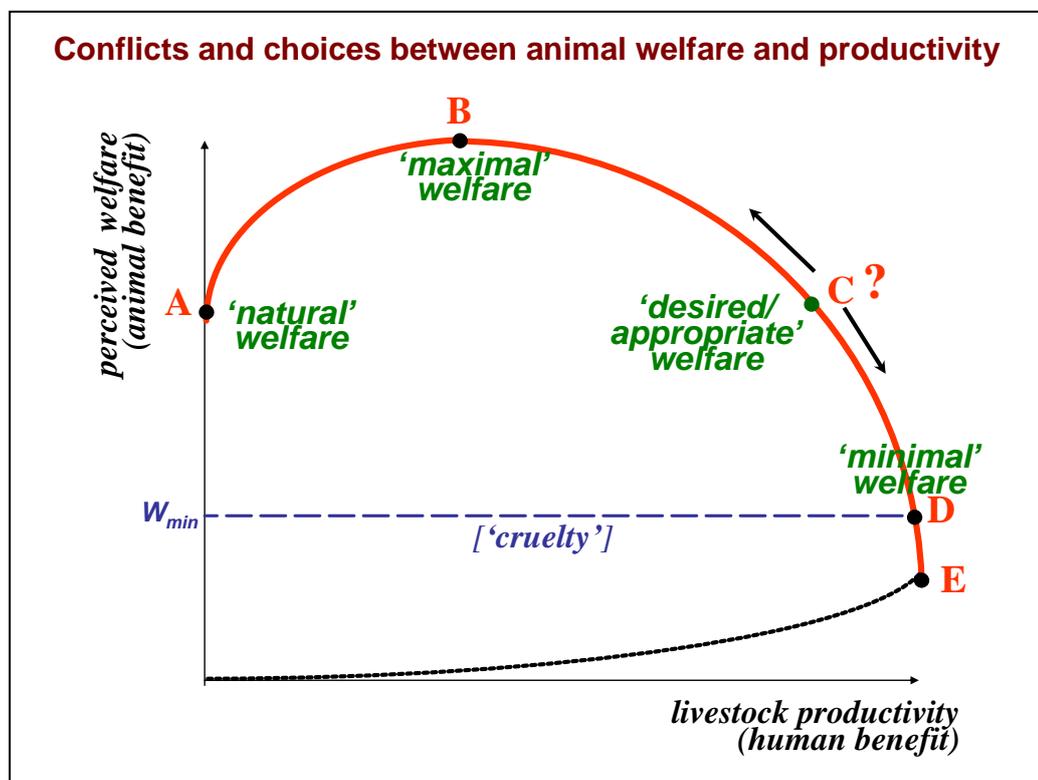


Figure 4. McNerney's hypothetical relationship between productivity and animal welfare⁶. Up to a point (i.e. from A to B), increases in productivity arising from better nutrition, health and housing should also enhance animal welfare. Thus point B marks a relationship of maximum welfare for animals with some important benefits for humans. However, this does not maximize the output of animal products for human benefit, with further increases being possible from, for example, greater intensification, genetic selection and pharmaceutical intervention. This would be achieved up to point E but at a cost to the welfare of animals. Exploitation of animals beyond this point affects their welfare to such an extent that they are no longer efficient in production terms, and neither humans nor animals derive benefit. The decision for society is where on the curve between B and E should we be? The dotted line and point D represent a possible decision on minimum acceptable welfare, for example by legislation, with treatment of animals below this line categorised as cruelty.

⁶ McNerney, JP. 2004. Animal welfare, economics and policy. Report to Defra. <http://archive.defra.gov.uk/evidence/economics/foodfarm/reports/documents/animalwelfare.pdf>

45. When considering the converse question of how improvements in welfare affect performance and profitability, a non-linear relationship is also apparent depending on the extent to which improvements influence biological function. At the physiological level, animals subjected to repeated or prolonged stress show endocrine changes, which affect adversely many productive processes including synthesis of lean tissue and milk, feed intake and efficiency of feed use, reproductive efficiency in production of eggs or live offspring.

46. There are also complex interactions between welfare and disease (which will be discussed in detail in a forthcoming FAWC report) and, in the eyes of consumers at least, between welfare and food quality/safety. Stress can impair immune function, making animals more susceptible to disease. Disease is usually a welfare problem, causing pain and malaise, and a financial loss in terms of reduced performance and increased veterinary and labour costs. Estimates of the costs associated with 34 different endemic diseases across the major British farmed species, including infectious, parasitic and locomotory disorders, varied from less than £1m to £180m annually⁷.

47. There are consequently strong, self rewarding drivers to improve welfare on farm when this is considered from the perspective of biological function. This is particularly clear in the case of basic requirements like good health, good nutrition and a suitable thermal environment (the criteria for three of the Five Freedoms), but is also true for Freedom from fear and stress.

48. Despite these relationships, good physical welfare is not always delivered in practice. This may be because of lack of knowledge, or other priorities for available time, labour and finance. It may also be the case that the balance of a harm-benefit analysis is inadequate to promote welfare measures. For example, treatment of an individual animal may cost more in veterinary fees than the value of the animal or restrictions in export opportunities may outweigh the disease control value of vaccination.

49. Similarly, measures which can improve animal welfare and performance for the individual may not always be rewarded at the enterprise level. There may be trade-offs between individuals within a system, as in the use of systems without farrowing crates where welfare improvement for the sow may be associated with higher mortality of piglets. In other situations, the magnitude of the performance improvement of the individual may be insufficient to cover the overhead costs incurred at group level. This is frequently the case when increasing space allowance, where increased individual animal growth and feed efficiency may not increase financial return per unit of building area.

50. Furthermore, an emphasis solely on efficiency or profit has not always identified the best methods even to achieve its own aims. It took an alternative approach, aimed at reducing problems for the animals concerned, to identify the fact

⁷ Bennett, R. and Ijpelaar, J. 2005. Updated estimates of the costs associated with 34 endemic livestock diseases in Great Britain. *Journal of Agricultural Economics* 56: 135-144.

that understanding animal behaviour can improve design of handling systems and hence efficient use of labour in handling livestock⁸.

51. The importance of improving welfare to achieve the associated economic benefits may differ between livestock sectors and production systems. Good examples can be found in the intensive livestock industries, as described in the case study on broiler production (Appendix I). However, where headage subsidy payments have made a large contribution to income, the incentive to improve performance through better management can be diluted (see part VI on government support to improve animal welfare).

52. The relationship between other welfare attributes and the productive performance of farm animals is less clear. For example, the production benefits of improved physical comfort, at a level below that causing physical injury, cannot always be demonstrated although research has shown, for example, that providing soft bedding for dairy cattle can significantly increase milk yield. Similarly, the financial benefits of appropriate enrichment to meet behavioural needs may sometimes be negligible, but in other situations can reduce risk of costly outbreaks of injurious behaviours such as tail biting in pigs.

53. The role of the stockman is critical to animal welfare⁹. Sympathetic animal handling reduces physiological stress and improves productive output in many farm species¹⁰. In addition, skilled understanding and provision for animal needs, early problem detection and remediation optimise all aspects of enterprise efficiency. Investment in stockmen training has been demonstrated to give cost-effective returns and improve animal welfare.

54. Where welfare is seen from the perspective of naturalness and as being synonymous with extensive outdoor systems, perceived improvements in welfare may not be reflected in greater production efficiency. Thus the banning of restrictive housing systems which fail to satisfy the Freedom to express normal behaviour, such as stalls for pregnant sows or cages for laying hens, impose costs in terms of greater capital investment, labour demand and management skill. For example, the cost of the ban on cages for laying hens was estimated by the industry in 2002 to be ~£430m in capital cost and over £100m annually in running cost. These costs are not rewarded by improved productive output, and may even be associated with reduced biological efficiency. Thus, satisfying consumer and wider societal requirements for perceived welfare improvement will often require other drivers either within the supply chain (part V) or externally in the form of Government intervention (part VI).

Conclusions

55. Some animal welfare safeguards and improvements pay for themselves, in either the short or long term, by improved performance or reduced cost within the farm, or are at least cost-neutral. However, guidance on and support of such initiatives is still required.

⁸ Grandin, T. 2007. Livestock handling and transport. CABI International.

⁹ FAWC. 2007. Report on stockmanship and farm animal welfare.

¹⁰ Hemsworth, P. H. and Colman, G. J. 1998. Human Livestock Interactions. CABI Publishing

56. Other animal welfare measures have a net cost to the business and so need other forms of incentive to motivate their adoption. Such measures often reflect differences between industry and consumer welfare perspectives.

Recommendations

57. *Government should continue to facilitate dissemination of information and education for farmers and stockmen on the benefits which can result from improved welfare.*

58. *Industry should gather and report data providing benchmarks on welfare outcome measures, which can be related to (improvements in) animal performance.*

PART V – RELATIONSHIP BETWEEN WELFARE AND ECONOMICS IN THE MARKETING CHAIN

59. In situations where the cost of welfare improvement is not sufficiently rewarded by performance improvement, it is necessary to determine whether there is a market for animal welfare, which will compensate for these costs by means of a product price premium. Such premia do not need to be large, since any increase in production costs can be covered by a much smaller increment in retail price. For example, it was estimated that the 5% increase in pigmeat production cost arising from the banning of gestation stalls in the UK needed to result in only a 1% increase in retail product price¹¹.

60. Many surveys indicate that UK and European citizens wish to see improvement in the welfare of farmed animals¹². In a recent survey of 600 people in Great Britain, 96% agreed that we have a moral obligation to safeguard the welfare of animals¹³. However, this does not appear in most cases to be translated into specific purchasing choices generating market demand. Understanding this difference between the wishes of citizens (who take an ethical position on animal welfare issues) and the actions of consumers (whose purchasing decisions drive market demand) is the key to delivering welfare improvement through market forces.

61. The willingness of consumers to pay a premium for products with higher animal welfare provenance has been the subject of much debate. Few good examples exist in practice, but the outstanding case has been free-range eggs, laid by hens perceived to have higher welfare than those in traditional battery cages. The reasons for success in this commodity seem to be the distinctiveness of the production systems (cages vs. free range), compulsory labelling according to clear, agreed system definitions, and relative price inelasticity of the product (i.e. the quantity which people purchase is relatively unaffected by price).

62. A number of studies have recorded a willingness to pay for higher animal welfare expressed by both consumers and citizens, generally in relation either to a higher value food product or to legislation to improve welfare. These have been summarised in both a recent meta-analysis¹⁴ and review¹⁵. Each paper considers changes to animal production systems designed to improve animal welfare, such as changes in housing and husbandry, and then estimates the value placed on these changes by citizens. However, there has also been a recent approach¹⁶ to estimating people's willingness to pay for changes in the absolute welfare status of animals on a cardinal welfare scale (see Appendix II).

¹¹ (6) McInerney *op. cit.*

¹² Eurobarometer. 2007. Attitudes of EU citizens towards animal welfare. Special Eurobarometer 270. http://ec.europa.eu/public_opinion/archives/ebs/ebs_270_en.pdf

¹³ Kehlbacher, A. 2010. Willingness to pay for animal welfare in livestock production. PhD Thesis. University of Reading, UK.

¹⁴ Lagerkvist, C. J. and Hess, S. 2010. A meta-analysis of consumer willingness to pay for farm animal welfare. *European Review of Agricultural Economics*. doi: 10.1093/erae/jbq043

¹⁵ Bennett R, Butterworth A, Jones P, Kehlbacher A and Tranter R 2011 *Valuation of animal welfare benefits*. Report to the Department for the Environment, Food and Rural Affairs. University of Reading: Reading, UK.

¹⁶ Bennett, R. and Thompson, P. 2011. Economics. In: Appleby, M., Mench, J., Olsson I. and Hughes, B. (eds.) *Animal Welfare*. 2nd Edition. CABI, Wallingford, UK.

63. There is some debate as to whether such studies estimate people's true willingness to pay for non-market goods¹⁷ such as improvements to animal welfare. The views expressed in response to questions are not always reflected in actual purchasing behaviour. Market failure may occur because of lack of active interest by consumers, lack of knowledge of specific issues or lack of information on which to base purchasing decisions. A number of surveys have found that people generally feel that they know relatively very little about farm production systems and animal welfare, and so their answers to willingness to pay questions for changes to animal production systems may be poorly informed. In the 2007 Eurobarometer survey, 85% of respondents said that they knew little about farming practice, and 54% said it was not easy to find information on welfare provenance when shopping. Similarly, in a survey of 600 people in Great Britain, only 38% felt well informed about the way in which farm animals are treated¹⁸. Evidence suggests that many consumers prefer to transfer the responsibility for ensuring welfare provenance, as with other ethical considerations, to the retailer or to other decision-makers in the supply chain rather than being required to make active choices at the time of purchase.

64. Where consumer attention is focussed on a specific welfare issue, for example as a result of a campaign by an animal welfare NGO or media activity by a celebrity, significant changes in purchasing behaviour towards higher welfare products can result. Major examples of this have been seen in recent years as a result of television programmes featuring celebrity chefs. However, the persistence of such purchasing change is often relatively limited.

65. In January 2008, a series of television programmes on the production systems for broiler chickens was broadcast, presented by celebrity chefs. The proportion of broilers reared to higher welfare standards increased by 5% (from 15 to 20% of UK production) in this year, but then remained relatively constant in the following year. However, in the previous year (2007), the share had already increased from 5% to 15%¹⁹, so evidence of the impact of individual media events is difficult to gauge.

66. The supply chain for livestock products often includes a number of different actors, through whom animal welfare information and financial transactions must pass. The length of such chains can vary between direct marketing initiatives from farmer to consumer, or more complex chains involving farmers, abattoirs, wholesalers and retailers. Market demand for improved welfare provenance can be generated at any point in this chain. For example, the processor, who mediates transactions between farmer and retailer, may initiate animal welfare changes as a means of competing for retailer share. However, the multiple food retailers in the UK have a substantial influence on the demand for welfare provenance, given their share of the market in food grocery products, and have a substantial influence on the premia that they pay to their suppliers for food with high welfare provenance.

67. Retailers demonstrate different strategies regarding the promotion of animal welfare provenance as a means of differentiating their products. Whilst certain

¹⁷ Diamond, P. A. and Hausman, J.A. 1994. Contingent valuation: Is some number better than no number? *Journal of Economic Perspectives*, 8, 45-64.

¹⁸ (13) Kehlbacher *op. cit.*

¹⁹ RSPCA. 2010. The Welfare State: five years of measuring animal welfare in the UK, 2005-2009. <http://www.rspca.org.uk/in-action/whatwedo/animalwelfareindicators>

retailers take a lead, others advertise solely on cost. This depends on the socio-economic pattern of their customer base and the extent to which a significant turnover of premium niche products can be achieved in contrast with lower cost baseline brands. Where market demand is strong, an evolution of niche into baseline will tend to occur.

68. Whilst a major driver for retail decisions is the profit per unit shelf space, considerations of corporate social responsibility play a growing role. Welfare provenance now plays a significant part in brand protection and brand promotion strategies, in conjunction with other issues of public concern such as environmental impact and Fair Trade. For some retailers, the sale of premium products is used to enhance public image and encourage more high spending customers into stores. The packaging of multi-attribute goods, rather than single issue marketing, would appear to predominate in this strategy.

69. Moreover, research suggests that improved farm animal welfare is strongly associated by consumers with other food attributes, such as food quality, safety, taste, nutrition and environmental impact, and that people's willingness to pay also reflects beliefs about these attributes. For example, in a recent UK survey²⁰, 78% of respondents thought that meat from animals with high welfare was healthier and 71% that it had better nutritional value. This can sometimes be the case; for example pre-slaughter stress has been shown to affect adversely factors associated with eating quality of meat, including tenderness, colour and water holding capacity²¹. However, an equally powerful aspect is the role that consumer expectation can have on the subjective experience of quality: association with a high welfare label can increase the perceived eating quality of meat in comparison with identical but unlabelled product²².

70. The form in which the product is sold can influence the extent to which welfare provenance is valued. A premium based on production method is more easily realised in a self standing product, than when it is used as one component in an added value process. Since a high proportion of animal products are used for further processing or in the catering sector, this poses a significant challenge. There are also significant commodity differences in the proportion of product (e.g. a carcass) which is able to realise a premium, often only the higher value cuts, and increased farm production cost of a higher welfare system may sometimes have to be covered from only a small percentage of the output.

71. Traditionally, the food service sector has relied on low cost raw materials for a mass market. However, this sector has also seen changes as a result of public challenge to corporate social responsibility, and prominent international companies have more recently taken a lead in welfare enhancement in their supply chains. NGOs have reinforced this trend with targeted campaigns, such as Freedom Food's "Simply Ask" campaign in restaurants.

²⁰ (15) Bennett et al. *op. cit.*

²¹ Andersen HJ, Oksbjerg N, Therkildsen M. 2005. Potential quality control tools in the production of fresh pork, beef and lamb demanded by the European society. *Livestock Production Science* 94: 105-124

²² Dransfield E, Ngapo TM, Nielsen NA, Bredahl L, Sjoden PO, Magnussen M, Campo MM, Nute GR. 2005. Consumer choice and suggested price for pork as influenced by its appearance, taste and information concerning country of origin and organic pig production. *Meat Science* 69: 61-70.

72. For market forces to effect welfare improvement, there needs to be effective transfer along the supply chain of both information and reward. Failure in both respects has been common. Effective transfer of information requires that consumers can both understand and trust information of welfare provenance. These issues were addressed in detail in our previous reports²³. In reviewing their recommendations, it is apparent that many issues have yet to be addressed. In particular, the need remains for transparent information on provenance and consistency of welfare standards by retailers across products and sources.

73. Effective transfer of reward in the supply chain needs to take place in both the short term and the long term if investment in improved welfare is to be promoted as a sensible business decision when weighing up reward against price and risk. The imbalance of power between producer and retailer currently generates uncertainty amongst farmers; the frequent unwillingness of retailers to agree long term contracts and the downward pressure they exert on price tend to promote more conservative farm investment strategies. There is plainly potential for an approach such as 'cost plus' contracts to promote welfare initiatives (see Appendix I).

74. The Competition Commission has considered the imbalance of power between retailers and their suppliers and published an Order to create a new strengthened and extended Groceries Supply Code of Practice. Proposals to establish an Ombudsman to ensure effective enforcement and resolve disputes under the new Code could not be voluntarily agreed with the major retailers. Subsequently, Government has indicated its intention to establish a Groceries Code Adjudicator as an enforcement body within the Office of Fair Trading.

75. We have heard of many examples where market initiatives have been able to promote welfare improvement. The most prominent amongst these is the Freedom Food scheme, initiated by the RSPCA, which has seen substantial growth in recent times and now accounts for a large market share in eggs (~50%) and pigmeat (~30%), though not yet in the ruminant sectors. This is the only scheme to achieve widespread consumer recognition of differentiation on welfare alone. As its market share increases, it is ceasing to offer a unique selling point and some retailers are now beginning to use it as the basic requirement for purchase, without significant additional premium, onto which other points of differentiation are superimposed in branded products.

76. Other examples in which welfare is used as a marketing strategy have been initiated by groups of producers who have developed proactive relationships with retailers for speciality products. These products are generally differentiated by a package of multiple characteristics of interest to consumers including geographic origin, naturalness, welfare and environmental sensitivity. One such initiative is described in the case study of Welsh lamb (see Appendix I).

²³ See FAWC 2006. Report on welfare labelling; and FAWC 2005. Report on welfare implications of farm assurance schemes.

Conclusions

77. The ability of the market to drive welfare change is limited by consumer knowledge and education. For this and other reasons, many customers prefer to 'trust the brand' rather than make active choices on individual product characteristics.

78. Whilst market opportunities for premium niche products exist, and appear to be growing, these are generally not based on single issues but are for composite packages of differentiation.

79. Currently, insufficient benefit returns to the primary producer in terms of premium or market security to encourage significant investment in welfare improvement. Length and volatility of the supply chain and lack of long term contracts fail to engender sufficient confidence of market reward.

80. For many commodities, cost competitiveness has outweighed other considerations and there has been limited engagement from the retail sector with their supply chains in partnerships to improve welfare.

81. Many reasons (consumer inertia, imbalance of power between the production and retail sectors giving asymmetric trading relationships, imperfect information) have resulted in market failure to deliver the welfare improvements which citizens have repeatedly been shown to desire. Unless major changes occur, only the treatment of welfare as a non-market good is likely to bring about significant improvement.

Recommendations

82. *More approaches to encourage supply chains beneficial to welfare need to be developed. Retailers should further develop, in partnership with producers, longer term contracts with inclusion of welfare outcome criteria.*

83. *Government should facilitate dissemination of information and education for consumers on farm animal welfare issues²⁴.*

84. *Government should promote clearer information of welfare provenance of all products according to standard definitions, building on the successful example of eggs.*

85. *Farmers need to be more aware of, and responsive to, niche market opportunities in relation to animal welfare and Government should promote business and marketing training opportunities to develop such skills.*

²⁴ This topic will be addressed in greater detail in the forthcoming FAWC report on education, communication and knowledge application.

PART VI – WELFARE AS A PUBLIC GOOD AND THE ROLE OF THE PUBLIC SECTOR

86. The treatment, within economics, of animal welfare as an externality of livestock production and consumption and as a public good has important implications for Government policy. Externalities and public goods, such as animal welfare and environment, by their very nature, are not market goods in the same way as livestock products such as meat, milk etc. This means that they have no explicit value in terms of market prices and so the market cannot efficiently allocate resources to them. Other means therefore have to be used – such as the intervention of Government (on society’s behalf) in the form of regulation or financial support.

87. It is possible to internalise some of the costs and benefits associated with externalities by creating markets for certain aspects associated with them, but it is often problematic (as discussed in part V) and rarely, if ever, entirely successful. Our recent Opinion provides an overview of the different ways in which Governments might intervene in society²⁵.

88. Economics uses the term ‘public goods’ (sometimes referred to as ‘collective consumption goods’) to describe a class of goods and services that have positive benefits to wider society (or a subset of it) and for which the cost of their provision does not vary with the number of people who consume or benefit from the good or service. In effect, a public good reflects a form of externality that affects a large number of people. Pure public goods are not rivals in consumption (i.e. one person’s consumption of these goods does not prevent another from also consuming them) and non-excludable (people cannot be excluded or prevented from consuming them). Animal welfare fits this class of good well, in that the knowledge of improved farm animal welfare can benefit all those in society who care about welfare whilst people cannot be prevented from benefitting from this knowledge (with the assumption that the knowledge is freely and widely available without charge).

89. Because of these characteristics, there is no market incentive for private companies to provide public goods and services, such as animal welfare, because entrepreneurs cannot prevent people from consuming such goods and services for free. Once a public good is produced it is available to everyone, not just to those willing to pay for it. Given the substantial benefits that can widely accrue in society, it usually falls to Governments to ensure the provision of public goods. Given this, there is a clear role for Government to ensure the level of animal welfare that would benefit people in society generally. This is the major reason behind Government intervention to protect animal welfare by means such as legislation and this intervention by Government is of considerable importance to the protection of farm animal welfare.

90. Animal welfare legislation is often seen as the Government setting a base-line on society’s behalf. It sets minimum standards for protection of animal welfare that it believes the vast majority of citizens would want and expect (usually in terms of resource-based requirements of animals linked to specific types of production

²⁵ FAWC. 2008. Opinion on policy instruments for protecting and improving farm animal welfare.

system). This is an example of the Government's guardianship role in relation to animal welfare.

91. However, this may still not result in the levels of animal welfare that would maximise the net benefit to society (i.e. a degree of market failure may still remain) and further intervention by Government may be necessary to achieve this. Although the market mechanism can be very efficient at allocating resources to maximise societal benefit, it requires good information (e.g. about the animal welfare attributes of animal goods and services²⁶) and a competitive environment to work efficiently in doing this. Moreover, even if the market system works well in this regard, because of the externality and public good aspects of animal welfare the level of animal welfare most beneficial to society may not be achieved.

92. This continued market failure may require additional Government intervention, perhaps using other intervention measures in addition to legislation, to ensure the levels of animal welfare that would maximise the net benefit to society. There is a variety of such measures available to Government²⁷, including a number of ways of 'encouraging others' by means of information provision, guidance, pump priming, research, financial incentives etc, as well as more direct action by Government itself, such as welfare inspections and enforcement by Government agencies and public procurement practices.

93. Examples in relation to welfare include cross compliance, where farmers may forfeit some of their Single Farm Payment if they do not comply with animal welfare legislation, and the use of Pillar II money under the EU's Common Agricultural Policy to improve farm animal health and welfare (this is discussed further in part VIII). The use of subsidy payments to farmers to help improve welfare has received relatively little attention. However, both EU policy and WTO rules allow for payments to producers to compensate them for higher costs associated with ensuring high levels of animal welfare. The question is whether Government might pay such subsidies on society's behalf or whether these should come via the market system (i.e. from output price premia). Given the imperfections of the market, it may be that a combination of approaches is appropriate. However, subsidy payments would need to be closely linked to animal welfare outcomes to ensure that they achieve their objective (hence subsidies in the form of capital or taxation allowances may not prove very effective in improving animal welfare). Moreover, it might be more economically efficient if farmers were to bid for such funds to ensure that funding went to those producers best placed to deliver high welfare for each pound spent.

94. Government procurement practices, including where Government can influence procurement policies (e.g. Government agencies, local authorities, schools, hospitals, prisons, armed forces and others in the public sector), can help to promote farm animal welfare by increasing the market for products produced to higher welfare standards.

95. In addition to Government, there is, arguably, a role and responsibility for all in society to protect the welfare of animals. This includes the roles and responsibilities of animal keepers and food producers, consumers of animal products and services

²⁶ See FAWC. 2006. Report on welfare labelling.

²⁷ (25) FAWC *op. cit.*

and citizens generally. A number of charities and other non-Governmental bodies play an important role in this regard. For example, the RSPCA and SSPCA have a long history of campaigning and actively working to improve the welfare of farm (and other) animals. Such organisations can help to encourage others to take action (e.g. livestock producers, Government and consumers). This is consistent with current discussion of the importance of civil society involvement in decision-making (currently referred to as 'Big Society').

96. Of course, Governments have a host of objectives to achieve on society's behalf, of which the welfare of farm animals is just one. Others include economic growth, distributional equity, human health, food security, environmental sustainability etc. Sustainability involves not only environmental considerations but also economic and ethical ones (sometimes referred to as the three 'Es'), although most attention has been given to the environment in recent times. In fact, all of the 'Es' involve consideration of animals and their welfare. Similarly, concerns about food security must also include consideration of animals and their welfare and their ability to help provide the human population with an adequate and healthy diet.

97. There is often a danger that attempts to achieve an objective in one area (such as animal welfare) can be to the detriment of another. This often depends on the policy instrument(s) used to effect change. For example, legislation to improve animal welfare could result in substantial additional compliance costs for farmers which could make them uncompetitive compared with producers from other countries. The challenge for Government is to develop a policy approach that mitigates such effects, for example, by appropriate labelling of food products so that food retailers only wish to stock, and consumers only wish to purchase, higher welfare products.

Conclusions

98. There are clear reasons for Government to intervene to safeguard and improve farm animal welfare, notably market failure, the existence of negative animal welfare externalities and provision of public animal welfare goods.

99. Government intervention can take many forms, for example legislation, incentive payment and information provision. A mix of measures is needed.

100. Cross compliance is a potentially a powerful tool to ensure compliance with animal welfare requirements.

101. By comparison with environmental objectives, little use has been made by Government of incentive payments or other positive inducements for farm animal welfare.

102. A sustainable approach to food production should address not only food security and environmental protection, but also animal welfare.

Recommendations

103. *Government should continue to assess the need for new legislation, rather than relying on market mechanisms to satisfy its objective of improved standards of farm animal welfare.*

104. *Better mechanisms should be developed by Government, in collaboration with industry and researchers, for knowledge transfer concerning farm animal welfare to producers following research, especially that which has been funded publically.*

105. *Government should facilitate exchange of information on farm animal welfare along the supply chain, and provision of information to help consumers to make informed purchasing decisions. Labelling is one important aspect of this.*

106. *Government should lead by example and incorporate farm animal welfare in its procurement processes, to be consistent with its policy.*

107. *Government should ensure that a sustainable approach to food production addresses not only food security and environmental protection, but also animal welfare.*

PART VII – INTERNATIONAL ISSUES

108. While Great Britain's primary responsibility is to the welfare of animals produced in its own country, it is also appropriate to give consideration to the welfare of animals produced in other countries, from which products are exported for our consumption (i.e. 'the food that we eat'). Globalisation increasingly means that decisions taken within a country – whether on animal treatment or on economic policy – cannot be wholly independent of those in other countries. This is not just because of international trade, but also because of many hugely important trans-national issues such as disease control, disaster management and climate change, as well as global communication.

109. It is important that increased regulations do not put farms and other businesses in Great Britain out of business, increase imports and simply 'export the welfare problem'. On the other hand, it is also important that this argument should not prevent all improvements in welfare.

110. The countries of the European Union (EU) have more comprehensive legislation for animal welfare than anywhere else in the world (except Switzerland and, in some respects, the non-EU countries of Scandinavia). This is partly influenced by the wider grouping of the Council of Europe, with 47 countries and the EU as members. This has stated that "*the humane treatment of animals is one of the hallmarks of Western civilisation*". The EU passes Directives, which then have to be translated into national legislation, and Regulations, which apply directly in all member countries. All such legislation affecting animals has economic implications. In one explicit example, the 1985 trading standards regulations for labelling of eggs had widespread influence on how laying hens were housed, because farmers who wanted to market their eggs as, say, free range had to meet the criteria (such as stocking density) in the regulations.

111. Variation between countries in Europe persists, and influences trade and hence intra-country decisions. However, that is not to say that no country can ever act on its own, or that complete unanimity is needed before any improvement in welfare is made that increases costs. Denmark has had more stringent legislation on cages for laying hens than the rest of Europe for years. Its egg industry survives, albeit perhaps smaller than it might otherwise have been.

112. A country's own animal food products, produced to certain welfare standards, may be promoted by its authorities (for example by advertising) and favoured by its citizens, both because of those standards themselves and for other reasons such as local food security, social solidarity and familiarity. Within Great Britain, some retailers therefore make a particular point of sourcing and advertising 'Britishness' in their products. There are also practical factors supporting in-country production, notably transport costs and hygiene controls, although these certainly do not always overwhelm other factors.

113. There are also many other factors affecting cost of production in different countries, not just those associated with welfare, such as costs of labour and land. Furthermore, there are factors affecting trade in addition to within-country costs of production, such as currency exchange rates. The financial crisis in the British pig

industry in the 1990s, in which numerous farms went out of business, has sometimes been attributed to the extra costs of Britain's unilateral ban on dry sow stalls. In fact, some argue that the effects of these costs were secondary, and that the main problem was the strength of the pound against other European currencies, favouring imports. It remains true that the higher cost of sow housing in Britain (particularly capital cost for the change-over, as running cost was not greatly increased) was probably 'the last straw that broke the camel's back,' or at least was perceived as such by farms struggling to survive. As cause and effect are usually impossible to identify definitively in financial fluctuations, perceptions are often as important as facts in financial decisions.

114. Perhaps because of such perceptions, the British Government subsequently stated that it would not create further welfare standards higher than those in the rest of the EU: it would not 'gold-plate' EU legislation. As such, British legislation implementing subsequent EU Directives has tended to follow those Directives in close detail. While this policy was intended to avoid disadvantaging British farmers, its effects in this regard are not unequivocal. For example, a decision to create a British standard for both home-produced and imported pork would have demonstrated the real premium for pigmeat from loose-housed sows and might have encouraged other European countries to grade up sow housing systems.

115. Turning to the wider world, much animal production outwith Europe is less subject to formal welfare requirements than that in Europe. That is not to say that all animals producing food exported to Britain have poorer welfare: some are kept in conditions specified by British importers; some have large space allowances and are well-looked after because of freely available land and low labour costs. However, clearly foreign goods are sometimes competitive with those produced in Britain (on the basis of price, specific characteristics or simply availability). Where they come from animals with lower welfare standards – which may or may not contribute to a price advantage – the question arises whether imports can be restricted or blocked on those grounds.

116. The EU has proposed (in a paper presented to the World Trade Organisation in 2000) that animal welfare should be taken into account in trade, by allowing either agreements between trading partners that safeguard welfare, or labelling, or payment of subsidies to producers who maintain high welfare. Still, the likelihood of this is uncertain. Earlier the European Commission's Scientific Veterinary Committee²⁸ had suggested that, *"High standards of laying hen welfare can only be implemented and sustained if the EU market is protected against imports of eggs from third countries with lower standards"*. That view was supported by some estimates that the 1999 Directive on Laying Hens (banning barren battery cages) would weaken EU competitiveness to such a degree that more than half of domestic consumption could be substituted by imported eggs²⁹. Similarly, the EU Broiler Directive passed in 2007 was weaker than earlier drafts, apparently because of concerns over the pressure of imports of chicken meat.

²⁸ Scientific Veterinary Committee. 1996. Report on the Welfare of Laying Hens, p. 111
http://ec.europa.eu/food/fs/sc/oldcomm4/out33_en.pdf

²⁹ Wolfram R, Simons J, Giebel A, and Bongaerts R. 2002. Impacts of stricter legal standards in the EU for keeping laying hens in battery cages. *World's Poultry Science Journal* 58: 365-370.

117. However, it can be argued that such fears are overstated. As the Danish egg industry survived, despite cheaper imports from within Europe, the same is likely to be true across the EU, despite the threat of imports to European countries from outwith Europe, at least with regard to whole eggs. Support for EU production will come from consumers preferring high welfare products and perhaps also from the stocking and labelling practices of retailers. There is a danger that imports of processed eggs, which make up 25% of European egg production, will rise in the absence of protection. However, current analysis³⁰ suggests that most egg trade of European countries will continue to be intra-EU.

118. The member countries of the World Trade Organisation (WTO), currently 153 in number, agree to abide by rules to avoid restrictions on trade. There are no rules that mention animal welfare, but there is a widespread perception that existence of the WTO militates against consideration of welfare in trade. This is because, where restrictions on trade are not directly warranted by the WTO, they may be challenged under that authority, and the precedents for welfare safeguards being permitted are not good. However, at the time of writing the first challenge on a restriction that was made on welfare grounds has been made; Canada is challenging a European ban on seal fur imports. One possible defence increasingly mentioned is Article XX of the General Agreement on Tariffs and Trade (which established the WTO), which states: *“Nothing in this agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures (a) necessary to protect public morals [or] (b) necessary to protect human, animal or plant health”*. Countries faced with imports from countries with lower welfare standards could argue that protecting the welfare of their farm animals is important for public morals and for both human and animal health. Again it is true that perceptions may be as important as facts, so the possibility of restricting imports on welfare grounds may be being limited by the fear rather than the fact of incompatibility with WTO rules. However, there are some indications that the WTO is coming to accept the appropriateness of individual countries defending principles such as ethical practices, at least on an unofficial basis.

119. The most relevant WTO rules that might challenge consideration of welfare are in the Technical Barriers to Trade (TBT) Agreement. By contrast, some rules that might be helpful in safeguarding welfare are in the Sanitary and Phytosanitary (SPS) Agreement. In particular, this allows restriction of imports of animal products from countries where those animals have diseases. For categorisation of such countries, the WTO recognises the authority of the World Organisation for Animal Health (known by its French initials, OIE).

120. A current priority of the WTO is to limit direct payments from Governments to farmers, because these are often trade-distorting, helping producers to compete with foreign producers in a way held to be unfair. However, payments that can be demonstrated not to distort trade (i.e. in the so-called Green Box category) may be allowed. Subsidies to farmers specifically to help them improve welfare (which are part of EU policy) may therefore continue to be possible, where they do not increase production. Some such subsidies may actually reduce production: for example, if a

³⁰ Windhorst HW. 2009 Recent patterns of egg production and trade: a status report on a regional basis. *World's Poultry Science Journal* 65: 685-707.

farmer builds replacement animal housing with higher welfare standards including lower stocking density.

121. In 2003, an EU Regulation³¹ *“established the principle that farmers who do not comply with certain requirements in the areas of public, animal and plant health, environment and animal welfare are subject to reductions of or exclusion from direct support. This ‘cross compliance’ system forms an integral part of Community support under direct payments.”*

122. In 2009, a further Regulation clarified rules for direct support schemes for farmers under the Common Agricultural Policy³². *“Member States should be allowed to use up to 10 % of their national ceilings for the single payment scheme for granting specific support in clearly defined cases. Such support should allow Member States to address environmental and animal welfare issues”.*

123. Pillar II funding was first used by the Scottish Government to encourage adoption of Animal Health and Welfare Management programmes in 2005. The initial programme focussed predominantly on health planning. The current programme, initiated in 2009, is more tightly focussed on specific actions that directly improve animal welfare, with a range of different activities which farmers can choose to implement in return for a specified payment. Participants are obliged to undertake animal welfare monitoring and benchmarking activities in conjunction with their veterinarians. The Welsh Assembly has also used Pillar II funding to assist some improvements to farm infrastructure which might be expected to improve welfare, although not explicitly to fund welfare improvement. To date, such opportunities have not been made available to farmers in England.

124. The EU Community Action plan on Animal Welfare 2006-10 has identified the need to introduce standardised animal welfare indicators and to explore options for EU labelling. In conjunction with improved marketing and communication strategies, it was foreseen that this would enable consumers to make more informed purchasing decisions and provide an economic incentive to producers to improve the welfare of animals. A subsequent feasibility study³³ proposed the use of a Community Animal Welfare label, modelled after the EU organic label. It identified current limitations as the absence of a harmonised system for animal welfare standards for labelling purposes, and the difficulty in communicating to the consumer in a clear way the difference in animal welfare standards across food products.

125. The Welfare Quality[®] project³⁴ developed a system for classifying farms according to the welfare status of livestock assessed using animal-based measures. Whilst this provides the basis for moves toward an EU-wide welfare labelling system, it has not yet been refined into a practical scheme capable of widespread

³¹ Council Regulation (EC) No 1782/2003 (OJ L 270, 21.10.2003)

³² Commission Regulation (EC) No 1120/2009 laying down detailed rules for the implementation of the single payment scheme provided for in Title III of Council Regulation (EC) No 73/2009 establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers.

³³ Feasibility study on animal welfare labelling and establishing a community reference centre for animal protection and welfare. (2009) Report to the European Commission by Civic Consulting.

http://www.civic-consulting.de/project_22.html

³⁴ <http://www.welfarequality.net/everyone>

implementation on farm within realistic resource constraints. The EU is now further exploring the different options of mandatory or voluntary labelling schemes according to welfare standards or production systems.

126. These issues of welfare assessment and labelling place Britain and the EU back in the worldwide context and return the discussion to intergovernmental organisations with a global remit. The World Organisation for Animal Health (OIE) recognises that animal health is affected by other aspects of animal welfare, and therefore initiated the creation of global animal welfare guidelines. In 2005, the first guidelines on transport and slaughter were agreed unanimously by the member countries (which at the time of writing number 174) and it is now working on guidelines for rearing farm animals. All these criteria may be lower than those required in the EU. Nevertheless, their implementation (which is starting in a number of countries) has the potential to lead to improved animal welfare in the majority of OIE member countries.

127. Despite the pressure of international trade, the EU intends to continue to safeguard and improve farm animal welfare, supported by public opinion. For example, the European Commission was involved in the OIE's Global Conference on Animal Welfare in Cairo in 2008, which emphasised implementation of OIE's guidelines in developing countries (with considerable support expressed by those countries).

128. Indeed, there is strong reason to believe that increased attention to animal welfare worldwide is leading not to a 'levelling down' effect, as was feared by some people, but to 'levelling up'. This is partly because of recognition of the associated advantages. In particular, it is increasingly recognised that humane handling and slaughter improve yield of saleable meat (by improving meat quality), food safety, disease control, worker safety, and therefore profit. Trade is a major incentive for recognition and adoption of such practices: for example, the Brazilian beef industry is increasing its exports to Europe including Britain, having to meet European requirements for meat hygiene, acknowledging European preference for high welfare standards, and therefore implementing humane standards of handling and killing at slaughterhouses due to UK retailer pressure. There is also a small but growing opportunity for developing countries to export into Europe and other developed countries products specifically for high-welfare and other niche markets such as organic.

129. These trends have been recognised by the International Finance Corporation, part of the World Bank Group, which supports large-scale agricultural projects in developing countries, for example in its 2006 publication 'Creating business opportunity through improved animal welfare'.

130. Similarly, the United Nations' Food and Agriculture Organisation has led discussions on capacity building for developing countries to implement good animal welfare practices, and in 2009 launched a web portal for dissemination of information on the subject.

131. There is some move towards harmonization of international standards for product sourcing through the activities of organizations such as GLOBAL G.A.P, a

private sector body that sets voluntary standards for the certification of production processes of agricultural products around the globe³⁵. These standards are designed to reassure consumers about how food is produced on the farm in relation to environmental impacts, reduced use of chemical inputs, worker health and safety as well as animal welfare. To date, the animal welfare standards in these international schemes are basic.

132. If welfare of animals in other countries exporting to Britain continues to increase, approaching (and in some cases equaling or surpassing) that in Britain, then British farmers will not be able to use higher welfare as a selling-point for their products. However, from a broad viewpoint it is desirable that the welfare of all animals worldwide is improved.

Conclusions

133. Trade and other international issues may be significant barriers to improvement in welfare (at commodity level), because either real or perceived pressures discourage within-country changes. The possibility of restricting imports on welfare grounds has not been tested under WTO trade rules, but the existence of incomplete rules nevertheless tends to limit such initiatives.

134. Conversely, however, trade promotes certain welfare improvements, such as those necessary to meet the standards of Britain or certain other importing countries. Where such changes have associated advantages (for example, the fact that humane slaughter methods improve meat yield and hygiene) they may then spread more widely.

135. Both increased global communication about animal welfare and increased involvement of stakeholders in international decision making publicise such positive examples in which improvements in welfare are correlated with other advantages.

136. Where welfare standards remain higher in Britain or Europe than other countries from which animal products are imported, labelling (including with country of origin) may help to safeguard the welfare of the animals providing the meat that we eat. But labelling is unlikely to be enough in the context of competitive international trade and other developments will be needed, such as moves towards harmonisation of welfare standards worldwide.

137. EU Pillar II funding has considerable potential to be used to promote welfare improvement.

Recommendations

138. *The importance of considering welfare provenance of all the animal products consumed in Britain, and not just those produced in Britain, should be promoted by Government and retailers. Retailers and food service suppliers should apply consistent animal welfare criteria in their sourcing from different countries.*

³⁵ <http://www.globalgap.org/>

139. *Initiatives to support the improvement of welfare in other countries, including the animal welfare guidelines of the World Organisation for Animal Health (OIE), should be actively supported by Government and other stakeholders.*

140. *Government should support the development of EU-wide welfare labelling, including elements of both inputs (production systems) and welfare outcomes.*

141. *Government should work as part of the EU to advance acceptance in the World Trade Organisation (WTO) that trade can benefit animal welfare and other desirables such as development and environmental protection, but that these benefits need flexible application of trade rules rather than over-emphasis on free trade.*

142. *Government should make available Pillar II funding to encourage investment in welfare improvement.*

PART VIII - WHERE FINANCIAL PRESSURES HAVE BROUGHT THE LIVESTOCK INDUSTRY

143. How farm animals are housed and treated has always been affected by monetary considerations but this became more acute in the middle of the 20th Century with an increased drive for efficiency, i.e. cutting the cost of producing an egg or kilogram of meat or milk. As a result, the proportion of income that people in developed countries spend on food has declined for many years. It was typical in the 1940s for people to spend between one fifth and one third of their income on food but now about 10% is usual. The decline was initiated by public policies – before, during and after World War II, notably by the Agriculture Act of 1947 – in favour of more abundant, cheaper food. It subsequently acquired its own momentum.

144. Continuing decline in food prices is sometimes attributed to pressure from consumers themselves, but it would be more accurate to say that it primarily results from increases in livestock productivity, and from competition between producers and between retailers. In fact, it is estimated that less than 20% of money spent on food by the consumer goes to the farmer, the rest being accounted for by transport, processing, packaging, marketing, etc.³⁶ The increasing extent to which this is true adds to the decline in food prices to produce an even sharper decline in farm incomes: post-war about 8% of household expenditure went to farmers but now only about 2%. Farm incomes were protected to a large degree by the ‘deficiency payment’ policy, abandoned by Government in the 1970s.

145. Decline in food prices is generally regarded as beneficial, and availability of cheap food is itself advantageous, if that food is nutritious and safe. However, it can also be argued that pressure for cheap food production has been a factor in negative developments including concerns over food quality and safety, unreliable farm incomes, environmental damage and problems for animal welfare.

146. Factors contributing to costs include the sourcing of the animals, their genetics (including breed), management (including choice of system and requirement for land), husbandry (including labour and feeding), off-farm factors (including transport, slaughter and processing) and the size of enterprise. Measures to reduce costs in all these areas have affected welfare.

147. In the UK and in many other countries, the average size of livestock farms has increased over many years, with small farms liable to go out of business, existing farms expanding and new businesses often being very large. Reasons are complex but include reduced vulnerability to short-term losses and the ability to spread overheads more widely. Large farms may have some advantages for welfare, such as employment of a full-time veterinarian, but also have some disadvantages, such as more animals per stockmen. The most important influences on welfare, though, will be details of how the animals are managed, including group size.

148. As discussed elsewhere in this Report, there are many instances where improvement of welfare will reduce costs incurred by farmers, e.g. measures to reduce disease and mortality. However, there are others where improving welfare

³⁶ US Economic Research Service, 2004. Calculating the food marketing bill. Amber Waves, February.

increases costs, e.g. increasing space allowances. Sometimes increased costs can be offset by increased income, by obtaining price premia for products that are perceived to be associated with high welfare, such as free range eggs. More usually, though, reducing cost has taken priority over increasing welfare. An important point to recognize is that profits achieved by cutting costs are short-term, as they are constantly pared away by competition on prices. Yet some such cuts – including those achieved by reducing space allowances – have produced long-term reductions in welfare.

149. Decision-making by farmers is complex, and their decisions do not always produce the best outcomes either for themselves or the animals. Thus the commercial advantage of high stocking density is not as inarguable as generally assumed. For example, increasing the size of a laying flock by placing more birds in each cage produces more eggs (but fewer per hen and of lower weight) but also, of course, requires more feed. The profitability of this depends on feed costs and egg prices, and to a lesser extent on other costs such as that of purchasing pullets. One study³⁷ showed that profit was greater with fewer birds per cage than the maximum over quite a wide range of economic conditions. Yet it is difficult for some poultry managers to visualize that fewer hens can make more revenue than a more crowded flock³⁸, a factor that may be particularly important for small-scale, independent producers without the economic expertise of large, commercial companies.

150. For most people purchasing food, cheapness is attractive and so most of the animal products they buy have been produced by conventional production methods. However, some are willing to seek out and pay more for food produced by alternative methods that take into account concerns such as welfare. The annual Institute of Grocery Distribution (IGD) survey reported that 18% of people specifically purchased food with high animal welfare standards in 2009, showing a 7% increase over the previous two years³⁹. There have always been some producers who use alternative methods and obtain higher selling prices to offset their higher production costs, if, indeed, their production costs are really higher. They do this either because they share the concerns, or for business reasons, or both.

151. One of the most important of these alternative, niche markets is organic food. Sales have risen so fast in the last decade or so, that demand has often exceeded supply, although this situation has more recently reversed for some products as the financial climate has become less clement. The main reasons suggested as to why people buy organic food are: i) perceived health benefits, and ii) a perception that organic production is less damaging to the environment, although consideration of animal welfare is also implicit. The meaning of 'organic' is not self-evident; so many countries have drawn up specifications which include husbandry methods for animals. For example, most require that livestock have access to the outdoors. Whilst there are harmonized EU basic standards, individual certification schemes may place higher requirements on production systems.

³⁷ Roush, W. B., Mashaly, M. M. and Graves, H. B. 1984. Effect of increased bird population in a fixed cage area on production and economic responses of single comb White Leghorn laying hens. *Poultry Science* 63, 45-48.

³⁸ Bell, D. D. and Swanson, M. H. 1975. *Crowding of chickens in cages reduces your profits*. Leaflet 2273, University of California.

³⁹ IGD. 2009. Shopper trends in 2009: Food shopping in a recession. Institute of Grocery Distribution, Watford, UK.

152. Unfortunately for individual farmers, organic production faces complex challenges similar to those of other sectors. Sometimes supply of organic produce, promoted by Government intervention, has exceeded demand (particularly dairy and pigs), so that it has had to be sold at conventional prices. Furthermore, the premium for organic sales has sometimes been undermined by imports of products raised to lower organic standards. For example, pigmeat from Germany can be classed as organic if the pig is kept to the organic standard from 30kg, which reduces costs compared with the more stringent UK definition.

153. Organisations drawing up organic specifications, such as the Soil Association in the UK, say that consumers do not expect organic food to come from animals in conventional, close confinement and expect animals to be kept under 'natural conditions'. The end result is that the welfare of these animals is often considered, on balance, better than in conventional production, because they have more space and a more varied environment. Concern is sometimes expressed that there may be pest infestations and disease outbreaks on organic farms that are left untreated because chemical treatments would lead to loss of organic status. However, there are many successful organic farms without either such health problems or the need to treat them.

154. Another differentiated market that overlaps with organic food is that for free range products. Consumers' reasons for buying these are again diverse. In the case of free range meat, the main factor is probably expectations about taste, but the welfare of animals like chickens and pigs reared for such production appears to be generally good: cost-cutting is not a priority and sometimes animals are not just outdoors in open pastures but are provided with woodlands. In the case of free range eggs, consumers' reasons for purchase often explicitly include the welfare of the hens themselves. Whether the welfare of free range hens is better than that in houses is a complex question, but many consumers perceive it to be so.

155. The theme of freedom has also been emphasized in niche markets that specifically address concern for animal welfare. The leader in this field is the UK's Royal Society for Prevention of Cruelty to Animals (RSPCA), which launched its Freedom Food scheme in 1994. There are detailed criteria that must be met by producers who want to join the scheme. They can then use the Freedom Food label. This includes the name RSPCA, which has widespread recognition and confidence amongst the British public. The RSPCA also helps with marketing. The scheme has grown steadily, helped by the overlap in criteria between this and other schemes.

156. Other concerns, and labels and niche markets that address those concerns, may also have an impact on welfare. Examples include concerns about use of genetic engineering in farm animals and injection of dairy cows with bovine growth hormone (BST, not permissible in the EU). Another example with a less obvious connection is the increasing interest shown in buying locally produced food. The motivation for this is probably mainly related to the environment and to considerations of community. However, farms advertising to local consumers also use their own image as part of the sales pitch, and often welcome visitors.

157. The fact that all these niche markets, and the methods used to supply them, address overlapping concerns is not coincidental. They all place a much greater

emphasis on the animals themselves than do conventional methods. These alternative methods can be said to be animal-centered; we should recall that animal production is first and foremost a biological process rather than taking the technological approach that has become conventional, often due to 'technological' demands on product conformity in terms of weight or size.

158. Most of these niche markets could, in theory, expand to become mainstream, until they include all food produced, with all producers meeting the relevant criteria. However, most will in practice continue to take a minority of the total market for the foreseeable future, which makes it possible for them to continue to attract a significant niche premium. Nevertheless, these alternatives have had a disproportionately large influence on how farm animals are treated, by leading the way to wider changes.

Conclusions

159. The financial pressures to cut unit costs have driven many farmers to adopt some production practices which are detrimental to animal welfare. These pressures have been increased by competition within the food supply chain.

160. Whilst a variety of niche markets have developed, in which real or perceived animal welfare is an important selling point, they have generally not expanded to become mainstream. This may reflect the inevitable loss of premium as such a change occurs.

161. Some niche markets, though, have led the way to wider change. The growth in purchase of free range eggs, for example, even while they were a minority, was apparently taken by politicians in the EU and many of its member countries to indicate sufficient support to proceed with legislative change on the housing of laying hens.

PART IX – ECONOMIC MECHANISMS FOR FUTURE WELFARE IMPROVEMENT

162. Successful marketing initiatives incorporating animal welfare have been characterised by effective market structures. These may involve shorter chains, such as occur in direct marketing, or close collaboration between primary producer(s), processor and retailer. Marketing ability of smaller producers can be facilitated by the formation of cooperatives (see the case study of Welsh Lamb in Appendix I), linking with local management within supermarket chains.

163. There is also a need for the livestock industry to consider wider issues (food security, availability of food for richer and poorer consumers, in the UK and abroad), not only to survive as an individual farmer, but potentially also for market opportunities.

164. Such changes as increased local systems or closer partnership arrangements might also increase market stability in the future. This is one of the biggest issues for farmers, who are not well placed to withstand volatile markets.

165. Stability would also be helped by more reliable contracts, which might be possible at various levels:

- between a local cooperative of producers and a processor;
- between supermarkets and farmers; and
- between farmers and consumers, e.g. 'box schemes'.

We have noted a reluctance of retailers and processors to offer long term contracts, despite the fact that these would facilitate necessary investments to secure welfare improvement. Where farmers are expected to carry all the financial risk, in notoriously volatile markets, the incentive to make such investments is small.

166. Risk is an important factor in decision making by livestock farmers that will impact on animal welfare. To use caged hens as an example⁴⁰, there are various possible approaches to risk in the analysis of decisions about how many laying hens to place in each cage, given that feed purchase costs and egg selling prices may change during the year. Under a 'Maximin' approach, the manager would estimate the minimum likely return for each stocking density, and select the highest of these. A 'Maximax' approach, however, focuses on optimism, and selects the density that may give the highest possible return. Two responsible managers might therefore choose different optimal actions. For example, the poultry manager who is attempting to become established and who does not have the same ability to withstand an unfavourable outcome as a more established poultry manager may consider the conservative 'Maximin' approach to decision-making.

167. Given the complexity of such issues, it is easy to see the importance of the principle that farmers should spend more time working on their business, rather than in it. However, public sympathy lies more with the local farmer, and small family farm, than with the business-driven approach, equating the latter with negative values including animal exploitation. If future policy goals are to be met, these perceptions need to be decoupled.

⁴⁰ Roush WB. 1986. A decision analysis approach to the determination of population density in laying cages. *World's Poultry Science Journal* 42: pp. 26–31.

168. Industry considers the most effective method of promoting welfare improvement to be its incorporation in dedicated supply chains, as exemplified by the supply chains for liquid milk (Appendix I). In return for meeting criteria for product supply, quality and production methods, including animal welfare, such chains reward participating producers with a guaranteed price in excess of production cost, which allows reinvestment in animal facilities. Milk produced in accordance with such contracts is not necessarily handled as a separate, differentiated product in all chains. Chains may operate at the level of the farm, rather than specifically for the milk. The net effect for both animal welfare and corporate image is beneficial in either case.

169. Such chains, whilst now well established for liquid milk, are not yet widespread in other commodities. This may be because of the unique situation of liquid milk, which needs to be sourced locally, rather than globally. This encourages retailers to secure continuity of supply and dedicated chains can develop. Differentiation of these by incorporation of animal welfare criteria has been encouraged by pressure from NGOs, who have highlighted how lack of profit has harmed animal welfare.

170. The same principles could operate for all commodities, and there is some evidence that initiatives are developing in other species. However, 'cost plus' arrangements would be more difficult to operate in sectors where recording systems are less sophisticated and true production costs are often unknown. In these sectors, arrangements based on 'market price plus' agreements could serve a similar function.

171. For such chains to become established, the current tendency to seek short-term advantage in market arrangements by both producers and retailers needs to be overcome. A retail lead in developing distinctive home supply chains will promote British sourcing and, since retailers will wish to highlight such differentiated product, will lead to information to consumers about the differentiating criteria. Important animal welfare criteria which are initially incorporated in niche products will then, if supported by consumers, move towards becoming the norm. This has already been seen in the development of the free-range egg market.

172. Many chains are already inspected for welfare standards in excess of legislation, verified by independent farm assurance inspections. These higher standards have resulted from market pressure on the chain from processors, in the case of milk, or retailers, in the case of red meat.

173. Government has a role to play in facilitating new initiatives by bringing together all relevant stakeholders to seek collaborative progress on specific welfare issues. Good examples of such initiatives have been the Calf Forum and the Beak Trimming Action Group.

174. Dedicated supply chains, whilst providing the most effective partnership approaches to sustainable improvement in animal welfare, will never encompass all farms. It cannot be left to market forces alone to safeguard welfare and drive improvement. Retailers differ in their perception of the role of animal welfare in corporate social responsibility, and much produce is sold into the food service and public procurement sectors, where standards are less transparent or lacking.

Government therefore has an important role in setting the basic standards for all farms through legislation, and ensuring that this is adequately enforced.

175. The inclusion of animal welfare criteria in cross compliance is a very powerful driver of welfare enforcement. However, raising the demands made on British farmers above those of overseas competitors endangers the sustainability of the national industry. Whilst high welfare infrastructure demands extra cost, any extra income is frequently exploited at the retail, rather than the production, end of the chain. Direct payments may then be necessary to keep farmers in business for food security purposes if the market becomes volatile, as has been the case in the pig and poultry sectors.

176. Historically, more sticks than carrots have been used in the Government's attempts to improve animal welfare. This contrasts with the Government's approach to environmental issues, where financial incentives have been made available through Pillar II funding. Rural Development Programme initiatives have been a useful instrument to assist policy-led investment in farm businesses, but have had high transaction costs which have discouraged uptake.

177. Current Government schemes such as the Environmental Stewardship Scheme⁴¹ could provide a template for an innovative new approach to welfare improvement. Rather than providing capital improvement grants for developments which might benefit welfare, producers could be compensated for additional costs by participation in a 'Welfare Stewardship Scheme', where measurable improvements in welfare outcome measures, for example reduction in the prevalence of lameness, receive financial incentive from Pillar II funding.

178. The infrastructure for such a scheme is already in place, with the great majority of farms enrolled in national Farm Assurance schemes and audited independently by certification bodies and the veterinary profession. Agreed welfare measures, ideally 'iceberg indicators', could be measured on farm or at the abattoir, where automated recording systems are already under development. It is possible to envisage a partnership between Government and market chains in a Welfare Stewardship Scheme, in which capital investment, above the commercial norm, for welfare improvement could be subsidised in conjunction with delivery of agreed welfare outcomes.

179. At a time of recession, any suggestion for increased Government spending is problematic, but some rebalancing of monies between Pillar I and Pillar II, and between environmental and animal welfare policy objectives, could be considered.

180. Government has indicated that it wants British farming to increase food production but also to reduce environmental impact⁴². Both objectives potentially conflict with animal welfare: achieving the optimal balance of outcomes will require clear strategic thinking by industry and individual businesses.

⁴¹ <http://www.defra.gov.uk/food-farm/land-manage/stewardship/>

⁴² <http://www.eurinco.eu/agricultural-policy-and-cap-reforms/caroline-selman-on-food-security.html>

181. There is a general shift in attitude to food in many countries and an increase in expectation of higher quality. In Britain and other developed countries, this might suggest that, in the future, there will be a lower-volume, higher-value market for meat and other animal products. The increased frequency of suggestions that eating less meat is necessary to address climate change is seen as a threat by the farming industry, but could it actually be an opportunity for individual farmers to differentiate by increasing welfare and value of their animals? The livestock industry may need to consider managed shrinkage to maintain individual farm profitability in a contracting market.

182. Perceptions of quality include sustainability. There is a need to take on board calls for sustainable intensification, including greater safeguards against disease while maintaining good welfare. Hitherto, Government has paid compensation for disease outbreaks, but recent proposals for cost and responsibility sharing suggest that farmers may be required to carry more of this burden in the future. Internalisation of such costs may lead to a shift towards greater valuation of food, farmers and animals.

183. There may be increased possibilities for a significant sector of the industry to choose to be low-input, low-output, for example, to use dairy cows bred for robustness, and grazing, rather than going to large farms with high-input, high-output. However, recognizing the over-riding effect of management and stockmanship, it is important that welfare judgments are made by outcome assessment and not simply by system of production.

184. While niche markets may be limited in scale and number of animals, they provide an important test-bed for new innovations and reward early adopters. There are valuable lessons to learn from niche producers, since they are usually skilled at marketing. Furthermore, most consumers place less emphasis on cheapness in their food purchases than is commonly suggested. On the contrary, many people pay more for their food than is actually necessary, by purchasing some of it in processed forms, such as ready-made meals. Increases in farm animal welfare have little impact on the price of such purchases. In looking for future welfare enhancement, however, it is important to consider all animals, not just those in niche markets. The bulk of production for those looking to buy the cheapest available food is where most people are involved throughout the supply chain.

185. Significant welfare initiatives are still possible in mainstream production if the whole industry works together. This is exemplified by the decision in Austria to phase-out beak trimming in laying hens, which was agreed by producers and other stakeholders, facilitated by financial support mechanisms and achieved by 2005. This concerned all Austrian production, not just a minority. It also had positive side-effects: the programme required a general improvement in management rather than just specific targeted measures, and has been reported to lead to lower mortality and calmer birds.

186. Farming in the future will require consideration of the 'Three Es' of sustainability: Environment and Ethics will need to be considered for Government and public acceptability, whilst simultaneously considering Economics. This may

provide financial opportunities, as well as threats, through such mechanisms as grants for 'green farming'.

Conclusions

187. The best mechanism to promote sustainable welfare improvement is the growth of dedicated supply chains incorporating welfare outcome standards. Whilst these are currently only strong in a few fresh produce sectors, the principle could be easily applied to other commodities and to the food service sector.

188. Clear labelling using understandable welfare outcome criteria is necessary to promote such approaches.

189. The market cannot currently be expected to safeguard and improve animal welfare on all farms to the extent that society wishes. Government has an important role in legislation for basic welfare standards and facilitation of initiatives for improvement.

190. More incentives for producers to improve welfare are needed and could be developed by imaginative use of Pillar II funds and a better balancing of incentives for different policy needs. Such approaches can learn from other areas where shared responsibilities have worked, such as Agri-Environment.

191. Government needs to adopt mixed approaches to welfare improvement, using a range of relevant policy instruments. This includes dissemination of objective information on animal welfare throughout the food supply chain.

Recommendations

192. Retailers should incorporate welfare outcome measures in dedicated supply chains and reward primary producers adequately for the costs incurred.

193. Government and NGOs should encourage this development through their public and private lobbying of chain partners.

194. Government should continue to facilitate stakeholder forums to address specific welfare challenges, building on the successful example of the Calf Forum.

195. Government should establish a Welfare Stewardship Scheme using Pillar II funding to reward improvement of welfare outcome measures. It should engage in dialogue with Farm Assurance providers to explore efficient delivery methods and use lessons learnt from administering agri-environmental schemes.

196. Government should explore the synergies between welfare, environment and food quality, to provide joined up policy initiatives in food production.

197. Government should promote better information in the food supply chain and educate all stakeholders on welfare outcome assessment.

APPENDIX I - Case studies demonstrating the way in which animal welfare has added value in the supply chain.

Case Study 1. Broiler production – realising production benefits by improving bird welfare through better foot condition

Broiler production is a highly technical and competitive business where small differences in performance of birds can have significant economic benefit. Consequently, competing businesses tend to withhold performance data from wider audiences to protect any commercial advantage. Across Europe in particular, large datasets exist within integrated organisations but this information may only be utilised by each organisation, with minimal outside sharing of learning outcomes. An exception is where national data are collected and collated centrally, usually by Government but, in some cases, private entities. This information is then used to report back to Government and to industry on an ongoing basis. In Europe, Denmark is one such country which supports central collection of performance data and national monitoring of broiler performance.

Denmark was one of the first European countries to introduce a system for scoring foot pad lesions in broilers at slaughter. These lesions represent a significant welfare problem for the birds concerned. The Danish system was created and adopted many years before the same requirement was introduced as part of the implementation of the European Broiler Directive in 2010. Calculation of a footpad score involves the assessment of 100 feet per flock. Each foot is assessed and scored 0, 1 or 2 based on lesion presence and severity, with 0 score being applied to feet absent of any mark and score of 2 where the lesion is severe. The overall score for the flock is then calculated, with a high score indicating poor welfare. Similar systems have since been introduced in other countries, including the UK, as a mechanism for assessing the foot health of flocks based on slaughter plant measurements. Indeed, Defra have now produced several technical publications in support of the introduction of this system in the UK⁴³.

In Denmark, the limit score is 40. Flock assessments are compared with this limit and, based on this and the history of the farm, appropriate actions are agreed. If the history of the farm is poor for achievement of sub-40 total footpad score, then such actions could include an enforced reduction in stocking density for any future placements, a step which is thought to provide a strong financial incentive for farm management to respond and which has contributed to a significant reduction in footpad scores over time (see Fig A1.).

However, to achieve improvements in foot health, or more specifically pododermatitis, it is necessary to understand what features of broiler management influence incidence and severity. With the Danish experiences and those of other countries such as the USA (where the sale of 'paws' to Asia is a significant commercial outlet and one which is also detrimentally affected by presence of lesions), coupled with scientific research, management advice has focussed on this multi-factorial issue. Consequently, a list of key requirements involving management of litter, heating, humidity, feed, light, ventilation, water, house equipment, breed choice and disease has been successfully created in the Danish broiler industry.

⁴³ Defra 2009. Foot pad dermatitis in poultry
<http://archive.defra.gov.uk/foodfarm/farmanimal/welfare/onfarm/documents/fpd-key-card.pdf>

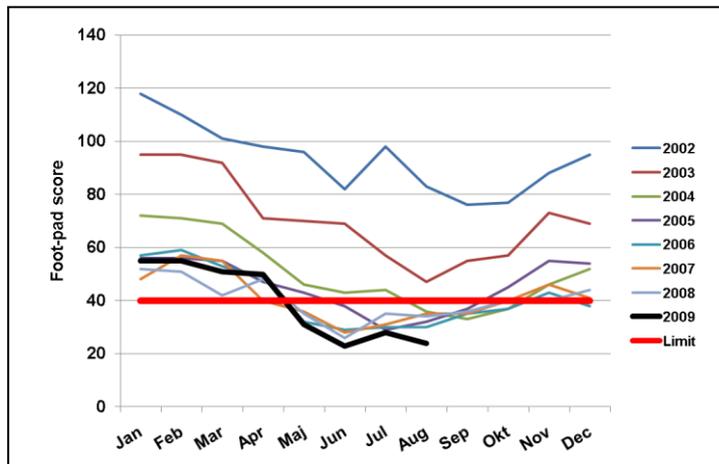


Figure A1. Trends in Danish footpad health monitored since 2002

For example, focus on water management requires observations to be made on moisture content of bird faeces, litter consistency, drinking behaviour, water consumption, drinker equipment operation and water pressure. Based on such knowledge improvements can be achieved to good advantage. Table A1 highlights results from one Danish company, based on trials with water pressure.

Table A1. The effect of drinker management on footpad score and feed conversion efficiency

Water pressure programme	A	B	C
Footpad score	10	44	61
Feed conversion ratio (kg feed per kg liveweight gain)	1.65	1.68	1.69

These results also show that management changes to reduce footpad scores were associated with improved feed conversion efficiency. Most broiler financial models support a strategy which achieves improved FCR of the magnitude demonstrated here. Awareness of the economic benefits of such solutions within organisations leads to implementation of best practice and improved bird welfare. There are good communication systems more generally within organisations and this latter example is taken from an advisory presentation from one such business. However, the challenge remains to ensure that best practice is communicated to all affected farms quickly and not just to those who developed it. Where a combined industry approach pertains, such intervention seems more likely to succeed.

Case study 2. Milk production – rewarding welfare criteria in dedicated supply chains

The major supermarkets incorporate specific welfare criteria in dedicated supply chains.

In 2007, Tesco set up its Sustainable Dairy Group (TSDG), now comprising 850 dedicated liquid milk suppliers, providing 1 billion litres of milk annually. Tesco has a unique and transparent milk price formula, which has a cost of production tracker and a market tracker. The price is fixed for six months, and reviewed in April and October. There is a minimum price guarantee. Tesco has committed never to pay its farmers less than the cost of milk production, which is independently calculated and looks only at the costs of farmers in the TSDG, rather than a random national sample. The cost to Tesco of running this scheme is stated to be ~£30m per annum. There are four pillars to the Tesco Sustainable Dairy Project, which is governed by representatives of farming, processing and Tesco and independent experts. The Herd Health Planning Pillar includes regular milk recording. The Mobility Pillar includes mobility scoring workshops; bi-monthly mobility recording and an annual visit by an independent professional to mobility-score the herd. The Calf Pillar includes a ban on live-calf exports. Schemes have been developed with third parties to establish calf collection centres and pay competitive prices to facilitate dairy calves being reared and finished on farms within the project. The Environment Pillar includes initiatives to reduce energy use and use greener energy, with carbon labelling of liquid milk.

Sainsbury's set up its Dairy Development Group (SDDG) in 2006 and has invested £16m in the group since then, with plans to invest a further £40m over the next three years. The main aims of the scheme are to improve the profitability of Sainsbury's dairy farmers and to protect and promote liquid milk production. Sainsbury's pays its farmers a variable premium over a base price that is set by the milk processor. SDDG initiatives are developed in discussion with its farmer steering group, which includes representatives from milk processors, farmer representatives and the Sainsbury's dairy team. To enhance herd health and husbandry, all SDDG farmers are asked to record specific health data with additional costs borne by Sainsbury's. In May 2010, Sainsbury's launched bespoke welfare standards which provide individual health and welfare outcomes for each cow and focus on lameness, mastitis, infectious diseases, nutrition, housing, calves and young stock, transport and movement, breeding and genetics, and training. Sainsbury's holds a database with production and health details of every cow that supplies milk to the company. It also runs a 'bull calf scheme': An agreement between the SDDG and third parties ensures that dairy calves from SDDG farmers are reared to enter Sainsbury's beef supply chain. Sainsbury's farmers receive a guaranteed price for their calves, which is reviewed quarterly. This scheme includes an option to sell calves up to 100 days old and also those from TB-restricted herds. The 2010 welfare standards state that no calves are to be shot on farm or exported. The 'cull cow to beef processing scheme' aims to offer an alternative market for SDDG members to sell their cull cows, with farmers offered 20p/kg above the cull cow market price to pass onto Sainsbury's beef processors. This is voluntary. Additional, non-welfare initiatives relate to environmental criteria.

ASDA has one of the longest established dedicated groups of farmers, known as ASDA Farm Partners, which was launched in 2004. ASDA pays a premium over the processor base price, which is valued by the retailer as being worth £15,000 annually to an average producer. ASDA had been encouraging farmers to improve health, welfare and environmental standards on a voluntary basis. However earlier this year, ASDA reduced its dedicated pool of suppliers to realign its supply with demand. At this point, a farmer's commitment to and attendance at ASDA / Arla workshops on health, welfare and the environment was used as one of the selection criteria for remaining within the retailer pool. ASDA Farm Partners have access to quarterly best-practice meetings run by a consulting group. ASDA states that these meetings have resulted in mastitis levels reducing to 45% (from national averages of 70-80%), lameness levels falling by 3% and culling costs reducing

by 2.7%. ASDA has developed its '180 dairy bull scheme', which accommodates all bull calves from its dedicated farmers. The ASDA CalfLink scheme links dairy farmers directly to beef farmers who will rear the calves, offering discounted milk powder, colostrum and cattle tags.

Marks and Spencer (M&S) Milk Pledge was launched in 2004, and pledges to pay one of the highest prices of any major food retailer. M&S made its milk contract more transparent in 2004 by incorporating energy and fertiliser costs into the 'milk pledge' formula it uses for setting prices. These are additional to the three existing indices that M&S uses to calculate farm-gate prices, i.e. feed prices, other farm costs (represented by the retail price index), and intervention milk price equivalent as a measure of market price. Milk price is reviewed twice annually. Since November 2010, a health and welfare element has been built in to the M&S pricing mechanism with farms scored as red, amber or green. Farmers are assessed on their approach to lameness, mastitis, Johne's disease and general cow environment. Farmers maintaining green status benefit from the highest bonus in milk price. M&S has partnered with Bristol Veterinary School to deliver the Dairy Herd Health and Welfare Programme which will be independently monitored to track farmers' continuous improvements across the key areas of animal health and welfare.

These examples are not intended as a comprehensive list – other retailers may operate similar schemes - but are given to illustrate the potential that exists for rewarding animal welfare outcomes in dedicated supply chains. Such schemes may be developed further, and improvements made, for example, in the transparency of requirement, achievement and reward.

Case Study 3. Welsh lamb – incorporating welfare in a composite premium market strategy

The National Trust Dolaucothi Estate in North Carmarthenshire is the home of seven National Trust tenant farmers who, by working closely with a meat processor (Dunbia), have secured a contract to sell Welsh lamb to Sainsbury's. They are now in their 7th successful year of direct marketing. During these years, the farmers have won numerous awards including the National Trust Fine Food Award, True Taste of Wales Gold Winners, and the Best Lamb at the National Meat and Poultry News Awards. Their lamb has also been supplied for the Lord Mayor of London's Banquet at the Guild Hall and other prestigious events.

These farmers express responsibility in their role, including pride in the health and welfare of the livestock on their farms. They are all members of Farm Assured Welsh Livestock in which standards are continually developed in line with Welsh Assembly policy. During recent years, they have worked with a National Trust Farm and Countryside Advisor in developing whole farm plans that take into consideration not only health and welfare but also management of environmental and conservation aspects of the farm. This has led them to be the inaugural members of the RSPCA's Freedom Food Scheme in Wales, a requirement before receiving the National Trust's endorsement through their Fine Food Award. The Dolaucothi Lamb group were the first recipients of this award in 2006.

The sheep are traditional Welsh breeds, including Welsh Mountain, Beulah Speckle Faced and Balwen. Lamb finishing is based on seasonal growth of grass with the meat sold during September, October and November. Cereal supplementation is occasionally carried out according to the season and is managed responsibly. Membership of the assurance schemes also ensures that bespoke and active sheep health plans for each flock are drawn up in conjunction with the farmer's veterinary surgeon.

An Agrisgôp⁴⁴ group was formed in 2003. Fairly quickly, the farmers concluded that as lamb producers, they needed to progress from the tradition of just producing meat for a processor, if their family farms were to be sustainable in the future with a new policy on the single farm payment imminent, and the divorce of subsidies from production. The outcome was a sustainable and mutually beneficial contract within the food chain which demands and rewards high standards of animal welfare on farm. Animal welfare is one element of a product for which the primary producer is rewarded through a guaranteed contract with a financial incentive to deliver a consistent product of high quality.

⁴⁴ Agrisgôp is a management development programme provided by Farming Connect for those involved in farm and forestry businesses. <http://wales.gov.uk/docs/drah/publications/100714fcagrisgopleafleten.pdf>

APPENDIX II - Willingness to pay for improved farm animal welfare by GB citizens

Bennett and Thompson⁴⁵ describe a survey that elicited British citizens' willingness to pay for different levels of welfare of three types of farm animals, i.e. beef cattle, pigs and meat chickens. A questionnaire was administered to a stratified random sample of 300 people by telephone. The questionnaire provided respondents with information about a method by which the welfare of farm animals throughout their life could be assessed and measured on an index scale of 0-100, where 40 denotes the current legal minimum standard (which might equate to the concept of 'a life worth living') and 100 denotes the highest possible level of welfare. Thus, for example, a welfare score of 60 denotes an animal with a substantially higher level of welfare than legal minimum standards (and which might equate to 'a good life') but with potential to be higher. The authors state that the welfare assessment method and score used were compatible with those developed in the Welfare Quality[®] project. Respondents were then presented with a series of willingness to pay questions (in terms of an increase in their monthly food bill) relating to different welfare scores associated with the meat that they purchase. The levels of welfare for which respondents were asked their willingness to pay (from the assumed current legal minimum of 40) were 60 and 80, or alternatively 70 and 90. The authors report a mean willingness to pay for meat with a welfare score of 60 of £19.31 per month or £232 per year. For meat with a welfare score of 80, a respondent's stated willingness to pay was £23.63 per month or £284 per year. Over the 60-80 welfare score range, this is a marginal willingness to pay of £2.59 per unit of welfare score per year. In contrast, a respondent's marginal willingness to pay over the 70-90 welfare score range was £1.36 per unit, suggesting that respondents give a higher value to raising animals' welfare from 60 to 80 than from 70 to 90. The authors state that such diminishing marginal willingness to pay is to be expected beyond a certain point and, indeed, is predicted by conventional economic theory (the well known 'law of diminishing marginal utility' as more of a product is consumed).

⁴⁵ (16) Bennett and Thompson. *op. cit.*

APPENDIX III - Membership of the Farm Animal Welfare Committee, its advisers and secretariat

Membership of the Farm Animal Welfare Committee *(December 2011)*

Professor Christopher Wathes – Chairman
Professor Michael Appleby
Professor Richard Bennett
Professor Henry Buller
Dr Joanne Conington
Mr Huw Davies
Professor Sandra Edwards
Professor Laura Green
Mr Gwyn Jones
Dr David Main
Professor Richard Moody
Professor David Morton (Member of the Committee's predecessor until March 2011)
Reverend Professor Michael Reiss
Dr Philip Scott
Mrs Meryl Ward
Mr Michael Wijnberg

Advisers

Mr David Pritchard (until August 2010)
Dr Liz Kelly (until June 2011)
Dr Sophia Hepple

Secretariat

Mr Richard Aram
Mrs Louise Mulcahy
Mrs Brenda Rawson
Mr Simon Renn (until June 2011)

APPENDIX IV - Those who gave evidence and assistance

2 nd Pillar Projects	Meat Promotion Wales
ADAS	Menter a Busnes
OneKind (formerly Advocates for Animals)	National Beef Association
Assured Food Standards	National Farmers Union
Assured British Meat	National Farmers' Union Wales
Assured British Pigs	National Office of Animal Health
Agri-food and Biosciences Institute	National Pig Association
Assured Food Standards	National Sheep Association
Aviagen	OIE's Animal Welfare Working Group
Bernard Matthews	Oxford Centre for Animal Ethics
British Cattle Veterinary Association	Peel Holroyd Associates
British Egg Industry Council	Pig Veterinary Society
British Pig Executive	Quality Meat Scotland
British Poultry Council	Queens University Belfast
Cobb plc	Royal Agricultural College
Cardiff University	Royal Agricultural Society of England
Compassion in World Farming	Royal Society for the Prevention of Cruelty to Animals
DairyCo	Sainsbury's
Defra	Scottish Centre for Animal Welfare Science
Dunbia	Scottish Agricultural College
Farming Connect	Scottish Government
Goat Veterinary Society	Soil Association
Gressingham Ducks	Somerfield
Halal Food Authority	Tesco
Humane Farm Animal Care (US)	Universities Federation for Animal Welfare
Humane Slaughter Association	University of Aberdeen
Hy-Line UK Ltd	University of Bristol
John Lewis Partnership	University of Glasgow
Sulwyn Jenkins	University of Nottingham
Andrew Jones	Vegetarian Economy and Green Agriculture
Kentucky Fried Chicken	Veterinary Laboratories Agency (now AHVLA)
Marks and Spencer	Waitrose
Professor John McInerney	Welfare Quality Project
Milk Development Council	Welsh Assembly Government
Milk and Livestock Commission (now Agriculture and Horticulture Development Board)	World Society for the Protection of Animals
Meat Hygiene Service (now Food Standards Agency Operations))	

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