

Recent developments in European and international welfare regulations

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The Protocol on Animal Welfare annexed to the EC Treaty in 1999 obliges the European Institutions to fully consider animal welfare in the drafting and implementation of Community legislation. The reform of the common agricultural policies (CAP) foreseen by Agenda 2000 follows the trend of more market oriented measures decoupling subsidies from production. Farming is seen as fundamental to other key societal goals such as food safety and quality, animal welfare, rural development, sustainability etc.

Over the years, recommendations of the Council of Europe and EU Directives specifically concerning farm animal welfare were developed and these are becoming increasingly stringent. European regulations relevant for poultry include Directives on the housing of laying hens, transport and slaughter.

Recently, the World Organisation for Animal Health (OIE) identified animal welfare as a high priority for the coming years. Actions include the development of internationally applicable guiding principles and standards for good animal welfare practice.

Animal welfare is an issue of increasing significance for European consumers and citizens. Since the consumer is the end-user, his or her requirements form the bottom-line for any effort intended to achieve the ultimate fine-tuning necessary to assure societal and economic sustainability of agri- and food-chains ('from farm to fork'). This means that efforts to inform the consumers and to address their concerns about animal welfare need to be at the forefront of policy and industry agendas.

Keywords: poultry welfare; regulations; housing; slaughter; transport; EU policy.

Introduction

Agricultural animal production has changed dramatically over the last four decades (c.f. Blokhuis *et al.*, 1998). Farms are now highly specialised, production has been intensified and there have been striking increases in the numbers of animals per farm and in

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productivity. Housing systems and management practices also changed profoundly with increased mechanisation and other technological developments. In a nutshell, despite offering welfare benefits such as increased hygiene and minimal risk of predation, animal production became increasingly industrialised, with quantity often taking precedence over quality and attention being focused primarily on issues such as supply, price and competition. However, the ability to husband more animals because of technological advances does not reduce the obligations that humans have to these animals (Siegel, 1993).

Unfortunately, while these changes were taking place cultural, attitudinal and commercial barriers hampered constructive communication between farmers and the people who ultimately eat what is produced; this resulted in a mismatch between public perception of the way animal products are produced and the realities of modern animal production (Buller and Morris, 2002). Since the early 1970's, when the general public became more aware of developments in the animal industry, there is an ongoing public debate on the animal welfare issue. Generally, criticism on modern production systems does not focus on the exploitation of animals as such but on the minimal living space allowed per animal, the barren environment in which the animals are kept and the high production levels and the adverse effects of these on the behaviour and welfare of the animals. Moreover, the lack of individual control, the large group sizes, the high technology input and in general 'factory farming' are criticized (c.f. Blokhuis *et al.*, 1998).

In order to accommodate societal concerns about the welfare of farm animals, the European Union put in place several directives and regulations setting requirements for housing and treatment of food animals. However, apart from setting legal standards an intensified dialogue with all factions of society on welfare issues and the associated effects on food quality and safety is also essential. This requires transparency of the product quality chain in relation to animal welfare. Transparency is based on the visibility of production processes to all stakeholders (public, industry, government etc.) and an understanding of how these affect welfare. Therefore, there is a pressing need to develop reliable monitoring systems for assessing the animals' welfare status, identifying and evaluating potential risks, and developing and validating practicable strategies to improve farm animal welfare from farm to slaughter (c.f. Blokhuis *et al.*, 2003).

EU regulations

Since the 1970's international recommendations and regulations were developed within the Council of Europe (*e.g.* Anon., 1976) and on EU level (Wilkins, 1997) and parallel to that animal welfare requirements were integrated in legislation in different countries. The Protocol on Animal Welfare annexed to the EC Treaty in 1999 obliges the European Institutions to fully consider animal welfare in the drafting and implementation of Community legislation. Adoption of the Protocol implies the concept of an "animal welfare impact assessment". In other words, formulation of new Community policies must include consideration of animal welfare.

HOUSING

Specific legislation on the housing of laying hens became operative in the EU countries in 1988 to implement the requirements of a Council Directive laying down minimum standards for the protection of laying hens kept in battery cages. This directive was recently replaced (Council Directive 1999/74/EC) and these new regulations should have been implemented by the member states by 1 January 2002.

The most relevant requirements in this Directive are:

Battery cages (not enriched), from 1 January 2003:

- at least 550 cm²/hen
- 10 cm feed trough per hen
- 2 nipple drinkers per cage
- 40 cm high over 65% of cage area (and not less than 35 cm at any point)
- floor slope less than 8 degrees
- claw shortening devices

From 1 January 2012 these cages are prohibited.

Enriched cages, from 1 January 2002:

- at least 750 cm²/hen, of which 600 cm² shall be usable (at least 30 cm wide with a floor slope not exceeding 14 %, with headroom of at least 45 cm). The height of the cage other than that above the usable area shall be at least 20 cm at every point and no cage shall have a total area that is less than 2000 cm²
- nest
- litter
- 15 cm perch per hen
- 12 cm feed trough per hen
- 2 nipple drinkers per cage
- claw shortening devices

Alternatives, from 1 January 2002 (newly built systems) or from 1 January 2007 (all systems):

- maximum of 9 hens per m²
- 1 nest per 7 hens or 1 m² nest space for 120 hens
- 250 cm² litter per hen and at least one third of the ground surface
- 15 cm perch per hen (30 cm apart)
- 10 cm linear or 4 cm circular feeder
- 1 nipple drinker per 10 hens

Article 10 of the Directive requires the European Commission to submit to the Council a report, drawn up on the basis of a scientific opinion, regarding the various systems of housing of laying hens. The scientific opinion should take account of pathological, zootechnical, physiological and ethological aspects related to this issue.

In view of the above, the Commission required the European Food Safety Authority (EFSA) to issue a scientific opinion on the welfare aspects of housing systems for laying hens, to be produced by the summer of 2004.

SLAUGHTER AND KILLING

Council Directive 93/119/EC (1993) on the protection of animals at the time of slaughter or killing applies inside and outside slaughterhouses and when animals are killed for the purpose of disease control. It includes requirements for the movement and lairage of animals in slaughterhouses and for restraint of animals.

Annex C to the Directive provides a specific list of permitted methods of stunning (captive bolt, concussion, electronarcosis, CO₂) and killing (free bullet, electrocution, CO₂) animals, with specific requirements for each method (*e.g.* waterbath). Annex E concerns killing methods for disease control purposes and mainly refers to Annex C. Annex G lists permitted methods for killing surplus chicks and embryos in hatchery waste and gives specific requirements for these methods.

Article 13 (2) provides that annexes shall be amended in order to adapt them to technological and scientific progress. In addition, it calls for the Commission to submit to

the Council a report drawn up on the basis of an opinion from the competent Scientific Committee with possible appropriate proposals in relation to Annex C (free bullet pistols, gases, combined methods, other methods). Furthermore it requires that the Commission shall submit a report to the Standing Veterinary Committee drawn up on the basis of an opinion from the competent Scientific Committee, together with appropriate proposals with a view to laying down:

the strength and duration of use of the current necessary to stun the various species concerned;

the gas concentration and length of exposure necessary to stun the various species concerned.

Since the adoption of the Directive in 1993 the competent Scientific Committee has adopted three scientific opinions on these matters:

- Report on the Slaughter and Killing of Animals (ScVC, 1996).
- The Killing of Animals for Disease Control Purposes (ScVC, 1997).
- The use of Mixtures of the Gases CO₂, O₂ and N₂ for Stunning or Killing Poultry (SCAHAW, 1998).

However no amendment to the Directive has yet been proposed.

TRANSPORT

Transport: Directives 91/628/EEC on the protection of animals during transport and 95/29/EC (amending 91/628/EEC) and Regulation EC/411/98 on additional animal protection standards applicable to road vehicles used for the carriage of livestock on journeys exceeding 8 hours. The Directives state that no animal shall be transported unless it is fit for the intended journey and unless suitable provisions have been made for its care during the journey and on arrival at the place of destination. Animals that are ill or injured shall not be considered fit for transport.

Animals shall be provided with adequate space to stand in their natural position and room to lie down shall be provided. Figures for loading densities to transport of poultry in containers:

- Day-old chicks 21-25 cm² per chick
- < 1.6 kg 180-200 cm²/kg
- 1.6 – 3 kg 160 cm²/kg
- 3 – 5 kg 115 cm²/kg
- > 5 kg 105 cm²/kg

These figures may vary depending not only on the weight and size of the birds but also on their physical condition, the meteorological conditions and the likely journey time.

Animals may travel for a maximum of eight hours, unless they are transported in a special vehicle (with additional requirements *e.g.* ventilation), in which case they can be transported longer with resting intervals according to the category of animals. After 24 hours the animals have to be unloaded to be fed, watered and rested for 24 hours after which the journey can continue. During transport, suitable food and water shall be available in adequate quantities, save in the case of:

- a journey lasting less than 12 hours, disregarding loading and unloading time;
- a journey lasting less than 24 hours for chicks of all species, provided that it is completed within 72 hours after hatching.

On request from the Commission EFSA produced a scientific report including the most update and available scientific data on the welfare of animals during transport. In particular on the effects on the welfare of the various species transported of: loading densities, travelling times, resting times, watering and feeding intervals and interactions of

each of these with the use of upgraded or other vehicles and with any stress during loading and unloading. A revision of the transport Directives is currently under discussion.

OIE initiative

Animal welfare has been identified under the 2001-2005 Strategic Plan of the World Animal Health Organisation (OIE, 2002). The 167 member states of the OIE agreed that, as the international reference organisation for animal health and zoonoses, the OIE must provide international leadership on animal welfare.

While animal welfare does not appear to fall within the provisions of the WTO SPS Agreement, many OIE Member Countries have expressed a desire to have OIE advice and guidelines in this field to negotiate market access on a bilateral basis.

The OIE develops several actions in this area and these include the development of internationally applicable guiding principles and standards for good animal welfare practice.

Consumers, food quality and transparency

With respect to agri-food products, quality perception is affected by different types of attributes that can be defined as intrinsic or extrinsic (Luning *et al.*, 2002). Relevant intrinsic attributes for consumers include safety, nutritional value, sensory properties, shelf life, convenience etc. Extrinsic attributes refer to production system characteristics and other aspects, such as environmental impact or marketing influence. They do not necessarily have a direct influence on physical properties but they affect acceptance of products by consumers.

Research has extended to exploring the links between various animal welfare factors and the intrinsic quality of products. This includes consideration of direct effects, such as the immediate influence of housing, transport and slaughterhouse conditions and, by extension, through the damaging effects of stress on immunocompetence and health and thereby food safety.

Recent crises such as BSE, swine fever, foot and mouth disease and avian influenza, and the activities of consumer groups and animal protectionists have resulted in people becoming increasingly aware that animal production is more than just an industry. Issues like animal welfare, food quality, food safety and the environment have assumed much greater importance for the public ("consumer concerns") (EC proposal 2000; FAWC 2001).

Consumers expect their food to be produced and processed with greater respect for the welfare of the animals. Thus, the production methods (including animal housing, husbandry, transport and slaughter) and their perceived impact on farm animal welfare clearly contribute to extrinsic quality.

Two recently completed EU RTD projects (Consumer Concern about Farm Animal Welfare and Food Choice (EU-FAIR-98-3678, 1998-2001) and Quality Policy and Consumer Behaviour towards Meat (EU-FAIR-CT96-0045, 1996-1999)) pointed out that there is a lack of transparency in the market for animal products and that there is an increasing demand for correct and reliable information about the way in which animal-based food products are actually produced (Miele and Parisi, 2000; Harper and Henson, 2000).

There are numerous certification schemes in several EU countries providing assurances to consumers on the method of livestock production and the integrity of the final product.

The scope of the standards for these schemes address those aspects of production that are valued by the consumer *i.e.* those issues that are important for quality of the product. Improving animal welfare may be a specific goal of some schemes, such as the RSPCA Freedom Food scheme. The larger retailers are also increasingly requiring animal welfare to be considered alongside food safety and environmental concerns in the mainstream (usually non-premium) schemes. Some industry driven initiatives, such as the Red Tractor Scheme in the UK, have attempted to agree minimum standards across schemes for each consumer concern. This minimum level usually refers to relevant legislation (FAWC, 2001). However, as far as “welfare-friendly products” are concerned there is considerable variation between schemes in their animal welfare related standards and in the subsequent information given to consumers. Indeed, there is a clear lack of consistency in labelling other than that required under legislation (*e.g.* free range poultry). Furthermore there is a perceived need amongst some certification schemes (Main *et al.*, 2003) to use more animal-based measures for the certification process. However, for this to be effective a standardised welfare assessment system is required.

Welfare monitoring

In the sixth framework programme, the priority area ‘food quality and safety’ specifically addresses the ‘from farm to fork’ approach to food quality chains. Research in this area should aim to ensure European citizens the food quality and safety they require, to analyse their concerns and incorporate these into the research effort, to provide them in a sufficiently transparent way with the information they need to make a reasoned judgement, to detail the links between animal welfare and food safety and to improve animal welfare from housing to slaughter.

In order to make the connection between animal husbandry practices and informed animal product consumption, reliable and practicable on-farm welfare monitoring systems that will enable us to not only assess the current welfare status of the animals but to also evaluate potential risks to their welfare are required. These systems should provide a standard way of converting welfare-related measures into information that is conveyable to and easily understood by the consumer, thereby addressing their concerns and allowing for the clear marketing and profiling of the product.

At present, some (prototype) monitoring systems have been developed in Europe. These include the animal welfare index TGI35L in Austria (Bartussek, 2001) and the related TGI200 in Germany (Sundrum, 1994), the ethical account in Denmark (Sorensen *et al.*, 2001), Freedom Food schemes in the United Kingdom (Royal Society for the Prevention of Cruelty to Animals (www.rspca.org.uk), a decision support system for overall welfare assessment of sows in The Netherlands (Bracke, 2002), specific tools for dairy cows in France (Capdeville and Veissier, 2001) and in Italy (Tosi *et al.*, 2001). Most of these systems are largely based on observations of the environment, *i.e.*, design measures presumed to affect animal welfare, and on selected observations of the animals, *i.e.*, performance measures that are assumed to reveal the animals’ internal state. However, the links between specific measures and the animals’ welfare status are not always clearly understood. Furthermore, a single score is often calculated for all the welfare dimensions that were measured. This incurs a high risk that the ‘welfare scores’ attributed to bad aspects may be moderated by others that are satisfactory (see discussion in Scott *et al.*, 2001; Capdeville and Veissier, 2001). Finally, the weight attributed to the different dimensions of welfare can vary between assessors. An existing Action under the aegis of the European Co-operation in the field of Scientific and Technical Research (COST Action 846) on ‘Measuring and Monitoring Farm Animal Welfare’ addresses many of

these issues (see www.cost846.unina.it) and provided a foundation for a large European project that was recently started.

One of the main thrusts of this project entitled “Integration of animal welfare in the food quality chain: from public concern to improved welfare and transparent quality” (in short: WELFARE QUALITY) is to develop performance measures that are based on measuring the actual welfare state of the animals in terms of their behaviour, health, physiology, performance and disease-resistance using existing and innovative methods. Such animal-based measures include the effects of variations in the way the farming system is managed as well as specific system-animal interactions. A set of design measures will also be proposed so that causes of poor welfare can be identified on-farms and remedial measures proposed. Both the design measures and the animal-based ones should be founded on sound scientific analyses and integrated into a standardised methodology for assessing welfare on an objective, scientific basis (c.f. Blokhuis *et al.*, 2003).

The feedback of information to the farmer and his/her uptake of recommendations represent the most direct advantages of this approach. By generating appropriate and adequate responses in on-farm management this will lead to ongoing improvements in welfare status. Given the successful operation of such a system, it should then be possible to award a licence to the farm or the farmer.

Another important feature of the proposed interactive system for monitoring and improving welfare is that it will provide a standard way of converting welfare-related measures into information that is conveyable to and easily understood by the consumer, thereby addressing their concerns and allowing for the clear marketing and profiling of the product.

Furthermore, the development of such an integrated, standardised assessment procedure would provide an invaluable tool for testing and evaluating new housing and husbandry systems as well as new genotypes before they are allowed onto the market. By identifying potential risks, such monitoring would play a critical preventative role.

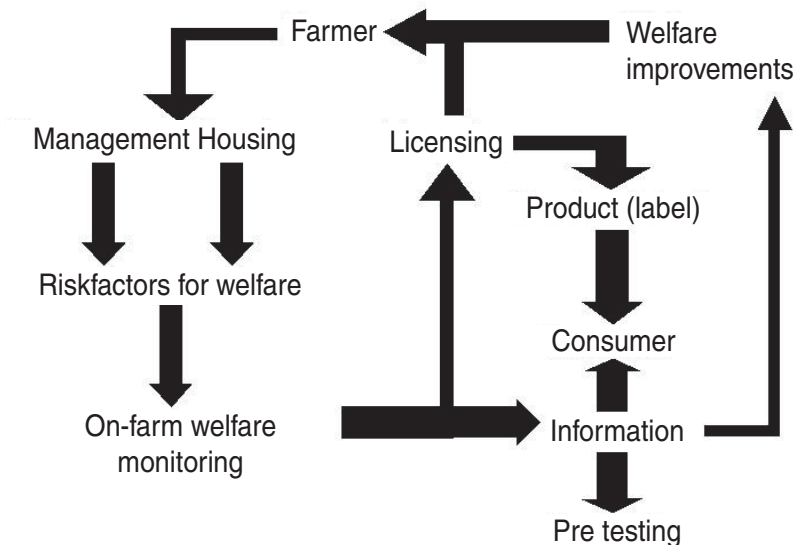


Figure 1 Diagrammatic representation of the roles of on farm monitoring systems (from Blokhuis *et al.*, 2003).

References

- ANONYMOUS (1976) Explanatory report on the European convention on the protection of farm animals kept for farming purposes. Council of Europe, Strasbourg.
- BARTUSSEK, H. (2001) An historical account of the development of the animal needs index ANI-35L as part of the attempt to promote and regulate farm animal welfare in Austria: an example of the interaction between animal welfare science and society. *Acta Agriculturae Scandinavica, Section A, Animal Science Suppl.* **30**: 34-41.
- BLOKHUIS, H.J., HOPSTER, H., GEVERINK, N.A., KORTE, S.M. and VAN REENEN, C.G. (1998) Studies of stress in farm animals. *Comparative Haematology International* **8**: 94-101.
- BLOKHUIS, H.J., JONES, R.B., GEERS, R., MIELE, M. and VEISSIER, I. (2003) Measuring and monitoring animal welfare: transparency in the food product quality chain. *Animal Welfare* **12**, 445-455.
- BRACKE, M.B.M., SPRUIJT, B.M., METZ, J.H.M. and SCHOUTEN, W.G.P. (2002) Decision support system for overall welfare assessment in pregnant sows A: Model structure and weighting procedure. *Journal of Animal Science* **80**: 1819-1834.
- BULLER, H. and MORRIS, C. (2002) Farm animal welfare aspects of the CAP, RSPCA, London.
- CAPDEVILLE, J. and VEISSIER, I. (2001) A method for assessing dairy cows welfare in a loose housing herd focussing on animal observations. *Acta Agriculturae Scandinavica Suppl.* **30**: 62-68.
- COUNCIL DIRECTIVE 88/166/EEC (1988) laying down minimum standards for the protection of laying hens kept in battery cages. Official journal of the European Communities No. L074, 0083-0087.
- COUNCIL DIRECTIVE 93/119/EC (1993) on the protection of animals at the time of slaughter or killing. Official journal of the European Communities No. L340, 0021-0034.
- COUNCIL DIRECTIVE 91/628/EEC on the protection of animals during transport and amending Directives 90/425/EEC and 91/496/EEC. Official journal of the European Communities No. L340, 0017-0027.
- COUNCIL DIRECTIVE 95/29/EC (1995), amending 91/628/EEC on the protection of animals during transport. Official journal of the European Communities No. L148, 0052-0063.
- COUNCIL DIRECTIVE 1999/74/EC (1999) laying down minimum standards for the protection of laying hens. Official journal of the European Communities No. L203, 0053-0057.
- EUROPEAN COMMUNITIES PROPOSAL (2000) Animal welfare and trade in agriculture. WTO Committee on Agriculture Special Session, G/AG/NG/W/19, 28 June 2000.
- FARM ANIMAL WELFARE COUNCIL (2001) Interim report on the animal welfare implications of farm assurance schemes. Reference number PB5797, FAWC, London.
- HARPER, G.C. and HENSON, S.J. (2000) Consumer values and farm animal welfare – the Comparative Report. The University of Reading, United Kingdom. EU FAIR CT98-3678.
- LUNING, P.A., MARCELIS, W.J. and JONGEN, W.M.F. (2002) Food quality management, a techno-managerial approach. Wageningen Pers, Wageningen, The Netherlands, 323 p.
- MAIN, D.C.J., WHAY, H.R., GREEN, L.E. and WEBSTER, A.J.F. (2003) Effect of the RSPCA Freedom Food scheme on dairy cattle welfare. *Veterinary Record* **153**: 227-231.
- MIELE, M. and PARISI, V. (eds) (2000) Atteggiamento dei consumatori e politiche di qualità della carne in Italia e in Europa negli anni novanta. Milano: Franco Angeli. 289 p.
- OIE (2002) Animal welfare. Report of the meeting of the OIE Adhoc Group on animal welfare. April 2002, Paris.
- REGULATION EC/411/98 (1998) on additional animal protection standards applicable to road vehicles used for the carriage of livestock on journeys exceeding 8 hours. Official journal of the European Communities No. L052, 0008-0011
- SCAHAW (SCIENTIFIC COMMITTEE ON ANIMAL HEALTH AND ANIMAL WELFARE) (1998) The use of mixtures of the gases carbon dioxide, oxygen and nitrogen for stunning or killing poultry – Report of the Scientific Committee on Animal Health and Animal Welfare adopted on 23rd June 1998.
- SCVC (SCIENTIFIC VETERINARY COMMITTEE) (1996) Report on the slaughter and killing of animals. Report of the Scientific Veterinary Committee, Animal Welfare Section. Commission of the European Communities, Brussels, 30 October 1996, 31p.
- SCVC (SCIENTIFIC VETERINARY COMMITTEE) (1997) The killing of animals for disease control purposes. Report of the Scientific Veterinary Committee. 30 September 1997.
- SCOTT, E.M., NOLAN, A.M. and FITZPATRICK, J.L. (2001) Conceptual and methodological issues related to welfare assessment: a framework for measurement. *Acta Agriculturae Scandinavica, Section A, Animal Science Suppl.* **30**: 5-10.
- SIEGEL, P.B. (1993) Behavior-genetic analyses and poultry husbandry. *Poultry Science* **72**: 1-6.
- SORENSEN, J.T., SANDOE, P. and HALBERG, N. (2001) Animal welfare as one among several values to be considered at farm level: the idea of an ethical account for livestock farming. *Acta Agriculturae Scandinavica, Section A, Animal Science Suppl.* **30**: 11-16.
- SUNDRUM, A., ANDERSSON, R. and POSTLER, G. (1994) Tiergerechtheitsindex – 200: Ein Leitfaden zur Beurteilung von Haltungssystemen. Institüts für Organischen Landbau der Universität Bonn, 211 pp.

- TOSI, M.V., CANALI, E., GREGORETTI, L., FERRANTE, V., RUSCONI, C., VERGA, M. and CARENZI, C.** (2001) A descriptive analysis of welfare indicators measured on Italian dairy farms: preliminary results. *Acta Agriculturae Scandinavica* **Vol. 30, suppl. 30**: 69-72.
- WILKINS, D.B.** (1997) Animal welfare in Europe. European legislation and concerns. Kluwer LAW International, London.